From Coastal Genesis too NatureCoast

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Marcel Stive was program leader of the NatureCoast research program, a professor emeritus of Coastal Engineering and former chairman of the department Hydraulic Engineering at Delft University of Technology.

Allow me to share my observations of the fascinating development in our thinking about and coping with coastal challenges in the Netherlands. Specifically, this will cover the time following the completion of the Delta Works in the Oosterschelde in the 1970s until the present, in the context of the emerging role of multidisciplinary research.

Coastal Genesis (Kustgenese; 1985-1987)

In the mid-1970s a transition took place when Rijkswaterstaat shifted from funding fundamental research to funding more applied research. In the middle of the 1980s, it became clear that a further shift, towards more multi- and interdisciplinary research was imminent, resulting in the Coastal Genesis project. But what was in fact the result of the Coastal Genesis project? I would argue that the first Coastal Bill (1990), the Dutch Centre for Coastal Research (NCK), which was established in 1994, and the current coastal policy (1990-present) all are indebted to the Coastal Genesis project.

First Coastal Bill (Eerste Kustnota; 1988-1990)

The results of Coastal Genesis were an almost seamless, logical input to the rather remarkable first Coastal Bill. In 1987 all Delta works in Zeeland were close to completed, and so the time had come to reflect on the future. Then Minister Smit-Kroes decided that the time was ripe to introduce a structural policy on coastal erosion. The coastline of 1990 was chosen to be maintained as the benchmark coastline. The type of interventions that were intended to achieve this goal were as innovative as the policy, especially “soft” interventions as sand nourishments.

Water management in the 21st century

In August 2000 the Commissie Waterbeheer 21e eeuw (“Water Management Committee 21st century”) published advise on the future of water policy in the Netherlands. Its main message was that water needed more room and its management needed an organisational principle. The Uitvoeringsplan Waterwetten (Implementation Plan of Dutch Water Authorities) endorsed the main principles, including the principle of combining water management with other interests, such as nature conservation, spatial quality and recreation.

Delta Committee 2.0 (Commissie Veerman; 2007-2008)

Quite unexpectedly, the Delta Committee 2.0 was established at the request of Minister Huizinga. A remarkable decision, given that no flood disaster had occurred recently, but most probably Hurricane Katrina in 2005 played a role. The composition of the committee was unusually multidisciplinary and strongly confirmed the prevailing policies of room for the rivers and water, and a natural, resilient coast.

Weak coastal links (Zwakke Schakels; 2004-present)

To bring this multifunctional principle into practice, Minister Schultz van Haegen presented the “Process plan weak links of the Dutch coast” in 2004. One of the weak links was the coast near Rijndam and Roselie van Holland. Deputy Daemsma of the province of South Holland established a carefully composed Advisory Committee that included all relevant stakeholders. Their advice: no elongated, uniform dunes and widening of the beach, no permanent buildings, but a concentrated mega-nourishment where natural processes would facilitate a dynamic dune and beach landscape. At that moment the concept of the Sand Motor was born.

Sand Motor realized (2011)

Amazingly, the Sand Motor was realized only five years after its inception. The challenge at that moment was to generate enough budget to monitor at least the morphological development in a time when formally nothing had been put in place to do so, let alone the ARGUS video tower. Delft University of Technology was able to solve this in a flexible way, using various sources including the EU-funded project Neearshoremonitoring (NEMO), while Rijkswaterstaat joined later.

NatureCoast (2013-2018)

The pilot project Sand Motor was born as a multifunctional answer to realizing a large number of functions, such as safety, nature values, recreation and innovation. Both from an academic, technological and socio-political point of view, it was clear that the Sand Motor offered a unique “living lab” to conduct interdisciplinary research. This triggered a broad consortium of Dutch institutions and industries to prepare an interdisciplinary NWO-STW (now TTW) research proposal. This proposal became the NatureCoast program, in which disciplines have interacted in an unprecedented way.