
WWF
Wereld Natuur Fonds
Meegroeien
met
de Zee

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Banking on Optimism: Why do Some Dutch Delta Engineers Resist the New Water and Soil System Policy?

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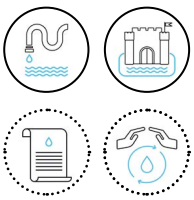
Engineers, long accustomed to finding technological solutions for any vulnerable location regardless of water and soil conditions, fear that a new Dutch spatial planning policy that takes the impacts of climate change into account will place limits on the scope of their activity. The concept of Water en Bodem Sturend (WBS), approximately translated in English as "water and soil as governing principles," is considered a continuation of earlier proposals such as Meebewegen. This ecological and climate-informed policy transition has in fact been in development for at least three decades. Engineers resist the legal anchoring of this policy by downplaying the threat of sea level rise. Anchoring the concept of WBS in law is needed to create a break with technological solutions that are not well adapted and are based on complacency and optimism about sea level rise.

Keywords: *spatial planning and sea level rise, water en bodem sturend, climate adaptation, meebewegen (accommodate), retreat*

KEY THEMES



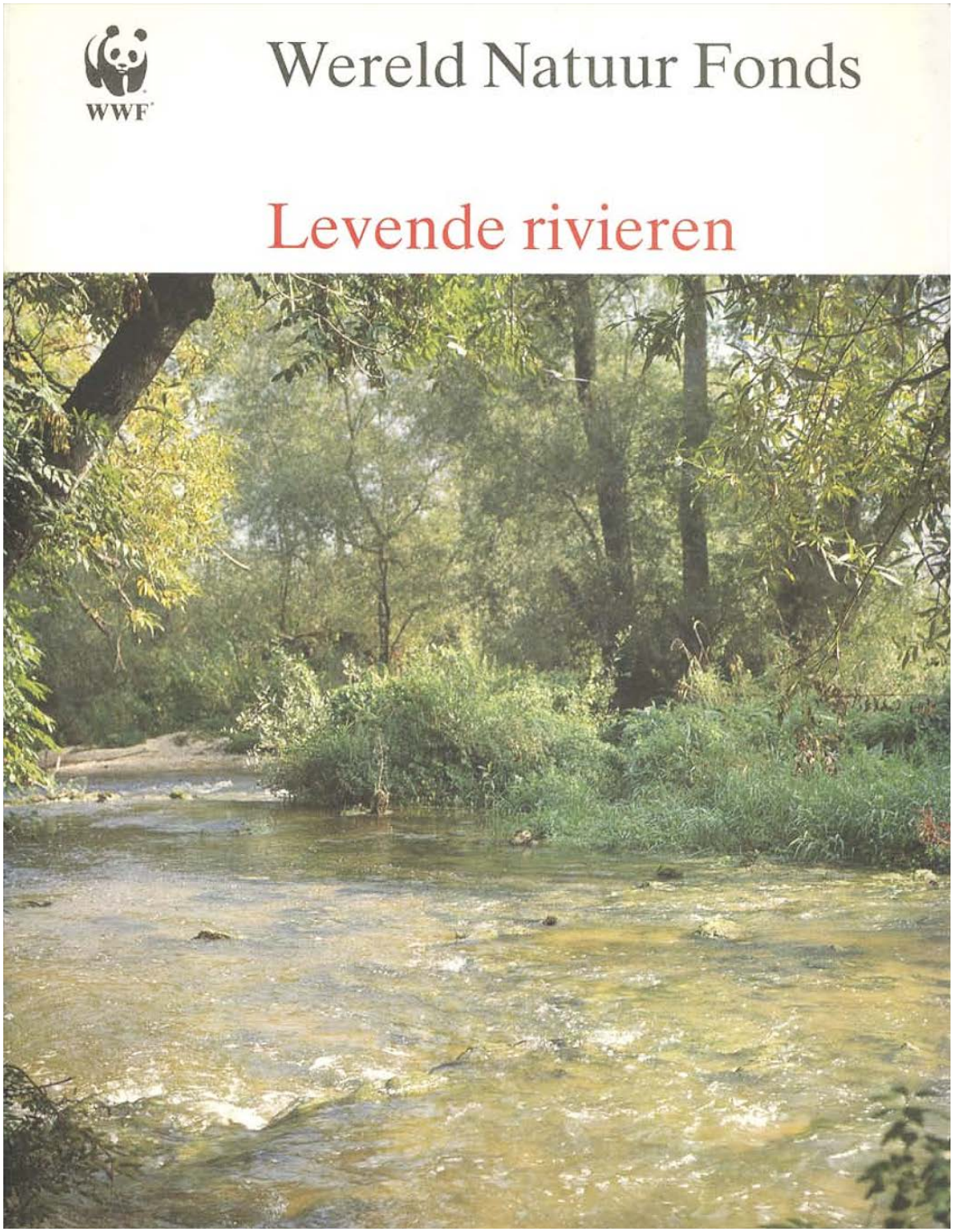
< Fig. 1 Book cover of *Meegroeien met de Zee* (Source: Wouter Helmer et al., 1996).

As the combined impact of a North Sea storm, persistent rain across the Netherlands, and a swollen Rhine River put Dutch flood defense systems to the test, a debate in the water sector spilled into the open, pitting hydraulic engineers from TU Delft against physical geographers from Utrecht University. The dispute concerned a policy adopted by the fourth Rutte coalition – the Dutch government coalition formalized in early 2022 – (KNW 2021) and given substance by the Ministry of Infrastructure and Water in a ministerial letter to parliament (Harbers and Heijnen 2022). Known as Water en Bodem Sturend (WBS), which can be approximated in English as "water and soil as governing principles," the legal enforcement of this aspirational mandate would have direct consequences for spatial planning. The engineers accurately perceived a threat to their identity. A law that determines that some building locations are off limits because of water and soil conditions would be at odds with historical practice and continuing reliance on technological solutions regardless of location. They realized that WBS and the climate adaptation model behind it imply a significant reorientation of engineering in the Dutch delta. Taking a cue from their resistance, this article makes two related arguments: 1) WBS is the current expression of an older and more encompassing ecological approach to climate adaptation now known as *meebewegen* (often translated as "living with water"), which was forged in urgent response to climate change science; and 2) the resistance manifested by engineers persistently downplays the threat of accelerated sea level rise.

A Long Time Coming

If WBS is an indication that the Netherlands is on the cusp of a significant paradigm shift that recognizes the limits of engineering, this shift has, despite the appearance of a radical break with traditional practice, been a long time coming. Its ecological origins are to be found in the pioneering vision of Plan Ooievaar (Plan Stork), winner in 1986 of the first Eo Wijers Foundation design competition. The plan recommended the removal of secondary dikes, so that riparian forests and marshes could contribute to the regeneration of the river system, while not hindering commercial river transport. Plan Ooievaar became a model for a series of interventions that Willem Overmars, one of its authors, developed with a younger generation of ecologically committed professionals. Throughout the 1990s, their efforts were encouraged by Ed Nijpels, former minister of housing, spatial planning and environment. *Levende Rivieren* (1992; Living Rivers) extended and deepened the vision of Plan Ooievaar (fig. 2), while *Meegroeien met de Zee* (1996; Growing with the Sea) applied the same principle to the coast and gave expression to the key idea of collaborating with nature (fig. 1). The authorial team of *Meegroeien met de zee* included a new name: Pier Vellinga. Vellinga was a member of the Advisory Group on Greenhouse Gases (est. 1986), the forerunner to the Intergovernmental Panel on Climate Change. Adding him to the team strengthened the connection between ecology and climate adaptation and allowed the idea of working with nature to further influence policy at higher levels of governance.

The next major station for advancing the idea of collaboration with nature was the report of the Second Delta Commission, which was tasked with advising the government on expected sea level rise and other climate change impacts extending into 2100–2200. The Commission involved national climate experts, prominent among them, Pavel Kabat (current director of research and chief scientist at the World Meteorological Organization) and Vellinga. The result was a visionary report that embraced the



^ Fig. 2 Book cover of *Levende Rivieren* (Source: Wouter et al., 1992).

Meebewegen

^ Fig. 3 The *Meebewegen* scenario (Source: Carolien Feldbrugge and Ilse van den Broek (© Carof Beeldleveranciers) Deltares, 2017–2019).

principle of collaborating with nature: *Samen werken met water* (Working together with water). The report's chief insight is that "The best strategy for keeping the Netherlands safe and pleasantly habitable in the long run is to develop along with climate change. Moving with and making use of natural processes wherever possible leads to solutions to which man and nature can gradually adapt" (Deltacommissie 2008, 39). Repetitions and variations of the idea of collaborative adaptation proliferate: *meegroeien, mee stijgen, mee ontwikkelen, meegaan,* and *meebewegen* (grow with, rise with, develop with, go with, move with).

One of the more controversial recommendations of the report was to set the upper bound for possible sea level rise at 1.3 m by 2100 and between 2–4 m by 2200 (Deltacommissie 2008). For perspective, the Eastern Scheldt storm surge barrier was predicated on a maximum sea-level rise of 40 cm by 2100. In interviews I conducted with Kabat and Vellinga, they recalled the resistance this recommendation encountered. Policy makers and others were not prepared to go beyond the limits of the current technocratic regime. The recommendation was not adopted and the upper bound was set at 1 m instead.

In March 2017, Deltares published the results of a "policy hackathon" under the title, *Als de zeespiegel sneller stijgt* (If sea level rises rapidly; Haasnoot et al. 2017). The hackathon's goal was to determine if there were limits to the capacity of infrastructural systems to deal with rapid and extreme sea level rise. The effort confronted the national complacency that had settled in when the upper bound was set at 1 meter, instead of 1.3. Although the idea of *meegroeien* or *meebewegen* was not part of the hackathon's remit, the report concluded with three cartoon sketches of possible adaptation strategies, one of which would later come to be known as *meebewegen*. The drawing moved the coastline to the east and showed a set of island cities discernible as Rotterdam, The Hague, and Amsterdam (fig. 3).

The word *meebewegen* is purposefully vague. It signals a willingness to be flexible, to be supple enough to ride out extremes, to accommodate and move with water. It's quintessentially adaptive in ways that other approaches to sea level rise aren't since they involve expensive infrastructural commitments premised on arbitrary projections of SLR (such as 1 meter instead of 1.3) or calculations of probability and risk. These commitments may be overwhelmed by rapid and/or extreme SLR. Coupled with the drawing, however, it was difficult to avoid the suspicion that *meebewegen* also meant retreat. When the Delta Commissioner made meebewegen part of his vocabulary, it was clear that policy was beginning to take hold. In an interview in February 2022, the Delta Commissioner connected *meebewegen* with the pathway that climate change and sea level rise would necessarily impose on the lower Netherlands: "We must prepare step by step for the centuries after 2100. In the long run, the Netherlands will become amphibious. We must move with the flow [*meebewegen*] where water takes us" (Glas 2022; fig. 3).

The question "where" is the relay that connects *meebewegen* to WBS. WBS's basic concern is "where to build." *Meebewegen* also concerns the location of buildings and infrastructure but subdivides this into two further questions: "how to build" and "where to move to." It's in the overlap of "where to build" and "where to move to" that WBS and *meebewegen* converge. When the Ministries of the Interior and Infrastructure and Water asked the Delta Commissioner for advice, he responded in way that put WBS squarely on the national agenda for spatial planning: "In this advisory, I address how the housing task can take into account long-term consequences of climate change with increased likelihood of weather extremes and accelerated sea level rise, and how the water and soil system can give more direction [*meer sturend*]" (Glas 2021; fig. 4).

Much of the Delta Commissioner's response found its way into the ministerial letter on WBS. It claims that "by allowing water and soil to guide spatial planning, we can continue to live, reside and work in the Netherlands now and in the future despite a different and erratic climate" (Harbers and Heijnen 2022, 1). Only one of the Delta Commissioner's recommendations was omitted: "Explore how urbanization and associated long-term investments can be distributed differently across the Netherlands, and initiate movement [*beweging*] to places that are less vulnerable from a climate change perspective" (Glas 2021, 4). Whether the Delta Commissioner knew it or not, recommending that the government shift housing and infrastructure investments to higher elevations in the eastern part of the country amounts to taking the first steps of a future-directed retreat policy. This is the "where" question writ large. As an omission, this is obviously not yet part of WBS. It's only a matter of time.

Based on this analysis of the long path that led from Plan Ooievaar to the ministerial letter on

^ Fig. 4 Cartoon of the Delta Commissioner from "How Will the Netherlands Defend Itself Against Climate Change?" (Source: Simon Richter, 2023).

WBS, we can now offer a summary: WBS is the *current* expression of *meebewegen*. As the virtual successor of Samen *werken met water,* WBS is tantamount to what we could call a "third Delta Commission report." To say so signals its importance. WBS is *on its way to becoming the law of the land*. Although the idea of retreat is latent, measures that should be taken now if WBS were rigorously applied would facilitate or at least not hinder retreat when necessary. Retreat as a component of *meebewegen* is still on the table.

Delta Engineers Keep Watch

WBS may be on the way to becoming the law of the land, but it's not there yet. The integration of its recommendations into planning processes is not a given. The call for WBS to be "juridically anchored" came from many quarters. Under the headline "The Limits of the Dutch Water System have been Reached," Maarten Kleinhans and two other physical geographers from Utrecht University weighed in publicly on how spatial planning would have to change to adapt to climate change impacts. WBS, they concluded, must be durably anchored in law to succeed (Kleinhans, et al. 2023, 2024).

On 1 January 2024, Ties Rijcken and Friso de Zeeuw offered a rebuttal in the same newspaper: "The threat of juridification calls for a strengthened dike watch, as part of the water world seeks to […] achieve absolute priority, which would result in 'Water en Bodem Dicterend' [water and soil as dictatorial principles]" (Rijcken and De Zeeuw 2024). They present themselves as the self-appointed dike watch that protects the Netherlands against the hegemonic ambitions of part of the water sector. Who could be in favor of dictatorial rules that lock up the country when there is such a need for new homes? In the weeks that followed, Rijcken and de Zeeuw vied against every sector that endorsed anchoring WBS in the law.

^ Fig. Simon Richter, as Poldergeist, has taken his interpretation of Dutch Water management into the realm of digital humanities, exploring the history and argument of Dutch water management in light of climate change and sea level rise. Poldergeist YouTube channel available at https://www.youtube.com/channel/UCQrvu36tni8MEpLR4ZqFJsQ (Source: Simon Richter, 2023).

Rijcken is no stranger to journalistic pugilism. In a June 2022 article in *De Correspondent*, he addressed what he considered dangerous trends. Under the provocative title, "Water is Coming, but Don't be Afraid," Rijcken (2022) advocated for the construction of thousands of homes in low-lying and flood prone areas by claiming that they would be protected by the superiority of Dutch hydraulic engineering and water management and by casting doubt on statements to the contrary by the Delta Commissioner, Deltares, and others. Rijcken targeted all those who were arguing for a paradigm shift from a technocratic flood risk management system to what was in the process of being worked out as WBS. The goal of Rijcken's article was to undermine the urgent precautionary work that Deltares, the Delta Commissioner and many others had been doing since the hackathon, and to lull people back into a sense of complacency (figs. 5–7).[1]

Rijcken and De Zeeuw's choice of the metaphor of the dike watch to describe their position vis-à-vis WBS is telling. The threat in their eyes is not the rising sea or climate change, but rather those humans earnestly trying to plan for it. An analysis of all the texts I've considered shows a consistent difference in how the threat of sea level rise and climate change was assessed. If in 2008, the stakes for setting the upper bound of SLR at 1.3 meters were high and the political decision was to go with 1 meter or even as low as 85 cm, in his 2022 article, Rijcken still used old KNMI numbers that predicted SLR of no more than 26–82 cm by 2100, ignoring the fact that the Sixth Assessment of the IPCC stated that SLR of 2 meters in 2100 and of 5 meters in 2150 could not be ruled out. This tendency continues. The engineers consistently downplay the threats, despite news about rising global mean and ocean temperatures, increasing rates of ice melt in Antarctica and Greenland and a weakening AMOC. Rijcken and De Zeeuw are fundamentally not on the same page as experts at Deltares, NIOZ and the University of Utrecht. It's not that they're climate change deniers, but they are sea level rise optimists. This matters because meebewegen and WBS begin from the premise of taking climate change seriously. The goal of WBS is to extend the period of human habitation in the low-lying regions for as long as possible within the limits of the water and soil system. It aims at disarming the threat of river flooding, maximizing the capacity of foreshores to rise with the sea, increasing freshwater storage capacity, and preserving room for dike reinforcement, while not creating impediments to eventual retreat or building "high regret" structures that will be stranded or submerged. There is nothing in principle to prevent engineers from aligning with this position and welcoming the engineering challenges that come with it, but it does require a paradigm shift.

As I was completing this article in March 2024, newspapers proclaimed the results of a study commissioned by the Ministry of Infrastructure and Water and the Delta Commissioner. This was the headline in the NRC: "The Netherlands will remain 'safe and liveable' even with five meters of sea level rise" (Schreuder 2024). "This is good news," said the minister, "Because the rising sea can obviously have a huge impact on our country. Also good news is that we do not have to choose tomorrow [between protect, advance and *meebewegen*], but that we still have time to do so" (Zoetekouw 2024). Regarding new home construction in the Randstad, a contributor to the study added, "There is no conclusion to suggest that we should not want

1. I responded to Rijcken's article in an essay published on LinkedIn, "Het echte monster onder het bed: een retorische analyse van Ties Rijckens 'Het water komt, maar wees niet bang."

that housing construction now" (Timmer 2024). This is a monumental expression of faith in Dutch ingenuity and a validation of further reliance on engineering solutions and dependence on technology, even for an upper bound of 5 meters of SLR, a number clearly drawn from the 2022 IPCC 6th Assessment. If we recall how the Veerman Commission felt pressure to suppress the recommendation to set the upper bound at 1.3 meters in 2008, we wonder where this newfound confidence comes from. Drilling down into the reports that make up the study, it is clear that the envisioned measures would be disruptive. The PR around the study wraps urgency in a blanket of reassurance and delay. That may be politically astute, but it will probably lead to a renewed feeling of complacency, making the implementation of disruptive solutions more difficult. The internal, climate science-linked logic of WBS may have suffered a setback, but as its history shows, it's likely to prevail in the long term, one way or the other.

Policy Recommendations

- Anchor WBS in law to avoid maladaptive technological solutions and do not succumb to complacency and sea level rise optimism.

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