The transition to sustainable concrete in the Netherlands through network governance

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Abstract: In response to the alarming environmental problems, frontrunners in the concrete sector have joined forces with government, the building- and recycling sector and research institutes to formulate the Dutch Concrete Agreement in 2018. The aim is to reach ambitious environmental and social goals and transform the concrete sector into a sustainable direction. This paper analyses the governance of the Concrete Agreement and the results gained until now. It is concluded that a network of partners has jointly managed to develop roadmaps with which the intended goals can be reached. This new form of network governance mediated by an independent chair does not replace conventional public governance but complements it. The challenge ahead is to mobilise the whole concrete sector in the scale up phase to act according to the Concrete Agreement.

Keywords: Dutch Concrete Agreement; frontrunners; network governance; roadmaps; innovation programme.

1 Introduction

To reach ambitious sustainability targets, the Dutch concrete sector has formulated a Concrete Agreement in 2018 together with government, the building and recycling sector and research institutes. All 82 parties involved were aware of the urgent need to reduce the environmental impact of concrete, particularly cement. The challenge was to set up an execution programme that would achieve the targets set. This paper addresses the governance of the Dutch Concrete Agreement and the results gained until now. Through network governance mediated by an independent chair, this challenge is expected to be met.

2 Preparing phase: Formulating the Concrete Agreement

The Concrete Agreement was signed on 10 July 2018 by about 82 representatives from all segments of the concrete chain, the government (also in their role as a public commissioning party) and research institutes. To reach an agreement, these representatives negotiated for one year. After that, another half year was needed to convince parties to formally sign the agreement. Negotiations concerning the text of the Concrete Agreement focused on a time horizon lasting until 2030 and four main themes: CO_2 reduction, the circular economy, natural capital, and social capital. For each theme, specific actions and clear intermediate and final targets were formulated. The targets of the Concrete Agreement set for 2030 are:

- a CO_2 reduction of an intended 49% compared to 1990 — which aligns with the climate targets of the Dutch government (recently raised to 55%);
- 100% high value reuse and recycling of concrete in the building- and construction sector;
- a net positive value of natural capital, meaning that after extracting sand and gravel, in particular, the natural environment is left with higher biodiversity than before;
- increased social capital in the form of improving and sharing knowledge, innovation and education.

For each target, specific actions were formulated. A supportive government removing barriers, a monitoring scheme and good cooperation in the concrete chain were mentioned as important conditions for the targets to be met.

3 Execution of the Concrete Agreement

The execution of the Concrete Agreement is subdivided into three phases:

- Phase 1: building (July 2018 - January 2022);
- Phase 2: scaling up (2022 –2026);
- Phase 3: mainstreaming (2027- 2030).

What follows is a description of experiences from the building phase only, as scaling up has just started.

During the building phase we wanted to ensure that everyone from the concrete chain (including the building - and recycling sector) and commissioning parties could implement the Concrete Agreement in the scaling up phase. Together with a secretariat (of 0.6 FTE), the author of this paper orchestrates the overall process as the chair. As a first step in this phase, the chair outlined a governance structure in close collaboration with the steering committee.

This steering committee consists of 13 members, each representing a particular subsector of the concrete product chain, public and private commissioning parties, the national government, research institutions and civil society. Besides that, three independent experts function as monitoring committee. Finally, seven self-steering execution teams were instated to oversee the following themes:

- circular design;
- CO_2 reduction;
- recycling/reuse of residual concrete streams;
- natural capital;
- an environmental costs indicator (ECI) assessing the overall environmental improvement;
- education and knowledge-sharing and
- knowledge and innovation.

The steering group appointed directors for each team, who are tasked to prepare a roadmap for how to achieve the targets, an overview of the needed instruments and a monitoring scheme. Most costs for these activities are paid out-of-pocket by the participants themselves. The government has made some money available for hiring experts for specific tasks, financing the secretariat, and communicating the results.

The network of partners has recently finished its work. From May 2021 on, the preparations for the scaling up phase started. Through off- and online communication the whole concrete chain will be mobilised. Everyone is expected to act according to the rules formulated in the Concrete Agreement.

4 The crucial role of commissioning parties

The commissioning parties are crucial for ensuring that all parties participate. Specifically, they apply in their procurement policies requirements related to the decreasing ECIs over time for concrete applications, to circular demolishing and building and to biodiversity, thereby steering what the market must do. It was a major challenge to get a binding commitment from all public and private commissioning parties to act according to the objectives of the Concrete Agreement. The chair asked the national government to oblige them to do so but until now without success. The Dutch government has decentralised many tasks, including procurement. The three ministries most closely involved in the agreement – of internal affairs, of infrastructure and water management, and of economic affairs and climate – were willing to endorse the initiative, but all commissioning parties had to come on board voluntarily. To speed up the process, the chair approached the major organisations representing the commissioning parties and asked them to help mobilise their members. This process did not lead to the desired result. Therefore, political pressure is needed to overcome this bottleneck.

A frontrunner group of commissioning parties offered to assist in developing tools which they can use in executing the main objectives of the Concrete Agreement. This group has acted as the informal, eighth execution team. This triggered a Cheerio's effect, which will increase the pressure on the national government to mobilise full commitment of all commissioning parties. This is

needed to create a level playing field for the whole concrete sector.

5 Results

In April 2020 all eight execution teams finished their work and published reports which can be found on the website of the Concrete Agreement (www.betonakkoord.nl). The team circular design developed the construction value model (in Dutch known as '*bouwwaardemodel*'), which will be used as a basis for all activities (see figure 1). This model includes all 10 steps of the R-ladder of circularity (from refuse, reduce, redesign, reuse to recycling) (Cramer, 2020). The CO_2 team formulated a list of about 30 options to reduce the CO_2 emissions in the concrete chain with at least 55-60% compared to 1990. The recycling/reuse team generated a roadmap to recycle and reuse residual concrete streams and bring those back in the building cycle before 2030. All CO_2 and recycling/reuse options are included in the innovation programme and translated in ECIs to be applied in the procurement requirements. Biodiversity indicators assessing the net positive natural capital value will be developed in the coming two years and then also be included in the procurement requirements. The ECI team published a draft report on the decreasing ECIs to be applied from 2021 till 2030. The Steering Committee has recently decided to increase the ambition level of these ECIs based on the critical comments of the commissioning parties. The Steering Committee concluded that a more ambitious path is possible as numerous innovative solutions are already applied by frontrunners and more options will become feasible in the coming 5 years based on the results of the innovation programme.

The activities of the team education and knowledge-sharing resulted in numerous initiatives of the Betonhuis (Concrete home, branch organisation of the concrete sector) and the Concrete Society. Off- and online communication has been set up to interact with their followers on the innovation programme and the showcases of frontrunners. Moreover, educational programmes have been better attuned to the renewal of the concrete chain.

The activities of the team knowledge and innovation will be taken over by the newly established team that coordinates the innovation

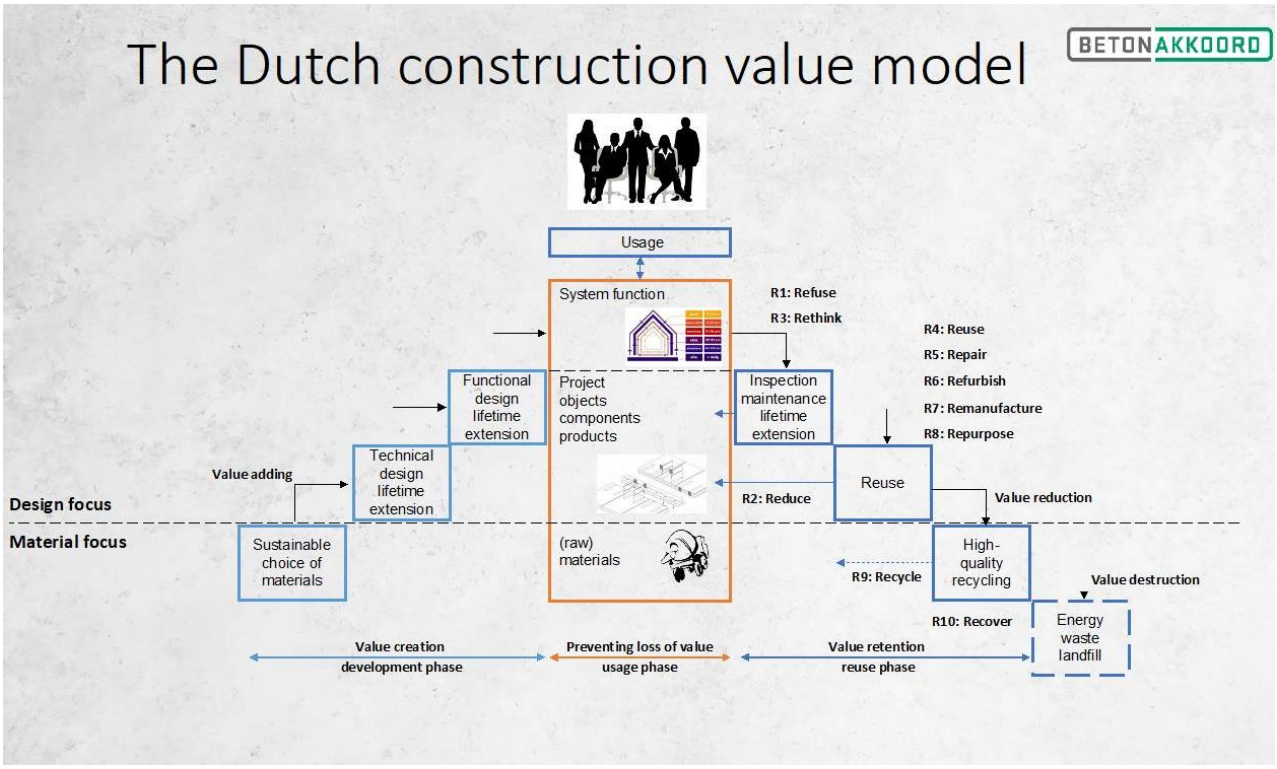

Figure 1. The Dutch construction value model, developed by the execution team circular design

programme.

6 Innovation is indispensable

When the first drafts of the roadmaps of the execution teams were formulated, it became clear that innovation was indispensable to reach the targets. Innovation projects which could lead to implementation in about one to five years were the most appealing, as they could be rolled out in time to reach the Concrete Agreement targets of 2030. The commissioning parties provided 8 million Euros (of which 50% in kind) to kickstart an innovation programme. To avoid overlap, the aim is to orchestrate innovation projects to be financed and, as much as possible, aligned with each other. The preferences of the commissioning parties will be matched with the innovation proposals submitted by the market.

The innovations are divided into three categories:

- those immediately implementable can be clustered in group 1;
- those that require innovative efforts can be clustered in group 2 (to be implemented in one to two years);
- and group 3 (to be implemented within three to five years).

The three main innovation clusters identified are:

a. low carbon concrete;
b. lifetime extension and
c. smart, modular, and adaptive design and circular building.

For the last innovation cluster (c) the construction value model will be the starting point.

7 Conclusions

The Dutch Concrete Agreement is a good example of how a network of different parties can jointly realise ambitious goals aimed at sustainability, in this particular case of concrete. The Dutch concrete sector is highly regulated, which makes it hard to develop and implement innovations.

However, by adopting a frontrunners approach, innovative companies can take the lead in the change process. They are supported by commissioning parties that strongly influence the performance of the concrete sector via their procurement policies. The transition to more sustainable concrete is therefore an interplay between the sector itself, commissioning parties, research institutes and national and local governments.

This form of network governance does not replace conventional public governance, but rather complements it. The national government remains, as guardian of the common good, responsible for environmental policies. She sets policy goals and formulates the appropriate instruments.

However, to implement policies in the concrete sector, network governance can accelerate the change process (Cramer, 2020).

8 References

[1] Cramer, J. *How Network Governance Powers the Circular Economy; Ten Guiding Principles for Building a Circular Economy, Based on Dutch Experiences*. Amsterdam: Amsterdam Economic Board; 2020.