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Plans for Uncertain Futures: Heritage and Climate Imaginaries in Coastal Climate Adaptation

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ABSTRACT

This article addresses uses of heritage in urban planning projects that seek to adapt coastal landscapes to increasing risks of flooding, storm surges, and sea level rise. We interrelate concepts from recent research on the climate-heritage-nexus with contemporary coastal climate adaptation projects to reveal some of the complex realities and nuances that are apparent on the ground, and to raise heritage concerns for future practice. Questioning the role that heritage plays in specific climate adaptation projects from Denmark and the Netherlands, two low-lying countries with long coastlines facing climate risks, we show the wide range of roles that heritage can play in climate adaptation planning and we propose a framework to conceptualise heritage in this context. The study shows the important role that climate imaginaries (i.e. depictions, affect, and ways of apprehending the climate past) play in climate adaptation projects, and reveals national and local differences. Finally, we discuss the knowledge gained from climate adaption projects in terms of developing dynamic responses to climate change, of working *with* rather than *against* landscape processes, and the potential role of heritage in creating climate-resilient living environments.

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Introduction

Coastlines across the globe are facing increasing sea level rise, storm surges, and flooding as a consequence of changing climates. This tangible reality and these future prospects raise the need to mitigate climate change, but also to adapt coastal landscapes to rising water levels. How to adapt such landscapes (including their cities, towns, and settlements) to future risks has thus become a pressing societal question. Although not always framed as heritage, climate adaptation planning involves multiple heritage concerns. Many designated heritage objects, buildings, and sites near the sea will be facing destruction and physical change in the not-so-distant future. But coastal landscapes without a heritage designation will also be altered, which involves choices as to what (and whose) traces of the past to keep and transform and what (and whose) material history to let go of. And, in a wider sense, what role past experiences and historical narratives play in the discussion about contemporary planning. Yet, although heritage concerns are an inextricable part of coastal climate adaptation planning, uses of heritage are often not explicitly discussed in such processes.

The sense of urgency in climate adaptation planning can easily lead to a narrow scope of discussion, falling into what architecture historian Antoine Picon calls the *pitfall of technological determinism*, where the range of possibilities are reduced to the consequences of technology alone (Picon 2015, 24). While climate adaptation involves many actors, and often seeks to use both

physical protection, spatial planning, and ecosystems-based approaches (Bonnett and Jeff Birchall 2019), in reality such projects tend to highlight the construction of protection (such as dikes, walls, sand-banks, buffer Islands and more) to the extent that other concerns become blind spots. To widen the scope, we will scrutinise specific physical projects that aim to adapt coastal landscapes to rising water levels. We will study these ongoing projects *as* acts of heritage. By raising heritage concerns for climate adaptation planning, we seek to pave the way for new possibilities for bringing heritage into climate adaptation thinking and practice.

As stated by ICOMOS in the report *The Future of Our Pasts: Engaging cultural heritage in climate action*, today there is a large, unproductive gap between heritage and climate actions. Climate action is primarily reliant on social and natural sciences and is often insensitive to local cultures, narratives, ways of life, and histories that are crucial to consider and which can even guide future action. ICOMOS state that there is great potential in involving heritage as an active force in climate adaptation, because heritage perspectives can foreground important cultural and ethical concerns and thereby stimulate more just and resilient responses to crisis scenarios (ICOMOS Climate Change and Cultural Heritage Working Group 2019).

Yet, as the report outlines, for heritage to become an active force in climate responses, we need to rethink many of the most long-standing ideas of heritage. Notably, the construct of authenticity and the established one-sided focus on tangible heritage objects (ICOMOS Climate Change and Cultural Heritage Working Group 2019, 16). Also, climate change urges us to develop other heritage responses than attempting to safeguard certain objects, buildings or landscapes in an ideal physical state for eternity. This has been a guiding principle in many institutionalised heritage practices, but reveals itself as an impossible mission in the face of the changes that are coming, which are neither totally predictable, stable, nor controllable. Heritage scholars have drawn attention to the heritage-climate *nexus* (Harvey and Perry 2015). They argued that while preservation often goes unchallenged, new approaches must be able to ‘adapt to and reflect’ the reality of uncertain futures (DeSilvey and Harrison 2020, 2; Fatorić and Egberts 2020; Egberts and Riesto 2021). Similar ideas are raised by researchers in urban planning and design, who state that planners and designers who intervene in coastal landscapes need to abandon the idea of the perfect masterplan for a set future, but rather aim for resilience by working strategically in the long run, while keeping the possibility open to changing paths mid-process (Bosomworth et al. 2017; Fryd and Gertrud 2020). Yet, while the search for dynamic and adaptive approaches is voiced in academic literature, it remains unclear whether and how these are currently brought into practice, beyond discussions on a single case-study level. This article explores the roles that heritage can play in contemporary coastal climate adaptation planning and how key actors in such processes, namely urban planners, heritage experts, politicians, landscape architects, residents and other stakeholders, choose to use heritage in the process.

Research approach: adaptation planning as heritage

While most research on the climate-heritage nexus focuses on topics that are officially framed as heritage, we examine a range of climate adaptation planning projects; spanning preservation of designated heritage sites to processes of appropriation of the past that fit wider definitions of heritage as practices of *past-presencing* (Macdonald and Tyler 2013, 16). Thereby we explore how this perspective can contribute to a critical discussion about climate adaptation planning and identify key concerns for future action. We study recent climate adaptation projects in Denmark and the Netherlands; two low-lying countries with long coastlines in which multiple measures are currently being taken to adapt to flooding and storm surges. We believe that assessing heritage practices in local contexts such as these can reveal some of the complex realities and nuances that are apparent on the ground. But, as our study will show, neither climate change, urban planning, nor heritage are distinctly local and confined to the territory of a coastal town or settlement. Rather, the case studies are entangled in multi-scalar relationships. We will thus expand our analysis to

various contexts. This includes national planning and heritage cultures, since we discuss our findings across two countries with distinct histories and practices in dealing with coastal climate risks.

Using an approach, where real-world findings and concepts from heritage studies mutually enrich each other, we ask: *What role does heritage play in contemporary climate adaptation planning processes?*

To answer this question, we draw on research on the changing relationship between heritage and spatial planning (Ashworth 2011; Riesto and Tietjen 2018; Egberts and Renes 2020). Scholars from planning, geography, and landscape architecture have identified paradigmatic shifts in this relationship, beginning with the institutionalisation of heritage and planning as separate sectors in European countries in the late nineteenth and early twentieth century (Janssen et al. 2017). This led to the *sectoral* approach that tries to isolate heritage and protect it *against* spatial and physical change in cities and landscapes. This sectoral approach resembles many aspects of the Authorised Heritage Discourse (Smith 2006). From the nineteen-eighties onwards, a second, more developmental approach emerged in which the preservation of heritage *through* transformation was introduced on a larger scale, for example by countless adaptive re-use projects of industrial heritage in which heritage was a *factor*. In the last decades, a third approach emerged alongside the two others in which heritage is used proactively as a *vector* that can feed into the development goals of spatial transformation processes. In this approach, heritage is not so much about protecting material remnants, but rather used as a source of stakeholder involvement and inspiration for spatial design, for example by involving local narratives (Riesto and Tietjen 2016; Janssen et al. 2017). These three approaches are used in different urban planning processes today, yet their successive development in the late 20th century reveals a shifting attitude from a 'culture of loss' to a 'culture of profit' (Corten et al. 2014), where the vector-approach often uses heritage to reach local development and branding goals in the competition for tourists and investment.

An emerging strand of research conceptualises dynamic ways of dealing with heritage, which seem to gain new relevance in light of the inevitable changes due to climate change. Scholars have begun to show that loss, weathering, erosion, and decay can be generative forces, through which new imaginaries of the past and future can emerge (Rico 2016; DeSilvey 2017; Holtorf 2020). By introducing 'remembrance through transience', DeSilvey (2017, 5) argues for ways for culture and ecology to transform in symbiosis, in line with both vectoral and sectoral heritage approaches. These could well aid in moving beyond institutionalised dichotomies (such as nature/culture, tangible/intangible) that are often counterproductive for understanding and reshaping heritage landscapes (Egberts 2018; Riesto and Tietjen 2018).

With these different ways of conceptualising heritage in urban planning in mind, we studied four contemporary processes in which climate adaptation is a key component. We analysed official planning and heritage documents, interviewed planning and heritage professionals, studied the public uses, reception, and debate through local and national media, and – importantly – we examined the physical landscapes; in particular how the climate adaptation measures have changed their appearance, materialities, uses, and meanings. It became clear that an elucidation of the different national contexts was needed, as the institutional frameworks, regulatory bodies, and perceptions expressed in public discussions differed between the two countries.

We use the term *climate imaginaries* to examine the different ways of narrating, depicting, and responding affectively to coastal climate risks expressed in public discourses. This term is widely used in fields such as geography, planning, architecture and climate studies to indicate 'collective discourses ... that reflect the aspirations of future visions', which operate between action and imagination (Graham et al. 2016; Storm Storm.; Walsh 2018; Westman and Broto 2020, 85, see also Harrison and Sterling 2020). Scholars also highlight that our understanding of the environment influences our engagement with it. A rearticulation of our definition of environment therefore is needed in order to expand any imagined future encounters between human actions and the planet (Graham et al. 2016, 10). These imaginaries are not singular, but multiple and exist in parallel

(Bengtsson Sonesson et al. 2020, 4). Yet, as we will show, certain ways of imagining the climate future seem to be more present in certain national planning and climate adaptation discourses than others.

Coastal climate risks and climate imaginaries in Denmark and the Netherlands

Denmark and the Netherlands both face severe challenges from sea level rise. In these low-lying countries with long coastlines, people have always lived at the coast, resulting in historically rich and layered landscapes. Throughout history, coastal dwellers adjusted to changing water conditions and flooding incidents in various ways. In the Netherlands, and to a lesser extent also in Germany, Denmark and the east coast of the UK, flood disasters have for a long time been embedded in culture at large. These societies have been deeply shaped by frequent flooding, resulting in what Gregory Bankoff calls ‘cultures of shared risk’ (Bankoff 2013). Petra van Dam even speaks of an ‘amphibious culture’ for the Netherlands (2016) to highlight distinctive cultural features that have been shaped in adapting to specific wetland conditions. Although the two countries share many geographical characteristics and strategies in dealing with risk, local actions have also been shaped by the distinct governmental systems which have employed specific ways to find a balance between adaptation and continuity, heritage protection and spatial development. Recently, experts have started to perceive floods less as a natural hazard and more as an environmental risk, which often involves anthropogenic causes such as CO₂-emissions and unwise location choices for settlements (Van der Brugge, Rotmans, and Loorbach 2005).

The Netherlands is situated in a river delta region with about 350 kilometres of coastline partially protected by dunes or dikes. Twenty six percent of the Dutch territory is below sea level and the three largest cities – and their heritage – are situated there. As of 29 September 2021 (according to Blog 3 by Hoes and Hut on the website of TUDelft), around 4 million people live in this area. In particular, combinations of extreme rainfall in the riverine areas with extremely high tides are regarded as the primary risks induced by climate change (The Royal Netherlands Meteorological Institute (KNMI) 2014). The national water safety plan (the Second Delta Plan of 2008) is periodically adjusted, which results in new local adaptation assignments. The Dutch government recognise the potential risks as they have prioritised contingency planning for the worst credible floods since the Katrina storm surge in New Orleans in 2005 (Brinke et al. 2010). We selected two of these projects that similarly border vulnerable, historic coastal towns along two different coasts: along the dune-dominated North Sea coast and along the diked Wadden Sea coast (Figure 1).

Denmark is comparatively less, but still relatively low-lying; a country with around 8500 kilometres of coastline (Statistics Denmark 2017). The 10 largest cities and their heritage are on the coast. 80,000 buildings for housing purposes and 30,000 second homes stand less than two metres above normal sea level (Fryd and Gertrud 2020). The main challenges concerning coastal flooding in Denmark are storms causing grave flooding in the south-west, where strong dike protection has been built, yet not as comprehensively as in the Netherlands. Denmark’s inland seas are naturally protected against western storms, but in certain wind conditions serious storm surges will occur as water gets pressed into fjords, bays, sounds, and belts, which have the highest density of urban areas (The Danish Coastal Authority 2011). We chose two local communities in such an inland fjord as our case studies because they represent a similar challenge in terms of sea level rise, but represent different contexts for balancing adaptation planning with heritage concerns (Figure 2).

In recent years, Denmark has experienced several storm surges that damaged parts of the coastline. These have made people more aware of the future coastal climate risks. The public discourse in Denmark often presents coastal climate risks as a paradigmatically new situation. One of the largest events, the storm surge that hit Roskilde Fjord in 2013, personified as ‘Bodil’, was quickly called a ‘1000 year event’ among locals and in the media to reflect the shock and threat that it produced. The local museum later published people’s narratives and emotional stories of the

dramatic night, which led to severe damage. The museum also showed that the town of Roskilde had experienced sixteen storm events during the last two centuries (Pinholt 2015, 99) although these seemed largely forgotten.

In the Netherlands, flood protection is apprehended through the lens of continuity. It has always been an important issue in the planning of landscapes and cities (Van der Brugge, Rotmans, and Loorbach 2005, 164–176). The main focus is on creating *safety* and for almost a thousand years people have relied mainly on building dikes to keep sea and river water out. Flood protection is traditionally rather technocratic scientific (Van der Brugge, Rotmans, and Loorbach 2005) and the safety standards are unparalleled in the world. This focus on flood defence has so far left little room for discussing the worst-case scenarios and contingency plans of a future increased sea level (Brinke et al. 2010) (Figures 1 and 2)

For decades now, Denmark and the Netherlands have developed national initiatives and regulations for integrating heritage as a factor and even a vector in spatial planning (Riesto and Tietjen 2018; Bloemers et al. 2010). The integration of heritage and climate adaptation measures,

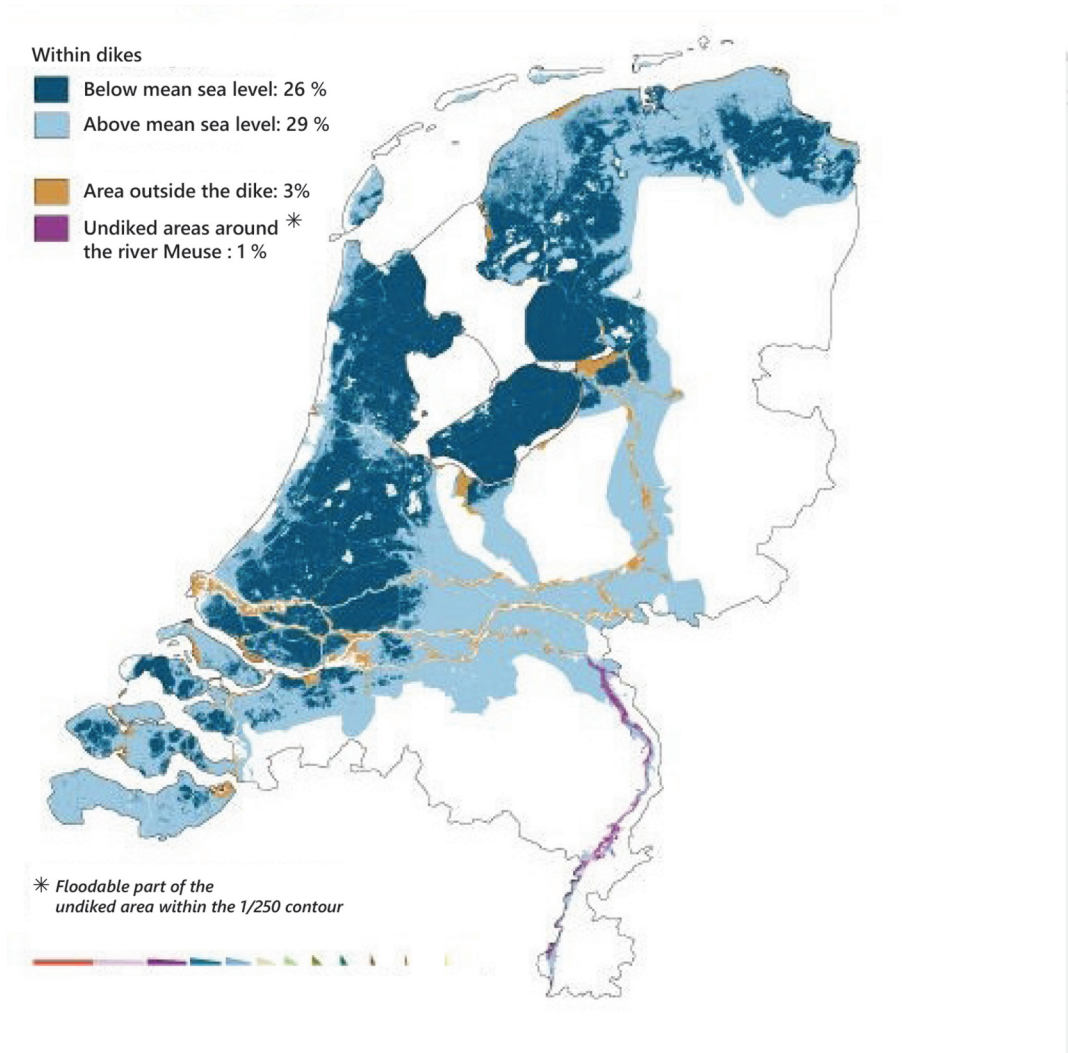


Figure 1. Designated vulnerable areas in the Netherlands. Source: PBL Netherlands Environmental Assessment Agency.

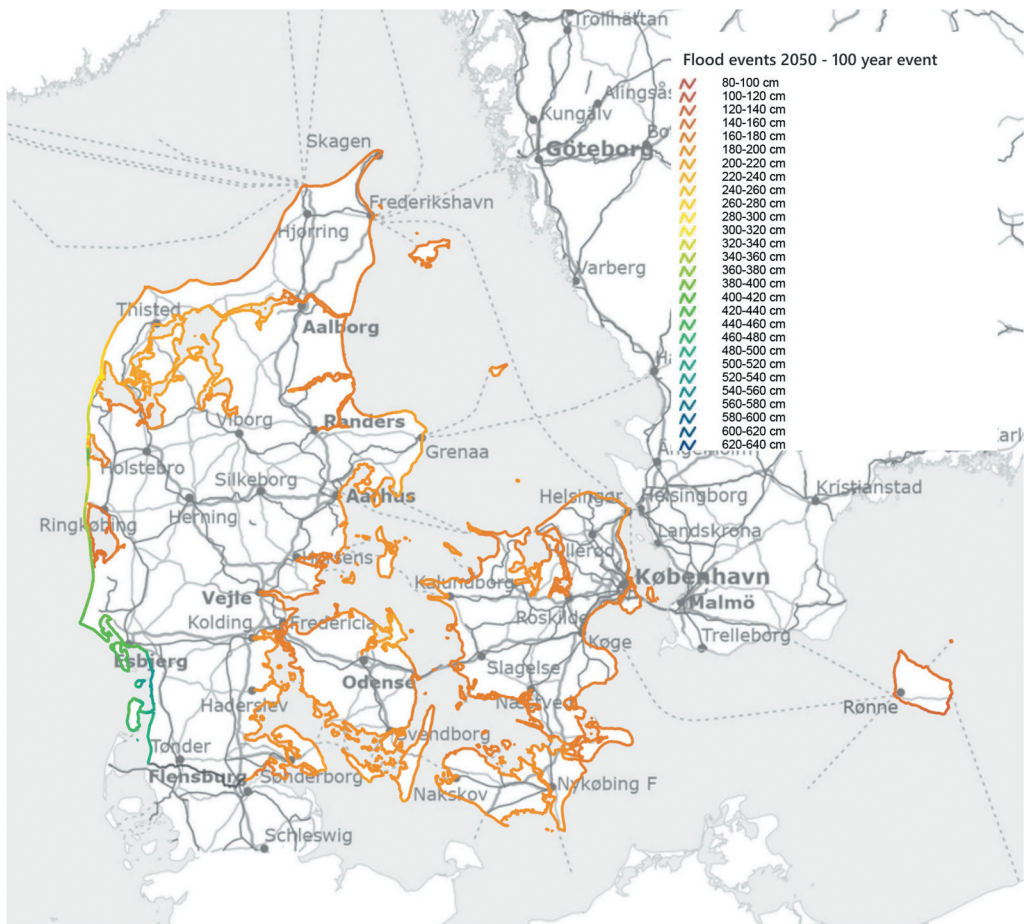


Figure 2. Designated vulnerable areas in Denmark. Source: The Danish Agency for Data Supply and Efficiency.

however, still mostly happens through on-the-ground experiments in local contexts. And although some studies exist, particularly in a Dutch context, their impact on the understanding of heritage is still weakly theorised (for exceptions see: Egberts and Hundstad 2019; Egberts and Renes 2020). In this study we want to address this gap by synthesising learnings from local examples that range from small settlements to larger towns in coastal areas. Together, these case studies enable us to conceptualise uses of heritage in climate adaptation planning (Figure 3).

The role of heritage in local adaptation projects

Viking ship museum site – how a storm surge gave rise to a heritage controversy

With its 50,000 inhabitants, Roskilde sits at the bottom of a shallow fjord that is rich in fish and birdlife, and is appointed a Natura 2000 area (The Danish Nature Agency 2016). On the town's waterfront sits a museum building that has been subject to heated discussions for decades. A popular tourist attraction, the museum was built to protect and exhibit the remnants of five Viking ships that were found in the fjord in 1962, dating from around 1000 AD. The museum was later extended with smaller buildings where visitors can experience historic crafts. The museum has long

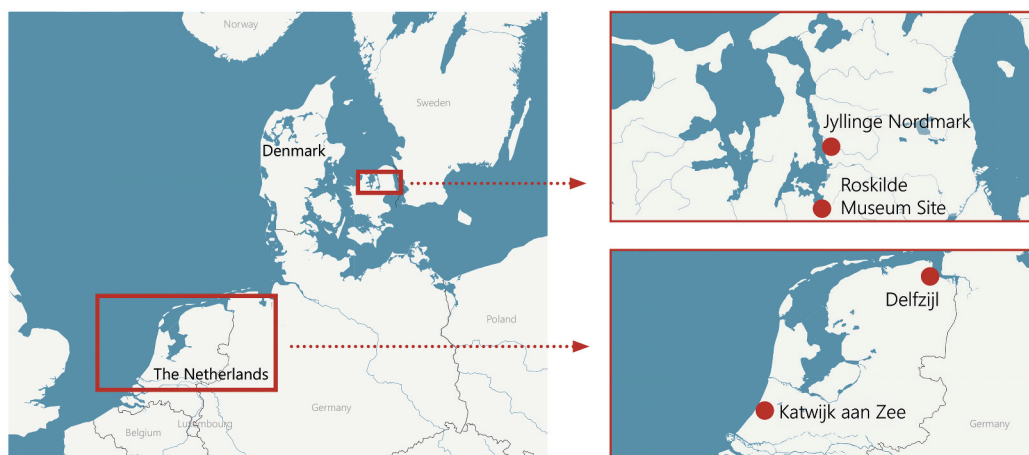


Figure 3. The four cases studied in Denmark and the Netherlands. Map: Anna Aslaug Lund. Copyright authors.

wanted to make more room for interactive learning activities in the main building and is therefore raising funds. Yet this modernisation plan was constrained by the building's status as listed; it is protected as outstanding brutalist architecture (The Agency for Culture and Palaces 2017).

A new opportunity to develop the museum building emerged after storm Bodil in 2013, when the fjord's water surface rose by up to two metres. On the night of the storm, the local community improvised a temporary dam made of water tubes and other provisional adjustments to protect the Viking ships. That night turned out to be a game-changer in the museum's development and the municipal plans at large. In a new climate adaptation plan, the municipality designated the museum site as an area that needed coastal protection (Roskilde Municipality, 2020b).

The museum building became the centre of a heritage controversy in which the positions were polar: should the brutalist building be protected and adjusted to the new coastal climate risks, or should it be replaced in order to better protect another heritage – the Viking ship remnants? The latter option would also allow modernisation of the museum. Both viewpoints were supported by a cascade of technical reports, newspaper articles, and proposals. While the building was listed, it was not much appreciated in the local community and among politicians. Three years after the storm, a parliament member from the Danish People's party argued that the 'crumbling concrete museum' should be replaced by an 'iconic' building in 'Viking style' to help Denmark win the 'international Viking competition' of attracting tourists (Arndsen, quoted in (Heltoft 2016)). The idea that the building had to be replaced was reinforced by the storm, its palpable damage and dramatic images used in the press (Figure 4).

Using the new climate conditions to reinforce their argument, in 2018 the Danish Parliament decided to allocate a large budget for a new Viking Museum building (Danish Ministry of Finance 2018, 149). In the same year, the minister of culture quite exceptionally single-handedly de-listed the museum building, arguing that it was impossible to protect the building, but pivotal to protect the Viking ships (Danish Ministry of Culture 2018). As we write, the municipality and museum are preparing a design competition for a new museum building. Here, it is a condition that the Viking ship remnants must not be moved more than 500 metres from their current location to avoid damage and that no climate adaptation measures can be placed in the nature-protected fjord.

The storm surge, accompanied by images of waves and damage, became a stepping stone for solving a heritage controversy at the highest national level. The debate was characterised by either/or viewpoints between replacing the listed building or safeguarding it, protecting the Viking past or the brutalist architecture, rather than transforming the building or, say, curating its decay as future



Figure 4. The Viking Ship Museum during storm in 2013, as depicted in the press. Photo: Werner Karrasch. Copyright: The Viking Ship Museum.

flooding events would occur. Interestingly, while cultural heritage was debated publicly with conflicting viewpoints, the protection of the fjord's natural heritage values remained unquestioned, as was the protection of the old Viking heritage.

Jyllinge Nordmark – nature protection versus people's homes

Jyllinge Nordmark is a residential area fourteen km north of Roskilde with around 2000 single-family houses, which softly slopes towards the fjord. A historic fishing settlement and farmland, the area was gradually covered with summer cottages during the mid-twentieth century. The coastline consists of a salt meadow next to the estuary of the small river Værebros Å. This river floods easily during storm surges as high tides in the river collide with high water levels in the fjord. In 1990, the municipality changed the planning status of the area from second homes to permanent housing. This gave rise to new demands from residents for public services (Præstholt, Busck, and Kristensen 2011), including water management. Some of the newest houses were built at the edge of the low-lying meadow, the fjord, or the river. They have long been the most attractive ones, because of their views and proximity to the recreational landscape, classified as rare and vulnerable nature types, now under Natura 2000 (The Danish Nature Agency 2016).

In the middle of the 'Bodil' storm of 2013, residents had to flee their homes. Later, locals ensured water-tube solutions for further storm surges, but these will not suffice in the long run as flooding events are expected to increase. Thus, many home-owners have demanded more solid, publicly-planned protection. This request became the starting point for a long and difficult process with apparently clashing interests. The dilemma between the protection of 500 vulnerable homes and



Figure 5. Houses still facing the salt meadow and houses now facing the 2.4 metre dike towards the fjord at Jyllinge Nordmark. Both photos from August 2020. Photo: Gertrud Jørgensen.

protecting the unique natural heritage was the greatest obstacle in the process, the main bone of contention being where to place the dike in relation to the protected nature areas along the coast and river.

The municipality prioritised the residents' claim for protection and included them in the planning and funding decisions for a dike that could protect the 500 most-endangered homes, but would threaten parts of the Natura 2000 areas. This started a long and difficult planning process, during which the Danish Society for Nature Conservation filed a complaint with the *Miljøklagenævnet* (a national planning and environmental 'court of justice' whose decisions cannot be appealed). After several more complaints to national institutions, in July 2020 the minister unconventionally overruled the case and decided that no further complaints could be made. The dike and sluice project could then be re-started, while Roskilde Municipality promised 'to make up for' the damaged or disappeared nature areas by substituting a 'double amount of nature' elsewhere (Roskilde Municipality, 2020a). The project was finalised in spring 2021 (Figure 5)

This process shows the high level of conflict that can occur between nature protection and the safety of local residents. In the process, natural heritage values were understood as a fixed image of certain nature types. Interestingly both local inhabitants and the Danish Society for Nature Conservation wanted above all a 'regional solution' further out in the fjord, which could both conserve the salt marshes and protect the area from storm surges, but without the need for large physical interventions in the local landscape. However, this solution would require collaboration between several municipalities and be more expensive, and did not gain sufficient support.

Delfzijl – using heritage as an implicit, vaguely defined factor

Delfzijl is a harbour city with around 25,000 inhabitants in the north eastern part of the Netherlands, bordering the Ems estuary and Wadden Sea. It is a city with a rich history as a garrison town of national strategic importance, but is now suffering from population shrinkage. From 2008, the municipality anticipated national funding for dike fortifications by initiating the Marconi plan (which stands for Maritime Concepts in Sight, our translation). They brought together regional and local governments, water boards, and other stakeholders in order to simultaneously address several spatial challenges while strengthening the water defence structure around the city. One of these is restructuring the city centre, which had a 'rundown atmosphere' (Delfzijl Municipality 2013). Another aim is to increase the appeal of the city to tourists, for example by creating a larger beach, camper parking area, and better connections for leisure boats, as mentioned

in an interview with programme manager in Delfzijl Municipality, Jornand Veldman by the authors in February 2020. The national funds for dike fortification were cleverly combined with local funds for these projects, which created a holistic spatial plan for Delfzijl.

Delfzijl is situated on the edge of the UNESCO World Heritage Site Wadden Sea; an intertidal mud flat area that is protected for its ecological and geomorphological uniqueness. The sea dike forms the edge of the nature reserve that is protected under the Natura 2000 regulations. In Delfzijl itself, very few structures and objects are listed as monuments as much of it was demolished in urban renewals; the most drastic of which date from the 1960s, when the city expanded its industrial area and anticipated population increase (that never came). Significantly, the sea dike itself is not perceived as heritage, but is at the same time a very important aspect of the history of the region as it is a testament to the story of flood defence by dike building from the eleventh and twelfth centuries onwards (Buro Bügel/van de Dijk Groningen, and Provinciale Planologische Dienst Groningen 1981). Rather, it is conceived as the subject of an engineering challenge to keep the region safe in the future. Therewith, it also forms the divide between the nature area on the sea side and the (agri) cultural landscape on the land side (Egberts 2018). On a part of the fortified dike is an experiment in designing *nature-based* solutions. New salt marshes have been developed to create a wave buffer and new space for the Wadden ecology. Remarkably enough, this has been done using traditional land reclamation techniques, so-called *rijdsdammen* (Egberts and Riesto 2021).

Heritage does not play an explicit role in this plan. However, implicitly natural heritage concerns are integrated. Cultural heritage seems to be somewhat isolated in the urban core of the city, in which the pre-20th century urban structures and the fortifications are being highlighted. Cultural heritage only seems to play a role outside the dike at the beach, which has been enlarged and retains the older bathing house for which local inhabitants hold many personal memories according to programme manager in Delfzijl Municipality, Jornand Veldman.

Implicitly however, the Marconi plan uses nostalgic wording and imagery of Delfzijl as a historic town by the sea. In the title, as well as the spatial plans and studies of the project, the *reconnection* of Delfzijl to the sea is formulated as the central aim, harking back to Delfzijl's days as a garrison and regional trade centre. In the images throughout the plans, explicit references are made to the historic maritime character of the city, particularly to boats and the harbour. In the text of the plans, the emphasis is placed on the heritage of Delfzijl as a garrison city with star-shaped fortifications (hardly any physical traces remain of this period) (Delfzijl Municipality 2009). In the eventually-realised interventions, fragmentary references to the city's harbour and garrison past can be found in public spaces (Egberts and Riesto 2021). It seems as if a joint sense of nostalgia was effective, but did not necessarily need to lead to a readable historic landscape. The stakeholders all seem happy about that; a consortium led by the municipality of Delfzijl worked on many parts of the Marconi Plan and jointly decided on its execution (Figure 6)

Kustwerk Katwijk – using heritage to involve local people in climate adaptation

Katwijk aan Zee (Katwijk hereafter) is a town of 43,000 inhabitants on the North Sea coast of the Netherlands. A historic fishing village by the beach, it is situated on low ground and was outside the coastal defence system (*buitendijks*). The weak spots in the regional coastal defence system needed to be addressed in order to make the area less vulnerable to super storms. This task was complemented with the ambition to contribute to the environmental quality of Katwijk.

A new, low dike was built on the sea side of Katwijk, which was then covered by a broad strip of artificial dunes. In order to fix the parking problem, a new parking garage was integrated into the project. This concept is called 'dike-in-dune' and makes use of the wave-breaking qualities of the dunes in combination with the barrier function of the dike. A new public space was created on top of this dune, the pattern of which was shaped by six entrances and fire exits of the parking garage



Figure 6. The fortified sea dike and new beach at the historic centre of Delfzijl in spring 2021. Photo: René Wiegink.

beneath. Here, signs made of weathering steel are placed alongside walking paths, which narrate and show how this place was experienced and depicted by the Haagse School painters in the late nineteenth century.

Katwijk has a history as a place of heritage and nostalgia. It was a popular location for the Dutch Romantic painters of the late nineteenth century, who depicted the picturesque, pre-modern waterfront and life of the Katwijk villagers. When the Old Church was threatened with demolition, the artists successfully campaigned for the preservation of their beloved subject. The dune areas north and south of Katwijk are protected as Natura 2000 areas.

The environmental quality of Katwijk was primarily translated into an ambition to retain the historic character of the small-scale, low-rise, tranquil, cosy fishing village by the sea. Therefore, sightlines and distance to the sea were important considerations according to Katwijk municipality and as well mentioned in an interview with a manager at Dunea (supplier of drinking water in Katwijk) Willemijn Bouland-Oosterwijk by the authors in 2020 (Katwijk Municipality 2012). The active engagement of the inhabitants of the village was significant from the early stages of the project. They came up with the idea of addressing the parking problem alongside the coastal fortification. The villagers have a strong sense of community and connection to their past as a fishing village as mentioned in the interview with Willemijn Bouland-Oosterwijk.

atwijk's new 'hidden' dike is part of a larger set of projects to improve coastal defence along the North Sea coast. Weak spots that were previously protected by artificial-looking dikes (Hondsbosche Zeewering, amongst others) have been replaced by human-made dunes that have a more 'natural' appearance. Natural heritage considerations have not been at stake in Katwijk according to Willemijn Bouland-Oosterwijk in an interview in June 2020. Nevertheless, it seems that the ideal of the coast as a natural landscape that is visible in other areas (Egberts and Hundstad 2019) along the coast is recalled by the Kustwerk Katwijk project. There is one major difference between natural dunes and the dike-in-dune like the one in Katwijk: they cannot evolve in the dynamic ways that natural dunes do, but they do play some part in nourishing and revitalising flood



Figure 7. Heritage information signs on the new 'dike-in-dune' landscape of Katwijk aan Zee in spring 2020. Photo: Linde Egberts.

defences along the coastline (Almarshed et al. 2020). The initiator of the project was the Rijnland water board, who were joined by Katwijk municipality, Zuid-Holland province, and the Department of Waterways and Public Works (Rijkswaterstaat) (Figure 7)

Roles for heritage in climate adaptation planning

These stories from four different coastal settlements demonstrate a spectrum of roles that heritage plays in climate adaptation planning, ranging from an explicit and highly controversial topic in the Danish cases, to a purposefully vague theme in Delfzijl's dike planning, and a collective narrative and driver for Katwijk's development in line with many of the residents' perceptions of heritage values. In the two Danish cases, heritage worked largely as a separate *sector*, apart from and partly in opposition to the climate adaptation planning. Heritage decisions were made at the highest national level and closely followed the rationale of the Authorised Heritage Discourse's (Smith 2006) focus on tangible heritage, nation-building, and experts' categorisations of nature types and architectural styles. Here, heritage values had little explicit connection to local viewpoints or urban planning aims. The dominant perception held by the heritage experts in those planning processes was that natural or cultural heritage values were at risk of flooding or from flood-protection measures. These experts therefore aimed at preserving the physical shapes that were seen as representations of important heritage values. The final decisions, however, were made at the national political level, and in both cases met the aims of development rather than preservation.

In the Dutch cases, heritage values were more closely embedded in the local development. References to the past offered local narratives and worked as a stepping stone for residents and stakeholders to get involved in climate adaptation planning, gain influence, and identify with the

project. Like the Viking Ship Museum curators, Katwijk and Delfzijl's planners used heritage as a tool for raising funds to not only meet national climate adaptation goals but also local goals, and thus expand the effect of the climate adaptation planning funds.

In Katwijk, where heritage was most actively integrated in the planning processes, heritage even became a *vector*: an integrated asset that did not work against development and climate adaptation, but as a tool to involve local people and other stakeholders. Heritage values were used to develop a physical project and narrative that could enhance place-making, and attract tourists and others. To meet these goals heritage was not about maintaining physical objects in a certain state, but also about local cultural histories and the view to the sea as a perceptual quality of the landscape. While the approach to heritage in Katwijk has many strengths to face changing climate conditions, it also reveals some of the blind spots in using heritage as a vector in planning and design. While the focus was on creating a positive and future-oriented collective understanding of the past, the planners of Katwijk edited out the more difficult past, e.g. the Second World War bunkers. Only the heritage that could contribute to a positive place-narrative and branding was kept. So, while using heritage as a vector in climate adaptation planning can in many ways contribute to more inclusive and resilient development, its strong focus on positive development can lead to a narrow perception of the past which only includes what is comfortable and immediately usable, and leaves open questions about heritage as conflicted and difficult.

Climate imaginaries

The four cases show that climate change is not only a measurable risk, but also a cultural phenomenon of stories, discourses and different ways of apprehending the climate past. Such climate imaginaries in turn do not only represent climate changes, but also influence how we as societies choose to act in planning decisions. The planning projects we studied here were tied to different climate imaginaries that reflect distinct historical trajectories and experiences, both locally and across the two countries. The two Danish climate adaptation processes were characterised by a strong sense of urgency, following the shocking experience of the Bodil storm. The images and words that were used to narrate this storm event reveal an important aspect of climate imaginaries: that they operate not only within the world of language, representation and discourse. Rather, climate imaginaries are also bodily and emotional, revealing experiences of shock, fear and the experience of being overwhelmed. As has been stated in recent heritage scholarship, emotional dimensions and politics of affect are inherently part of heritage work although they are often not explicitly addressed (Tolia-Kelly, Waterton, and Watson, 2017). Beginning to untangle how such affective politics work in particular situations at the intersection of climate adaptation, spatial planning and heritage will be an important part of imagining futures as the basis for action.

Although a sense of risk is palpable in the Dutch cases too, the climate imaginaries that underlie those planning processes were different. In Delfzijl and in Katwijk's planning documents and in the local press the new dike projects were depicted with nostalgic, historicising, and comforting images. Rather than forming a new paradigm, the way of adapting to coastal climate risks remained unquestioned. This might partially be because spatially the Netherlands has not suffered from storm surges recently. The last one was in 1953, and is remembered as a great disaster and fuelled large national protection schemes in the following decades. Since then, the Netherlands has again relied on a long tradition of engineering and dike-building (Ten Brinke et al. 2010). This is continued in these recent projects, in which climate change is just a relatively-new context. This contrasts with the two Danish cases, whose planning documents and newspapers depicted the Bodil storm with images of high waves and the drama that many residents experienced.

These imaginaries are inextricably linked to governance and discussions of how to react to future risks. Although flooding events are not new in Denmark, the degree to which coastlines should be protected against floods is very much on the table as a topic that must be negotiated in the following years. Debates on responses to coastal climate risks and the prioritisation of economic, ecological,

social, and cultural values are growing (Fryd and Gertrud 2020). This is strikingly different from the Dutch situation, where the cases reflect a confidence in the suitability of the dike-fortification traditions as a response to future uncertainties.

These distinct climate imaginaries seem to play a silent, but significant role in planning decisions. They expose a need for societies to question how planners, designers, heritage managers, politicians, citizens, and other actors apprehend climate adaptation and what modes of representation are operative in such planning processes. This discussion should take into account that climate imaginaries themselves are legacies from the past, involving collective meaning-making, affect, and lived experiences. A greater awareness of the cultural imaginaries connected to coastal climate adaptation can be a means to involve local communities and other stakeholders in interpreting and using the past to create more just, resilient and sustainable futures.

Exploring dynamic approaches

We started this article with a plea for alternatives to the technological determinism approach to climate adaptation, which often tends to overlook the potential role of heritage values in creating climate-resilient living environments. Similarly sectoral is the preservation reflex in heritage, which so often goes unchallenged and entails a narrow outlook on the heritage and climate nexus, illustrated for example by the nature compensation plan for the salt marshes outside Jyllinge Nordmark, where a new dike was made to protect the housing. Delfzijl and Jyllinge both demonstrate that some heritage experts and decision-makers consider natural heritage values as makeable, or at least compensatable or stimulateable. For cultural heritage, this seems much less the case and a culture of loss is more predominant, as the Viking Ship Museum shows. Yet, our case studies also show how generative planning processes can be for cultural heritage. Delfzijl might now fit more with the idea of maritime character than it has for decades, and Katwijk is more picturesque and romantic than ever since the loss of the fishing boats that once lay on the beach and other signs of industry. This shows that there is a great potential for future coastal planning to develop other responses to water risks beyond the two opposites of either preserving a static image of the past or removing and replacing heritage values.

If we begin to accept that the idea of stasis can be problematic in the face of uncertain futures, we need new ways of conceptualising heritage beyond the idea of preservation of a specific physical state for eternity. This is one of the reasons that heritage scholars have begun to develop concepts like the 'value of letting go' (Harvey and Perry 2015), 'bidding farewell' (Riesto and Tietjen 2018, 254), and 'curated decay' (DeSilvey 2017) to explore 'heritage beyond saving' (DeSilvey and Harrison 2020). Yet, the high level of conflict around the protection of Jyllinge Nordmark's coastline also reminds us of the complex ethical challenges in applying such theoretical concepts to specific coastal environments on the ground. Often, protection from water events caused by coastal climate risks is not only a question of shared heritage values and legacies, but of specific people's living environments, imbued with memories and meanings, and their life-savings. How to decide whose home is safeguarded and whose is not? And on what scale should such decisions be taken? Looking into such questions shows that the idea of a heritage community, which is becoming increasingly important in heritage treaties and discussions, brings with it a lot of difficult questions. And then again: to what extent should urban planners and public funding, as in the Netherlands, keep protecting settlements that were originally built in locations that are highly vulnerable to flooding? Such questions will involve conflicts and difficult societal decisions in the coming years. Here, pre-modern settlement patterns can be a guide to future building projects because their placement in the landscape often makes them much more resilient to sea-level-change than more recently built areas (ten Brinke et al. 2010).

A growing topic in literature is the importance of developing more dynamic approaches to landscapes and built environments in the face of unpredictable climate futures. Spatial planners, for instance, state that there is a need to work *with* and not *against* landscape processes (e.g. Beatley 2018; Bush and Doyon 2019; Frantzeskaki 2019) letting environments become more resilient.

Similarly, heritage scholarship is calling for more dynamic approaches and many authors have begun to positively ‘embrace flexibility’ (Robert Z. Melnick 2009, 40). Yet examining local planning processes, as we have done, suggests that these are not mainstream approaches; the priority still lies in defending current ways of building and living, and fixed heritage images. This shows that there is a need to consider more flexible ways of planning coastal landscapes, or even managed retreats from areas at risk. Our study suggests that the Netherlands are gaining some more experience with dynamic approaches to sea level rise than Denmark. Delfzijl’s planners and designers used traditional land reclamation practices to let new salt marshes silt up, building on their expertise in working with ‘nature-based solutions’, which are becoming increasingly commonplace according to EcoShapes website (visited 29 September 2021). The new focus on dynamic approaches to climate adaptation, spatial planning, and heritage provides opportunities to overcome the nature/culture dichotomy that is still dominant in heritage and planning, and for practice to reflect that nature and culture are entangled on multiple levels. Both of the cases close to Roskilde Fjord exemplify traditional approaches where natural and cultural heritage values were identified in separate processes and evaluated apparently separately from other societal values. Nature protection was considered much more as an absolute than cultural heritage, which was debated locally and nationally, among experts, politicians, and a wider public. Strict nature protection views were mainly held by experts from the Nature Conservation Society, although the inhabitants were also concerned about the local natural qualities. Even so, natural heritage values are not essential values that can be agreed upon once and for all, but are entangled with human values, politics, creativity and imaginaries, just like cultural heritage. A greater public awareness of this could, we believe, contribute to ways of working that go beyond mere top-down-decision-making and potentially engage more citizens in the management of ecological landscape qualities.

These four planning projects show that the nexus of climate adaptation planning and heritage are not confined to one scale, but must be understood across the traditional separation of the local, national, and international in heritage management. There is huge potential for developing more dynamic approaches in heritage and climate adaptation planning, and as the coastal landscapes studied here exemplify, there is a broad span of possibilities for heritage to become an active force in responses to coastal climate risks.

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