Chain Initiative Plan

Research into initiatives and planning of activities in VeenIX A9 BAHO initiatives

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VEENIX EPCM

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1 Introduction

Reducing CO_2 emissions transcends the scope of our individual business operations. In collaboration with our sector, we are committed to implementing comprehensive CO_2 reduction measures. FCC Construcción S.A (NL) would like to make an active contribution to this by participating in such sector- and chain initiatives in its' project VeenIX A9 BAHO.

FCC Construcción S.A (NL) is eager to share its expertise with external entities, while also remaining open to insights from other stakeholders. Participating in sector or chain initiatives aligns with this ambition. As of February 2023, several initiatives in which VeenIX is involved have been outlined. These initiatives are initiated by stakeholders pioneering innovative CO_2 reduction projects or may originated from within VeenIX.

The outlined plan details the scheduling of these initiatives for the duration of Project A9 BAHO, extending until 2028. Any changes to this plan will be discussed within the framework of the Chain Initiative Report. This plan includes the Plan phase of the Deming Circle, while the Do-Check-Act phases are detailed in the Chain Initiative Report.

The Chain Initiative Plan meets criteria 1.D.1, 2.D.2, 3.D.2, 4.D.2 and 5.D.2, set out in the CO_2 performance ladder (Handbook version 3.1). Additionally, it includes detailed actions and explanations for meeting requirements 1.D.2, 2.D.1, 3.D.1, 4.D.1, and 5.D.1. The execution of requirements 1.D.2, 2.D.1, 3.D.1, 4.D.1, and 5.D.1 is detailed in the CO2 Chain Initiative Report.

Chapter 2 discussed the plan according to the Deming circle. In addition, related documents are named in this chapter. Then in Chapter 3, an explanation of all initiatives can be found divided into a section with research initiatives and selected initiatives. Then the selected initiatives are discussed in detail in Chapter 4. The examined initiatives can be found in Appendix A.

2 Plan

The foundational step towards active involvement within the sector is the Plan phase (Deming). During this phase, a comprehensive analysis of our dominance, alongside an examination of sector and chain initiatives is undertaken. Subsequently the communication plan, the work process, the chain initiatives (execution) and the chain analysis are reviewed.

2.1 Reflection on relative and other docs

Information presented in this section originates directly from the documents titled;

- Scope 3 Dominance Analysis 2020-2024
- Value Chain Analyses
- SKAO Measurelist 2025 and Planning Measures
- CO2 Communication Plan

The dominance analysis conducted in 2020 and 2022 reveals that initiatives focusing on the materials ground, concrete, steel, asphalt, and energy can yield the most significant impact. Additionally, the dominance analysis includes an updated version of the A-supplier list. For 2024, the same conclusions hold true, emphasizing the importance of these materials and energy initiatives in achieving sustainability goals and improving overall efficiency

Information presented in this section originates directly from the document titled; 'Value Chain Analyses'. The chain analysis demonstrates that initiatives conducted in collaboration with or focusing on A-suppliers have the greatest potential for impact on CO_2 reduction.

We also looked at the measures in FCC's measurelist and used measures from the SKAO as inspiration to draft measures for FCC. The planning with the measures related to initiatives can be found in the document 'Planning Measures'.

Finally, the 'CO2 Communication Plan' was used to meet the communication requirements for each initiative. The CO2 Communication Plan shows when and how the initiatives will be communicated.

3 Initiatives

3.1 Research

Through participation, we demonstrate our commitment to investing in collaboration, knowledge sharing, and leveraging externally developed expertise whenever possible. We continuously achieve improvement in selecting valuable initiatives and applying knowledge within the organization.

We leverage externally developed knowledge by examining CO_2 reduction initiatives that are linked to the largest energy flows in our project. We reviewed sector-wide initiatives, examined peer transportation initiatives, and reviewed initiatives of our A-suppliers. The research was conducted by looking into level 4 and 5 companies to gather information on what initiatives these companies started and how they comply to the requirement. The research regarding the initiatives of the A-suppliers was conducted by looking at which suppliers are known to the SKAO because of their CO2 performance ladder certificate, several documents on different types of initiatives were found. Subsequently, desk research was used to find what the various initiatives entail and what the goals of the initiatives are. Finally, the list of initiatives was assessed against FCC's most material emission streams to determine which initiatives are relevant to the company.

Subsequently, the most material emission streams have been used to categorize the initiatives in Appendix A. Each initiative will be qualitatively assessed in terms of its relevance to 'Project A9 - Veenix'. Additionally, determinations will be made regarding whether activities within these (sector or chain) initiatives can be actively embraced. Based on the research, we examined which initiatives FCC itself is already implementing and which are not. The initiatives FCC is implementing itself are discussed further in section 3.2. The remaining initiatives are classified below according to emission stream:

Concrete	
Concrete made from elephant's grass	Development project
Betonakkoord	Initiative
Alternatief beton	Initiative
Recycled sand in structural concrete	Initiative
Asphalt	
ASPARI (Asphalt Paving Research and Innovation)	Initiative
Grasfalt (grassphalt)	Sector-wide program
Energy	
Zero Emissions Dredging Hub	Initiative
Het Nieuwe Rijden	Initiative

These initiatives can also be found in Appendix A. The initiatives chosen, along with a substantiation as to why they were chosen, can be found in section 3.2.

3.2 Selection

After the phase of exploring opportunities for collaboration, knowledge sharing, and leveraging externally developed expertise, we have identified initiatives for CO_2 reduction that our organization can pursue. FCC must have three different types of initiatives to meet the requirements. These are an industry-wide initiative in which the company is actively participating for requirement 3.D.1, a development project for requirement 4.D.1 and a sector-wide program for requirement 5.D.1.

By conducting the research in the previous section, we meet requirement 1.D.1 to be aware of industry initiatives. Through the initiative E-driver we comply with requirement 3.D.1, which means we also comply with requirement 2.D.1 and 2.D.2. The conditions for meeting this requirement are fulfilled in Chapter 4. Regarding the development projects, we have chosen to proceed with the following initiatives: EPS recycling, Pilot Project Concrete, Reuse Beams, Reuse Guardrails, Reuse Noise barriers and application of recycled sand in structural concrete. By using the principles of the circular economy, it becomes easier for companies that join the initiative to save in CO_2 emissions in terms of the production of the parts. The

projects are still in progress, but they will eventually benefit us by complying with requirement 4.D.1. The conditions for meeting this requirement are fulfilled in Chapter 4.

The chosen sector-wide CO2 reduction programs of FCC Construcción S.A. (NL) are Reuse Beams, European E-driver, application of recycled sand in structural concrete. The project Reuse Beams can also be seen as a sector-wide program because it also looks at the emissions of the partners in the chain. By using the circular reuse strategy, less production takes place and it is possible to make an impact in the chain of partners. In addition, the Rijkswaterstaat has been involved in the project, fulfilling the requirement to have a government agency involved.
Now, the official e-driver course can only be followed in the Netherlands by Dutch speakers. Looking at the SKAO's ambitions to expand in Europe, we decided to make the e-driver initiative also possible in other European countries such as Spain and England. Therefore, it was chosen to launch European E-driver as a sector-wide program.
The chosen initiatives of FCC Construcción S.A. (NL) are:

Chain initiatives
- Energy
- E-driver

Development projects:
  - Ground
    - EPS recycling
- Concrete
- Pilot Project Concrete (Kijlstra and Mebin)
- Re-use Noise barriers
- Re-use Beams (SBIR, RWS, province of North Holland)
- Application of recycled sand in structural concrete (Renewi and Heidelberg)

- Steel
    - Re-use Guardrails (Heijmans)

Sector-wide program:
  - Concrete
- Re-use Beams (SBIR, RWS, province of North Holland)

4 Chosen initiatives

4.1 GROUND

4.1.1 EPS recycling (replacement soil)

Purpose of the initiative
The initiative aims to promote the sustainable use of Expanded Polystyrene (EPS) in the Netherlands. FCC has started using EPS instead of ground and is looking for ways to reduce the impact of EPS. By advocating for the adoption of EPS as an alternative to traditional ground materials, the initiative seeks to reduce environmental impact, enhance construction efficiency, and improve long-term performance.

Background information
Traditional ground materials used in infrastructure construction, such as soil and aggregates, often present challenges in terms of weight, stability, and environmental impact. In response to these challenges, EPS has emerged as a viable alternative offering unique advantages.

EPS, a lightweight and versatile material, exhibits excellent compressive strength and durability, making it well-suited for various infrastructure applications. Unlike traditional ground materials, EPS offers superior resistance to moisture, chemicals, and biological degradation, ensuring long-term performance and minimizing maintenance requirements.

However, EPS is less sustainable compared to ground. Therefore, this initiative does not promote the use of EPS in infrastructure projects. It promotes the recycling of EPS as a means to enhance sustainability and resilience.

It is not known at this time whether any other company in the infrastructure is recycling EPS. If FCC decides to go ahead with this, we will have to initiate it ourselves. The supplier FCC is working with is Joost Kunststoffen Beverwijk BV, which will be responsible for finding a good solution to recycle the material after 50 years.

Motivation to participate.
The footprint of EPS is higher than the footprint of ground. Therefore, the material stream 'Ground' is the most material stream of emissions. FCC can realize a large reduction by launching an initiative for this material stream.

Predicted role and responsibilities VeenIX A9 BAHO
Delivering the EPS back to Joost Kunststoffen Beverwijk BV after 50 years.
Discussing the possibility to recycle EPS with Joost Kunststoffen Beverwijk BV.

Predicted role and responsibilities external parties
Delivering the new EPS to VeenIX A9 BaHo and taking the EPS back after 50 years of usage.
Using different circular strategies on the returned EPS to lower emissions.

4.2 CONCRETE

4.1.2 Pilot project concrete

Purpose of the initiative
This initiative has been introduced by Kijlstra and Mebin, the primary suppliers of concrete for the A9 project. Kijlstra and Mebin have undertaken research aimed at fostering a paradigm shift in approach, focusing on formulating concrete mixtures oriented towards delivering optimal performance rather than adhering to traditional proven formulations. This initiative holds promise as a sustainable pilot within the A9 project and potentially across various project typologies. To broaden its impact, the initiative is being transformed into a sector-wide program aimed at reducing CO_2 emissions, with the involvement of additional stakeholders. Rijkswaterstaat, serving as a sustainability advisor, is actively contributing to the development of this program.

Background information
The primary constituents of concrete consist of granite and sand, with secondary inclusion of a by-product known as premix plus, which constitutes the focal point of the initiative. A typical cubic meter of concrete comprises approximately 1200 kilograms of granite and 800 kilograms of sand, with 25% of the sand component comprising premix. Presently, ongoing experimentation involves the utilization of premix as a potential substitute for cement in future formulations, given its lower environmental impact. However, its implementation in high environmental class contexts remains unfeasible due to prescribed standards, such as XL4, which mandate specific water proportions.

A study conducted by SGS has concluded that such constraints may not be necessary. SGS research indicates that concrete mixtures incorporating premix alongside granite exhibit reduced resistance to freeze-thaw salt loads. Furthermore, these mixtures perform comparably to 'normal' concrete formulations devoid of premix but containing higher cement content.

Further investigations are warranted in this domain, with potential avenues including collaborative initiatives involving multiple concrete suppliers to gather insights on similar endeavors. Another key supplier, Botrop, is concurrently exploring alterations and innovative approaches within the realm of cement and concrete. This initiative holds promise as a potential pilot project within the scope of the A9 endeavor.

By pursuing these endeavors, significant strides are being made toward refining the Environmental Performance Indicator (MKI) of concrete mixtures and harnessing available technical capabilities. The integration of premix represents a notable innovation aligning with the objectives outlined in the Concrete Agreement, to which Rijkswaterstaat is a signatory. Moreover, the versatility of this approach renders it applicable across the entire sector, thereby potentially exerting widespread influence.

Motivation to participate.
Starting a sector-wide CO2 reduction program with other parties involved and running the first pilot in the A9 project.

Predicted role and responsibilities VeenIX A9 BAHO
Discussing with RWS on the possibility of integrating an innovative initiative like this into the sector and the project.
Gathering other potential contributors to the initiative.

Predicted role and responsibilities external parties
Kijlstra and Mebin will supply the new mixture of concrete.
Rijkswaterstaat will contribute by participating in the dialogues.

4.1.3 Re-use of noise barriers

Purpose of the initiative
The purpose of the initiative is to contribute to innovative circular projects in a sector that has many released materials and with that a high potential to support the circular economy.

Background information
Not available yet

Motivation to participate
This kind of project is happening for the first time within the government and it is an important step towards a circular infrastructure sector. In addition, knowledge is being accumulated to develop reuse into an economically attractive alternative. In this way, more components in the infra sector can be used circularly in the future.

Predicted role and responsibilities VeenIX A9 BAHO
FCC will deliver the noise barriers that can be reused. In addition, it is possible that the company itself will reuse some for the A9 Badhoevedorp-Holendrecht project, making them both supplier, and buyer.

4.1.4 Re-use beams VeenIX A9 BAHO

Project owner
Within FCC Construcción S.A. (NL) Eddie de Jong is the project owner of the project 'Re-use beams VeenIX A9 BAH0'.

Background information
In 2020, SBIR (Strategic Business Innovation Research) Circular Viaducts commissioned by Rijkswaterstaat began a feasibility study of reuse concepts in infra. VeenIX A9 BAHO has been involved in this project since 2022. FCC Construcción S.A. (NL) is working together with SBIR, Rijkswaterstaat and the province of North Holland to reuse part of the beams of the overpasses that will be released during the expansion of the highway.

Purpose of the initiative
The purpose of the initiative is to contribute to innovative circular projects in a sector that has many released materials and with that a high potential to support the circular economy.

Motivation to participate
This kind of project is happening for the first time within the government and it is an important step towards a circular infrastructure sector. In addition, knowledge is being accumulated to develop reuse into an economically attractive alternative. In this way, more components in the infra sector can be used circularly in the future.

Role and responsibilities VeenIX A9 BAHO
A total of approximately 1,300 beams have the potential of being removed from the overpasses in the VeenIX A9 BAHO project. Currently the first beams are being harvested by SBIR. VeenIX owns these beams. In consultation with the province of North Holland and Rijkswaterstaat, 32 of these beams will be reused to build a new bridge deck in the N201 at Kortenhoef. For the remaining beams a destination have yet to be found. VeenIX A9 BAHO has expressed its intention to also harvest the remaining girders from the A9 as much as possible.

Predicted role and responsibilities external parties
There are multiple parties involved in the initiative. We will constantly search for parties that are willing to take-over beams to put them in another project.
The status of the project will be frequently discussed with Rijkswaterstaat.

Budget
Budget allocation of over €50.000 for developing and deploying CO_2 reduction measures and Participation in initiatives. The information request on the proof of budget allocation can be found in the minutes of the CSR Board agenda (CSR Board agenda 20240207).

Planning Re-use beams A9
A new initiatives plan is drawn up every year, which indicates when, by whom and what actions with the target groups will take place. This plan was requested in the minutes of the CSR Board agenda (CSR Board agenda 20240207).

Intended communication
A description of the project will be updated annually on the SKAO and FCC website. This will name the measure and the progress of the project. Finally, upon completion of the project, the information gained will be placed in a sector magazine to be shared with other parties in the sector.

Source	Date
https://www.cementonline.nl/hergebruik-liggers-a9	19/12/22
https://www.infrasite.nl/actueel/2023/01/19/liggers-viaducten-a9-krijgen-tweede-leven-in-n201/	19/01/23
https://www.cobouw.nl/310742/vintage-brugliggers-worden-het-helemaal-verwacht-rijkswaterstaat	24/01/23

https://struktonciviel.nl/our-stories/news/2023/03/circulaire-cirkel-start-met-oogsten-liggers/	15/03/23
https://www.nebest.nl/oogst-liggers-a9-gestart/	16/03/23
https://www.betonenstaalbouw.nl/artikel/met-vallen-en-opstaan-naar-een-duurzame-infrastructuur/	10/05/23
Sustainable milestone in the widening of the A9: First application of recycled sand in structural concrete | Renewi	09/04/2025

4.1.5 Application of recycled sand in structural concrete VeenIX A9 BAHO

Project owner
Within FCC Construcción S.A. (NL) Roberto Huertos Rodriguez is the project owner of the project 'Application of recycled sand in structural concrete'.

Background information
The project originated from the vision to become more sustainable in terms of materials. We saw opportunities to lower the project's MKI (ECI) and reduce emissions with the same initiative. By having the project defined at Rijkswaterstaat as a structure, it became possible to implement the reuse project.
We then discussed the opportunities to use recylced materials, chosen Renewi as a subcontractor helped Veenix to implement sustainable measures under a circular economy scope.

Purpose of the initiative
The initiative focuses on incorporating sustainable practices in construction by using recycled materials, specifically recycled sand in structural concrete. This approach aims to reduce the reliance on natural resources and promote circular economy principles.

Motivation to participate
The motivation behind this initiative is driven by the urgent need to address the decreasing availability of natural resources such as sand and gravel. By recycling concrete rubble, the project contributes to sustainable construction practices and aligns with the goals of the Betonakkoord, which mandates full circular application of concrete waste streams by 2030.

Role and responsibilities VeenIX A9 BAHO
Veenix oversees the implementation of sustainable practices, including the use of recycled sand in concrete. VeenIX ensures that the recycled materials meet the stringent specifications required for structural concrete.

Roles and responsibilities of external parties
Renewi: Processes and recycles concrete rubble to produce high-quality recycled sand.
Heidelberg Materials: Uses the recycled sand to produce structural concrete for the new viaducts.

Budget

Planning Application of recycled sand in structural concrete A9
The planning involves the demolition of existing viaducts, recycling the concrete rubble, and using the recycled sand in the construction of new viaducts. This process ensures that the recycled materials meet the required quality standards for structural concrete.

Intended communication
A description of the project will be updated annually on the SKAO and FCC website. This will name the measure and the progress of the project. Finally, upon completion of the project, the information gained will be placed in a sector magazine to be shared with other parties in the sector.

4.3 STEEL

4.1.6 Re-use guardrails VeenIX A9 BAHO

Project owner
Within FCC Construcción S.A. (NL) Roberto Huertos Rodriguez is the project owner of the project 'Re-use guardrails VeenIX A9 BAH0'.

Background information
The project originated from the vision to become more sustainable in terms of materials. We saw opportunities to lower the project's MKI (ECI) and reduce emissions with the same initiative. By having the project defined at Rijkswaterstaat as a structure, it became possible to implement the reuse project. We then discussed the steps to renovate the guard rails and chose to hire Heijmans as a subcontractor for this project.

Purpose of the initiative
The purpose of the initiative is to reduce primary materials in the 'VeenIX A9 BAHO' project. This lowers the project's MKI (ECI) value. This is of great importance because a low MKI (ECI) value is a requirement from the Rijkswaterstaat. In addition, this initiative allows us to reduce CO2 by reducing the number of products that need to be produced.

Motivation to participate
This kind of project is happening for the first time within the government and it is an important step towards a circular infrastructure sector. In addition, knowledge is being accumulated to develop reuse into an economically attractive alternative. In this way, more components in the infra sector can be used circularly in the future.

Role and responsibilities VeenIX A9 BAHO
FCC can be seen as the organisator of the project 'Re-use guardrails VeenIX A9 BAHO'. We are responsible for finding parties to join the initiative and we are conducting the discussions with the Department of Public Works. During these meetings, changes in the contract, for example, of the 'VeenIX A9 BAHO' project are made, thus creating opportunities to reduce emissions.

Roles and responsibilities of external parties
The subcontractor for this project is Heijmans. Heijmans is a listed company that carries out activities in various sectors, including infra. The company is responsible for the inspection, design and delivery of existing and new guard rails.

Budget
Budget allocation of over €50.000 for developing and deploying CO_2 reduction measures and Participation in initiatives. The information request on the proof of budget allocation can be found in the minutes of the CSR Board agenda (CSR Board agenda 20240207).

Planning Re-use guardrails A9
A new initiatives plan is drawn up every year, which indicates when, by whom and what actions with the target groups will take. This plan was requested in the minutes of the CSR Board agenda (CSR Board agenda 20240207). However, the first inventory of available guardrails is available and can be seen as the first step towards a planning. The inventory can be found in the document 'A9 VeenIX Schouw geleiderail opname'.

Intended communication
A description of the project will be updated annually on the SKAO and FCC website. This will name the measure and the progress of the project. Finally, upon completion of the project, the information gained will be placed in a sector magazine to be shared with other parties in the sector.

4.4 ENERGY

4.1.7 E-driver

Background information

E-Driver offers programs that activate and guarantee safe and sustainable driving behaviour. This way you achieve lower CO_2 emissions. e-Driver programmes are accessible, effective, require minimal time investment and have a proven track record: organisations reap the benefits immediately. Due to the popularity of the initiative, it is very likely that the VeenIX A9 BAHO subcontractors are already taken part in this initiative. If so, this is expected to drastically decrease the need for resources from VeenIX A9 BAHO's perspective.
E-Driver is an evidence-based method that stimulates commercial vehicle drivers to drive safely with reduced CO_2 emissions. Work hours lost due to training are minimal, and thanks to the low investment, the programme is very cost-effective. TÜV Rheinland has demonstrated the effectiveness of e-Driver.
E-driver is able to impact drivers, team leads and management:

- Drivers: Training programme for safe and professional driving. Personal driving coach: a new interactive online training video every six weeks. Gamification makes learning fun and effective.
- Team leads: Periodic reports that allow team leads to easily track status and progress, including support in encouraging employees to drive more safely and professionally.
- Management: Programme to kick-start and embed safe and professional driving in the workplace. Our process manager oversees successful implementation and progress.

Motivation to participate.

- Keeps employees safe on the road.
- Reduced CO_2 emissions of 8,7%
- Maximised fleet insurability
- Increased fleet sustainability
- Improved vehicle range

Reporting: E-Driver monthly reports provide insight into each employee's progress, which is especially useful for organisations that work with ISO or safety protocols. Meanwhile, employees can see how many training sessions they are still required to do and the dates for completion.
Costs: €50,- per participant per year

Website: https://edriverprogram.com/en/programmes/for-commercial-vehicle-drivers

Predicted role and responsibilities VeenIX A9 BAHO
The role of VeenIX is to seek personnel who will participate in the course. In addition, it is up to us to then notify the staff and schedule the course day with the course provider.

Predicted role and responsibilities external parties
The course provider will provide the course and a written instruction on how to drive more sustainable and safer.

4.1.8 European E-driver

Project owner
Within FCC Construcción S.A. (NL) Lisanne Bos is the project owner of the project 'European E-driver'.

Background information
Not available yet

Purpose of the initiative
The purpose of the initiative is to set up a European initiative to enable companies in other countries to participate in the e-driver initiative. The e-driver initiative can be seen as a sector-wide reduction program since the initiative can be implemented by all the different companies in the sector to achieve a reduction in their fuel consumption.

Target audience
The introduction of this measure will mainly reach companies related to transportation. European e-driver can be implemented by all types of companies using their own transport vehicles.

Motivation to participate
With this initiative, we show the potential and ambition of FCC Construcción S.A. (NL) in the European market. We are also helping the SKAO in enabling their own ambitions to extend the CO2 performance ladder to other countries. Besides that, the initiative contributes to the measure concerning 2.9 'Het Nieuwe Draaien programme' of 'Increasing the efficiency of the activity'.

Role and responsibilities VeenIX A9 BAHO
FCC Construcción S.A. (NL) is responsible for setting up the program. Our goal is to find several parties who want to contribute to setting up the European e-driver course. We initiate discussions with these parties and thus lead the project to its final goal.

Predicted role and responsibilities external parties
The goal is to find at least one NGO to join the discussion on setting up the European e-driver course. The NGO will act mainly as an advisor in this. It is also important that one or more parties are involved who can offer driving lessons and participate in the discussions. Finally, FCC subcontractors will be involved in the initiative to get involved in the discussions we will have with the other parties. In addition, they will also start the pilot to further reduce emissions from FCC Construcción S.A. (NL).

Scope of intended reduction
FCC has several trucks for transportation on, to and from the construction site. The scope of the intended CO2 reduction applies to the emissions from the transportation of FCC's trucks. In addition, reductions are also made on the scope 3 emissions from transportation by involving subcontractors in the initiative.

Budget
Budget allocation of over €50.000 for developing and deploying CO_2 reduction measures and participation in initiatives. The information request on the proof of budget allocation can be found in the minutes of the CSR Board agenda (CSR Board agenda 20240207).

Planning of activities
The course will be established during the duration of the A9 BAHO project. Several steps have been identified to get the project started. The steps to be taken are:

1. Contact SKAO to find active discussion partner;
2. Contact discussing partner;
3. Identify and contact relevant subcontractors;
4. Contact NGO or government organisation;
5. Start up working groups to discuss setting up sector-wide program;
6. Define what is needed to let the initiative succeed;
7. Gather minutes and meetings as proof of progress;
8. Start program in first country;
9. Let FCC employees participate in English e-driver course as a pilot;
10. Review the pilot;
11. Perform the steps again in another country.

Objectives
Our goal is to start the pilot project with FCC at the end of the A9 BAHO project in 2028.

Intended communication.
We intend to communicate about the initiative when we have found the other parties that want to commit to initiating European e-driver. After we bring out a declaration from the initiating parties, the next external communication will be once the first pilot is launched. In between, we will communicate the status of the project internally twice a year through the Esquina de Oradores. Finally, at the end of the pilot, we will communicate whether the initiative was successful and whether it will be taken to other countries. All but the internal communication can be seen as ad hoc communication in the Communication Plan.

To be developed

4.5 ASPHALT

There are no current initiatives chosen for asphalt.

5 Reporting

In this chapter, we delve into the practical implementation of the CO2 Performance Ladder requirements of Angle D. We explore how the initiatives of FCC systematically address each criterion, ensuring compliance to the requirements. From documenting action plans to tracking progress, this chapter sheds light on the meticulous process of filling in the necessary requirements.

The three initiatives presented herein are meticulously crafted to align with and fulfill the requisites of requirement 3.D.1, encapsulated within the CO2 Performance Ladder Handbook. The initiatives are:

1. E-Driver
   - Objective: E-Driver aims to promote fuel-efficient and environmentally friendly practices in operating mobile machinery.
- Alignment with 3.D.1: By adopting E-Driver, FCC demonstrates the participation in a chain.

The following initiatives, referred to as development projects, aid FCC in meeting the stipulations of requirement 4.D.1:

1. Reuse Projects (Re-use Beams, Re-use Noise Barriers, Re-use Guardrails)
   - FCC's reuse projects exemplify circular economy principles, minimizing waste and resource consumption.
- These projects play a vital role in fulfilling the requirements of 4.D.1 as FCC has initiated them and collaborates with various parties to ensure carbon dioxide reduction across the entire chain.

- EPS Recycling
  - FCC's commitment to recycling expanded polystyrene (EPS) demonstrates its dedication to sustainable practices.
- This initiative aligns with 4.D.1 goals for the same reason as to why the reuse projects comply with the requirement.

2. Pilot Project Concrete
   - FCC's exploration of innovative concrete solutions contributes to CO2 reduction.
- This project plays a vital role in meeting 4.D.1 criteria. FCC is the first company to run this Pilot and will use its knowledge to share it with suppliers and other parties in the chain.

4. Application of recycled sand in structural concrete
- FCC's commitment to recycling expanded polystyrene (EPS) demonstrates its dedication to sustainable practices.
- This initiative aligns with 4.D.1 goals for the same reason as to why the reuse projects comply with the requirement.

FCC has initiated several sector-wide programs in order to adhere to requirement 5.D.1 of the CO2 Performance Ladder. The initiatives include:

1. European Driver Initiative
   - FCC's involvement in the European Driver initiative expands the CO2 Performance Ladder's reach.
   - Implementation in Ireland and France, with potential expansion to the UK, Germany, and Denmark, demonstrates FCC's commitment to 5.D.1, because FCC is the first company to start this course in other countries.
2. Re-use Beams
   - The Re-use Beams project exemplify circular economy principles, minimizing waste and resource consumption.
   - This project play a vital role in fulfilling the requirements of 5.D.1 as FCC has initiated it and collaborates with various parties to ensure carbon dioxide reduction across the entire chain.
3. Emissieloos Netwerk Infra
   - Goal: ENI strives for zero-emission construction equipment by 2026.
   - Compliance with 5.D.1: FCC will set it's own form of this initiative up by encouraging suppliers to participate by sharing knowledge and implementing solutions.

Appendix A – Research initiatives

Concrete research

Concrete made from elephant's grass

Purpose of the initiative
This is a potential initiative to comply with the level 4 and 5 requirements of the CO2 performance ladder. Elephants grass (miscanthus giganteus) is being used in multiple sectors to make the concrete more sustainable. Even though the material has been used in street tiles and sound walls, it has never been used in other parts of road construction. The properties of elephant's grass need to be researched before this initiative can start to take place in the road construction sector.

Background information
Elephants grass is made from the plant miscanthus and can be used for multiple products. In construction, elephant grass can be used as a filler for concrete. The advantage of the material is that it is CO2 negative. The plant absorbs four times more CO2 than is released during the entire process from planting to construction. Using elephant grass in concrete reduces emissions from concrete per cubic meter by 8 to 31%. Also, the material is lighter than concrete, so transportation will be smoother.
The company Vibers makes concrete elements using 3D printing. These elements are used in construction. By partnering with Vibers, concrete may be able to be used in road construction. Here, it is important to involve other construction companies and government agencies in the initiative to make it sector-wide.

Motivation to participate.
Starting a sector-wide CO2 reduction program with other parties involved and running the first pilot in the A9 project.

Predicted role and responsibilities VeenIX A9 BAHO
Discussing with RWS and Vibers on the possibility of integrating an innovative initiative like this into the sector and the project.
Gathering other potential contributors to the initiative.

Betonakkoord

https://www.betonakkoord.nl

Contact

NAKKOORD Home Actueel Het Betonakkoord Ondertekenaars Aanmelden Organisatie Resultaten Opschalingsfase

Samen maken we de betonsector duurzamer

De betonsector kan en wil duurzamer worden door meer samen te werken in de keten en met opdrachtgevers. Daarom is het Betonakkoord in het leven geroepen. Een nationaal ketenakkoord voor duurzame groei van de sector. In het akkoord zijn afspraken gemaakt over welke ketenpartner welke doelen en ambities gaat realiseren. In zeven uitvoeringsteams werken de ondertekenaars aan de concrete invulling van de doelen en ambities van de betonketen.

Het Betonakkoord staat open voor alle partijen uit de Betonketen, zowel publieke als private. Wilt u ook deelnemen? Laat het ons weten! Via het formulier op deze website kunt u uw organisatie aanmelden als deelnemer of sympathisant van het Betonakkoord.

Voordelen van het Betonakkoord

Meedoen met het Betonakkoord heeft verschillende voordelen:

- U draagt bij aan de verduurzaming van de betonketen.
- U krijgt toegang tot betongerelateerde innovatie, kennis en ervaring.
- Uw concurrentiekracht verbetert; uw werkgelegenheid en markt groeit.

Meer weten?

Download het Betonakkoord (pdf, 1.1 MB)

Download de Stand van zaken (pdf, 1.7MB)

Slimmer werken, samen groeien

Jacqueline Cramer, voorzitter van het Betonakkoord in uitvoering

Alternatief beton

https://antongroep.nl/wp-content/uploads/2021/07/3.D.1-Initiatief-Alternatief-Beton.pdf

Tekenen | Hardop voorlezen | Copilot vragen | 1 van 1

3.D.1 Alternatief Beton

Initiatief CO2 Prestatieladder

De CO2 prestatieladder verwacht een actieve deelname aan een initiatief met betrekking tot CO2 reductie. Dit was voorheen het lid worden van de Green Deal Beton, maar inmiddels is dit akkoord al langere tijd niet meer actief. Inmiddels is er verder gegaan met het initiatief duurzaam beton uit 2019.

In de afgelopen tijd heeft de Anton Groep meerdere projecten uitgevoerd in het kader van alternatief beton:

- In samenwerking met een tweetal bouwbedrijven zijn er 2 betonvloeren gestort met een alternatief beton, echter was dit niet van de gewenste kwaliteit en liet de toplaag van dit beton los.
- Inmiddels is Anton in gesprek met buitenlandse organisaties die inmiddels ervaring hebben met het ontwikkelen van een alternatief. Een buitenlandse partij is al volledig overgestapt op dit alternatief en Anton zou dit voorbeeld graag volgen. Huidige klanten zijn ook erg meewillend in dit innovatieve en duurzame product wat een positief perspectief biedt.
- Er zijn positieve gesprekken met overheden en Provincie Noord-Holland om het alternatieve beton te introduceren bij klanten en het alternatief te promoten met bijbehorende CO2 reductie aangezien beton een grote impact heeft op de CO2 uitstoot. Naast gesprekken met deze partijen is er ook met een betoncentrale goed contact die mogelijk mee wilt werken aan het invoeren en produceren van dit alternatieve beton.

Naast de initiatieven voor een alternatief beton doet de Anton Groep nog meer om de uitstoot te verminderen:

- Het aanmoedigen van zuiniger rijden met de bedrijfsvoertuigen. Dit wordt uitgebreid met een koppeling van het voertuigvolgsysteem EuropeTrack en het tankpassysteem van Total. Hierdoor kunnen werknemers met dezelfde bedrijfsvoertuigen vergeleken worden met elkaar. Werknemers die een hoog brandstof verbruik hebben ten opzichte van andere werknemers kunnen dan hierop gewezen worden en er kunnen eventueel cursussen aangeboden worden.
- Het nieuwe pand van de Anton Groep op de Vaandel in Heerhugowaard wordt volledig energieneutraal door onder andere zonnepanelen en bestrating welke regenwater doorlaat naar de grond. De huidige panden worden ook constant verduurzaamd door led-verlichting, plaatsing van zonnepanelen en het isoleren van de panden.
- De voertuigen die aangeschaft worden moeten allemaal voldoen aan de uitstootnormen die de Anton Groep voorgenomen heeft. Ook zijn er inmiddels 2 elektrische auto's aanwezig binnen de Anton Groep. Het doel is uiteindelijk om alle directieleden en projectleiders in een elektrische auto te laten rijden in de toekomst. Om elektrisch rijden aan te moedigen onder de collega's worden er 20 laadpalen geplaatst bij het nieuw te bouwen bedrijfspand op De Vaandel.
- Er wordt steeds meer gewerkt met bekistingssystemen, waardoor er minder hout wordt gebruikt wat vaak niet hergebruikt kan worden, terwijl de bekistingssystemen elke keer volledig hergebruikt kunnen worden.

In 2020 is ook gewerkt aan duurzame projecten. Een hiervan is de Tweede leven brug te Almere. Deze brug is volledig circulair ontworpen. Link naar dit project: https://www.cementonline.nl/een-tweede-leven-brug

Verder moedigt de Anton Groep aan om medewerkers zo veel mogelijk gebruik te maken van koffiekopjes zowel op kantoor als op bouwprojecten om het gebruik van papieren bekertjes te reduceren. Ook is er tijdens het kerstpakket in 2020 gedacht aan het reduceren van de CO2 uitstoot door de werknemers een koffer cadeau te doen van volledig gerecycled materiaal.

Opgesteld d.d. 26/06/2021

Jacco Braas

Asphalt research

ASPARI

ASPARi ("Asfalt Sector Professionalisering, Research & Innovatie") is een netwerk van organisaties die met elkaar samenwerken ter versterking van de professionaliteit in Asfaltwegenbouw. Door ontwikkelingen in de afgelopen jaren zijn de randvoorwaarden en opgaven voor deze sector ingrijpend veranderd. In 2006 hebben een aantal bedrijven uit de sector, de Founders, het besluit genomen hun krachten te bundelen en in ASPARi samen te werken. De Founders vertegenwoordigen samen ruim 80 procent van de sector en verwerken in Nederland meer dan 8 miljoen ton asfalt per jaar. ASPARi is gevestigd op de Universiteit Twente (UT) en werkt ook hier vanuit het vakgroep Bouw Infra. Prof. André Dorée en dr. Seirgei Miller leiden het onderzoek. **Zie www.aspari.nl voor meer informatie**.

ASPARi (Asphalt Paving Research and innovation) is a network of organizations working collaboratively to improve the asphalt construction process. Recent contract change developments in the Netherlands (especially lengthier guarantee periods) has seen the rules of the game change in terms of process control, quality, maintenance and risks to contractors. In response, several construction companies joined forces with researchers of the University of Twente to form the ASPARi network in 2006, to collaboratively work towards improved process control. These construction companies, known as the Founders, are collectively responsible for more than 80% of the asphalt turnover in the country i.e. in excess of 8 million tonnes each year. More information can be found by clicking on the Founders and Partners tab. The ASPARi research unit is based at the University of Twente's Construction Management Department. Professor André Dorée and dr. Seirgei Miller lead the research activities. **See www.aspari.nl for more information.**

Asphalt Grasfalt (Grassphalt)

Energy research

Zero Emissions Dredging Hub

ZEDhub gaat voor emissieloos baggeren in 2030

Het samenwerkingsverband Zero Emission Dredging Hub (ZEDhub), geïnitieerd door Deal Drecht Cities, Van Oord, Boskalis, IHC en Damen, streeft naar emissieloos baggeren in 2030. Coördinator Arjen de Jong vertelt dat de aangesloten partijen een innovatie-roadmap hebben opgesteld, waarbij projecten zorgen voor nieuwe kennis en oplossingen. '*Door samen te werken, delen we kosten en risico's, waardoor we de transitie naar emissieloos baggeren sneller kunnen realiseren.*'

Een van de ZEDhub-projecten is MENENS (Methanol als Energiestap Naar een Emissieloze Nederlandse Scheepvaart). Hierin werkt een consortium van 22 partijen uit de Nederlandse maritieme sector aan een uitstootvrije scheepvaart. Dat gebeurt door de ontwikkeling van adaptieve systeemoplossingen op basis van methanol. Het project heeft een subsidie van € 24 miljoen ontvangen uit het R&D Mobiliteitsfonds van de RVO. *'Varen op groene methanol levert een enorme verlaging op van de CO_2-uitstoot ten opzichte van het huidige gebruik van diesel'*, vertelt De Jong. *'Methanol wordt internationaal bovendien gezien als een van de best implementeerbare schone brandstoffen voor grootschalige toepassing in de scheepvaart. Met het MENENS-project hopen we dan ook een belangrijke stap te zetten op weg naar uitstootvrije scheepvaart en daarmee dus ook naar duurzaam baggeren.'*

De 22 partners van het MENENS-project vertegenwoordigen de Nederlandse maritieme sector in de volle breedte: van reder tot ontwerper en van scheepsbouwer tot (specialistische) toeleverancier. De Jong: *'In het project werkt ZEDhub aan het ontwikkelen, simuleren, testen en valideren van (hybride) energie- en aandrijfsystemen op basis van groene methanol en andere duurzame energiebronnen. Zo werken we samen toe naar emissieloos baggeren in 2030.'*

Het Nieuwe Rijden