

The Role of Landscape Architects in the Room for the River Project.

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To understand the contribution of landscape architects to the Room-for-the-River project its best to start with their role in the river area at large in the last half century. Their contributions came about along two different lines. First is their contribution to the (re) design of the new profiles of the river dikes and the second is about the regional aspects of the whole river area.

Although the collaboration between civil engineers and landscape architects on large public infrastructure stems from a cooperation agreement from 1917 (!) between the Rijkswaterstaat (service of the Ministry of Public Works) and the Staatsbosbeheer (SBB, State Forestry Service that employed landscape architects for institutional design) to work together on the tracing and landscaping of Highways and Canals collaboration on the design of river dikes stems from the mid eighties of the twentieth century.

Important name here is that of prof. Meto Vroom, a University of Pennsylvania educated landscape architect and professor at Wageningen University who from 1976 and 1992 was a member and later the chair of the Advisory Board of the Ministry for Public Works.

When the discussion started on new safety levels and the resulting enhancing and re-profiling of all the dikes in the river area and a handbook with new norms and reference designs was called for, he tried to use his influence to make dike-design not only be informed by safety but also by heritage and natural values.

This advice was followed by the committee Becht (1977, named after its chairman)¹ that was asked to line out the new rules. The committee introduced what they called 'smart design' where comprehensive inventories of all the cultural and natural values in the vicinity of the re-profiled dikes were made obligatory for the polder districts that were commissioning the new dike projects.

I was working at the State Forestry Service in that period. As head of the Landscape Architecture Department, that had landscape architects in all the twelve provinces, we got complaints from our people in the river area that they were supposed to give reviews and sign for OK in an impossible short term on river dike plans that were already in the phase of preliminary design. We decided to make our own handbook for river dike design to give our landscape architects in the field some ammunition in reviewing and discussing these plans².

The little report observed that the 'smart design' in practice meant that the tracing of the dike resulted in a string of compromises. The enormous dike would move outward to avoid a valued old farm and then sharply move inward to spare a natural value like an old oxbow, et cetera.

In all this pleasing for public support the Rijkswaterstaat seem to overlook their central focus: how to make a culturally self aware and beautiful dike. The authors sketched out a new approach to dike design were cultural heritage consequently got preference over natural values, reasoning that in this dynamic milieu nature can be developed and cultural heritage can never be replaced.

It also made a plea for more consequent rules when it came to profiling, junction of roads, distinction between public and private ownership and more general that make the dike into a sharp division between the sphere of the river and the hospitable sphere on the inner side.

(illustration four drawings from 'The sharp Divide')

The book didn't make a lasting impression on the engineers. Our message was picked up some years later though, when the Ministry observed that the societal protests against the new enhanced and huge dike profiles (that were said to be a "threat to the character of the river landscape") were all but silenced by applying 'smart design'. A new commission was being installed (1995, Boertien, also after its chairman) to see if the river-dike design needed a new paradigm³.

H+N+S Landscape architects was asked together with an advisory firm DHV to look into the matter. Our firm was founded by the colleagues from Staatsbosbeheer that, in the earlier years, spearheaded the design debate on dike design. The resulting reports⁴ were just taken into consideration when in 1993 and 1995 the river high waters reached an alarming high level and some 250.000 people had to be evacuated from parts of the river region.

¹ Commissie Rivierdijken (Commissie Becht), 1975-1977, 's Gravenhage, 1977

² Ytje Feddes, Frans Halenbeek, Een scherpe grens, (A sharp dividing line) Staatsbosbeheer, 1988

³ Commissie Boertien, *Commissie Toetsing Uitgangspunten Rivierdijkversterking*, Final Report, 's-Gravenhage, 1992

⁴ @@@@ Noel van Dooren, *Handreiking dijkontwerp*

The government decided to speed up the dike enhancement operation, introduced procedural short cuts, and gave the H+N+S/DHV combination the commission to design some 50 km of river dikes in the Land van Maas en Waal.

The characteristic new profile included a waisted top, a small dike on top of the technical profile one could say, that preserved the sensation of 'floating' through the landscape when bicycling or motoring over the dike. The principles and the new profile has been applied to river dike enhancements ever since.

(illustration: photograph of the Afferden Dreumel dike).

This successful cooperation between engineers, landscape architects and process managers broke the ice between the disciplines and showed landscape architects could have an extra value in this previously exclusive technical domain.

The second line is that of involvement with the river region in general. The State Forestry Service (Staatsbosbeheer) also worked in the land re-allotment and land-use planning schemes in the 50ties and the 60ties that reclaimed the marshy parts of the river area and made them into up to date agricultural production areas. The Landscape-department of Staatsbosbeheer was active all over the country in schemes like that.

Our landscape architects made the landscape plans together with the agricultural engineers of the land development service of the Ministry of agriculture. Our commission was to guide these transformation processes in ways that led to meaningful new landscapes. We were supposed to give this modernization form within the existing structures of the landscape.

Dutch agriculture developed into a very dynamic economic sector and these existing landscape structures seemed to erode away with every scaling up of the average farm size and mechanization. Landscape planning was deemed to be a rearguard action. In a rare case of strategic policy development Staatsbosbeheer decided that a new way of working had to be developed.

Step by step, informed by the tacit knowledge of the landscape architects in the field and aided by the Wageningen University Landscape architecture research we developed a strategy that we dubbed 'Casco-concept'⁵.

It aimed at a spatial separation of forms of land use with different dynamics. A strong and stabile framework had to be made for the land uses with long developing times like Nature, Forestry, Drinking water production et cetera. The dimensioning of the framework was geared to giving the economic land use functions, as agriculture, leisure, urbanization, flexibility for their – unpredictable – development.

We had the ambition to make pilot studies on a regional scale for all the landscape types in the Netherlands that produced guiding principles for the smaller scale land re-allotment and land use planning schemes.

The first pilot was done in the landscape of our Pleistocene sandy soil landscapes where modernization of agriculture was especially unruly. The second pilot was done for the river area in the form of an entry to the 1985 Eo Wijers competition. Our plan with the motto 'Ooievaar' (Stalk) showed that both economy and ecology could be boosted in the river region⁶.

Ecology by lowering or breaking the summer dikes allowing the river dynamics more space, more frequently, and during longer periods. This would allow the riparian woods to come back that had disappeared in the Netherlands since the 18th century due to logging but predominantly (over)grazing by cattle from farmers.

The economy could be boosted by offering individual farmers a high water and a low water ditch system so that they can fine-tune the water demand of their production.

The frame work in this case was to be the newly re-natured floodplains the flexible workspace for agriculture was offered on the landside of the dike. The crucial element that gave way to nature development was the discovery that the increased resistance of the flow of water, ice and sediment produced by the new woods could be compensated by excavating by pebble, sand and clay firms (thus giving more room to the river).

This playful way of river maintenance was made possible by the first computer models that could calculate quickly how these parameters are interdependent. The plan had a toolbox character for the river area and was

⁵ See for a publication in English from this period: Dirk Sijmons, *Regional Planning as a strategy*, In: Landscape and Urban Planning (18) 265-273 Elsevier Science Publishers, (1986),

⁶ Bruin, Dick de, Dick Hamhuis, Lodewijk van Nieuwenhuijze, Willem Overmars, Dirk Sijmons, Frans Vera *Ooievaar en de toekomst van het Rivierengebied* (The book publication of the plan, with an English Summary) Gelderse Milieufederatie, Arnhem, 1987

a great success. The plan 'self-executed' in a way, by a new coalition of societal actors.

The World Wildlife Fund took the initiative and provided the money for the buy-out of farmers, whose organizations were keen to seize the opportunity to leave the – production wise – unpredictable high waters of the floodplain. The excavation firms – after years of bad PR on their environmental impact – enjoyed their newfound public role. The principles of Plan Ooievaar were applied over some 2.000 hectares in the river region and indeed boosted the biodiversity, as recently published longitudinal monitoring studies show.⁷

The plan was a major source of inspiration for the Strategic National plan on Ecological Infrastructure⁸, that in his turn was the source for the Natura 2000 ambitions to make a connected network of natural areas all over Europe. And last but not least, the introduced ways of practicing judo with the natural forces, laid the basis for the later philosophies to reevaluate, and give more room to, the river.

(Illustration collage Plan Ooievaar)

Room-for-the-River was initiated by the Ministry of Public Works round 2005 to facilitate increased – climate change informed – river discharges from 15.000 to 16.000 m³/second. It is a project with several trend cracks. For the first time the Dutch Pavlov effect was suppressed of raising the dikes as the only solution in times of danger. The second trend crack was the process architecture. RWS always worked top-down but observed that they only organized their own resistance in that way. It had to be a bottom-up project where the State only checks and proofs but the responsibility should be in the hand of local government.

The third trend crack was that landscape quality had to play a significant role. In that period I was appointed as the (first) State Advisor on Landscape.

Together with the appointed director for the program, Ingwer de Boer, we agreed that it would be a sound idea that spatial quality should be the second main goal for the project besides the paramount safety goal. This was not only cashing in on the experiences in the dike enhancement and the results of Plan Ooievaar, it was also a well understood self-interest for the RWS as one of the instruments to gain public support for all the measures that had to be taken.

This double ambition was taken up in the central planning document and approved by the Dutch Parliament, thereby giving it a formal status. The cooperation between river specialists and landscape architects already started in the preliminary analyses, where nine ways to give room to the river and thus to safety were identified.

Laying back the dikes, lowering the flood-plain, removing obstacles, storing water temporarily, 'depoldering', deepening the summer-bed of the river, lowering the groynes, making high-water channels, and only in situations where giving more room to the river is not an option: the strengthening of the dikes.

Surveying the river region looking where these measures could be applied, resulted in a harvest of more than 600 possible projects, large and small. Thematic regional strategies were outlined to test the combinatory strength of the measures: A Broadened River Line, New Rivers and a strategy where the complete task would be done by urban projects exclusive, not only for safety reasons but offering cities the possibility to create new water-fronts.⁹

(Illustration, three strategies from the Spankrachtstudie)

The next step was crucial: the Ministry organized a tour along all the provinces, municipalities and water boards to look if synergy between local projects and ambitions and the Room-for-the-River projects could be constructed. In that way 34 projects were selected that together would make the river system as a whole to transport 16.000 m³/second (the calculated maximum high water load) of water, ice and sediment but also had a head start when it came to public support. (See also the contribution of Broens in this issue).

(Illustration of the 34 projects of Room-for-the-River)

Together with the program director we decided to steer away from technocratic ways of reviewing the spatial qualities of the plans – like Multi-criteria analyses – but choose for a face-to-face approach. Quality is man's work was the motto and a Quality Team was installed. (Spatial) quality is a slippery concept and we needed some criteria to assess the plans. I defined spatial quality – with a wink to Vitruvius – as the coherence in a project between hydraulic efficiency, ecological robustness and aesthetic meaningfulness.

But the main thing is that there is dialogue over quality. Quality is a verb. To start the dialogue and do justice to all the elements of spatial quality we needed a multidisciplinary team. I was lucky to bring together the best of the best. Sjeff Jansen as an acclaimed ecologist, Maurits de Hoog, professor in urbanism, Dick de

⁷ Rijn in Beeld, www.rijninbeeld.nl/

⁸ Ministerie LNV (Agriculture, Nature and Fisheries) *Natuurbeleidsplan*, 's Gravenhage, 1990.

⁹ Spankrachtstudie

Bruin who reviewed river projects for the World Bank and Frans Kleijn a hydraulic modeling wizard from Deltares.

The Quality-team is still active, but now chaired by my successor as State advisor on Landscape, Eric Luiten. The intensive kick-off period of all the 34 projects demanded a one-day-a-week schedule, always on location. We were both close advisors of the project management of each project as an ally to the designers in the projects.

The Quality team had four proving moments. The first visit was planned just before the signing of administrative agreement on the project definition by the government body responsible for the specific project. One visit in the stage where alternatives were generated by the planning team, one visit midway the preliminary design phase and a visit where the foundation was being laid for the final advice on spatial quality to the Minister, a go-no-go decision for the project.

After a green light documents were prepared for a successful tendering of the project. Now that the execution phase for all the projects is in full swing, it was considered wise to let the Q-team add yet another visit and control the quality of the works. The Q-team reported back to Dutch Parliament together with the program directorate but in the form of yearly reports on the progress of the design work. In this yearly report we included the progress in the form of drawings of the projects, of pinpointing the main discussions we had with the project managers and the landscape architects showing the nudging and fine-tuning of each project.

(illustration page of a year report)

The key question is course if this approach resulted in better projects and, if indeed, the spatial quality of the river region was preserved or even improved. Without empirical ways of proving this, but seeing all projects come to materialization I dare to say that the answer is an unconditioned yes¹⁰. The collaboration between landscape architects and engineers from the beginning of Room-for-the-River at large but particularly for each and every one of the 34 projects really added value and quality to the projects.

The existence of a Quality team nudged the Advisory-firms, that were active in the projects, to hire or call in landscape architects and other designers. There remain differences in quality of the projects of course, but the mean quality is high. In terms of the thought for coherence between hydrology, ecology and the landscaping of the waterworks but also because of the attention that has been paid to the 'details' in the form of artifacts like mounds, bridges, quays, pumping stations and new farms. (E.g. Noordwaard, Kampen, Lent, Overdiepse Polder, Deventer).

Post scriptum

In the end of 2015 en the spring of 2016 all the projects will be ready, at least for the guaranteed water safety. Revised calculations on the trends stemming from climate change show that we, in an extreme scenario for 2100, have to reckon with the combination of a rise of the sea level with more than one meter and river discharges up to 18.000 m³/second, 2.000 more than Room-for-the-River accounted for. A new and even more operation, embedded in the comprehensive Delta program, will have to be organized again. Room for the River has been the training ground for this new, even more challenging, operation for the emerging multi-disciplinary consortium of engineers, landscape architects ecologists and urban designers.

¹⁰ Frans Klijn, Dick de Bruin, Sjeff Jansen, Maurits de Hoog & Dirk Sijmons, *Design Quality of Room for the River measures in the Netherlands: Role and assessment of the Quality team*. The International Journal of River Base Management, 2013, 11 (3), 287-299