



RESEARCH OUTCOMES

KICKSTART ZERO CARBON FUND

Summary of the most important insights

SUMMARY

Throughout the last months, we have worked on a research funded by the Laudes Foundation to investigate how we could make timber projects more financially feasible through the trade of carbon credits.

Challenge

The large-scale application of wood as construction is held back due to higher costs for the material.

Aim

To improve the business case for wood by establishing a fund with which companies can offset their currently unavoidable CO2 emissions into long-lived storage by investing in timber constructions.



Central question

Can timber construction be speeded up by trading carbon emission rights?

Answer

Timber construction can be speeded up if and when:

- 1. Accounting Carbon Credits:** The carbon credits are accounted in the value case for timber construction and generated by adding reduction (through forestry and substitution) and storage effects to the equation.
- 2. Adding Value:** The value of a standard amount of carbon can be raised by added value like exposure and marketing.
- 3. Building a Structure:** There is a market and or organizational structure that let all parties interact effectively.
- 4. Setting up a showcase:** There is a proof-of-concept/showcase for a situation in which all conditions above are met.

The report is categorised into 4 chapters which elaborates on the 4 aspects that we found critical to the challenge of accelerating building with wood by carbon trading. Each aspect contains the brief explanation of the intent, the challenge, the possible solution, reaction from relevant market players and the conclusions & recommendation for the follow-up.

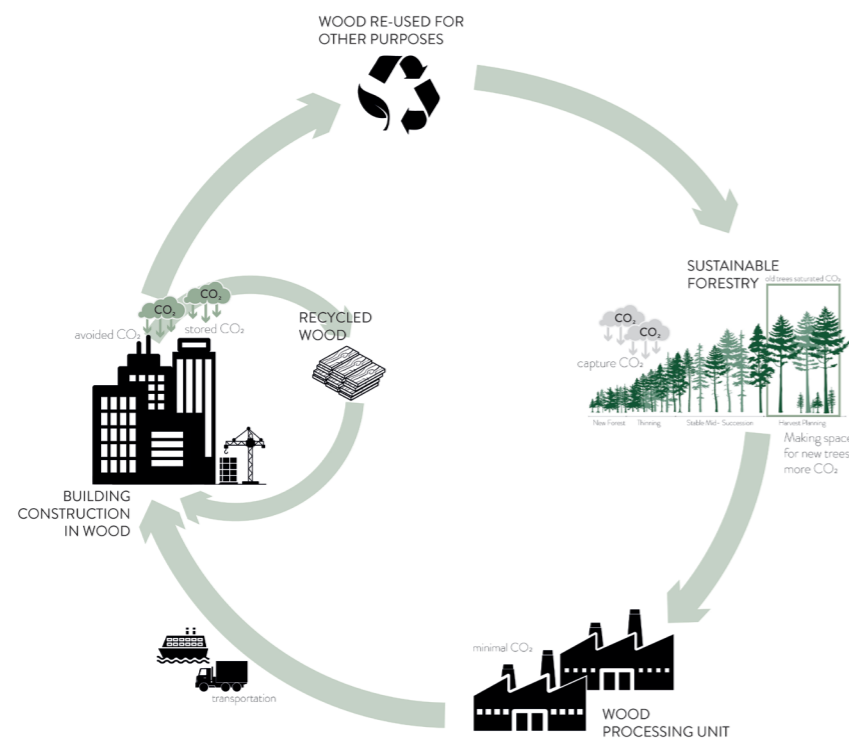
1. ACCOUNTING CARBON CREDITS

Explanation

Building with timber generates environmental benefits. As a building material, it has a three-fold effect on our carbon emissions. Firstly, it captures CO₂ due to the source material being grown as trees in woods. The captured CO₂ is stored for a long time due to the practical application. Secondly, there is an emission reduction by the substitution of steel and concrete, which both carry a large CO₂ footprint. Thirdly, by using the production surplus of a forest, we make way for new trees to be grown in the forest and therefore strengthen its role as a carbon sink. Metsä Group plants four trees for every tree cut down for instance. These climate effects could be monetized, for instance, Tesla does with their electric cars.¹

Challenge

Currently, building with timber misses the confluence of climate effects in its value case.



Solutions

We could generate carbon credits from the positive climate effects of timber construction. Carbon credits from forestry, substitution and storage effects could be combined in the value case.

Reactions

- ✿ In our meetings, we got positive and enthusiastic responses from multiple stakeholders regarding the concept of trading carbon rights itself. Naturally, the main question concerns the exact pricing.
- ✿ The voluntary carbon market players find high potential in developing a methodology for carbon trading in timber construction. Multiple parties like SNK, Probos have been involved in exploring the opportunities for this methodology. Initial research has shown high potential in credits from wood however lack of investment to undertake this study has not led to any concrete methodology in practice yet.
- ✿ Climate Focus sees the big challenge with carbon credits from building projects is to match purchases of carbon credits with credible climate neutrality claims by companies' buying the carbon credits. This is also a crucial aspect to take into account while developing a methodology and enabling trading carbon credits to avoid greenwashing from additionality.
- ✿ Investors in the Netherlands have a big appetite for carbon credits within the country and are willing to pay as mentioned by actors in the voluntary carbon market.
- ✿ McKinsey report on the voluntary carbon market also suggests the need for more carbon credits to reach the 1.5° warming target, escalating the global demand for voluntary carbon credits by a factor of 15 by 2030 and by a factor of 100 by 2050.
- ✿ A suggestion in one of the meetings was that a lease model could possibly guarantee longer application of the applied timber and therefore longer storage of carbon captured.

1. For an explanation, see <https://www.cnn.com/2020/07/23/teslas-sale-of-environmental-credits-help-drive-to-profitability.html>
2. Connect with us to get an overview of all the parties we spoke to, some of them mentioned in the ecosystem

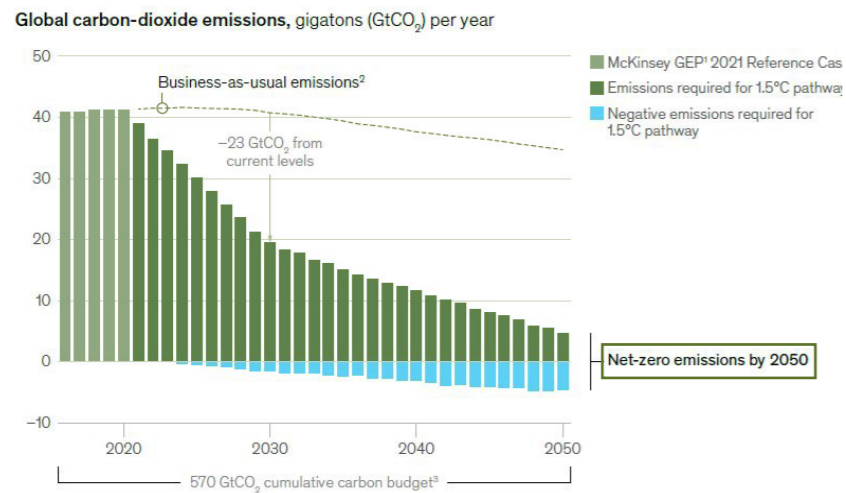


Figure A: Reaching the climate target requires a large quantity of negative emissions including some generated using carbon credits; Figure B: Voluntary Demand scenario for carbon credits; source: McKinsey Report

Deliverable(s)

- 🌳 A preliminary calculation to account for CO₂ reduced in timber buildings.

Conclusions

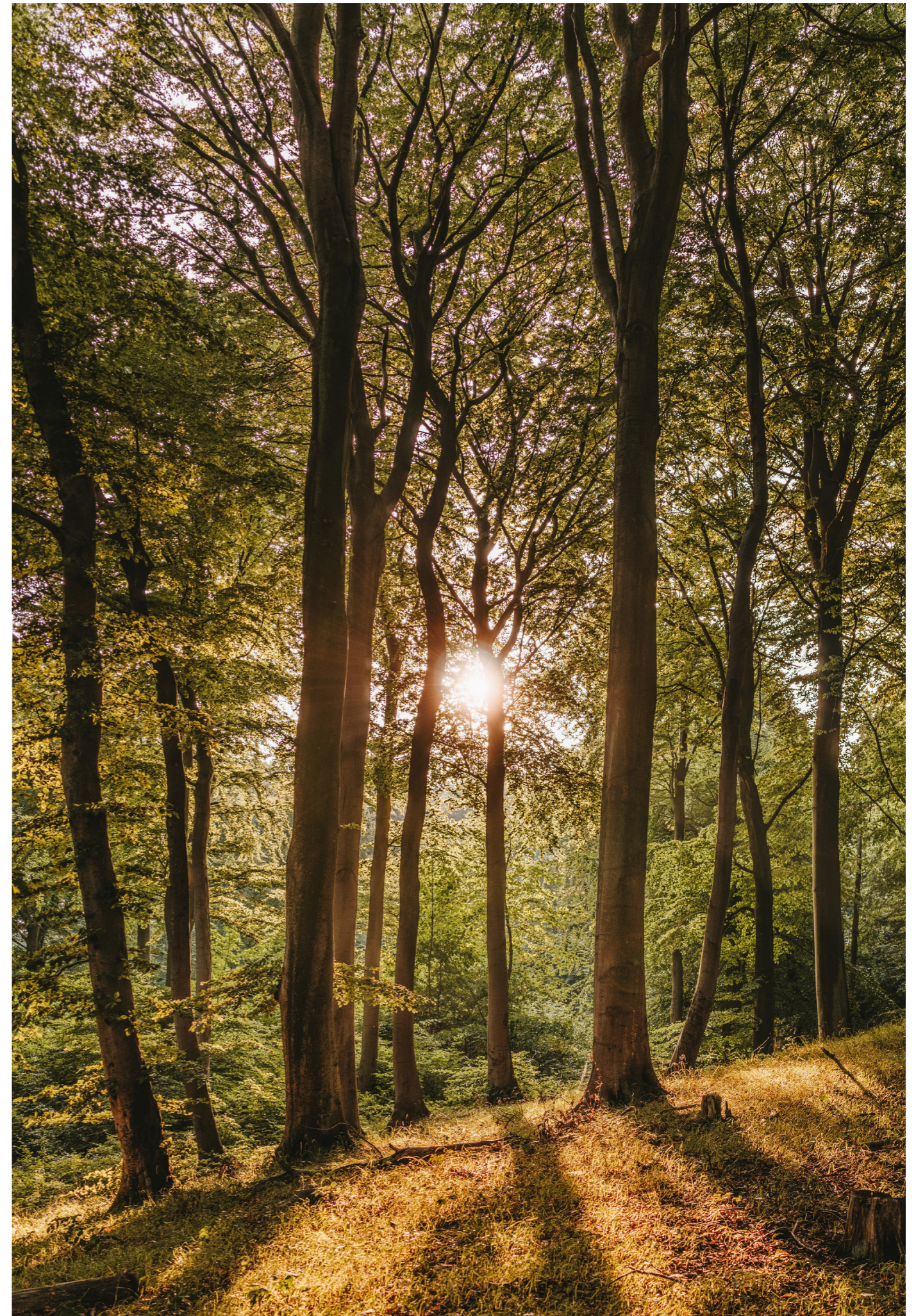
- 🌳 The market mechanism to generate voluntary carbon credits from forestry already exists and is in practice.
- 🌳 High potential is found in generating credits from substitution in timber buildings. No methodology found in practice; however, similar systems are used in other sectors, see the earlier discussed example from Tesla.
- 🌳 High potential found in generating carbon credits from the CO₂ stored in timber used in buildings. If the captured CO₂ in the harvested tree is deducted from forestry credits, then the stored carbon in that timber could also generate credits.

Recommendations for further research

- 🌳 Develop a standardised methodology for substitution effect together with working groups to be used in the voluntary carbon market.
- 🌳 Do more detailed research on the scope of stored carbon accounting in combination with forestry credits.

3. See the report on Scaling up of Voluntary Carbon Market <https://www.mckinsey.com/~media/McKinsey/Business%20Functions/Sustainability/Our%20Insights/A%20blueprint%20for%20scaling%20voluntary%20carbon%20markets%20to%20meet%20the%20climate%20challenge/A-blueprint-for-scaling-voluntary-carbon-markets-to-meet-the-climate-challenge.pdf?shouldIndex=false>

4. Check systems in <https://treesforall.nl/en/project/limburg/>; <https://ecotree.green/en/treeshop/>; ; SNK will publish two methodologies soon created by Probos for carbon credits of afforestation projects and carbon credits from climate smart forestry.



2. ADDING VALUE

Explanation

Carbon credits from the building sector would be traded through the voluntary carbon market as the emissions from this sector are not yet included in the compliance market. The current price of carbon credits is quite low. They are mostly covering transition costs in for instance energy reduction in developing countries. The credits related to timber construction would yield additional societal values. This could and should be reflected in the price model.

Challenge

The current market pricing of carbon credits is low and would not cover the transition cost without the inclusion of the social and environmental costs.

The screenshot shows the Climeworks website with the following content:

- Logo: climeworks
- Header: Enable removal of CO₂ from the air
- Text: With our subscription service, you order the removal of carbon dioxide from the air. Become a Pioneer and Climeworks will remove CO₂ in your name. Let's reverse climate change by restoring a healthy balance of CO₂.
- Three subscription tiers:
 - Special Expedition**: Enable the permanent removal of 600 kg of carbon dioxide from the air per year. 49 EUR / month. [Subscribe now](#)
 - Discoverer**: Enable the permanent removal of 255 kg of carbon dioxide from the air per year. 21 EUR / month. [Subscribe now](#)
 - Explorer**: Enable the permanent removal of 85 kg of carbon dioxide from the air per year. 7 EUR / month. [Subscribe now](#)

Figure: Climeworks, an example of selling carbon rights as a means for a larger goal, with a much higher price than other schemes.

Solutions

The pricing of carbon credits for timber construction should reflect the value added by the co-benefits and requires a strong narrative to engage and expose investors to the value of the transition to timber construction.

Reactions

- + At the regional governments (the provinces of North-Brabant, South-Holland and Gelderland), we noticed a lot of willingness to collaborate and invest in the whole venture of promoting (preferably locally sourced) timber in the building sector. They are searching for the right framework to do so.
- + We have checked our assumptions with SNK and other parties, they agreed that higher pricing for carbon credits from wooden construction is plausible and would require exposure of investors to the multiple benefits that building with wood offers.
- + As a reference project: credits issued by SNK for a peatland rejuvenation project were sold by market player for € 70 per ton as investors were willing to pay for the whole range of co-benefits like biodiversity, impact close to home, recreation etc, and that was leveraged by the CO₂ market to cover the transition cost.
- + SNK and other parties involved with the voluntary carbon market in the Netherlands and outside gave interesting insights about the interests and typologies of potential buyers. CSR pressure, climate as a marketing tool, helping NL achieve Paris target, search for regional and local investment portfolios, includes interests from SME, multinational companies, municipalities, universities, service industries, transport amongst others.

5. True cost of transition by IMF- <https://www.imf.org/external/pubs/ft/fandd/2019/12/the-true-cost-of-reducing-greenhouse-gas-emissions-gillingham.htm>

6. An abbreviation for Stichting Nationale Koolstofmarkt (Foundation for a National Carbon Market).

7. For more information on SNK <https://nationaleco2markt.nl/wp-content/uploads/2021/03/Jaarverslag-SNK-2020.pdf>

8. Check meeting notes from excel sheet for more insights.

- + Investment platform in Netherlands are interested to become a partner. At the moment they are involved in climate focussed venture capital but they are interested in expanding into a climate-positive real estate asset class. They would be part of the capital backing if they sufficiently believe in the thesis and the partners of the fund.
- + Impact investment is growing, and companies like Arbaro (Germany) are interested in joining forces to make investments in carbon removal projects possible.
- + ASN Bank would be interested in capital investment to promote timber construction and offsetting their carbon emissions.

Deliverable(s)

- + The storyline as included in the ZeroCarbonFund website.
- + A conceptual calculation that would show the most beneficial outcome. (Similar to point 1)
- + A preliminary calculation to account for CO2 reduced in timber buildings. (Similar to point 1)

Conclusions

- + The application of timber in the construction industry should be regarded as a whole with its advantages for the climate, ecology and economy. By including these advantages in the value proposition, we create a framework for at first public and later also private organisations to speed up progress.

Recommendations for further research

- + Explore and develop a holistic vision linked to the selling of those rights with proper storytelling. E.g., “We compensate your emissions and put your name on a revolution of wooden buildings and healthy, productive forests.”



3. BUILDING A STRUCTURE

Explanation

The trading of carbon rights does not only provide a new business model for building in timber, but it also creates a whole new perspective. This new exchange of values (both commercial and societal) needs to be structured, organised and managed properly to secure efficiency, trust and synergy. This could be in the form of a free market or in the form of a single platform. It should in both cases handle: the standards of the calculation, the exchange of rights and public relations (especially regarding the field of green-washing claims) along with the flow of timber, carbon credits and funds.

Challenges

- 👤 Carbon rights are usually managed with certifications such as the Gold Standard, VCS, with some exemptions in the voluntary market (such Trees4All who do self-assessment). Clear regulation is still lacking, that is for instance where Rabo bank wants to step in .
- 👤 Collaboration across the timber chain for building with wood is currently missing yet it is essential to enable the market forces and redirection of fund flow to promote timber construction.
- 👤 Carbon offsetting can be controversial, especially in the part where CO2 emissions are avoided. The Nature Conservancy, a top seller of these carbon credits in the US, has to review its whole portfolio due to concerns about whether the rights were properly calculated.

Solutions

- 👤 A market and or organizational structure that manages the cooperation, coordination, and collaboration amongst the parties effectively.
- 👤 In the meantime, initiatives like ZeroCarbonFund have to build credibility to create trust that carbon rights are accounted for.

Reactions

- 👤 We have discussed the organizational scheme with other parties, and they found it logical. The Provinces would support further exploration of the model in the later discussed pilot projects.
- 👤 We have discussed the whole structure in detail with our colleague Jan van Zuijlen who has more than 15 years of experience in real estate finance.
- 👤 The need for collaboration across the timber chain where actors like enablers, foresters, builders, and funders are brought together is something most parties we spoke to mentioned. They feel like ZeroCarbonFund could be a platform for this.
- 👤 Shown support from public parties including the national, provincial governments (South-Holland and North-Brabant) and municipal governments. The willingness to decarbonise the building industry and potential in our proposed structure led to the setting up of regional pilots in cooperation with the two provinces to define and test a detailed blueprint on a regional scale and further expand the cooperation to a national scale.
- 👤 As discussed in meetings, it is important to define the network along with the blueprint of the business case, the appetite of investors, scale, cost-saving, pipeline, and value chain in this system.
- 👤 Rabo bank is interested in collaborating because they are reluctant to start funds on their own, yet very interested to trade produced carbon rights.

9. More information (in Dutch): <https://www.nrc.nl/nieuws/2021/01/28/elke-bank-moet-een-carbon-bank-worden-en-rabo-wil-de-eerste-zijn-a4029689>

10. Source: <https://www.bloomberg.com/news/features/2021-04-05/a-top-u-s-seller-of-carbon-offsets-starts-investigating-its-own-projects>

- 👤 We are exploring collaboration with certification bodies(SNK) on a lean solution for credible carbon rights. For the time being, ZeroCarbonFund could create credibility by working as transparent as possible on the pilot projects.
- 👤 SNK has offered a meeting with the chairman of their working group to guide us to what we should account for and what should we not overlook to develop the carbon accounting system.
- 👤 DGBC found the concept and business case of ZCF very interesting and in line with their vision of a net-zero carbon road map of the building sector by 2050. They offered partnership as ambassadors for the building life project to connect with more partners from the building sector through a shared network.
- 👤 Experienced real estate fund managers like BLOC team member Jan van Zuijlen thoroughly checked our model and saw potential in this collaboration of public and private parties to connect the entire chain from forestry to timber construction.

Deliverable(s)

- 👤 Organisational scheme, for both a sale model and a lease model (see the last reaction under Point 1).

Conclusions

- 👤 Credibility in the amount of carbon rights being traded is a hard condition for the mechanism to start up.
- 👤 Public partner support is important for acceptance and sustainability that includes effective implementation, proper enforcement, and ownership of decisions and outcomes.

Recommendations for further research

- 👤 Investigate how initiatives can work as transparent as possible and publish assessments as soon as possible to raise credibility. A collaboration with certification bodies would be crucial in the next phase to provide guarantees to customers of carbon rights.



Figure A & B: Shows the source of raw material of traditional materials(concrete) compared to timber.



4. SETTING UP A SHOWCASE

Explanation

This is a pioneering initiative, with little to none references or guidelines to work by. With this research, we have set the preliminary preconditions to make it work. Still missing are actual figures based on a concrete case for more specific calculations and a proper test of the proposition in the market. We need to use local cases to determine exact parameters, most notably the pricing. Only at that moment, we can fully test the concept in the market.

Challenges

While we identified two cases that would be relevant and suitable, we have to invest in a process that would let them function as real MVP's.



Solutions

Acquiring funds to run research based on these pilot projects.

Reactions

- The provinces of South-Holland and North-Brabant are interested in funding the process management related to these pilots.
- Both the provinces are interested in realizing this pilot through cooperation. The provinces have different potentials and challenges that complement each other. A regional cooperation to formulate and test a blueprint to enable a timber transition is an agreed way to move forward to their best capacities.
- Market parties indicated that they would be interested to work on these projects as a concrete case.



Deliverable(s)

Open call to be involved in the pilots.

Conclusions

When the pilot projects are started, we will post an open call for people to participate in the pilot projects, preferably by purchasing carbon rights.

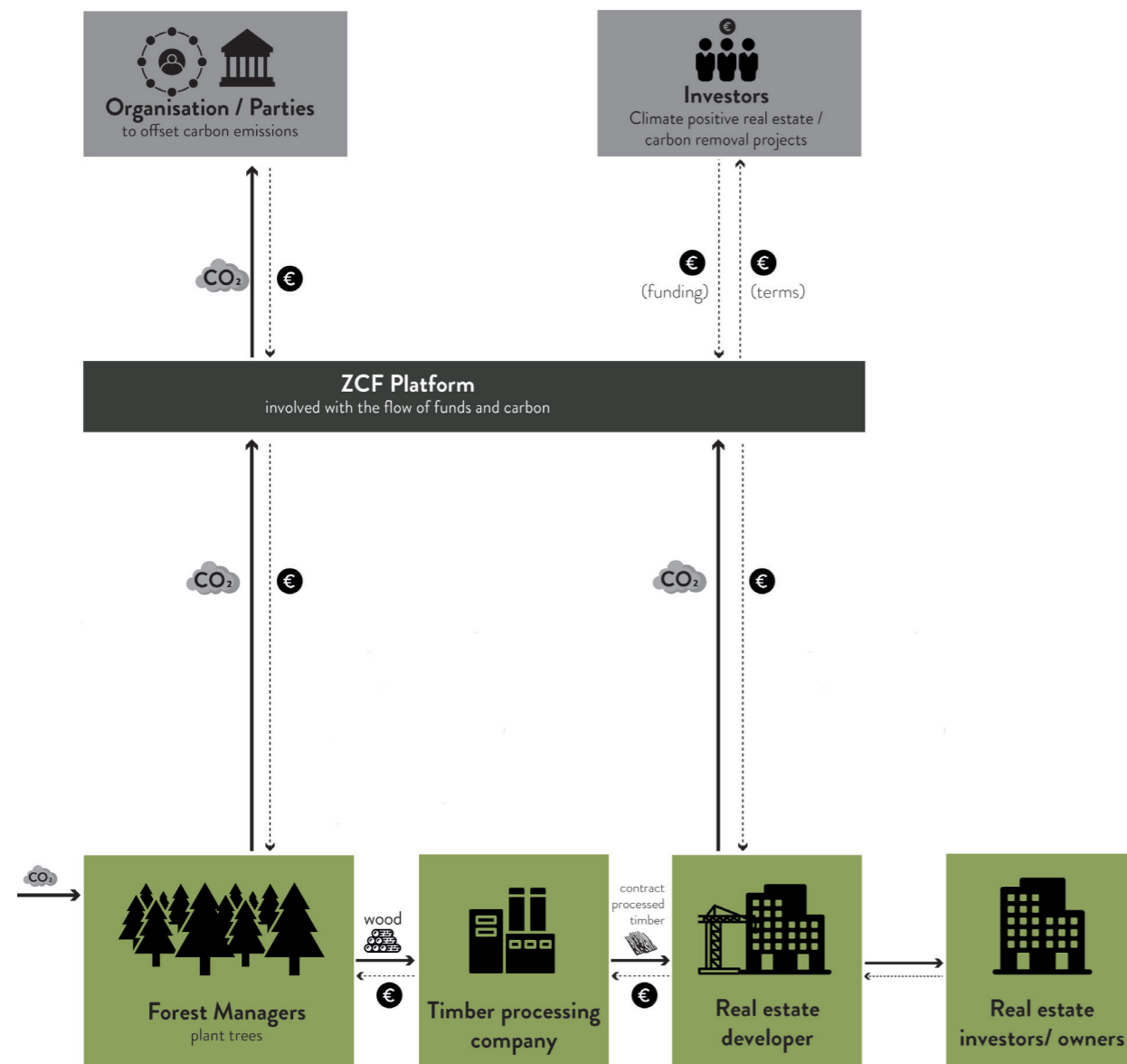
Recommendations for further research

Investigate together with the mentioned provinces a concrete regional chain and a regional fund linked to key actors and connected with actions on the ground that can be implemented as a result of the research.

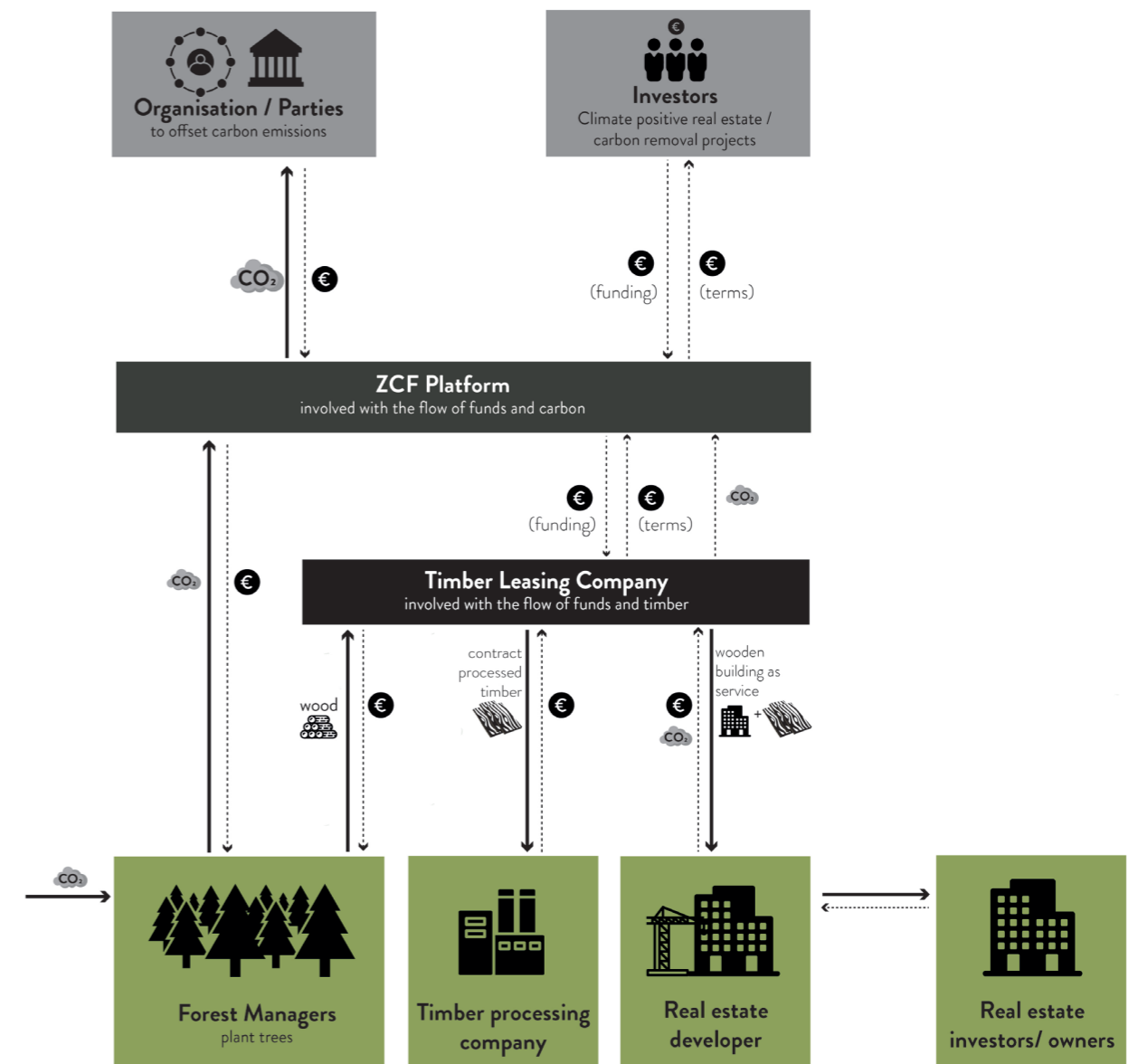


ATTACHMENTS

Organisational scheme: Sale Model



Organisational scheme: Lease Model



Acknowledgement

We would like to thank the below ecosystem of parties for their time, energy and ideas in this project.



We would also like to thank the almost 30 parties that we spoke to during the entire process and looking forward to our collaborations on the upcoming work.



[BLOC](#) develops bold and inspiring solutions for the next generation of our cities in a rapid, agile and iterative way. Buildings, environments, mobility: clever, clean and cutting-edge. Right here, right now.

Laudes ———
— Foundation

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