



Green Deal Concrete: Co-creation behind the dikes Going Dutch = buying green

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Green Deal Concrete

1. Green deal Concrete: co-creation behind the dikes

- What's a Green Deal?
- Who's who in the Green Deal Concrete?
- What are we trying to achieve?
- What do we actually do?
- What about the Government?

2. Buying green Dutch infrastructure

- Performance based contracts
- Dubocalc: the environmental performance tool for materials

What's a Green Deal

- A voluntary agreement between government and industry (or other organizations in society) about an environmental ambition
- The initiative comes from outside government
- The government helps:
 - Take away impediments (like legislation)
 - Sometimes with some form of support (financing research, green deal management)
- 3 or 4 years
- An agreement..... to make more agreements 😊

Who's who in the Green deal Concrete

- MVO Nederland = CSR Netherlands
- >2000 partners
- Initiative for MVO concrete supply chain network in 2010
- Green deal signed with ministers of Economic affairs and Environment in October 2011
- MVO Concrete Network (at this moment):
 - 36 leading organizations
 - From cradle to grave including:
 - Suppliers of aggregates, binders, admixtures
 - Concrete production (precast and ready mix)
 - Demolition and recycling
 - Large clients (Rijkswaterstaat)
 - Architects, consultants
 - 7 trade associations
- Platform, Board, project group, working groups

Ambitions Green Deal Concrete

- A 100% sustainable concrete supply chain in 2050
- 2050 is far away.....
- And 'sustainable' is pretty vague.....
- Topics:
 - Resource efficiency/ closing the loop
 - Biodiversity
 - Energy / climate change
 - (Other) emissions
- Ambitions are to be translated to short, middle and long term milestones
- So we started studying.....

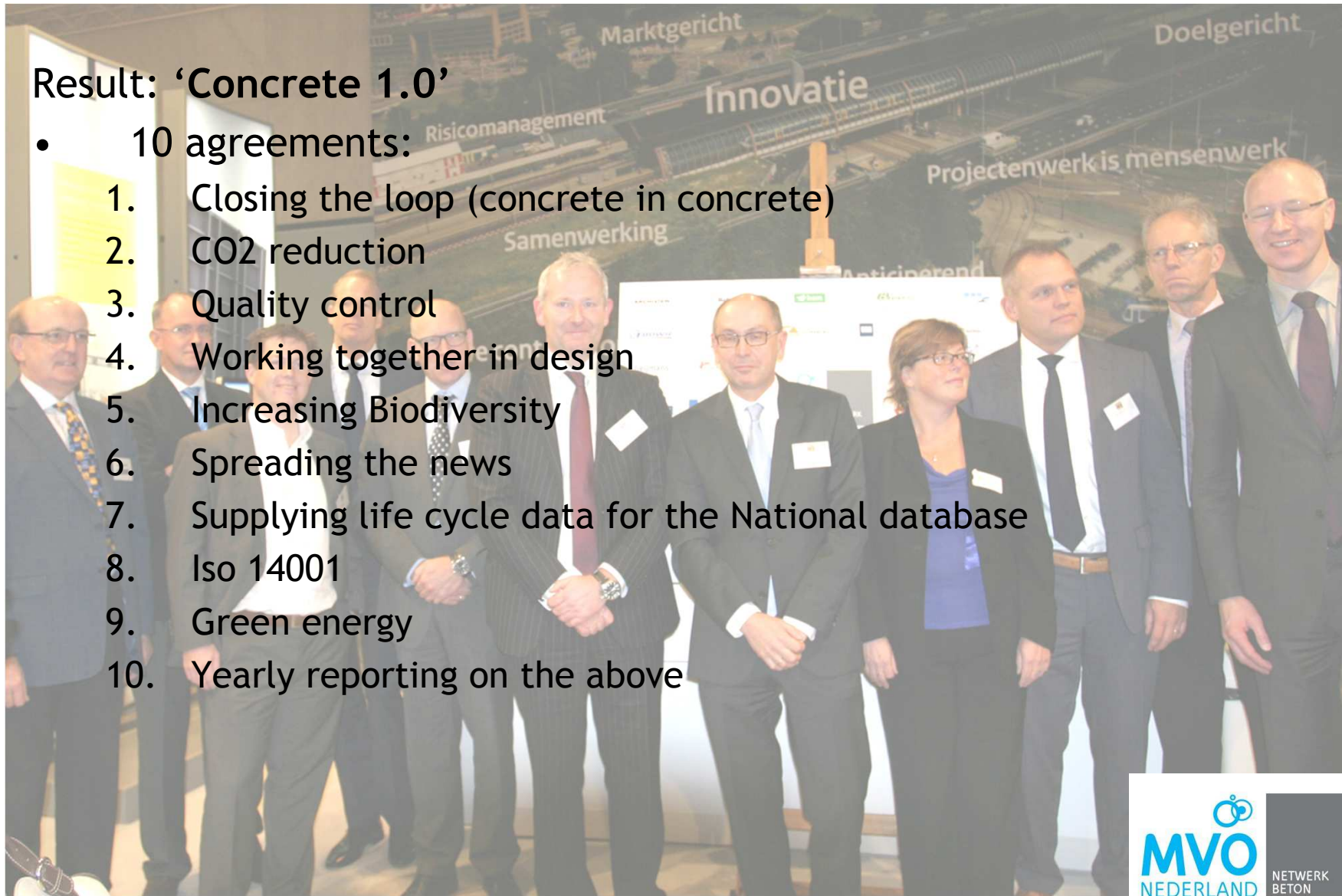
What we do: short term 1

- Brainstorm session > 260 ideas
- Selection on the basis of:
 - Off the shelf technology
 - Low hanging fruit (cost neutral)
- Most important: start working together in the supply chain!

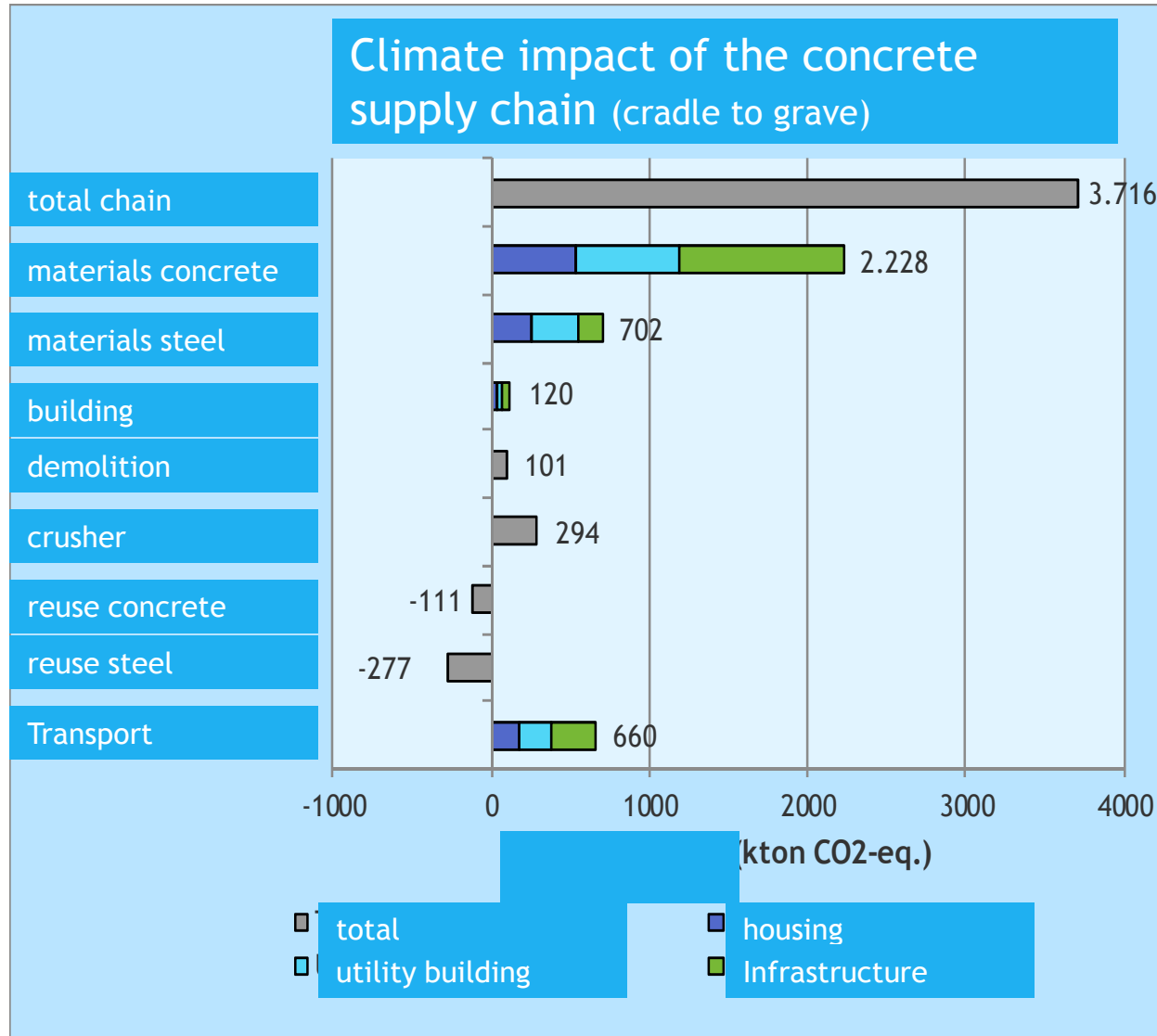
What we do: short term 2

Result: 'Concrete 1.0'

- 10 agreements:
 1. Closing the loop (concrete in concrete)
 2. CO2 reduction
 3. Quality control
 4. Working together in design
 5. Increasing Biodiversity
 6. Spreading the news
 7. Supplying life cycle data for the National database
 8. Iso 14001
 9. Green energy
 10. Yearly reporting on the above



What we do next: life cycle analysis



- Climate change is the dominant environmental impact category

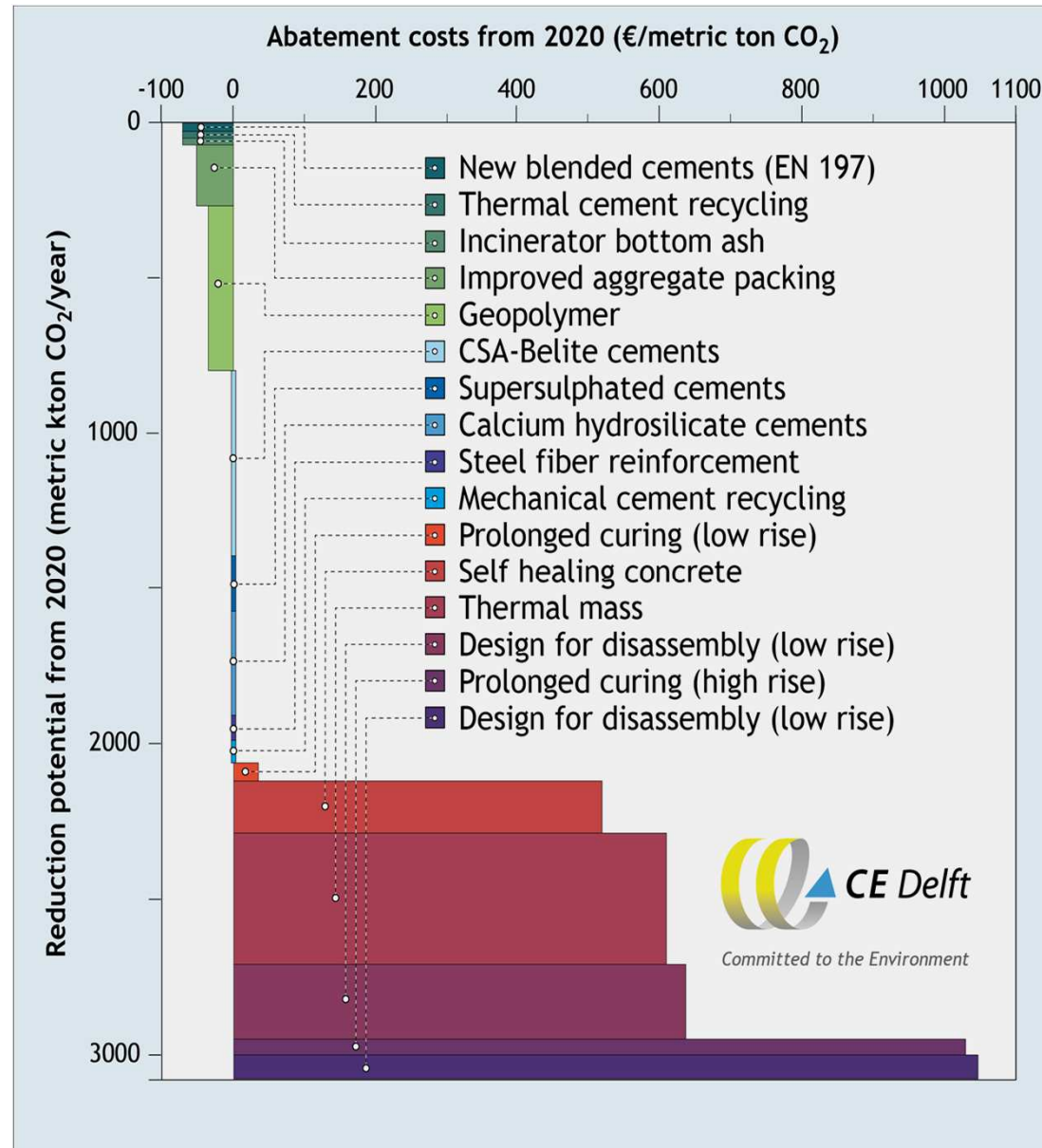
- 3.7 Mtons of CO2 = 1.6% national CO2 emissions, = 256 kg/ m3 concrete

- Cement dominant (about 60%), but better performance than elsewhere..... (already 70% either CEM II or CEM III)

- Don't forget steel reinforcement and transport!

- Recycling has a small net positive effect (because of steel recycling)

What we do next: more analysis



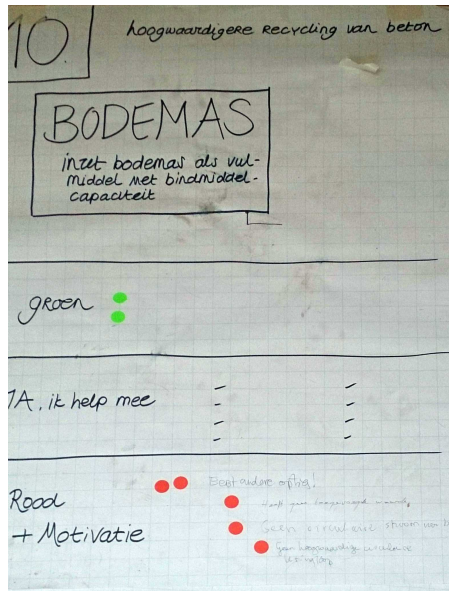
Question: what's the most cost-effective (new) way of reducing the Carbon footprint of concrete?

- A further 30% reduction is achievable

- 60% is cost-neutral or better (and cheaper than wind turbines or solar panels, not to mention electric cars)

What we do: choose and get to work!

Do you sticker?



- 7 prospects chosen
- > 7 working groups
- > 7 integral plans
- > report in September

The 7 prospects:

- 2 low carbon cement prospects: CSH belite and geopolymers
- 2 low carbon concrete production prospects: slow concrete and optimal particle size
- use qualities of concrete to design CO2 neutral buildings
- new recycling innovations that enable 100% reuse of old concrete in new
- integral circular economy concepts

Concrete 2.0

- (Specific) ambitions for 2020:
 - 20 to 30% further reduction of the carbon footprint
 - Closing the loop: x % secondary or % circular?
- How to get there:
 - Further implementation of Concrete 1.0
 - Bringing the 7 innovations to market
- How to organize and finance this
- How to use opportunities and combat impediments
- How to make sustainable concrete sexy (branding)



There's nothing to
be ashamed of!

The role of government

- Government has a large direct and indirect influence on building, but.....
- Leave innovation to industry
- Do the right thing and buy green, but.....
- Do the right thing *right*:
 - Don't prescribe materials or products
 - Do ask for performance, including environmental performance

Buying green (national) infrastructure in the Netherlands

(with regards to materials used)

Contracts:

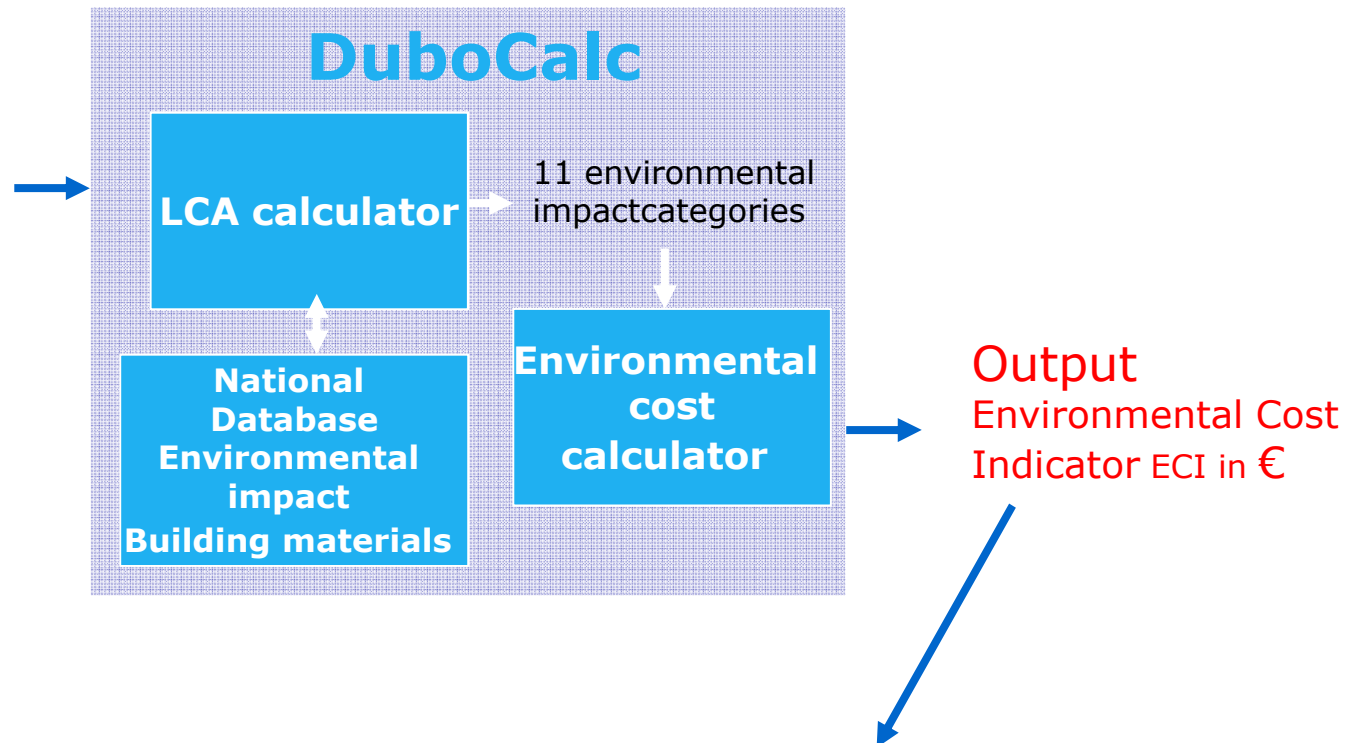
- In principal: performance based design specifications
- The 'Building materials decree' sets standards for maximum emissions from building materials
 - the same rules apply for primary and secondary materials!
- The (embedded) environmental impacts of building materials are assessed at project level
- Contractors are rewarded for bids with a good environmental performance using 'Dubocalc' to test the performance

Using Dubocalc to buy Green

Dubocalc = Subucalc = Sustainable Building Calculator

Input

Materials (tons)
Transport distances
Construction lifetime
project and
materials



Contractors bid = project costs + ECI

Is Dubocalc the perfect instrument for buying green concrete?

No!

- Limited number of types of concrete in National database
- Costs to industry would become high if every manufacturer needs to get unique data into the database, and the database would become difficult to use
- It only works when there's a lot of concrete involved in a project, no chance for sustainable products with a smaller volume (e.g. paving)

But it's a good start (most people agree)

- The concrete industry has been invited to submit ideas to increase the effects of buying green.

And that brings us back to the Green deal Concrete



I hope our ideas can in some way
inspire you to make
Irish concrete as green as Ireland
itself!

Thank you