

The Moving Commission

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"The current building culture is relatively traditional in the way we use materials, like concrete and masonry. But also in the ownership of properties, developers, and banks are working together to sell property to investors or private owners. In the case of a CPC, a group takes the initiative to build, which results in an affordable way of housing!"

Francesco Veenstra

The 22nd century starts now

As seen in the quote by Francesco Veenstra (the chief government architect of the Netherlands) on the left page, our traditional way of building is being criticized. This quote was part of an interview by the NOS in which he explains his and his College of Government advisor's agenda, named the 22nd century starts now. The general concept of this agenda is to think about how the choices we make today influence our future in 100 years.

A new building culture

As part of the agenda mentioned the Government Advisors propose a new building culture, which includes more biobased materials, but also new forms of building contracts². One particular form of these new contracts is Collective Private Commissioning or CPC. According to the Advisors, this method has a lot of potential to result in affordable housing projects.

The built environment is however just the final layer in a 3-stepped system, with networks on the second step and the subsoil water system as the most important element. These soil and water systems are especially important for the site of Midden-Delfland, in which a housing project will be developed for this graduation studio.

Soil and water as a starting point

The close connection between Midden-Delfland and the soil and water systems becomes apparent in the contribution to the Redesigning Delta Research by ZUS (Zones Urbaines Sensible), Flux, and Sweco. The study group analyzed the area and made a masterplan for the year 2100: National Productive Park Delfland³. A restructured polder has been proposed, based on the existing and underlying soil and water conditions, resulting in parts of the polder being transformed into swamps that also act as water buffers for excess water in the surrounding cities. This transformation will, according to Inge Bobbink, gradually take place. Polders will be transformed into swamps when needed and will be 'flooded' one by one⁴. This raises the question: can we build temporary housing on these sites before they are flooded?

Keeping the head above water

In the Netherlands, we have a saying: Het hoofd boven water houden (keeping the head above water) This means keeping the cause alive, even despite trouble or hard times, keeping the courage to continue⁵. In most cases, this saying is used to describe a financial situation in which someone can barely afford to live, but it can also be seen quite literally in the polder situation we are working on. It is this polder area of Midden-Delfland where both views on the saying can be combined, trying to create an inclusive living environment that is affordable whilst keeping the feet of the inhabitants dry.

Temporarily inhabiting land

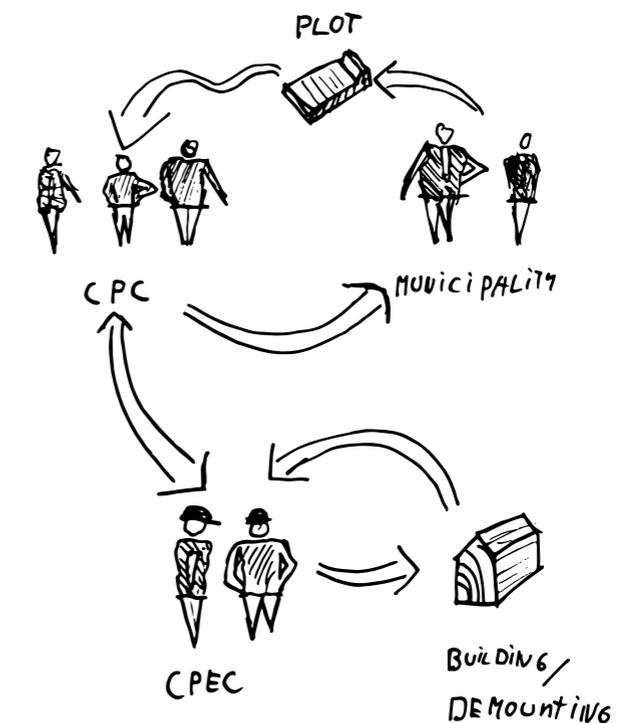
The Dutch have a long-lasting history of protecting themselves against the water and reclaiming otherwise uninhabitable land from the sea and lakes⁶. It is this defensive approach of protecting us against the elements of the water that has to change in order to be future-proof. We now know that by pumping out the water the peat landscape sinks and expels CO2 and nitrogen⁷, which is an unsustainable situation for achieving our goals in preventing climate change. To stop the peat from sinking further we need to stop pumping out water and level the groundwater with the top of the peat, creating a swamp landscape in the process. This process will take a long time to realize leaving land unused. During this process, the land can be used to accommodate housing for inhabitants working or wanting to live in the polder area.

Because of our traditional approach to building and investing in housing projects, as mentioned by the Government Advisors, these projects will be a bad investment with the outlook of the area being transformed into a swamp within a decade after the structures are finished. For a CPC however, this can be less of a problem, since in most cases the commission rents land offered by the municipality. An example and well-researched project is Mehr als Wonen in which the commissions have a contract with the municipality for 60 years, which can be renewed for another period⁸. A similar concept is used in post-earthquake shelter solutions, using temporary and demountable architecture as a solution for housing⁹. Other inspiring projects can be found in the architecture of architect Jean Prouvé, who designed buildings in a demountable way. His architecture is never built as much as deployed, always retaining the option of removal or reuse¹⁰, therefore making his architecture able to temporarily inhabit the land.

Affordability in the polder

According to previous research, CPCs or cooperatives offer possibilities for affordable housing projects. This is because of the private initiatives and target groups reducing cost¹¹, or through the design of the building itself using needs-based designs and a redefinition of the minimum housing standards¹². Besides this, a CPC most of the time has a socio-cohesion effect, which is often compared to much more expensive privately owned projects¹³.

Because the CPC concept eliminates commercial parties, like investors or developers the overall costs of the project will be reduced. However, the building itself still requires a contractor who will be responsible for a big part of the costs of the project because of man-hours. A further reduction in costs can thus be achieved by limiting the man-hours of the contractor by building a large part of the structure together as a collective. We can now turn the CPC into a CPEC (Collective Private Executive Commission) that builds its own structures under the supervision of a trained professional (figure 01).



Challenges in the polder

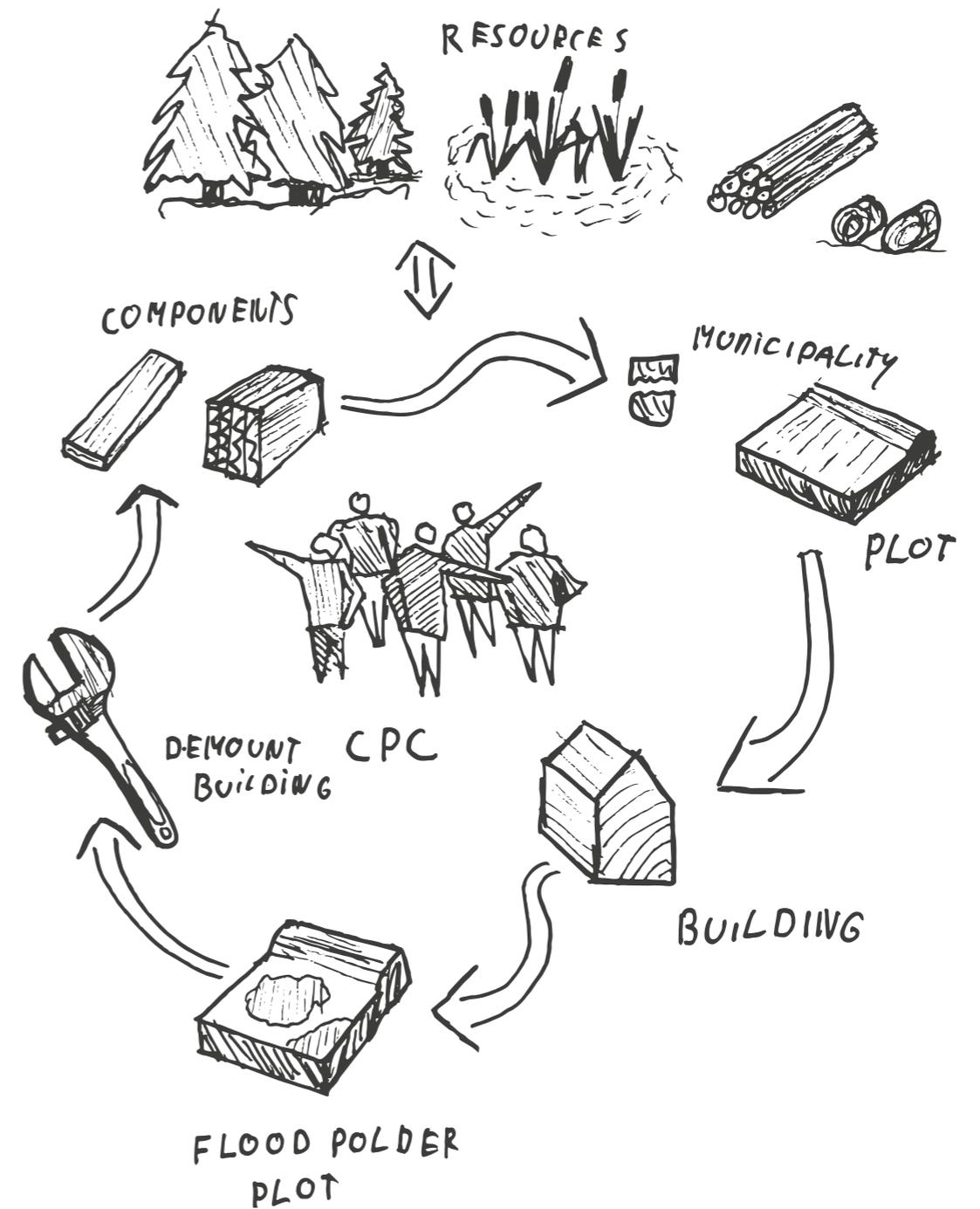
Building in the polder area of Midden-Delfland has many challenges, on the one hand, we have our relationship with water, which is our friend and enemy. This body requires us to build in a flexible and movable way. On the other hand, affordable housing is needed so that this area is still able to be inhabited by the people working on the site. Despite this we must be mindful of how our decisions now influence the future in 100 years, like described in the agenda of the Government Advisors, the 22nd century starts now.

To deal with the challenge of affordable and flexible housing the following hypothesis is introduced. Ground positions in the polder area are rented out to a CPC (Collective Private Commission) by the municipality for a predetermined amount of time (10 -20 years.) To be able to move the building the commission needs to build flexible and movable in the form of demountable architecture. This also helps keep the resources used in a circular closed-loop system, minimizing the impact on the environment (figure 02). To make the building process more affordable the concept of CPEC (Collective Private Executive Commission) is introduced. This Commission can build its structures with the help of a limited number of professionals, requiring clear detailing and instructions to make the building process easy to assemble and demount. To find out if impermanent building solutions, built by a CPEC are achievable the following research question is formulated:

What building and property models are suitable for impermanent housing solutions in the Dutch Polder?

This research question leads to the following sub-questions that give direction to the main research question:

- *What building techniques or methods are suitable for impermanent construction?*
- *Is a CPC a viable property / building-owning model for impermanent housing?*
- *How is impermanence measured and registered?*
- *In what way can we achieve simplicity in the building process?*



Theoretical Framework

Now the problem statement and accompanying research question are formulated, the research can be placed within a broader theoretical framework that builds the perspective on the topic. To start, the circular closed-loop building resources fit the theme of the circular economy and ecology. Thereafter, participants in the Material culture realm teach us how to look from a craftsmanship point of view.

Circular Economy

The circular and closed-loop resource systems described in the previous chapter are deeply rooted in the realm of the Circular Economy in Architecture. As Kate Raworth describes in the *Doughnut Economics* we need to move beyond the myths of rational economic man and unlimited growth towards a system that meets all our needs without exhausting the planet. Furthermore, David Cheshire describes various measures to achieve this in his *The Handbook to Building a Circular Economy* that can inspire decision-making when designing.

Ecology

Again the thinking in the circular and closed-loop system links closely to the discussions in the realm of ecology in architecture. Daniel E. Williams for instance covers thinking and designing ecologically in his book *Sustainable Design: Ecology, Architecture, and Planning*. He sees buildings not as standalone objects, but as part of a connected whole, essential to human health and regional ecology and economy.

Material Culture

A large part of the designing and building relates to craftsmanship, especially with the concept of the CPEC introduced in the problem statement. Making, craft, craftsmanship, and detail are all part of the realm of material culture, which this research will tap into. Lessons can be learned from Richard Sennett, in his book *The Craftsman*, stating that making is thinking, stressing that craftsmanship is focusing on the job at hand¹⁴, and trying to perfect the craft.

Methodology

Following up on the theories described in the previous page, the accompanying methodology incorporates a mix of theoretical and practical research methods. To answer the posed research question the following methodologies are proposed: Literature review, Case studies, interaction with experts, quantifying demountability, and the use of scale models. A further description of the usage of the methodologies is shown below, followed by a diagram showing the relationship between the methodology, theory, and research question.

Literature Review

The literature review will primarily be used to create an understanding of certain topics, which will then be further researched using the other methodologies. This method suits the purpose of laying down a good foundation of knowledge that can be built upon in further stadiums of the design. The literature review will be carried out to investigate the possibilities of measuring demountability, to gain a broad understanding of CPCs, to find out which local materials are usable for demountable structures, and how to make simple to realize buildings.

Case Studies

To discover more about demountable structures the case studies are well suited for finding out data on already realized projects. Projects using demountable structures, preferably with sustainable materials, will be selected and analyzed on technical and spatial levels. It is aimed at understanding how a building is made or assembled, and what constraints are relatable to this method, and thus how the floorplan for instance relates to this building method.

Interaction with Professionals

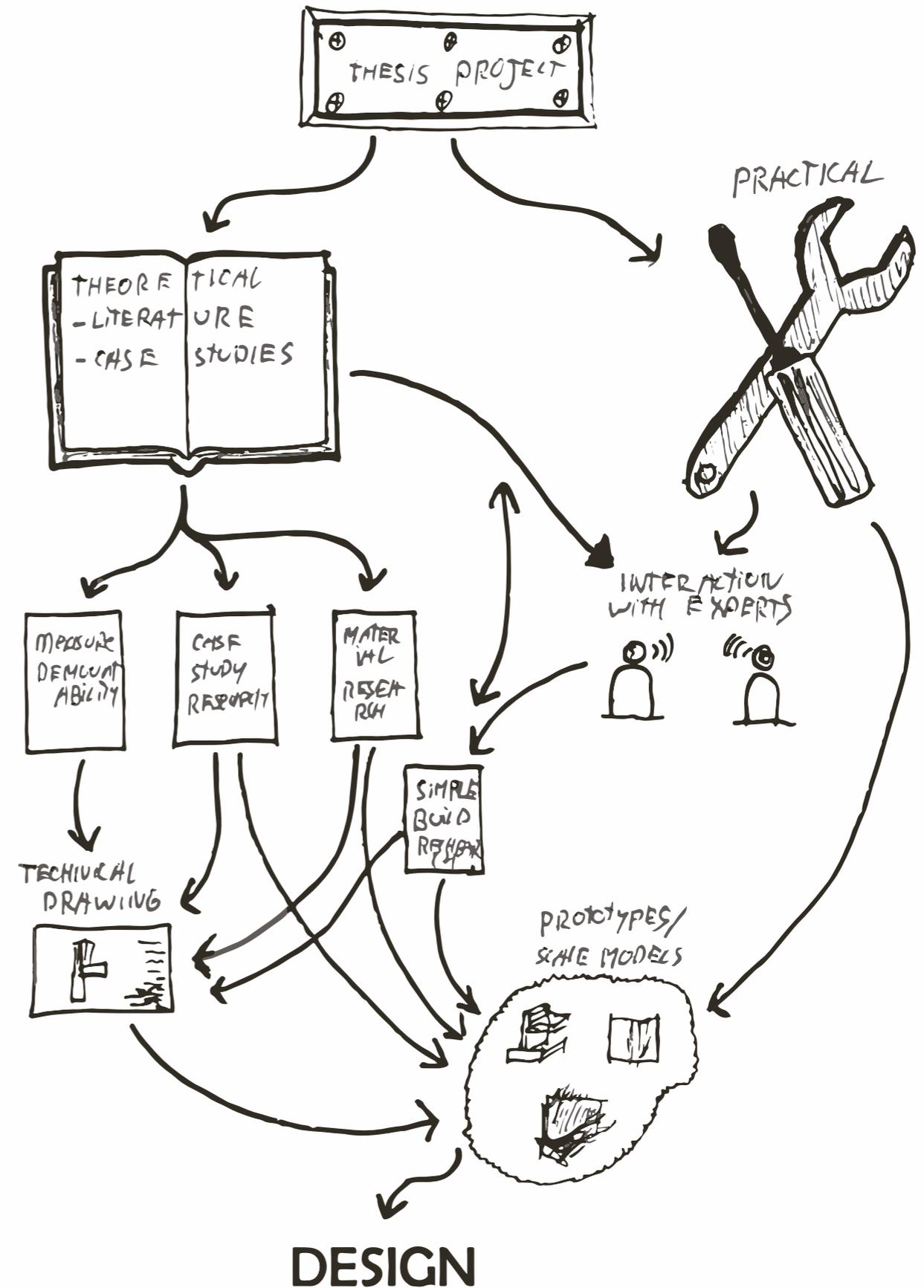
To gain insight into simple building methodologies an interview or survey will be held, questioning carpenters and work planners of a contractor about which methods they recommend to use for building with novices under the supervision of a professional. The participants will be selected by contacting a local contractor and architect's firm, accessing architects, technical designers, carpenters, and work planners. The survey will be held using predetermined open-ended questions via a printed-out or digital document.

Quantifying demountability

To underpin a final decision on the building methodology the demountability of that structure should be compared, to find the most suitable solution for making simple, circular, and demountable structures. The proposed structures will be analyzed using the (losmaakbaarheidsindex) demountabilityindex, designed by ALBA concepts. To add, a material passport and MPG (Milieu Prestatie Gebouw) will be made to expand upon the idea of creating a closed-loop building as a bank of materials.

Scale Models

By using scale models the demountability can be tested in a real-world scenario, replicating detailed elements on scale. This method can give insight into the simplicity of the design and will highlight problems when assembling. It also directs the maker into thinking more about the order of assembly and make-ability.



Reflection

The Moving Commission is a result of numerous ideas and strategies posed by municipalities, the government, and city planners. First and foremost the plan is anchored in the agenda designed by the College of Government advisors led by Francesco Veenstra (the chief Government architect of the Netherlands), The 22nd century starts now. In this agenda, they propose a new building culture and think about how our decisions now affect our future in 100 years. The new building culture includes more biobased materials (which will be locally sourceable on our site) and new building contract forms, of which the CPC (Collective Private Commissioning) is one.

Grasping back to the looking ahead for 100 years another influence is the plan of ZUS (Zones urbaines Sensible) which proposes the new National Productive Park Delfland, which is the baseline for the project. The proposed masterplan is closely linked to the soil and water conditions of the area and results in different typologies of areas from swamp to forest, which all can grow unique and biobased building materials. Besides this part of the landscape will be gradually flooded over time to reduce emissions as a result of the peat landscape sinking because of the pumping out of water.

One thing that is often forgotten is the craftsmen who have to build the projects that we design, regarding this my personal opinion is that not only the end-users of our project should enjoy the building, but all the men and women who are responsible for the realization should also. This fascination of mine to create easy-to-build and or assemble/demountable structures in combination with the two overarching perspectives resulted in this research plan.

With the knowledge today about the climate crisis and resource scarcity we must build in a way that resembles a closed-loop system which allows for the most efficient resource usage without degrading the material over time. The building should be seen as material storage instead of usable space made out of materials that can be regarded once the building is not necessary. A challenge that accompanies this view is the leftovers by the footprint of the building, it should not leave any traces behind which has not been achieved many times before.

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