

Bachelor's thesis

Energy and Environment Engineering

2021

Iida Iloniitty

**THE EFFECT OF CIRCULAR
URBAN DEVELOPMENT ON
THE SOCIAL SUSTAINABILITY
OF AN AREA** – case study on two urban
development projects in Finland and the
Netherlands



BACHELOR'S THESIS | ABSTRACT

TURKU UNIVERSITY OF APPLIED SCIENCES

Energy and Environment Engineering

2021 | 41 pages, 2 pages appendix

Iida Iloniitty

THE EFFECT OF CIRCULAR URBAN DEVELOPMENT ON THE SOCIAL SUSTAINABILITY OF AN AREA

- case study on two urban development projects in Finland and the Netherlands

This bachelor thesis, commissioned by the REDUCES project, studies the link between circular urban development and social sustainability. Circular urban development means improving a traditionally organized city/district by following the three principles of circular economy: design out waste and pollution, keep products and materials in use and regenerate natural systems. Social sustainability is one of the main three pillars of sustainable development, yet it does not have a clear definition, rather it changes according to the respective scope and context. Circular economy supports mainly the economical and environmental aspects of sustainable development, but does not explicitly include the social aspect, apart from potentially creating new job opportunities for people.

In this study, the focus is solely on industrial areas, such as workspaces and hubs where entrepreneurs operate their business. The two case projects were chosen for this study based on their many similarities and their circular approach in the forefront of urban development. The research methods used are qualitative and they include document analysis on the cases, two focused interviews with the management of the respective projects and six semi-structured interviews with people working in the districts. The interview questions for the entrepreneurs aimed at finding out what kind of impact the circular urban development had had on their work environment, community and well-being.

Both of the case projects incorporated multiple actions to support the social sustainability of the areas by creating sustainable, successful places that promote wellbeing, understanding what people need from the places they work and combining design of the physical realm with design of the social world. These actions had a positive effect on the atmosphere and social cohesion of the community, as well as on mental health and motivation of the members, but also provided the entrepreneurs new business opportunities and learning experiences. Combining the social aspect into circular urban development projects seems to be very beneficial for not only the community, but the over-all appeal of the area, yet it has to be studied more.

KEYWORDS:

circular economy, social sustainability, urban infill, circular urban development

Lida Iloniitty

KIERTOTALOUDEN MUKAISEN KAUPUNKIKEHITTÄMISEN VAIKUTUS ALUEEN SOSIAALISEEN KESTÄVYYTEEN

- tapaustutkimus kahdesta täydennysrakentamisprojektista Suomessa ja Alankomaissa

Tämä REDUCES-projektin teettämä opinnäytetyö tutkii kiertotalouden mukaisen kaupunkikehittämisen ja sosiaalisen kestävyuden välistä yhteyttä. Kiertotalouden mukainen kaupunkikehittäminen tarkoittaa perinteisesti järjestetyn kaupungin/alueen parantamista noudattamalla kiertotalouden kolmea periaatetta: jätteen ja saasteiden poistaminen suunnittelun keinoin, tuotteiden ja materiaalien käytössä säilyttäminen ja luonnonjärjestelmien elvyttäminen. Sosiaalinen kestävyys on yksi kestävä kehityksen kolmesta pääpilarista, mutta sillä ei ole selkeää määritelmää, vaan se muuttuu kunkin soveltamisalan ja kontekstin mukaan. Kiertotalous tukee pääasiassa kestävä kehityksen taloudellisia ja ympäristönäkökohtia, mutta ei nimenomaisesti sisällytä sosiaalista näkökohtaa sen lisäksi, että se voi luoda ihmisille uusia työpaikkoja.

Tässä tutkimuksessa keskitytään yksinomaan teollisuusalueisiin, eli työtiloihin ja keskuksiin, joissa yrittäjät harjoittavat liiketoimintaansa. Kaksi tapaushanketta valittiin tähän tutkimukseen niiden monien yhtäläisyyksien ja kiertotalouden mukaisen lähestymistavan perusteella. Tutkimusmenetelmät ovat kvalitatiivisia, ja niihin sisältyy asiakirjojen analyysi tapauksista, kaksi kohdennettua haastattelua projektien johdon kanssa ja kuusi puolistrukturoitua haastattelua alueella työskentelevien ihmisten kanssa. Yrittäjille suunnattujen haastattelukysymysten tarkoituksena oli selvittää, millainen vaikutus kiertotalouden mukaisella kaupunkikehittämisellä oli ollut heidän työympäristöönsä, yhteisöönsä ja hyvinvointiinsa.

Molemmat hankkeet sisälsivät useita toimia alueiden sosiaalisen kestävyuden tukemiseksi luomalla kestäviä, menestyviä paikkoja, jotka edistävät hyvinvointia, ymmärtämällä, mitä ihmiset tarvitsevat työpaikoiltaan ja yhdistämällä fyysisen alueen suunnittelun sosiaalisen ympäristön suunnitteluun. Nämä toimet vaikuttivat myönteisesti yhteisön ilmapiiriin ja yhteenkuuluvuuden tunteeseen, jäsenten mielenterveyteen ja motivaatioon, mutta tarjosivat myös yrittäjille uusia liiketoimintamahdollisuuksia ja oppimiskokemuksia. Sosiaalisen näkökulman yhdistäminen kiertotaloutta tukeviin kaupunkikehityshankkeisiin näyttää olevan erittäin hyödyllistä paitsi yhteisölle, myös alueen yleiselle vetovoimalle, mutta sitä on kuitenkin tutkittava enemmän.

ASIASANAT:

kiertotalous, sosiaalinen kestävyys, täydennysrakentaminen, kestävä kaupunkisuunnittelu

CONTENT

1 INTRODUCTION	6
2 THE REDUCES PROJECT	7
3 CIRCULAR URBAN DEVELOPMENT CASES	8
3.1 Circular urban development	8
3.1.1 Principles of Circular Economy	8
3.1.2 Circular urban development vs. sustainable development	9
3.2 Case projects	10
3.2.1 Hiedanranta, Tampere, Finland	10
3.2.2 Werkspoorkwartier, Utrecht, Netherlands	12
4 SOCIAL SUSTAINABILITY	14
4.1 Social Life	14
4.2 Sustainable Cities Index	15
4.3 Diversity.Social	16
5 RESEARCH QUESTIONS AND METHODOLOGY	17
5.1 Research questions	17
5.2 Research methodology	17
6 SOCIAL SUSTAINABILITY IN THE URBAN DEVELOPMENT CASES	19
6.1 Hiedanranta	19
6.1.1 Creating sustainable, successful places that promote wellbeing	19
6.1.2 Understanding what people need from the places they live and work	20
6.1.3 Combining design of the physical realm with design of the social world	20
6.2 Werkspoorkwartier	21
6.2.1 Creating sustainable, successful places that promote wellbeing	21
6.2.2 Understanding what people need from the places where they live and work	22
22	
6.2.3 Combining design of the physical realm with design of the social world	22
7 RESULTS OF THE INTERVIEWS	24
7.1 Hiedanranta	24
7.1.1 Work environment	24

7.1.2 Community	25
7.1.3 Well-being	26
7.2 Werkspoorkwartier	27
7.2.1 Work environment	27
7.2.2 Community	28
7.2.3 Well-being	29
8 CONCLUSIONS	30
8.1 From plans to results	30
8.1.1 Hiedanranta	30
8.1.2 Werkspoorkwartier	31
8.2 Comparing case projects	31
9 RECOMMENDATIONS	33
9.1 Good practices to implement	33
9.2 Recommendations for further research	34
10 SOURCES	35

APPENDICES

Appendix 1. Interview questions

PICTURES

Picture 1 Location of Hiedanranta (City of Tampere, 2017)	10
Picture 2 Concept sketch of the factory of Hiedanranta, view from the tramstop (NOAN)	11
Picture 3 The location of Werkspoorkwartier in Utrecht (EFRO Werkspoorkwartier, 2020)	12
Picture 4 Development of Werkspoor from 1939 to the future (EFRO Werkspoorkwartier, 2021)	13
Picture 5 The evolving importance of social sustainability as one of the three pillars of sustainable development (Colantonio, 2009)	14
Picture 6 The four dimensions of social sustainability by Diversity.Social (Chan, 2020)	16

LIST OF ABBREVIATIONS

ERDF	European Regional Development Fund
REDUCES	REthinking Sustainable Development in European Regions by Using Circular Economy Business ModelS
CE	Circular Economy
SCI	Sustainable Cities Index

1 INTRODUCTION

In this thesis I will be studying the link between circular urban development and social sustainability in building sustainable workspaces through urban infill. I have chosen two urban development projects, one in Finland and one in the Netherlands, as case studies to compare my findings and find the best and the most effective practices in creating places for entrepreneurs to flourish and cooperate.

Next to the economical and environmental viewpoints on area development, the social aspect of sustainability is often overlooked, yet it is one of the cornerstones in creating a society with a good quality of life (McGuinn & al., 2020). When overlooked, even newly designed districts might be at the risk of attracting crime and other unwanted behaviour to the point that they have to be redesigned. (Woodcraft; Bacon; Caistor-Arendar; & Hackett, 2012)

A circular approach focuses mostly on the financial side with a goal of protecting the nature and its finite resources at the same time. My goal is to find out how circular urban development still affects the community in the area, and to collect examples of how aspects of social sustainability can be supported in circular design and building. I hope that my findings could help urban area designers apply a combination of circular economy principles and a stronger emphasis on the social sustainability in their work.

I will answer my research questions by getting familiar with both case projects and carrying out semi-structured interviews with people belonging to these communities. I will study documents from the projects, as well as other professional texts about circular and socially sustainable urban development. The research methodology is qualitative to pick up on the development of the community and other social aspects.

This documentation of my bachelor's thesis will begin with the introduction of the commissioner, definition of the main topics in the context of this study and description of the case study projects and their circular actions. Next, I will explain the research methods used in this study and how aspects of social sustainability were considered in the design and building phases of the case projects. Then, I will explore the effects on the communities based on six qualitative interviews. Lastly, I will highlight the best practices collected from the research for other projects to implement and recommendations for further research.

2 THE REDUCES PROJECT

The commissioner of this thesis is the REDUCES, short for *REthinking Sustainable Development in European Regions by Using Circular Economy Business Models*, which is an Interreg Europe funded project that “*aims to identify the best business models in six European regions and to research and critically assess their climate impacts and sustainability*” (Interreg Europe, 2020). These six regions are Southwest Finland, Valencia (Spain), Manchester (UK), Utrecht (Netherlands), Maramures (Romania) and Bulgaria.

The topic of the thesis aids the commissioner by showcasing the circularity of an urban infill process and by assessing its impacts on the area’s sustainability, namely social sustainability. The results will be used in the REDUCES as examples of good practices in the field of circular economy and as lessons on how urban development based on circular principles affect the citizens, which can be implemented in other areas.

3 CIRCULAR URBAN DEVELOPMENT CASES

First in this chapter, the term circular urban development will be framed and its relation to sustainable development explored. Secondly, the background of the two case projects and their circular actions will be introduced.

3.1 Circular urban development

In the third interregional meeting of the REDUCES, researchers/lecturers Evert-Jan Velzing and Kitty Vreeswijk wanted to discuss the term circular urban development. According to their presentation, this term combines urban development with circular economy and could be defined as “the improvement of a traditionally organized city or district to a city or district that eliminates waste and where materials are kept in use, functioning in a regenerative system” (Velzing & Vreeswijk, 2020). This definition is based on the three principles of circular economy by the Ellen MacArthur Foundation.

3.1.1 Principles of Circular Economy

Circular Economy is “a systemic approach to economic development designed to benefit businesses, society, and the environment” (Ellen MacArthur Foundation, 2017). It is a new approach compared to the linear model, which is simply based on taking the resources from the earth, making something and then scrapping it in the end of the products life. Ellen MacArthur Foundation also states that “a circular economy is regenerative by design and aims to gradually decouple growth from the consumption of finite resources” (Ellen MacArthur Foundation, 2017).

The Ellen MacArthur Foundation lists the three main principles of circular economy to be the following:

1. Design out waste and pollution
2. Keep products and materials in use
3. Regenerate natural systems

(Ellen MacArthur Foundation, 2017)

In the context of urban development, the first principle could mean sourcing materials strategically and locally, and building with resource-efficient construction techniques, such as prefabricated building elements. The second principle encourages designing for adaptable and flexible use, integrating material choices into design and developing 'buildings as material banks' (BAMB). These methods ensure that the end-owner of the building is informed of the reuse and recycling opportunities of the materials. Regenerating natural systems in buildings can be achieved for example through taking design inspiration from nature and using buildings exterior for energy production.

These examples on building circular cities were derived from the Circular economy in cities -factsheets published by the Ellen MacArthur Foundation. (Ellen MacArthur Foundation, 2017)

3.1.2 Circular urban development vs. sustainable development

Circularity and sustainability are often used quite interchangeably, yet they are not exactly the same thing. The main difference between these two themes is that sustainable development promotes three pillars of development – economical, environmental and social, whereas the circular approach is mainly focused on the economical and environmental aspects. (Geissdoerfer, 2017) The latter has a potential effect on the social development of an area as well, in the sense of providing more jobs and connecting people through the circular business models, for example by sharing commodities within the community or by establishing a new recycling system nearby. According to Geissdoerfer et al., the goals of sustainable development are “open-ended, as [they] can be constantly adapted or reframed over time”, while circular economy aims to the ideal closed-loop system where no resources are lost. (Geissdoerfer, 2017)

In the context of urban development, both of these approaches are valuable and valid. This research will look into some of the ways that circular choices have been able to aid the social sustainability of the areas through their development, and prove that these two things can be connected.

3.2 Case projects

Hiedanranta and Werkspoorkwartier were chosen as cases for this study due to both taking place in former industrial districts that needed an update to accompany the modern job economy. Apart from the differences in size and the stage of development, these cases have a lot in common, and most importantly, a similar goal when it comes to preserving old structures and redeveloping the area in a circular way. Both projects have involved citizens in the design phase and promoted the feeling of community, for example by hosting multiple events in different stages of the development. They are also encouraging entrepreneurs especially on creative and sustainable fields to work there.

3.2.1 Hiedanranta, Tampere, Finland

Hiedanranta is an old industrial area located by Lake Näsijärvi, about four kilometres from the centre of Tampere (see Figure 1). In 1914, a pulp mill started operating there and grew into a bigger paper factory complex during the years, but was shut down after the turn of the century. The city



Picture 1 Location of Hiedanranta (City of Tampere, 2017)

of Tampere bought the abandoned land including the historical estate and gardens of the factory manager in 2014 and is planning to make it into a new attractive and sustainable neighbourhood with about 25 000 residents and up to 10 000 new jobs. (City of Tampere, 2020) The urban development project of Hiedanranta is also part of the ERDF funded CircHubs network, which aims to “*support the increase of business relating to the circular economy, foster the creation of new partnerships, and strengthen cooperation*” (CircHubs, 2020).

In 2015, the first workshops were facilitated for the main stakeholders of the area, which were followed by an international idea competition for various interest groups to bring in the best innovations for the redevelopment of Hiedanranta. The area opened for public

in 2016 as “Temporary Hiedanranta”, where multiple events and community activities, such as theatre and music performances, took place. Today, in the beginning of 2021, the master plan has been approved by the city council and presented to the public. The local detailed plan is in the works and the construction will start in 2023 to continue bringing the place to life. (City of Tampere, 2020)



Picture 2 Concept sketch of the factory of Hiedanranta, view from the tramstop (NOAN)

According to the plans, parts of the old factory building in the centre of Hiedanranta will be repurposed to preserve the history and the atmosphere of the district. It will serve as a multifunctional space for businesses and citizens. The old building stock of Hiedanranta also includes other historical sites, such as the Lielähti Manor, which are finished or in the process of renovation. (City of Tampere, 2020) The City of Tampere rents out already renovated premises such as the manor. Parts of the factory are rented out by the development company Hiedanrannan Kehitys Ltd for artists, entrepreneurs and citizens to utilize. Other renovated buildings, like Jukola (built in 1890), are used as an infodesk and exhibition/innovation space. (Väliäkainen Hiedanranta, 2019)

The circular urban development project of Hiedanranta aims to create opportunities for large side stream recycling. For example, the base for the artificial island, Lake City, is going to be compiled out of land mass that is created in a nearby mining site of a water purification plant. The project team and the City of Tampere are also looking into reusing some of the lightly degraded land and demolishing waste in the area, according to an interviewed employee. The whole district works as a testing hub for circular economy

innovations, such as mobility as a service, energy storages and nutrient recycling. Many educational institutes in Tampere are involved in the area in various projects on different levels. There are also some regenerative initiatives going on in the area, such as communal gardens, vertical farms and a seed bank. (Hiedanranta, 2021)

3.2.2 Werkspoorkwartier, Utrecht, Netherlands

Werkspoorkwartier, a city district only about four kilometres from Utrecht Central Station, used to be an industrial area for steel constructions like trains and bridges in the beginning of the 20th century. In the 1980's, most of the original companies had already left the area and thus it became a business park called Cartesius II with several empty buildings and little to no appeal. The City of Utrecht decided to lift up this part of town in a sustainable way and so the project *Werkspoorkwartier: Circular Creative Manufacturing* was born. (Werkspoorkwartier, 2020)



Picture 3 The location of Werkspoorkwartier in Utrecht (EFRO Werkspoorkwartier, 2020)

Starting in 2017, this urban redevelopment project has implemented the principles of circular economy in the renovation and rebuilding of the infrastructure in Werkspoorkwartier, and has been able to create about 10 000 m² of work space (in June 2019) to foster over 200 new jobs in creative and sustainable sectors. One of the goals of the project is also to develop a feeling of community with attractive public spaces and collective work environments. The project will be finished in 2021 and it is funded by the European Regional Development Fund. Main stakeholders include the municipality of Utrecht, businesses in the area, educational institutes and other tenants of the buildings. The district won the ABN AMRO Circular Economy Award for the best circular worklocation of the Netherlands in 2018. (DUIC, 2018) (Interreg Europe, 2020)



Werkspoor 1939 (Werkspoor N.V. / collectie Het Utrechts Archief / 806066)

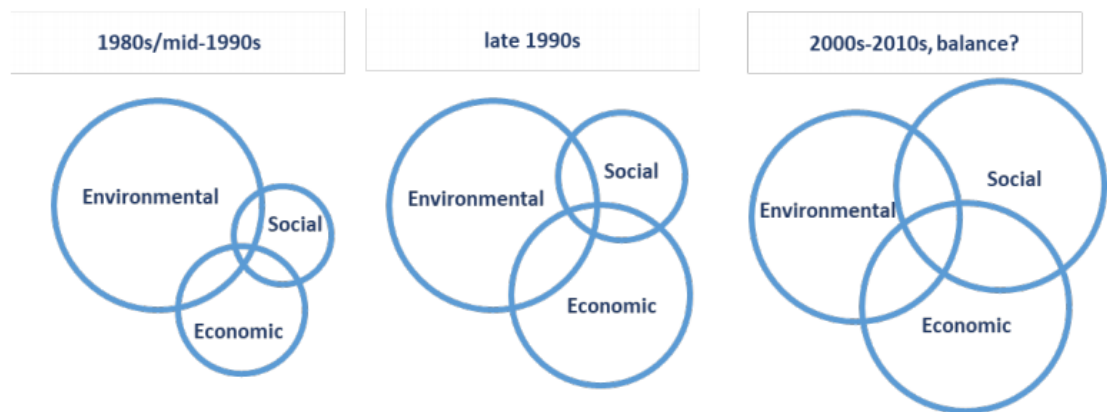
Picture 4 Development of Werkspoor from 1939 to the future (EFRO Werkspoorkwartier, 2021)

One of the biggest industrial buildings in the area, Werspoorfabriek, was renovated in a circular way by installing modular office spaces with a box-in-box system called ReSpace and by redoing the façade. Double glazed windows, 110 solar panels and an air-source heat pump were also added to make the 175-meter-long building more energy-efficient and sustainable. (Werkspoorkwartier, 2021) At another location, the Hof van Cartesius, most of the building materials were recycled, repurposed and/or sourced locally. For example, the lumber frame and metal rafters supporting the roof of the Buurman Utrecht workshop were salvaged from demolishing sites. The main structures are also dismountable for easier reuse of the materials in the future. Special attention to energy-efficiency was given here too by insulating the buildings well. As a unique touch and a way to deepen the cooperation, each tenant got a chance to decorate the outside of their rented space with recycled materials. (Hof van Cartesius, 2021)

There are water collecting systems in place around the district to use rain water instead of clean tap water for watering the many plants in the 5 000 m² of green area that was added during the project. The central green area in the Hof van Cartesius was created with local plant donations and it has a lot of wild flowers too, replenishing the soil and supporting the natural ecosystem. (Hof van Cartesius, 2018) (Werkspoorkwartier, 2021)

4 SOCIAL SUSTAINABILITY

Social sustainability is one of the three key principles in the framework for sustainable development, yet rather understudied compared to the economic and environmental aspects. Its importance has been becoming more prominent since the first official mention in the UN discourse, as pictured below on the graph. Thus, a clear definition for the term is more difficult to find and it can vary depending on the viewpoint. For this study, three definitions were used as the basis of the research, with a focus on the working life.



Picture 5 The evolving importance of social sustainability as one of the three pillars of sustainable development (Colantonio, 2009)

Below are gathered some definitions of social sustainability provided by organisations that work closely with the theme. Research on all of these has helped to shape the interview questions for the target group and the overall structure of the thesis.

4.1 Social Life

A social enterprise called Social Life defines social sustainability in the *Design for social sustainability – a framework for creating thriving new communities* as:

“A process for creating sustainable, successful places that promote wellbeing, by understanding what people need from the places they live and work. Social sustainability combines design of the physical realm with design of the social world

– infrastructure to support social and cultural life, social amenities, systems for citizen engagement and space for people and places to evolve.”

(Woodcraft;Bacon;Caistor-Arendar;& Hackett, 2012)

This definition will be used later in the study to showcase socially sustainable actions in the projects in an organized way by dividing it into three main parts:

1. creating sustainable, successful places that promote wellbeing
2. understanding what people need from the places they live and work
3. combining design of the physical realm with design of the social world.

4.2 Sustainable Cities Index

The Sustainable Cities Index (SCI) developed by design and consultancy firm Arcadis measures the *social (people)*, *environmental (planet)* and *economical (profit)* aspects of various cities globally. The metrics used for the People sub-index, i.e. social sustainability, in the 2018 report were:

- Personal well-being (health, education, crime),
- Working life (income inequality, working hours, the dependency ratio)
- Urban living (transport accessibility, digital services and other amenities).

(Arcadis, 2018)

These themes and the four dimensions of social sustainability below are used as a base for the semi-structured interviews of the community members.

4.3 Diversity.Social

According to the strategic and organization development organization Diversity.Social, there are five dimensions in social sustainability that should be considered. These dimensions are *equality*, *diversity*, *quality of life*, *social cohesion* and *democracy/governance*, also presented in the figure below.

In the summary by Diversity.Social, *equality* means giving the people more control of their lives by identifying and reducing barriers and disadvantages. *Diversity* means taking into account the needs of different groups and educating on the benefits of diversity. *Quality of life* has to do with everything that affects the living environment of the citizens, such as safety, housing, medical support, education and work opportunities. *Social cohesion* includes activating people in and between their target groups and helping them access institutions. Lastly, *governance* is “to make sure budget and resources are adequate to sustain sustainability programs and the ability to measure it” (Chan, 2020).



Picture 6 The four dimensions of social sustainability by Diversity.Social (Chan, 2020)

5 RESEARCH QUESTIONS AND METHODOLOGY

In this chapter the main research questions are presented and the research methods are elaborated on.

5.1 Research questions

The main goal of this research is to find out how the social sustainability in the area can be affected through circular urban development and how these results could be repeated in other areas. This goal will be reached by answering the following research questions:

1. How did the circular urban development projects incorporate aspects of social sustainability in the design and building process?
2. How was the social sustainability of the area affected by the circular urban development projects?
3. How could aspects of social sustainability be better considered in other circular urban development projects?

The focus of this study is on the entrepreneurs/employees and the creation of sustainable workplaces, not development of residential areas.

5.2 Research methodology

The research on the theoretical framework of the thesis is literature-based and helps to define the terms of circular urban development and social sustainability to recognize them in action. Conversations with the case project management members will provide a possibility to ask further questions on the information that is found on the official documents of the projects. Interviewing the people working in the area helps to determine what kinds of social impacts the circular urban development process actually had on the community. Comparing the plans to the results and two case studies with each other will bring more insights into how similar practices would work in different areas.

The data collection methods for this research are mainly qualitative and they include

- document analysis of the official reports and other information on the case projects,
- focused interviews with the management of the case projects,
- semi-structured interviews with tenants of the case districts.

The goal of the interviews with the project management was to support the literature-based document analysis on the cases and give more information on the circular and social actions of the projects. The project team members were contacted via email addresses that were listed on the project website and both interviews were done via videocalls.

The potential interviewees for the community poll were chosen from lists of local entrepreneurs provided on the project websites/publications, and they were contacted via email. The aim was to interview workers on different fields, three on both districts, to get enough coverage on their opinions and the state of the community. Enterprises with clearly circular business models were ruled out due to one of the interview questions being about whether circular urban development affected their choice to come to the area. The interviews with the community members were carried out either safely distanced face-to-face or via a video call/meeting and they were recorded for research purposes only. Pre-made themed interview questions were sent to the tenants beforehand and were used as a base for the conversation (see appendix 1). The names of the interviewees are kept anonymous.

6 SOCIAL SUSTAINABILITY IN THE URBAN DEVELOPMENT CASES

This chapter will list measures that took place in the planning and building phases of the urban infill projects to attract citizens to the area, improve their wellbeing and encourage cooperation between different parties. These actions, among others, are part of creating a healthy community and boosting the social sustainability of the district. The actions will be divided into three main categories, based on the definition of social sustainability by Social Life in chapter 4.1.

6.1 Hiedanranta

Inclusive urban design has been a big theme in the design phase of Hiedanranta through workshops for citizens, professionals and other stakeholders and has resulted in multiple publications on future prospects of the district. The main principles supporting the social sustainability of Transformative Hiedanranta in 2025 are **encouragement of experiments and boldness, support for diversity, utilization of citizens' skills and co-development**. (City of Tampere; Kenttä., 2018) Before any major construction took place in the area, the factory complex was opened for public events and recreational activities in 2016. The over-all approach of the design phase has been to test and experiment on various initiatives and keep the plan flexible. There is a strong emphasis on activating the citizens and involving them in the project. (City of Tampere, 2019)

6.1.1 Creating sustainable, successful places that promote wellbeing

The plans of Hiedanranta include a network of green spaces and waterways that are sprinkled around the whole district, which “ensures that all inhabitants have access to a larger green and blue area within a 5 minutes walk (about 400 metres)” (City of Tampere, 2017). One of these larger areas is the historical Mason park, which will be accompanied by new sport and playground areas plus so called pocket parks for the citizens of all ages to enjoy. The factory area will work as a hot-spot for events like concerts and theatre, however the scale of those events has to be re-evaluated in the future due to possible noise-constraints on the new residential areas.

The master plan aims to host up to 10 000 jobs in the whole Hiedanranta area in the future, and thus there will be plenty of spaces available for small businesses in the three main district centres. According to the Structure Plan, cafes and markets will be placed around cozy urban plazas, main public services along the “Urban Corridor” and recreational spaces/parks around the “Green Corridor”. The overall city grid is meant to be smart and flexible, which allows for a “well-connected built environment that meets the demand of different functions and user groups” (City of Tampere, 2017).

6.1.2 Understanding what people need from the places they live and work

From the beginning, the aim of the Hiedanranta urban development project has been to design and build in a resident-oriented way and in cooperation with businesses that are interested in the area. Multiple inclusive workshops, walking tours, research interviews and idea competitions are aimed at making sure that the future district serves as many new and old citizens as possible and people are happy with the end results. The pool of people taking part in the innovation of Hiedanranta has included urban development experts, architects, ordinary citizens, businesses, entrepreneurs, artists and children. The ultimate goal of the project is to continue listening to multiple voices and gathering unique ideas also after the first development stages. (City of Tampere, 2019)

6.1.3 Combining design of the physical realm with design of the social world

There are already multiple educational institutes located in the Hiedanranta area, for example University of Tampere, which is working closely on the development of the district, and the second largest vocational school in Finland, Tredu, which utilizes the building stock in their property service education and is planning on relocating multiple other sectors into the area. (Hiedanranta, 2021) In Hiedanranta, you can find the only skateboarding college in Finland, which also utilizes the existing urban environment of the district in its educational program. (City of Tampere, 2020)

Hiedanranta is an active and supportive place for many social institutions, such as the KIERTO program, which is specialized in providing hands-on internships and work try-ons around circular economy, also for people who have been unemployed for a longer period of time or have other difficulties getting a job. (KIERTO, 2021) Another EU funded project called Sorvaamo helped the same demographic group to renovate one of the

sites in Hiedanranta as an apprenticeship program. The Sopimusvuori association runs the Manor café as part of their social psychiatric rehabilitation program. (Hiedanranta, 2021) The Active Refugees in the Community project built greenhouses made from recycled materials as part of the edible garden concept with support of the City of Tampere and Hiedanrannan Kehitys Ltd in 2018. Attending to the gardens with other community members and growing vegetables together is used as a social integration activity for immigrants. (City of Tampere, 2018)

As an important part of Finnish culture and Tampere being the sauna capital of the world, the community has built a timber sauna near the factory complex with help of multiple stakeholders and sponsors. Part of the sauna complex are dressing rooms made out of recycled containers, terrace/dancefloor and a stage, which has been used for musical numbers and circus performances. The public sauna is free-of-charge and currently a testing ground for a solar powered stove, since it cannot be in use during the pandemic. (Visit Tampere, 2018)

6.2 Werkspoorkwartier

The main goals of the Werkspoorkwartier project related to social sustainability were to **“increase social cohesion in the neighborhood, create jobs, especially for otherwise socially excluded individuals, increase green spaces and attract creative and sustainable start-ups to the area”** (Velzing & Vreeswijk, 2020). This chapter showcases the actions that were taken by the project team to achieve these goals, among others.

6.2.1 Creating sustainable, successful places that promote wellbeing

The open floorplans, seethrough glas walls and cozy community spaces in Werspoorfabriek and other sites allow cross-pollination between professions to flourish. This has resulted in more cooperation and business between entrepreneurs, when they get to know each other and their services. The rental work spaces in Werkspoorfabriek are very popular and almost entirely booked (one office space available in 1/2021), which proves that the concept has been received well by people. The renting system also provides long-term offices for those who need them. The area will continue developing further due to commercial interest and the over-all hype that the results of the ERDF

funded project have generated. The already existing green spaces will be expanded on in the future. (EFRO Werkspoorkwartier, 2019) (EFRO Werkspoorkwartier, 2019)

6.2.2 Understanding what people need from the places where they live and work

Werkspoorkwartier project has included multiple stakeholders, like the municipality, inventors, entrepreneurs and creative makers into the design and building phases and continues to do so through organisations that were established to take care of the rental spaces. The development of the Hof van Cartesius started from a need to cater for creative workers, since their overall situation in the city had gotten worse. The blogpost by Hof van Cartesius explains that "at that point, there was a shortage of affordable workspaces in Utrecht, as makers would temporarily reside in (previously) abandoned buildings with short term contracts" (Hof van Cartesius, 2019).

The tenants are considered owners and important members of the community, which means that they can make suggestions for improvements and voice their opinions about the workspace. Regular meetings, mealtimes together and community events make sure that everybody's voice is heard whenever problems arise and the social cohesion is supported. The Havenloods hub has its own community managers hired from MaakRuimte who help to stimulate cooperation between the creators in the building. (De Havenloods Utrecht, 2021) (EFRO Werkspoorkwartier, 2020)

6.2.3 Combining design of the physical realm with design of the social world

Indoor walls made from glass and big windows in the buildings create the feeling of a community for tenants when they are able to see each other work. In the Hof van Cartesius there are no closed corridors between the spaces, only paths through the central garden, where people are bound to meet each other more often. The café, restaurant, terraces and brewery in the area are places for people to come together to enjoy the atmosphere and culinary experiences. Before the pandemic and safely during it, events took place in Werkspoorkwartier, for example food fairs, concerts, pop-up diners and many others. Buildings like Havenloods provide space for art exhibitions, where the creative workers of the district are able to showcase their work. (Hof van Cartesius, 2018) (De Havenloods Utrecht, 2021)

The Buurman Utrecht arranges woodworking courses and workshops in their premises and in the Hof van Cartesius the artists themselves give workshops on their specific fields. Kids are also included in weekly art courses and the brewery has courses for adults on brewing and baking. The central garden can be rented out by any organisation for various social and cultural events. (Hof van Cartesius, 2019)

To get marginalized groups involved, the Hof supports refugees and retirees by offering them spaces to express themselves, and some have continued the cooperation long-term. Children are also taken into account with art workshops, where they are encouraged to create art and build with recycled materials. In the building phase of the Hof van Cartesius the future tenants were allowed to decorate their own part of the building in their own way and budget. According to a blog post by the project team, this act “[greatly improved] their sense of ownership over the building” (Hof van Cartesius, 2019).

7 RESULTS OF THE INTERVIEWS

The main results from the community member interviews are collected in this chapter. The interview questions that were used can be found in the Appendix 1 in English and in Finnish, the recordings of the interviews will not be published. Six people in total working in different fields were interviewed during March of 2021 for this thesis. A short description of the interviewees will be given in the beginning of the chapters below. The results are divided into the three main topics of the interview questions, which are **work environment, community and well-being**.

7.1 Hiedanranta

All three interviewees from Hiedanranta were working in the Studio of Hiedanranta at the time, which is a coworking space for creative entrepreneurs located in the old pulp factory building. The work community of the studio includes around twenty artists, artisans and pioneers of urban street art, and a small shop for their products. (City of Tampere; Hiedanrannan kehitys Ltd, 2020)

Interviewees of Hiedanranta:

- A. illustrator, Studio of Hiedanranta, in the area for six months
- B. upholsterer, Studio of Hiedanranta, in the area for five years
- C. carpenter, Studio of Hiedanranta, in the area for three years

7.1.1 Work environment

The most important reason that arose from all answers for seeking a workshop space in general, was that the interviewees were tired of working alone as self-employed and craved for a more sociable work atmosphere. Only one of the three interviewees knew about the Hiedanranta district beforehand due to having previously lived there. For all interviewees, the relatively close location to the centre of Tampere was beneficial for commuting and reaching customers. Affordable rent compared to other workshops closer to the centre was also mentioned. The interviewee who had previously visited the site multiple times was aware of the circular nature of the development program and

found added value in that on a personal level and for their customers. The other two tenants were introduced to the sustainable development plan later on, so it didn't affect their original choice in any way.

Circular development is most visible at Hiedanrannan paja through the dry toilets on the premises. They are a part of a nutrient recycling experiment, however according to one of the interviewees, they are not very well received by the community. The newest member of the community told that as part of their introduction as a tenant they received a briefing on the topic of circular economy and were encouraged to take part in community activities. Most tenants are familiar with companies in the area and well-informed about the next stages of development via regular briefings by Hiedanrannan Kehitys Ltd. Circular thinking has inspired some makers at Hiedanrannan paja to experiment with recycled materials, and it is already the basis of a few companies in the workshop.

7.1.2 Community

All three interviewees felt like part of the community at Hiedanrannan paja, and for most of them the feeling of belonging reached also the surroundings of the factory complex. The communal kitchen located in the second floor of the workshop, where the makers see each other on coffee and lunch breaks and have a chat, was seen as an important factor in bringing people together. All tenants are also entitled to a discount in the nearby Manor café, where they visit occasionally. The staff of the workshop celebrate birthdays, achievements and some holidays together, but also hosts monthly meetings on practical topics. Sharing tools and equipment, helping each other out and just simply greeting everyone have made the community tight-knit and the over-all atmosphere open, according to the interviewees.

Being part of a multidisciplinary community has brought the tenants some more business opportunities. For example, shortly after moving their business to Hiedanranta, interviewee A. was asked to provide their services for the university, which has its offices next to the workshop. The marketing and thus the revenue of many of the entrepreneurs at Hiedanrannan paja is closely tied to the events that attract citizens to the area or design sales events where people get to know their products. As an example of the close cooperation of the workshop, one of the members arranged an affordable sales booth in another city and asked if others wanted their products to be represented there for a small

fee. Since the pandemic, the community members have helped each other to apply for monetary support for lost revenue from the government. They have also shared their knowledge on some techniques and tools plus exchanged services/products with each other. The mingling of entrepreneurs has not only been beneficial in financial sense, but the interviewees also mentioned that they have made some real friends within the group.

The interviewees were unanimous on the functionality of the communication between the workshop members. In their meetings the atmosphere was considered very open for anyone to bring up any suggestions or opinions. Before the pandemic, all members were also encouraged to plan some events together in the area. Hiedanrannan Kehitys Ltd, which is in charge of development in the area, hosts regular briefings on the stages of planning and building for the community. These meetings are mostly focused on sharing topical information rather than collecting feedback or starting conversations. Some of the interviewees found it important to stay on top of what was going on around them but some felt like the current development didn't have much to do with them. Direct contact to the owner of the space has worked well in regards to solving problems in the building itself, and many things have really improved since the tenants first moved in and started communicating their needs, according to interviewee B.

7.1.3 Well-being

Having the opportunity to work in a hub with other self-employed people instead of working alone has had a huge positive impact on the mental well-being of all three interviewees. The communal workspace is seen as a very important part of people's lives and a place where help is always available. Planning and attending events in the area prior to the pandemic has brought some excitement into everyday work and possibilities to socialize more and enjoy culture. The whole district is seen as an interesting part of the city and most of the interviewees utilize the community lots like the sauna, frisbeegolf park and the Manor café whenever they have time for it.

Cohabiting a workspace has encouraged tenants to learn from each other and practise working with new tools, even when they are from different lines of the creative field. The makers have had opportunities to attend short courses and workshops together to extend their skills and knowledge of other branches. The interviewees feel like they have received great tips and learned new things just by having conversations with others and getting to know each other better.

7.2 Werkspookkwartier

Two of the interviewees of the Werkspookkwartier district were working in the Hof van Cartesius at the time, which is a green workplace for creative and sustainable entrepreneurs. The 40 workplaces and studios that the original collective has to offer, are built around a garden, which together with their award-winning concept attracts thousands of visitors every year. The extension of the Hof is under construction and will provide space for 120 more sustainable entrepreneurs. (Hof van Cartesius, 2021)

One of the interviewees was working in the historical 175-meter long warehouse, which has been renovated inside out with a modular box-in-box method to offer 35 flexible office spaces in various sizes. The building also includes a unique project space and a 100 m² skybox for events. (De Stadstuin, 2021)

Interviewees of Werkspookkwartier:

- A. social designer, Hof van Cartesius, in the area for 1,5 years
- B. illustrator, Hof van Cartesius, in the area about three years
- C. graphic designer, Werkspoorfabriek, in the area for 1,5 years

7.2.1 Work environment

Moving to Werkspookkwartier to work became a viable option for all of the interviewees due to their temporary work places and the easily reachable location of the district. They were all seeking for something more long-term and also had some ties to the area through their network (friends, workspace rental company, prior business there). Only one of the interviewees had clear environmental values, which played a part in them wanting to work in a place that supported them – for others, working in a circular area was simply a bonus.

The interviewee C. working in Werkspoorfabriek was interested in the space due to its clean and professional yet unique look, rather than the sustainable way it was created in. The modularity of the structure has been taken advantage of by enlarging or separating offices. Other circular aspects of the district's development are more visible to the tenants in the Hof van Cartesius with its recycled building materials, unique façades and upcycled furniture. The whole hub is built around a garden, which works as

a meeting place and also provides some edible plants in the summer. Being exposed to the principles of circular economy has changed the way of thinking among the renters there. For example, people ask around whenever they have materials left over for someone else to utilize them.

7.2.2 Community

All three people interviewed for this study felt like part of their respective communities. Especially both interviewees working in the Hof van Cartesius had craved for a community around them, since they had done freelance work alone for some time, but also opportunities to work with their hands instead of purely digitally. The hub encourages mingling between the tenants by having gardening and building as community activities, fixing problems together in regular meetings and sharing resources. Both interviewees from the Hof van Cartesius have also used their own expertise to develop the area and taken an active role in the community.

In Werkspoorfabriek, prior to the pandemic, the tenants could take part in networking events where they were encouraged to solve their problems by cooperating. On top of voluntary meetings, the landlord had arranged a mandatory program of monthly speeches to inspire and educate the community. It was also mentioned how the overall design of both hubs with large glass walls allows the tenants to see each other working and how it makes them feel like they are not closed-off and alone.

According to all interviewees, the atmosphere at Werkspoorkwartier allows for asking help freely when problems arise and also for giving feedback on workplace matters. The renters of Werkspoorfabriek are working on establishing a committee to be in contact with the landlord in a more streamlined way. The Hof van Cartesius has its own meetings, where the tenants can democratically vote for new approaches, initiate plans and share experiences. The Werkspoorkwartier business organisation informs all businesses in the area about opportunities to connect via regular emails to bring together the more traditional companies that already resided in the district and the new circular and creative entrepreneurs that joined it recently.

All interviewees have profited financially from the network created in Werkspoorkwartier in some way. One ended up partnering with another freelancer to establish a new company together and all three have provided their services to others and received

consulting from other entrepreneurs in the area. According to the interviewee C., the companies in the Werkspoorfabriek building are very specialized in certain fields, so cooperation with others is often needed. The professional atmosphere there has also boosted their productivity.

7.2.3 Well-being

Each interviewee felt like a part of something bigger while working in Werkspoorkwartier, which had a positive effect on their motivation and mental well-being. In the interviews in the Hof van Cartesius, the opportunities to work with your own hands and create something physical instead of digital were emphasized as rewarding experiences. This aspect of the hub even encouraged one interviewee to use one of their workdays to work on a personal building project. Through fixing the physical hub together and taking part in various workshops arranged in the area, the interviewees had learned something new about entrepreneurship, gardening and building, for instance.

8 CONCLUSIONS

This chapter will bring together the results of the research and contain analyses on how the case projects have been able to implement their plans to boost the social sustainability in their respective locations and how they compare to each other. When comparing these two projects, it is necessary to remember that they are in different stages of development, i.e. Hiedanranta in the beginning of construction and Werkspoorkwartier at the end of the ERDF funded project.

8.1 From plans to results

This chapter will shortly analyse whether the plans and actions related to social sustainability in the areas were visible in the interview results of the community members.

8.1.1 Hiedanranta

Opening up the district to culture events during Temporary Hiedanranta seems to have made it more approachable and better-known for the citizens of Tampere, including potential entrepreneurs who could work there. The green areas and the communal sauna were seen as an important part of Hiedanranta's appeal. Diversity of people has been promoted by providing multiple spaces for organizations that focus on rehabilitation and social integration. Cooperation with educational institutes has resulted in several experiments and research projects, and aspects of the district development have even been incorporated into the syllabuses. The companies and organisations in the close proximity of the factory complex have gotten more publicity through the events and articles published nation-wide. The entrepreneurs at Hiedanrannan paja have been active in planning some of the events, which fits in with the project team's aim to utilize the skills of the citizens and support their engagement in the district development. One of the worries of the tenants is, however, if the positive buzz and the future developments of the area will bring the rent prices up.

8.1.2 Werkspoorkwartier

The team and the stakeholders of Werkspoorkwartier have managed to set the development in motion with public funding by the ERDF, and it will continue via commercial parties due to the increased interest in the area. The project has received a reward for their creation of the best circular work location of the Netherlands, and it has been picked as one of the good practices within circular economy internationally, which also tells about its success. Many of the original goals regarding social sustainability have been at least partially reached, for example creating job opportunities in creative and circular sectors and increasing the social cohesion of the district through inclusive events and improved communication between all parties. The architectural design choices were recognized by the tenants as a factor that supports them in getting to know each other and feeling part of a bigger group of people. The possibility for long-term renting was one of the main reasons for many of the entrepreneurs to start working in Werkspoorkwartier. This was indeed a solution that the project wanted to provide for the lack of permanent workspaces, however in Werkspoorkwartier too the rents are in danger of increasing due to the desirability of the area.

8.2 Comparing case projects

Although the schedules of Hiedanranta and Werkspoorkwartier differed, the projects started with very similar principles and goals for their respective urban development: to provide space for creative and circular start-ups, improve the image and functionality of an unappealing city district and bring people together through culture, food and greenery. Both projects have also used the rustic appearance of the old factory buildings to their advantage and incorporated it into the over-all concept to preserve part of history instead of tearing everything down and starting over. The areas fit into their local contexts also by providing culturally essential experiences – Hiedanranta with its communal sauna and Werkspoorfabriek with its own brewery.

Circular development is at the heart of both urban cases, but it manifests differently in the respective areas. For example, in Hiedanranta the current focus is on large side stream recycling and other experiments, since the construction hasn't really started yet, whereas in Werkspoorkwartier the circularity is visible in the further improvements of already existing structures. Regardless of the stage of development, both projects

ingcorporate social sustainability actions in their work to engage the citizens and businesses. The types of events arranged over the years in both districts differ slightly due to cultural and locational differences, but have nevertheless been important in the development of the image of these forgotten parts of Tampere and Utrecht.

Both project teams keep the tenants up-to-date on the area development with regular briefings via email or (online) meetings and the hubs have their own channels for communication. The communication styles are fairly similar, but in the Hof van Cartesius the renters have been given more autonomy and responsibility over their space and affairs as part-owners of the building complex. The renters of Hiedanranta have also had the opportunity to arrange their own space on the inside to their liking but the over-all renovations have been always taken care of by the owner of the lot.

Gardening has been used in both projects as an activity to bring people together in the community. The central garden in the Hof van Cartesius connects the tenants of the buildings around it, whereas the greenhouses and floating gardens of Hiedanranta are aimed at connecting immigrants with the local population. Community members were also involved in the building process of both districts: the renovation of the Jukola building in Hiedanranta was carried out as a practical traineeship for unemployed people and the façades of the Hof van Cartesius buildings were designed and executed by the tenants themselves. The communal cafeterias/kitchen areas were valued by both communities.

9 RECOMMENDATIONS

9.1 Good practices to implement

It became apparent in the interviews that the demand for affordable long-term workspaces, especially among creative entrepreneurs, is high. Communal hubs appealed to many self-employed people and freelancers who otherwise would be working at home and miss the entire social aspect of more traditional jobs. It is natural for humans to long to be together, and underestimating this need can lead to diminishing the well-being of citizens. This was evident in the way the interviewees reported improvements in their mental state since starting in a work community compared to them working alone. By combining the utilization of outdated buildings, bringing tenants together and giving them more autonomy over the space might lower the rental costs per person compared to building a new space for only few companies.

During the pandemic most events and social activities have been on hold but there will be a time when it is safe for people to come together again and upcoming districts should utilize that. In both case projects the local events had a mostly positive impact on making the area interesting for citizens and potential enterprises. Judging by the answers of the interviewees, when people find the district appealing, they are more likely to spend time there also in their free time, keep on renting the space for longer and want to be involved in developing it further. Giving the tenants the freedom to create something concrete to improve the community, such as an event, garden or a façade, was seen as a welcomed variation to their everyday tasks and as an opportunity to learn something new. Sharing tools, materials and equipment increased social interaction and the feeling of having help available.

Taking social sustainability into consideration in circular urban development can improve the overall financial results of the projects, since attracting people means attracting customers and revenue. People make the community and create the hype around the district. The cooperation between entrepreneurs and businesses can also lead to new opportunities to make business.

9.2 Recommendations for further research

Due to the qualitative nature and the limitations of this bachelor's thesis, these results are merely a snapshot of how urban development projects can affect the citizens. Further research on the field of social sustainability is definitely needed to broaden our understanding of creation and support of communities in changing environments. Especially developing industrial areas or mixing business districts with neighbourhoods should be explored more to prevent formation of unsafe, unstable or unappealing parts of the city. Circular urban development itself is also a relatively new concept that should be better defined and researched to aid cities in their shift from linear models to circular economy. Both case districts will continue developing further in the following decades and especially Hiedanranta has a lot of potential for giving a close-up look into merging of various communities and implementation of circular economy principles on a big scale.

This research focused more on the good practices that were present in the case projects up to this point, rather than the difficulties and problems that might still be unsolved or that were caused by the area development. A more critical approach would help upcoming projects to avoid some issues that can appear in similar situations, but due to the scope of this thesis these issues were not elaborated further.

10 SOURCES

- Arcadis. (2018). *Citizen Centric Cities: The Sustainable Cities Index 2018*. Arcadis.
- Chan, B. (2020, November 13). *Diversity.Social: Social Sustainability - Everything you need to know*. Retrieved from <https://diversity.social/social-sustainability/#gsc.tab=0>
- CircHubs. (2020). *CircHubs: Front page*. Retrieved from <https://circ hubs.fi/en/>
- City of Tampere. (2017). *Hiedanranta Rakennesuunnitelma - Structure Plan*. Tampere.
- City of Tampere. (2018, October 10). *Tampere.fi: Tampereen kaupunki: Ajankohtaista: Artikkelit: 2018: Lokakuu: Kaupunkiviljely yhdistää jälleen Hiedanrannassa (Urban farming uniting again in Hiedanranta)*. Retrieved from https://www.tampere.fi/tampereen-kaupunki/ajankohtaista/artikkelit/2018/10/10102018_1.html
- City of Tampere. (2019). *Yhdessä tehty kaupunki - Raportti Väliaikaisen Hiedanrannan kokeilusta (A city made together - Report on the Temporary Hiedanranta Experiment)*. Tampere.
- City of Tampere. (2020). *Hiedanranta Yleissuunnitelma (Master Plan)*. Tampere.
- City of Tampere. (2020, December 9). *Tampere.fi: Varhaiskasvatus ja koulutus: Lukiokoulutus: Sammon keskuslukio: Skeittilinja (Skateboarding program)*. Retrieved from <https://www.tampere.fi/varhaiskasvatus-ja-koulutus/lukiokoulutus/sammon-keskuslukio/skeittilinja.html>
- City of Tampere; Hiedanrannan kehitys Ltd. (2020). *Käsityöläiset ja taiteilijat puhaltavat henkeä Hiedanrantaan (Artisans and artists breathe life into Hiedanranta)*. Tampere.
- City of Tampere; Kenttä. (2018). *Väliaikaisesta muuntautuvaan Hiedanrantaan - Käsikirja matkalle tulevaisuuden kaupunginosaan (From temporary to transformative Hiedanranta - a handbook for a journey to the district of the future)*. Tampere: Kenttä kollektiivi.

- Colantonio, A. (2009). *Social Sustainability: Linking Research to Policy and Practice*. Oxford Institute for Sustainable Development.
- De Havenloods Utrecht. (2021). *De Havenloods Utrecht*. Retrieved from <https://dehavenloodsutrecht.nl/>
- De Stadstuin. (2021). *De Stadstuin: Locaties: Werkspoorfabriek*. Retrieved from <https://www.destadstuin.nl/locaties/werkspoorfabriek>
- DUIC. (2018, November 8). Werkspoorkwartier wint award voor circulaire economie (Werkspoorkwartier wins award for circular economy).
- EFRO Werkspoorkwartier. (2019, November 22). *Werkspoorkwartier: Circular Creative Manufacturing: News: Film 'Circular renovation – Old buildings with modular interior'*. Retrieved from <https://efro-wsk.nl/en/movie-circular-renovation-old-buildings-with-modular-interior/>
- EFRO Werkspoorkwartier. (2019, November 15). *Werkspoorkwartier: Circular Creative Manufacturing: News: Film: Circular Hub – From waste to building material*. Retrieved from <https://efro-wsk.nl/en/circular-hub-from-waste-to-building-material/>
- EFRO Werkspoorkwartier. (2020, January 9). *Werkspoorkwartier: Circular Creative Manufacturing: Nieuws: Film: Circular development – The power of collectivity*. Retrieved from <https://efro-wsk.nl/en/film-circular-development-the-power-of-collectivity/>
- EFRO Werkspoorkwartier. (2021). *Werkspoorkwartier: Creatief Circulair Maakgebied: Nieuws & media: Downloads*. Retrieved from <https://efro-wsk.nl/media/>
- Ellen MacArthur Foundation. (2017). *Ellen MacArthur Foundation: Learning path: The Circular Economy in detail*. Retrieved from <https://www.ellenmacarthurfoundation.org/explore/the-circular-economy-in-detail>
- Ellen MacArthur Foundation. (2017). *Publications: Circular Economy in Cities*. Retrieved from <https://www.ellenmacarthurfoundation.org/publications/circular-economy-in-cities-project->

- McGuinn, J., & al., e. (2020). *Social sustainability - Concepts and Benchmarks*. Policy Department for Economic, Scientific and Quality of Life Policies.
- NOAN, A. (n.d.). *Hiedanrannan Tehdas, näkymä raitiotipysäkiltä*. Hiedanranta Tampere's photostream on flickr.
- Velzing, E.-J., & Vreeswijk, K. (2020, September 17). *Circular Urban Development*. Utrecht.
- Visit Tampere. (2018). *Visit Tampere: Home: Venues: Hiedanranta communal sauna*. Retrieved from <https://visittampere.fi/en/venues/hiedanranta-communal-sauna/>
- Väliaikainen Hiedanranta. (2019). *Väliaikainen Hiedanranta: Väliaikainen Hiedanranta*. Retrieved from <http://valiaikainenhiedanranta.fi/valiaikainen-hiedanranta/>
- Werkspoorkwartier. (2020). *EFRO-Werkspoorkwartier: Project: History of the area*. Retrieved from <https://efro-wsk.nl/en/history-of-the-area/>
- Werkspoorkwartier. (2021). *Werkspoorkwartier: Over Werkspoor: Actueel: Interview met Arjen van der Schoot*. Retrieved from <https://www.werkspoorkwartier.nl/over-werkspoor/actueel/interview-met-arjen-van-der-schoot/>
- Woodcraft, S., Bacon, N., Caistor-Arendar, L., & Hackett, T. (2012). *Design for Social Sustainability*. Social Life.

Appendix 1: Interview questions

Social sustainability questions for community members in Werkspoorkwartier (in English)

1. Work environment
 - a. What made you decide to start working in Werkspoorkwartier?
 - b. How did the branding of the district as circular and sustainable affect your choice?
 - c. How is circularity/sustainability visible in your workplace?
2. Community
 - a. Do you feel like part of the community in Werkspoorkwartier? If so, what makes you feel like that?
 - b. What kind of contact have you had with the other employees and entrepreneurs in the area?
 - c. What kind of opportunities do you have to voice your opinions and affect the management of the workplace?
3. Well-being
 - a. How has working in Werkspoorkwartier affected your well-being?
 - b. What kind of opportunities you have for cultural, leisure and community activities in Werkspoorkwartier?
 - c. What kind of opportunities you have had to learn something new?

Social sustainability questions for community members in Hiedanranta (in Finnish)

1. Työympäristö
 - a. Mitkä asiat vaikuttivat päätökseesi työskennellä juuri Hiedanrannassa?
 - b. Miten alueen markkinointi kiertotaloutta ja kestävyttä edistävänä vaikutti päätökseesi?

c. Miten kiertotalous tai kestävyys näkyy työympäristössäsi?

2. Yhteisöllisyys

a. Tunnetko olevasi osa yhteisöä Hiedanrannassa? Miksi?

b. Millaisia kontakteja sinulla on ollut muihin työntekijöihin ja yrittäjiin alueella?

c. Millaisia mahdollisuuksia sinulla on tuoda esiin mielipiteitäsi ja vaikuttaa työympäristöösi?

3. Hyvinvointi

a. Miten Hiedanrannassa työskentely on vaikuttanut hyvinvointiisi?

b. Millaisia mahdollisuuksia sinulla on kulttuuri-, vapaa-aika- ja yhteisötoimintaan Hiedanrannassa?

c. Millaisia mahdollisuuksia sinulla on ollut oppia jotain uutta?