Robin Surya

TOWARDS SOCIAL INCLUSION: LANDSCAPE IDENTITY ASSESSMENT IN NATURE-BASED SOLUTIONS PROJECT

Case Study of Ila Stream, Trondheim

Master's thesis in Urban Ecological Planning
Supervisor: Wang Yu
Co-supervisor: Riny Sharma
June 2021

Master's thesis

□ NTNU
Norwegian University of
Science and Technology

Robin Surya

TOWARDS SOCIAL INCLUSION: LANDSCAPE IDENTITY ASSESSMENT IN NATURE-BASED SOLUTIONS PROJECT

Case Study of Ila Stream, Trondheim

NTNU
Norwegian University of
Science and Technology

Abstract

As the world was getting urbanized and climate change was happening, sustainable development in urban areas had gained its importance. Then the concept of Nature-based Solutions (NBS) emerged as an attempt to address the challenges on fighting climate change while simultaneously was expected to fight social, economic, and ecological problems. However, the concept was not out of criticisms. One is about social inclusion.

In this study, I examine social inclusion in NBS. The research was driven from the question of "to what degree NBS is socially inclusive?". Framework *on Landscape Identity* is seen as a potential framework to measure social inclusion. Thus the theory on Landscape Identity is used. The research is using the Covid-19 pandemic situation as a force to try to have a flexible methodology. Mix approach of qualitative and quantitative is used depending on the data gathering method. The primary method of data gathering is walking interviews, supported by other desk-based methods. A combination of those methods has made the research found that a socially inclusive community is not the product of NBS, nor NBS is the product from an inclusive community. Instead, the two needs to be developed simultaneously since the early beginning of the project.

Keywords:

Nature Based Solutions, Social Inclusion, Landscape Identity

Statement of Originality

I certify and that this is my own work and that the materials have not been published before, or presented at any other module, or programme. The materials contained in this thesis are my own work, not a "duplicate" from others. Where the knowledge, ideas and words of others have been drawn upon, whether published or unpublished, due acknowledgements have been given. I understand that the normal consequence of cheating in any element of an examination or assessment, if proven, is that the thesis may be assessed as failed

Trondheim, 28 June 2021

Robin Surya

Preface

Realizing the word ecology in Urban Ecological Planning -the program that I joined in NTNU, I had always wondered what the word really means. As Bianpoen (1990) explained, the term *ecology* was used in interdisciplinary courses, therefore making it difficult to determine its scope. For him, he had always described it to emphasizes the relationship between men and the environment. Such a concept inspired me to explore the relationship between people and the built urban environment, particularly on urban green development trends in cities around the world.

The Nature-based Solutions concept and its idea on river restoration were examples of emerging concepts in Europe due climate change by bringing back the natural state of the "urbanized" natural environment. Coming from a different side of the world, such a concept was new to me -who had been in the field of built environment for three years in Jakarta and tried so hard to build more and more grey infrastructure to fight the climate. This knowledge made me curious to dig deeper on the topic since it was often praised as the "perfect" solution for a more sustainable urban development without mentioning its social impacts and its dynamics.

Table of Contents

List of Figures

List of Tables

xi

Abbreviations

NBS   Nature-based Solutions

NTNU   Norwegian University of Science and Technology

UEP   Urban Ecological Planning

NOU   *Norges Offentlige Utredninger* - Norway's Public Report

DDR   Disaster-Risk Reduction

CCA   Climate Change Adaptation

1 Introduction1800-3700/5-10

Figure 1.1 Presence of nature feeling in Ila.

One sunny day in summer 2020, I had my first walk through Ila -a neighbourhood that I was not familiar with at that time. I squinted my eyes just to get off the bus; sky was bright with the sun shined through the leaves to coloured wooden heritage houses that were side-to-side with modern houses with plain wooden facades. The combination of the two were contrast, showing a distinct difference between old and new, yet harmonious with the continuous existence of wooden facades. Not far, the skyline was broken by concrete housing towers; stood out in contrast to both the old and modern terrace houses. As I kept walking through, the sound of rippling water was getting clearer; drew me curious to know what was behind those houses. It was a huge park, with a pond in the middle and a stream passing through the sides. Those three -heritage houses, concrete towers, and modern houses- were standing around the green field, with ducks and seagulls enjoyed the chilly water coming from a stream.

Figure 1.2 Iladalen park, surrounded by different types of housings

After spending some time in the park, I wondered about the stream that the water came from. Just between what looked like a kindergarten and a restaurant, a path laid next to the stream; calling me to follow. It appeared was not just me planning to have a walk there; I saw a couple of people greeted each other and started to walk along the path through where the stream lies. The trail became shady as covered with gigantic trees, together with the sound of rippling water resulted from the rocky stream had made the walk enjoyable. No doubt it was breathtaking for me to see the presence of such a nature feeling even though around the area were landed houses and other urban activities. Later that I found that it was the famous "man-made" stream (explained in chapter 4) which often might be called *Ilabekken*.

The walk through *Ilabekken* had reminded me on the occupancy of nature landscape by human civilization, explained by Tarr (2003) when he introduced the history of the city of Pittsburgh. Moreover, combination of old and modern architecture around the area also reminded me that environment is *ever-changing* (Bianpoen, 1990), showing glimpse of history of the area and how development had been done. Tarr (2003) also explained about *urban environment* in historical perspective by looking it into two

separate keywords. *Urban* were about development of a city; and in the other hand, *environment* discussed on nature and wilderness. Though *urban studies* and *environmental studies* seemed to be in different spheres, *urban history* had almost always been discussed by its relations with environmental elements. This could be seen explicitly by the occupancy of natural resources for a city life to sustain. Thus, the linkage between urban and nature were inseparable (Tarr, 2003). Here this thesis I would like to explore further on that relationship between urban life and the nature, in regards with people's perception towards that relationship.

The structure of the research is developed from the UEP Master Thesis template. To begin, introduction chapter discusses the background of the research, followed by themes in the study, then the research question was built. Then theoretical framework is discussed to build an assessment *on Landscape Identity* as a potential framework to measure social inclusion in a NBS project. Methodology is discussed next with the main idea on having a flexible research, using the Covid-19 pandemic situation as a force to try to develop a flexible methodology. Analysis then is explained later, followed with findings together with conclusion.

1.1 Background

The keywords on the background of the research would be around climate change, which led to green developments. Then the emergent idea of Nature-based Solutions, how was it important from the perspective of some global actors. Next would be continued by explaining how the idea was involved in the field of urban planning.

As the world was getting urbanized and climate change was happening (EEA, 2012), sustainable development on urban areas had gained its importance. Sustainability became a key point to development as a response to climate change **and at the same time** still be capable to bring growth, security, and social well-being (McCormick, 2020). Then the concept of Nature-based Solutions (NBS) emerged as an attempt to address the challenges on fighting climate change (Bush and Doyon, 2019), while

simultaneously was expected to fight social, economic, and ecological problems as well (Dorst *et al.*, 2019).

1.1.1 Theme

In this subchapter, I would like to introduce one of the criticism on NBS which was social inclusion. Then relevant cases were found from some literature studies around social inclusion in NBS projects, two that I had found were about river restoration project. Thus, those examples had led me to explore on river restoration projects as the focus this research since the project was involving a lot of stakeholders and impacted wider range of area, predominantly in a dense urban area.

Social Inclusion

As the idea of NBS mentioned a lot more in the climate actions plan, debates on NBS continued to emerge. Rohling (2020, p. 20) in her master thesis had mentioned three pillars of criticism on NBS, which included the topic *social justice and inclusion.* Haase *et al.* (2017, p. 42) had argued on this since all the benefits of NBS that I had been promised might **not be distributed fairly** to the whole population, making it prone to social challenges such as segregation and inequality. Therefore, green development would contribute to inequalities in the urban environment (Kabisch and van den Bosch, 2017; Haase, 2017).

One case presented by Haase *et al.* (2017, p. 44) was the High Line project in New York City, a project that aimed to reclaim public space on an abandoned disused railroad. For now, High Line was an elevated linear park that was covered with planters and paving path. It stretched 2.5km and was completed in phases, started with the first section opening in 2009 and fully completed in 2019 (DS+R, No date). As what I had personally experienced as an architecture student in the period 2012-2016, often that I heard the High Line to be praised as a success, while also the project had brought well-known architects Zaha Hadid, Jean Nouvel, Shigeru Ban, and Renzo Piano to design new commercial buildings around the area (Hobson, 2017). However, over the years, small businesses and low-income families suffered

4

due to rising property prices. Here the High Line project had experienced what Dooling (2009, p. 622) would call as *ecological gentrification,* where "*socio-ecological injustices are produced and contested*". Lee and Peters (2020, p. 31) mentioned the same issue as a *dilemma* since it had always been "*expensive and fancy looking public space*" and "*exclude undesirable population.*"

There was no evidence to say that the High Line project was applying NBS concept, as though the discussions on High Line emphasized the creation of public space more than climate change adaptation strategies. Nonetheless, this research I would like to explore similar phenomenon within a climate change adaptation strategy (covered in NBS) that had around the same scale -urban area.

Landscape identity

The ethical contribution of planners was believed to make a liveable environment. For such purpose, the quality of the place should not only be limited with

> "*physical feature of an environment, but also involve subjective factors. Thus, social and psychological dimension of urban environment should be taken into account in planning*" (Kaymaz, 2013).

In landscape planning, lack of clarity and inconsideration on landscape identity would end in unsustainable environment (Stobbelaar and Pedroli, 2011), which could be linked to social exclusion. Therefore, assessment on landscape identities -that perceived by different groups of people- would be capable to examine how the project impacted the neighbourhood in the social dimension.

The landscape identity framework from Stobbelaar and Pedroli (2011) would be used since it covered both *personal-cultural* perception and *spatial-existential* quality (explained in subchapter 2.2).

5

1.1.2 Problem Statement

River restoration project had been mentioned to be one good example of climate change adaptation strategy (ECRR, 2019b). On the other hand, the strategy had applied NBS concepts (NOU, 2015), which was criticized to be prone to social exclusion (Haase, 2017; Haase *et al.*, 2017; Kabisch *et al.*, 2017). It had gained its importance since the new landscape would not just be perceived physically, but also socially by different groups of people (Kaymaz, 2013, p. 745). Focusing on one perception without understanding the others would end on unsustainable environment (Stobbelaar and Pedroli, 2011, p. 333) -which was the opposite of the initial plan.

1.2 Research Questions

From the problem statement mentioned in the previous subchapter, this thesis would intend to examine the impacts of NBS to the neighbourhood's social life by using landscape identity framework as tool. Therefore, the main question to be answered in the research would be: *To what degree Nature-Based Solutions projects in urban area were **socially inclusive**?*

Inclusive in the sense that the project served the needs of **all group** of people. To frame this inclusiveness, the research would need to seek different actors in the area and compare on the perceived identities the landscape had possessed. Therefore, to answer the main research question, there were supporting questions that would need to be answered:

1. Considering the uncertainties because of the pandemic situation by the time the research was made, how to do a research on social inclusion? (Answered in methodology chapter)
2. How to frame landscape identity of a NBS project in a way that capable to examine inclusivity? (Answered in the theory chapter)

1.3 Relevance and opportunity

As the world moved towards climate friendly options in developing the cities, emphasis had been put towards the environmental aspect on urban development. Never occurred in mind of many that these upgrades might contribute to the rise of real estate prices, including housing and business rent (Haase *et al.*, 2017). Combined with the phenomena of urbanization and migration in many cities, this would increase the burden to the lower income residents as the price had gone up. They would be forced to move to places with lower economical value which had less green development in the area. They eventually made a fragmented community which would lead to social segregation and physical environment inequality. Therefore, green development had the chance to worsen the inequality in the urban area.

Nevertheless, approaches on NBS had the potential to create more sustainable cities, without excluding the social sustainability and inclusiveness (Kabisch and van den Bosch, 2017). This study would give an opportunity to enrich the NBS concept with the perspective on social inclusion and might enrich the concept by brought up more attention to be paid when cities wanted to implement green development strategies.

1.4 Scope and limitation

To limit the topic that would be discussed, I put decided scopes that I would cover in this research. The first was emerged because of the huge number of documents that could be gathered. The second and third were about the various terms related to urban greening projects and social inclusion respectively. The last was about the pandemic in 2021 and how it affected me to progress the research.

1.4.1 Period of the gathered documents.

As a historic city, Trondheim had a wide time range of documents available related on planning -from the medieval time to the future plan. Thus, there should be a limit that I would cover within this five-months research. The period of the gathered data would be limited based on the capability of the method of in-depth interview, since it was planned to be one of the primary data gathering methods. Since there was a

7

language barrier between me as the researcher and the old local Norwegian residents, I planned not to do the interview with samples that were older than 60s (which sometimes might have difficulties in communicating in English). It means that the samples I would like to have would born after 1950s.

That also means any other data before that year would be not much relevant to the samples that I got from the interview. So, I limit my document gathering from 1950 to the recent time.

1.4.2   Nature-Based Solutions

I was conscious about different terms on green development that might have practiced (slightly) in the same way as NBS, such as *Ecosystem-Based Adaptation* and *Green Infrastructure* (Dorst *et al.*, 2019). NBS was selected because the author had the chance to take a short online course about NBS in a university. The early understanding on Nature-Based Solutions was expected to help the thesis to progress faster. Therefore, the greening projects discussed in this thesis then would be in the frame of NBS.

1.4.3   Social Inclusion

After doing the literature studies, I started to realize that the topic on social inclusion in the field of planning was a broad concept. Some research on this topic had been done with the framework of citizen participation level by To frame it on landscape identity, using the framework by Stobbelaar and Pedroli (2011) since it had the potential to examine exclusion.

1.4.4   Flexibility towards Covid-19 Pandemic Regulations

Due to the pandemic situation by the thesis was written, the research needed to follow some measures given from the authorities to avoid possible virus transmission. The whole world experienced the same pandemic, but different measures had been taken in different places. Me as a resident of Norway within the research was being done, I experienced the rapid change of the regulations depending on the situation. This had made the condition be uncertain to do the research. Therefore, I took the chance as an

opportunity to try developing and adapting research methodologies that were flexible and prepared for the uncertainties, so that the research could still be done under the expected and unexpected measures.

The measures could be seen from the global point of view which might refer to recommendations from World Health Organization (WHO), in national point of view, and municipal point of view (see Appendix A). In general, the measures that might affect this research would be about domestic and international travel discouragement, limitations on physical social contact and gatherings.

The measures had been changed and revised constantly depending on the new findings and how bad the current infection rate in the area, which were not in my capacity to predict. Meaning that some methods might and might not be able to be done in this research. Prioritization was on-field data gathering. However, in case it was not possible to be done then desk-based research methods should be prepared to cover the work. For sure the pandemic had given me the chance to try on developing just a normal ethnographic research, but a research in an uncertain condition.

2 Theory and Framework 5600-7500/15-20

This chapter would give some basic understanding on the keywords that had been mentioned in the previous chapter. The topics would cover climate change and how idea of Nature Based Solutions developed from that, its criticisms, and landscape identity with regards on social inclusion.

2.1 Nature Based Solutions

As the world was getting urbanized and climate change was happening (EEA, 2012), sustainable development on urban areas had gained its importance. Sustainability became a key point to development as a response to climate change **and at the same time** still be capable to bring growth, security, and social well-being (McCormick, 2020, p. 5). Then the concept of Nature-based Solutions (NBS) emerged as an attempt to address the challenges on fighting climate change (Bush and Doyon, 2019, p. 2), while simultaneously was expected to fight social, economic, and ecological problems as well (Dorst *et al.*, 2019, p. 4). In addition, NBS defined by International Union for Conservation of Nature as:

> *actions **to protect, sustainably manage and restore natural and modified ecosystems** in ways that **address societal challenges** effectively and adaptively, to provide both human well-being and biodiversity benefits. (IUCN, no date).*

I wanted to emphasized the aspect of multifunctionality in how Nature Based Solutions had defined, since it would aim to guarantee the *co-benefits* amongst all constraints (Kabisch *et al.*, 2016), and avoid *trade-offs* resulted from a single-function development (Bush and Doyon, 2019).

2.1.1   Potentials

The concept of Nature Based Solutions had been considered **fundamental** to be part of the climate actions in the growing movement of nature by UNEP (2019, p. 12).

Incorporating NBS could also contribute to solve the problems of livelihood and inequality, food and water scarcity, resiliency and disaster-risk reduction, biodiversity, while also had the *climate mitigation benefits* (UNDP, 2019, p. 1). In World Water Development Report, published by UNESCO on behalf of UN-Water, they mentioned the importance of NBS application in their water-related projects. For them, NBS was described as "*inspired and supported by nature and use, or mimic, natural processes to contribute to the improved management of water*" (WWAP/UN-Water, 2018, p. 2). It had been said that the concept would potentially contribute to the achievement of all the sub-targets in Sustainable Development Goals (SDG) number 6.

There were some other concepts that might have similar value as NBS regarding development strategies that put emphasis on the use of nature. Pauleit *et al.* (2017, p. 44) also suggested that NBS as the umbrella concept upon other green development terms that he studied: ecosystem-based adaptation, green infrastructure, and ecosystem services. He concluded that it might be difficult to put a sharp division on those concepts. The differences were not developed to compete each other, but rather to complement (ibid., p. 44). Therefore, it could be said that NBS covers wide range of works and had the capacity as an umbrella concept that might connect different knowledges, to combine them into practical solutions (Dorst *et al.*, 2019, p. 6). In practise, EEA (2021) indeed used NBS as the umbrella concept for Climate Change Adaptation (CCA) and Disaster Risk Reduction (DRR). The other terms were being used to acknowledge specific work area.
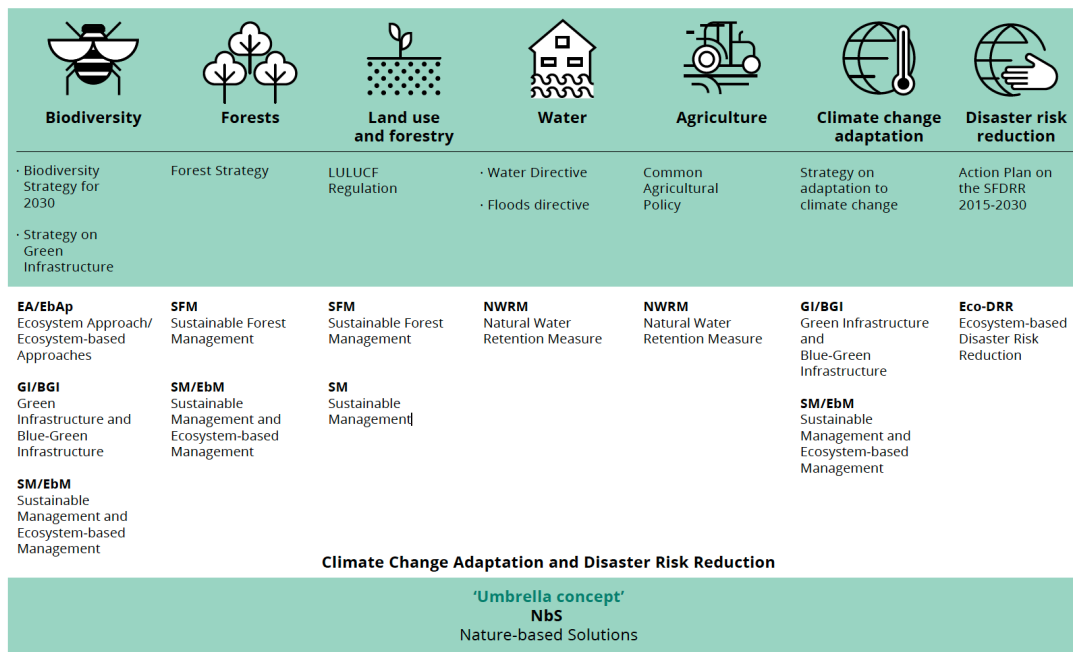
Figure 2.1 NBS as the umbrella concept for for CCA and DDR (Source: EEA, 2021, p. 16)

Biodiversity	Forests	Land use and forestry	Water	Agriculture	Climate change adaptation	Disaster risk reduction
· Biodiversity Strategy for 2030 · Strategy on Green Infrastructure	Forest Strategy	LULUCF Regulation	· Water Directive · Floods directive	Common Agricultural Policy	Strategy on adaptation to climate change	Action Plan on the SFDRR 2015-2030
EA/EbAp Ecosystem Approach/ Ecosystem-based Approaches **GI/BGI** Green Infrastructure and Blue-Green Infrastructure **SM/EbM** Sustainable Management and Ecosystem-based Management	**SFM** Sustainable Forest Management **SM/EbM** Sustainable Management and Ecosystem-based Management	**SFM** Sustainable Forest Management **SM** Sustainable Management	**NWRM** Natural Water Retention Measure	**NWRM** Natural Water Retention Measure	**GI/BGI** Green Infrastructure and Blue-Green Infrastructure **SM/EbM** Sustainable Management and Ecosystem-based Management	**Eco-DRR** Ecosystem-based Disaster Risk Reduction

Climate Change Adaptation and Disaster Risk Reduction

'Umbrella concept'
NbS
Nature-based Solutions

Kabisch *et al.* (2016, p. 3) explained on other benefits that emerged by implementing NBS as it had increased green spaces in the urban landscape, which might lead to other benefits such as improved air quality, strengthen cultural identity, increasing sense of belonging of an area. In relation with social life, it provided to other benefits such as space for recreation, social interaction, community cohesion, physical and mental health well-being (Bush and Doyon, 2019, p. 3), and also triggering economic activities (McCormick, 2020, p. 32).

Resilience

By integrating nature to the development projects, NBS had seen as greener and able to bring up more "nature capital" to the surrounded inhabitants (Bush and Doyon, 2019, p. 2). Examples on NBS could be seen in both micro and macro scales. It included green roofs which made the roof covered with soil and plants to reduce building temperature, the usage of permeable material to have more control upon

stormwater, or trees in public space to control temperature in urban area (Kabisch *et al.*, 2016). In island nations, planting mangroves would increase biodiversity on the coastline, having more control on erosion and flooding, therefore making local community more resilient towards climate change (UN, no date).

Since the field of urban planning had intentionally built interventions towards the environment (Bush and Doyon, 2019, p. 4), the scope of NBS in urban area could obviously be seen. Therefore, it made sense if climate change had affected urban areas in the forms of hazards such as extreme temperature, floods and droughts, storms, etc. (EEA, 2012). To have resiliency towards those hazards, climate change adaptation measures need to be considered in the urban planning constraints. NBS has a promising concept to be applied as part of climate change adaptation plans in urban area, which might foster both community's resilience and ecosystem's resilience towards hazards (Bush and Doyon, 2019, p. 3). As illustrated in *Figure 2.2*, IPCC (2012) had reported that vulnerability to climate change events (hazards) and its exposure might be closely related to the development in physical environment. The report also had developed the importance of physical development to include DDR and CCA strategies to reduce exposures and vulnerabilities.
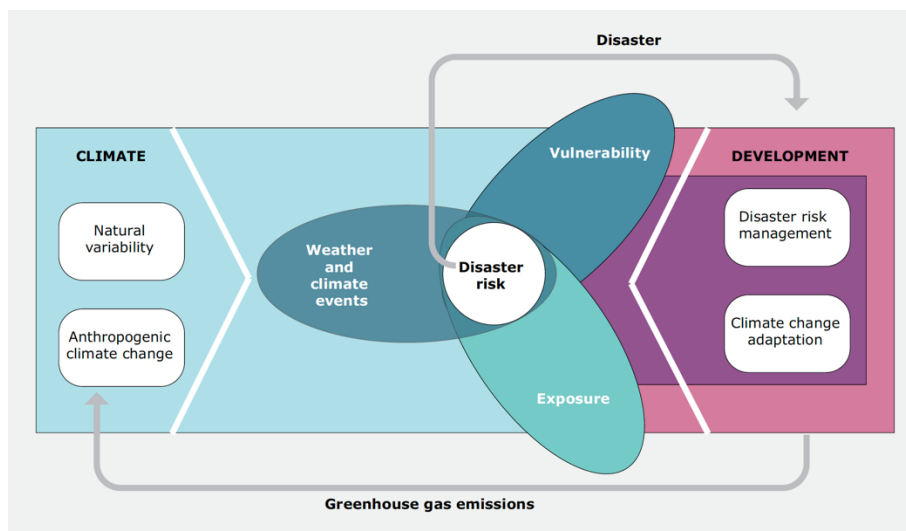
Figure 2.2 Link between climate change, disaster risk, and development (Source: IPCC, 2012, p. 4)

13

2.1.2 Storm Water Management

As the impact of climate change, report from EEA (2012, p. 54) showed that Northern Europe is getting wetter. Projections were including general temperature increase while it resulted in higher biodiversity of species. It also resulted in higher precipitation during winter and less snow and ice cover on water surfaces; which means increasing winter and spring river flow. This had made the risk of flooding - coming from both the river and the coast- to increase.

In response with climate change and those potential risk, NBS had the capacity to be a buffer between the exposed area and those risk (Andersson, Borgström and McPhearson, 2017, p. 55). On the other hand, the discussion on CCA and DDR in urban area had always been in the area of water management, which might also put the emphasis on vegetation buffers along rivers to mitigate run-offs (EEA, 2021, p. 54). Therefore it would be important to look at the possible NBS application in urban area with regards of urban water management.
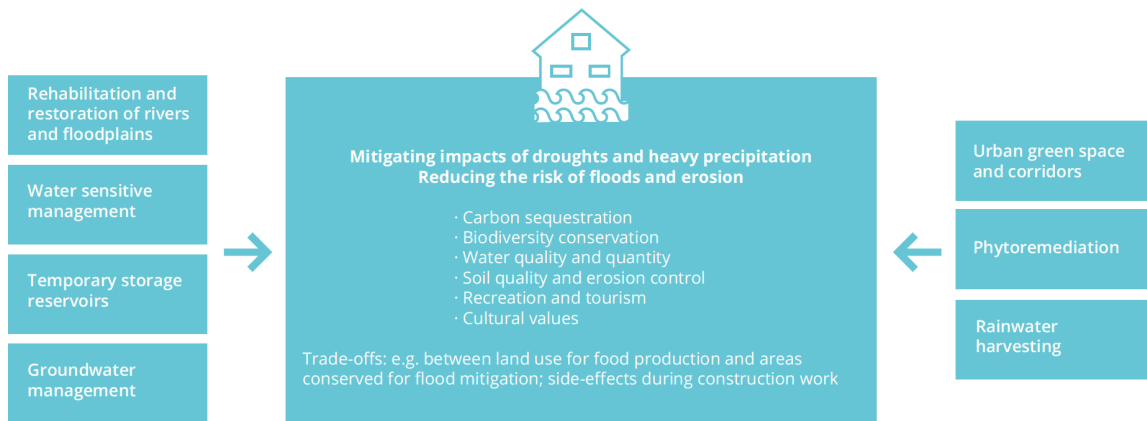
Figure 2.3 Nature Based Solution potentials in urban water management (Source: EEA, 2012, p. 53)
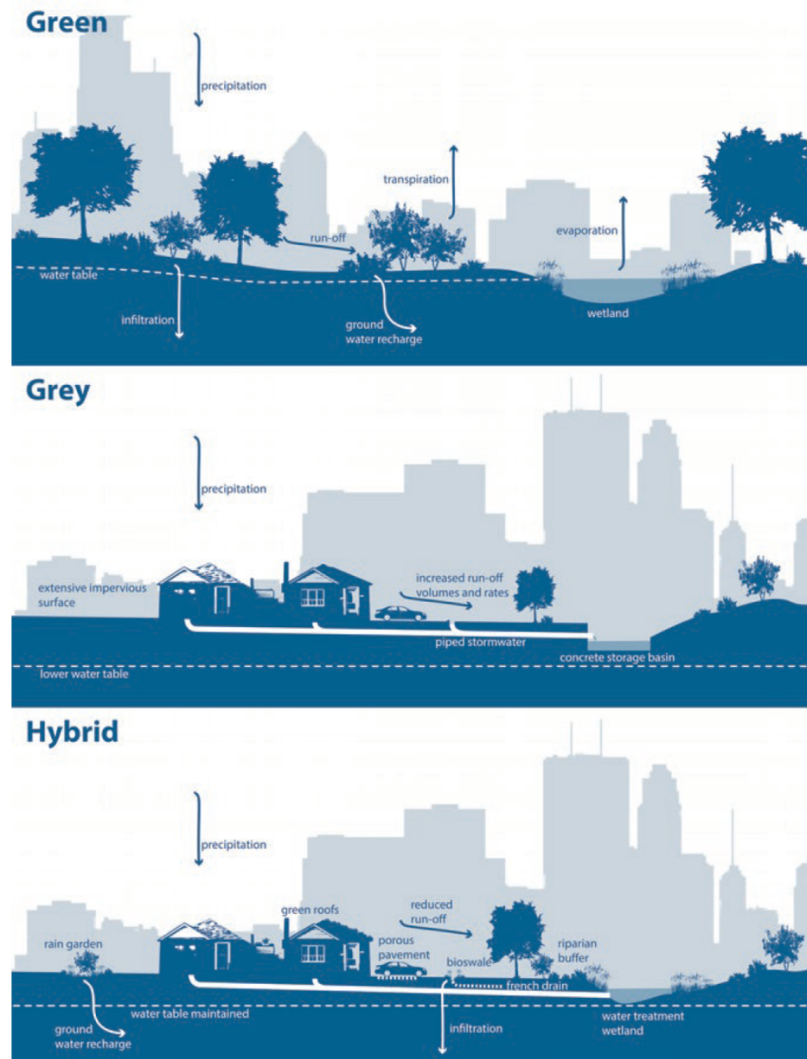
Figure 2.4 Differences between Green and Grey infrastructure, and example on how hybrid between the two can be achieved (Source: Depietri and Timon, 2017, p. 96)

Depietri and Timon (2017) explained the differences between the current distinction between the ideal NBS implementation and the current "bad" infrastructures. Shown in Figure 2.4, green (or "Blue-Green" in the context of water management) strategies used the natural processes that occurred in the ecosystem to develop the area; it might include management or restorations. Grey strategies however, was describing about the physical engineer structures. It was driven more by technology than ecology. Hybrid approach was implemented when the engineered infrastructures (grey) met

natural ecosystem functions. The terminologies often be mixed in the discourse of urban planning, Hybrid approach might often be called as green infrastructure. This happened because fully applying Green approach in urban area was ineffective; insufficient due to limited of space in the urban area, in combination with its cost-effectiveness towards social and economic aspect. Blue-Green also had been used to differentiate the plant-based and water-based feature without any significant other differences. Therefore, the term Green development in this research might be used to refer Hybrid approach and Blue-Green as well.

In the case of Norway that was trying to overcome with more water volume, the central government adopted a national report to standardize the development as part of DDR and CCA. In NOU (2015), conventional system for handling surface water (grey infrastructure) was explained and be compared with the ideal condition which applies hybrid development by Depietri and Timon (2017). Figure 2.5 illustrated the changes that need to be applied in urban environment to be "greener". The measures involved green roofs and walls, rain bed, flood plain area, natural filtration surfaces, open stream, open pond, wetlands, and open water channels.
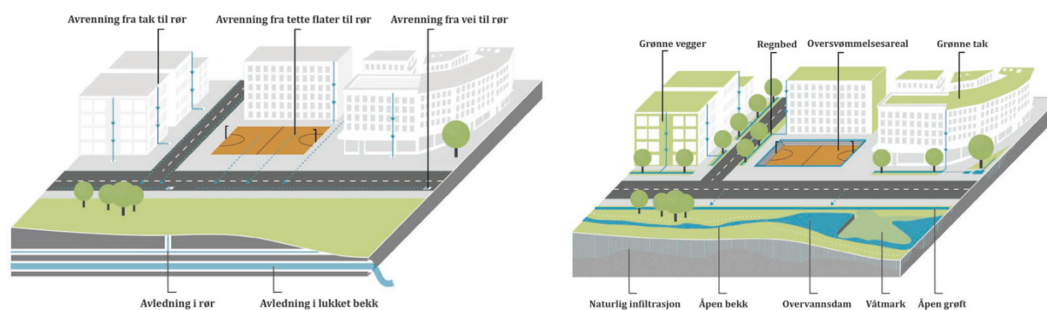
Figure 2.5 Illustration on physical structure that applies grey infrastructure (left) and green infrastructure (right) examples of green infrastructures (Source: NOU, 2015, p. 66)

The process included three main strategies for different scenarios: **filtration, containment, diversion** (NOU, 2015, p. 67). The thinking behind the first process –

filtration- was that the water run-off ideally needed to be filtrated right away. Excess water then could be transferred to another attributes such as a containment basin or flood plains. For more water run-offs, the excess water should be diverted through a safely-planned water way. The water way could be in the form of undeveloped grass land, streets where car drives slowly, or water channels. Which measure should one project needed to apply would be depended on the local condition and expected amount or run-offs. One measure should also consider another measures since the plan should be assessed as a whole system and be assessed with the development plan.
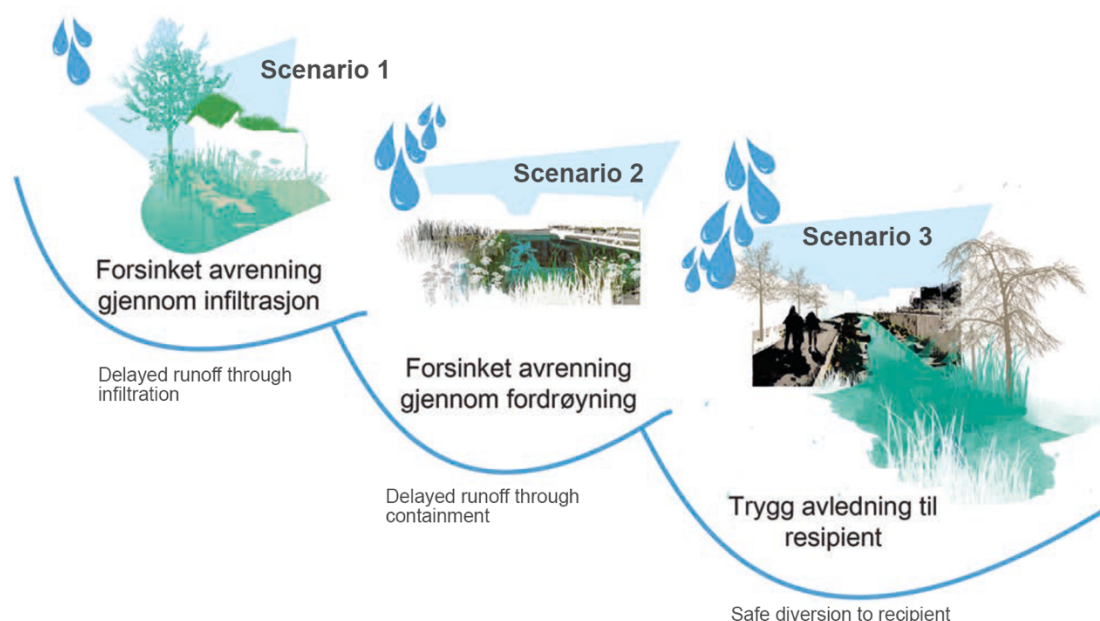
Figure 2.6 Three scenarios on handling water runoff (Source: NOU, 2015, p. 67)

River restoration - stream reopening

The discourses of climate change adaptation strategies in the urban area would not be far from water management issues (UN-Water, 2010). This could be seen since one of the climate change impacts in Europe was more water from the winter rainfall which would lead to increased flooding, also a decreasing rainfall in the summer which

leads to intense hot summer days (St. Meld. 33, 2012-2013). These had made the conventional urban water management -that focus on grey infrastructure- less resilient to cope with uncertain climate (EEA, 2012).

An example of NBS implementation project that related to urban water management topic might be urban river restoration projects**.** The idea was bringing back the natural state of the urban river so it would support biodiversity, which might also increase its capacity to contain water, therefore reduced flood risk (ECRR, 2019b). Besides, European rivers are also declining in habitat, resulted from the widespread use of engineered alteration on rivers such as bed and bank concrete reinforcement, channelisation, and culverting (ECRR, 2019a). In NOU (2015, p. 69), reopening closed stream could provide all three steps of storm water management.

Stated by RESTORE (2013, p. 14) that NBS need to put an attention on " (…) *implementing a scheme that has a wide range of benefits for people and the environment is likely to mean greater public support*". There are several considerations that were listed in the institution's guide in order to have a successful river restoration, they are:

- *Access and recreation*, to improve sustainable transport mode such as walking and cycling.
- *Green space*, to people in the urban area to get closer to nature,
- *Biodiversity,* fostering natural ecosystem to support existing habitats,
- *Heritage and cultural environment,* to put value in the features through careful planning,
- *Education,* to communicate to the public about the importance of green and sustainable developments through meetings, events, or signages,
- *Natural flood risk management,* to be part of storm wate management plan,
- *Maintenance cost,* to be easily maintained and does not become monetary burden, so that NBS has a higher chance to sustain longer.

In Norway, reopening projects has been done in rivers and streams. Relevant example on this could be seen in the city of Oslo. The city had won the European Green Capital Award in 2019. The proposal included restoring all the 10 waterways in the city as an essential plan for CCA. Other functions it provided were to foster diversity, recreation area for the community, and to improve water quality (European Union, 2018).

One notable project was Hovin stream reopening, the project had faced challenges such as lack of space and private property. As seen in Figure 2.7, the project consisted of several reopening points on Hovin stream. Some has been finished, some is ongoing, some is on plan. The affected area included Teglverksdammen park, Bjerkedalen park, Ensjøbyen (Gladeng street). The bigger plan was to reopen other streams as well around the city (HK, interview).
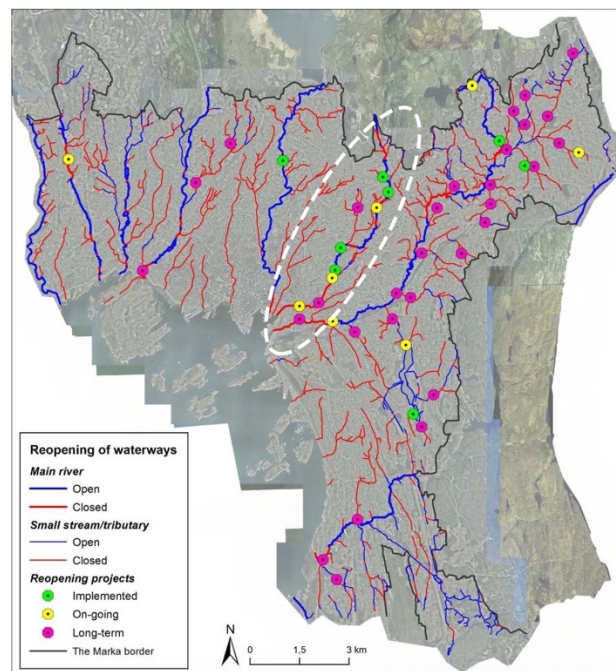
Figure 2.7 Reopening projects in Oslo

Figure 2.8 Gladeng street as seen from google street view in 2014, 2017 and 2019 (Google Maps, 2021)

2.1.3 Criticisms on NBS

As the idea of NBS mentioned a lot more in the climate actions plan, debates on NBS continued to emerge. Rohling (2020, p. 20) in her master thesis had mentioned three pillars of criticism on NBS, which included the topic of *hybrid infrastructures, social justice and inclusion, and integration of local and city context in the Global South*. The first criticism on hybrid infrastructure concerned that fully rely on NBS would not solve dynamic urban challenges. At the city scale, NBS would face spatial issues which might lead to other trade-offs (Baró and Gómez-Baggethun, 2017, p. 154) because urban areas were greatly altered by *physical infrastructures* and *socio-economic activities* (Depietri and Timon, 2017, p. 93). Therefore, development with *hybrid approaches* -between NBS and grey infrastructure- should be considered to be applied in a dynamic urban environment (Kabisch *et al.*, 2017, p. 32), instead of just relying on NBS alone.

Second criticism that emerged was about the social justice and inclusion. This issue was related to what Baviskar (2002) explained as the difficulties on combining ecological sustainability and social justice. Moreover, Haase *et al.* (2017) had argued the same notion since all the benefits of NBS that I had mentioned in the previous subchapter might **not be distributed fairly** to the whole population, making it prone

20

to social challenges such as segregation and inequality. Therefore, green development would contribute to inequalities in the urban environment (Kabisch and van den Bosch, 2017; Haase, 2017).

The third criticism -integration of local and city context- was developed based on Haase *et al.* (2017)'s argument on the importance of local context and institutional context in determining the success of NBS. The variables included affected areas, type of nature that was developed, institutions that implemented the strategy, and group of people affected. To complement, there are trade-offs when NBS were planned for one primarily purpose mentioned by Bush and Doyon (2019, p. 4), included temporal, spatial, and functional dimension. The temporal dimension related to one approach that might affect other opportunities in the future. Spatial dimension highlighted that intervention in one place might also give impacts to other places. Functional trade-offs emphasised that providing one service might amend another services.

Social Inclusion

Above all those critiques, Haase *et al.* (2017) had put more attention the social inclusion topic. He had argued on this since all the benefits of NBS that I had been promised might **not be distributed fairly** to the whole population, making it prone to social challenges such as segregation and inequality. Therefore, green development would contribute to inequalities in the urban environment (Kabisch and van den Bosch, 2017; Haase, 2017).

Haase *et al.* (2017, p. 45) developed prerequisites to have a socially inclusive greening development. The points included:

1. Consideration the presence of inequalities in the planning, implementing, and monitoring developments by scientist and planners.
2. Include all contrasting views, opinions, and demands.

3. Acknowledgement on the trade-offs between environmental and social outcome.
4. Ability to serve wide range of diverse population.
5. Multi-level and multi-actor governance to ensure co-design, co-implement, and co-manage.
6. Attention not just on environmental issues, but also on obscured political and economic point of views to prevent potential undesirable side-effects.

One case presented by Haase *et al.* (2017) was the High Line project in New York City, a project that aimed to reclaim public space on an abandoned disused railroad. For now, High Line was an elevated linear park that was covered with planters and paving path. It stretched 2.5km and was completed in phases, started with the first section opening in 2009 and fully completed in 2019 (DS+R, No date). As what I had personally experienced as an architecture student in the period 2012-2016, often that I heard the High Line to be praised as a success, while also the project had brought well-known architects Zaha Hadid, Jean Nouvel, Shigeru Ban, and Renzo Piano to design new commercial buildings around the area (Hobson, 2017). However, over the years, small businesses and low-income families suffered due to rising property prices. Here the High Line project had experienced what Dooling (2009) would call as *ecological gentrification,* where "*socio-ecological injustices are produced and contested*". Lee and Peters (2020) mentioned the same issue as a *dilemma* since it had always been "*expensive and fancy looking public space*" and "*exclude undesirable population.*"

There was no evidence to say that the High Line project was applying NBS concept, as though the discussions on High Line emphasized the creation of public space more than climate change adaptation strategies. Nonetheless, this research I would like to explore similar phenomenon within a climate change adaptation strategy (covered in NBS) that had around the same scale -urban area.

2.2 Landscape Identity

It had been believed that the job of planners was to make liveable environment. Though the *liveability* of place might require certain qualities of the place, they were not limited by "*physical feature of an environment, but also involve subjective factors. Thus, social and psychological dimension of urban environment should be taken into account in planning*" (Kaymaz, 2013, p. 757).

Landscape inherited the character to be dynamic because it was shaped by natural and cultural processes (ibid., p. 746). Thus, change was continuous and a complex process that required multidisciplinary knowledge. Antrop (2006) had summarized the driving sources to the changes in landscape (cited in Kaymaz, 2013, p. 746) as:

1. *Mobility and accessibility*
2. *Urbanization*
3. *Decisions that affected large area, which overrule local decisions*
4. *Disaster*

Landscape definition, (Muller and Tarr, 2003)

For Stobbelaar and Pedroli (2011), the term landscape identity was lack of clarity and not well-defined since it was discussed in a lot of study subjects. In landscape planning, focusing on one side of identity without considering the others would end in unsustainable environment (ibid., p. 333), which could be linked to social exclusion. Therefore, assessment on landscape identities -that perceived by different groups of people- would be capable to examine how the project impacted the neighbourhood in the social dimension.

In regards with placemaking, Perrault *et al.* (2020, p. 12) defined landscape Identity as *"how how people feel about the place they live in, a summary of existing social interactions, attachments, stories and history that link people to one another and to places."* He also pointed out that the identity is the matter of what makes it special to the residents or users.

The banal definition of landscape identity had been defined by Stobbelaar and Pedroli (2011, p. 322) as the "*perceived uniqueness of a place*". Then they elaborated more that "*perceived*" was both personal and cultural (societal), and "uniqueness" was also related to either spatial or social life matters. The two nexus then were combined into two different axis, making it into four quadrants to frame the landscape identity as shown in Figure 2.9. The nexus included:

1. Spatial-Existential

   Spatial identity was described as the characterization of the environment. In this sense was not limited by physical or visual elements such as distances and orientation, but also included a more intangible things like patterns, sounds and smells. In addition, not only spatial things were associated when people perceived a place, they also would *have associations, memories, and symbolic* meanings towards the landscape. In other words, the more social side of the environment, which was considered as inherited quality. The difference was described (ibid., p. 324) with the distinction of "building" -where people perceive the landscape through the features- and "home" -where people merge and dwell in it.

2. Personal-Cultural

   The landscape could be perceived by an individuals with their own perceptions. The discussion would relate to one's *experiences* and *biographical events.* On another hand, landscape could also be perceived by the community, could be in the form of landmarks or stories about the landscape. However it was not about the cumulated association that made cultural perception, instead, more to *consensus.* The cultural identity could be in the form of care for the area, common historical events, or religious features.
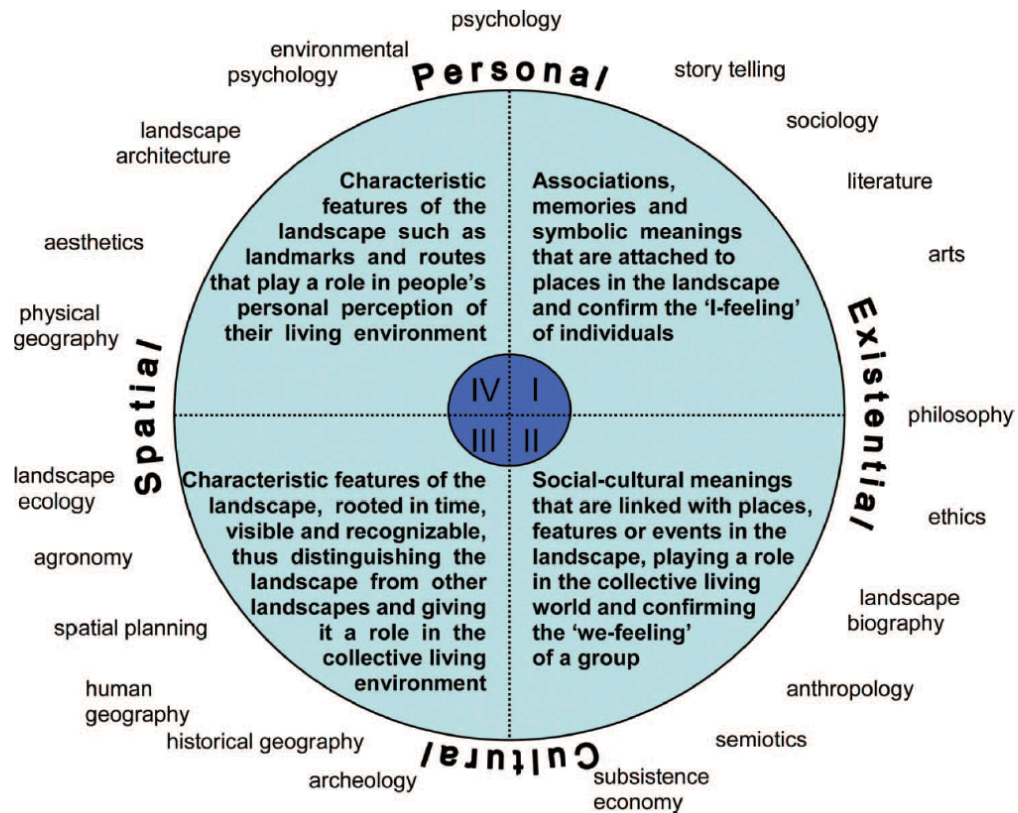
Figure 2.9 Landscape identity circle (Source: Stobbelaar and Pedroli, 2011, p. 325)

Stobbelaar and Pedroli (2011) recognized that the classification of the identified identities using this framework were not absolute, but rather need to be integrated to each other. Besides the two axis, the discourse would be found in three different level of spatial dimension which included house level, community or neighbourhood, and region level. These levels were not covered in the figure, but it was embedded within each quadrants. The quadrants were described as:

Quadrant I: Personal – Existential

Personal-Existential was the type of identity that was perceived by individuals and linked to their biography in relation with the landscape. It was based on the idea that *"every human being has his/her own life-world, composed with a personal meaning"* (Stobbelaar and Pedroli, 2011, p. 327). So, one's association with the landscape lied

on his/her **own memories** towards the sites. This type of identity could also be linked to *self-identity*, which continuously be confirmed (Twigger-Ross and Uzzell, 1996). In interaction with the landscape, people were constantly in contact with the landscape and confirmed who they were. Stobbelaar and Pedroli (2011, p. 327) gave an example on this by explaining how a farmer might develop a self-esteem to be called as "a farmer" by working in the land.

Familiarity to landscape might also increase the personal-existential identity. Any changes that disturbed the landscape might have the potential to disconnect people to the landscape because they had lost a personal life and history. At this point, features that induced personal memories were missing, thus the attachment went missing. Another feature in this type of identity was the ***personal sense of attachment***. The example on a farmer would also apply here since the livelihood of the farmer was attached to the land.

Quadrant II: Cultural – Existential

This type of identity emphasises the importance of the inhabitants -as a whole- in a landscape (Shao *et al.*, 2020, p. 6). It includes major *social processes* in the landscape that are meaningful for people to form the "we" feeling, image as a collective. It can be seen in the presence of **events** that significantly embrace the landscape and impacted *by and to* the majority of the inhabitants. Not just events, sharing the **same history** amongst local groups of people will create *sense of common purpose.* They will create connections the past and the present to make coherence, through interventions in the landscape. Then it can be linked to ***sense of community,*** which consists of attachment, identification, and social interaction.

It can be said that when social interactions are taken place in the landscape, an identity is formed. Thus, this type of identity would be identified with the presence of **social activities** in the landscape.

Quadrant III: Cultural – Spatial

This type of identity is about **physical features** that distinguish an area to another. It might come in the form that *"can principally be perceived in the landscape by everyone, such as spatial composition, land use, wildlife, vegetation and minerals, the colors, forms and patterns, and the use of building materials, etc."* (Stobbelaar and Pedroli, 2011, p. 330).

A group of people that have settled in an area for a long period of time will have *considerably heritage* that comes in the form of tangibles and intangibles such as monuments or relics and stories or *custom and beliefs – consensual narratives* (Shao *et al.*, 2020).

Quadrant IV: Personal - Spatial

Personal-spatial identity is characterized by recognizability of an area by individuals to orient themself. The type of identity involves features that can be perceived by everyone but not in an equal importance (Stobbelaar and Pedroli, 2011, p. 331). It can relate to physical features in the area which involves five elements of landscape by Kevin Lynch (1960, cited in Ibid. 2011, p. 331) for people to orient themselves: paths, boundaries, districts, nodes and landmarks. It also includes means for coherence and legibility for people to "read" the landscape and not to get lost.

It differs from the *cultural-spatial* identity Differences should be considered when a landmark is being used as a memorial site (cultural-spatial) for the community, or in this type of identity -as a mean to orienting. It also involves other physical features of the landscape that might have personal bond to the people such as housing type, architecture styles, patterns, etc.

2.3 Theoretical Framework for the Study

2.3.1 Nature Based Solutions

From the theory, there were found some key concepts of NBS. In this study, decision on a large scale NBS project (explained in Chapter 3) would be evaluated to help the research to determine relevant case study. The case study would also be evaluated

through the some of the key points on NBS in regards with river reopening project. Considerations from RESTORE (2013, p. 14). To put the technical part in the Norwegian context, the points would be combined with the three main strategies provided by NOU (2015, p. 67) as part of the section of natural flood risk management.

Three criticisms by Rohling (2020)'s study would be used for the discussion as well. However, through the field-work, the second and third point of the criticism were having similarities and overlapping analysis. So, there only two points would be analysed in this research, which were *hybrid infrastructure* and *social justice.*

2.3.2   Landscape Identity to Social Inclusion

In the context of NBS, Andersson, Borgström and McPhearson (2017) emphasised the importance of public support to making sense NBS concepts as:

"The survival of a NBS overtime (…) depends on how people view them and how they are managed. If the function of a NBS is not appreciated or understood, it risks being replaced by something else with a more apparent value to people. (…) Also, diversity in preferences must be taken into account".

As Stobbelaar and Pedroli (2011, p. 333) described, focusing on one side of identity without considering the others would end in unsustainable environment which could be linked to social exclusion. Based on these concepts, assessment on landscape identity -and focusing *how people view* the NBS project - might have the potential to uncover the social aspect of a NBS project. By focusing on landscape identity, the research would benefit by getting a qualitative data which might unfold small-scale interaction within social reality (Bryman, 2012, p. 408).

To determine the identity, the framework from Stobbelaar and Pedroli (2011) would be the base of the analysis. The gathered data would be divided into the four quadrants, which would be evaluated if the topic was related on the points shown in Figure 2.10.

28

PERSONAL

Quadrant 4:
- Recognized elements
- Means of orientation in the landscape

4

Quadrant 1:
- Personal sense of attachment
- Self-Identity, "I" feeling
- Memories and feelings
- Familiarity

1

SPATIAL

EXISTENTIAL

3

Quadrant 3:
- Features that can be perceived by everyone
- Features to distinguish to other area
- Untengible heritage, narrratives or customs

2

Quadrant 2:
- Sense of community, "we" feeling
- Common history and purpose
- Social interactions
- Activities and events

CULTURAL

Figure 2.10 Framework that was developed from Landscape Identity Circle by Stobbelaar and Pedroli (2011)

3 Methodology 3700/10

> *... what kind of theory or approach do we have, to properly tackle*
> *the problem of <u>ever-changing human</u> being in an <u>ever-changing</u>*
> *<u>city environment</u>? (Bianpoen, 1990).*

The question had made me wonder about the right methodology to be done in this research. To begin, I would give that the pandemic situation explained in subchapter 1.4.4 had affected the methodology I this research. It had affected the methodology in a way that it should be developed in a flexible way and be prepared for uncertainties since there might be a chance that planned methods will not be able to be done due to safety measures given by the authorities.

The chapter will then discuss about the decision on mixed approach on using both qualitative and quantitative approach. Then, the process that the research had been done would be explained in a comprehensive way, developed from the *UEP Research Process*. Next subchapters would explain the case-study selection, data gathering methods, followed by the reflections on how it worked.

3.1 Mixed approach – Qualitative and Quantitative

Since the research question in this research would aim to be ethnographic research, it had the nature of qualitative research (Bryman, 2012, p. 383; Mack *et al.*, 2005, p. 1; Silverman, 2013b, p. 2), and indeed qualitative approaches would be prioritized do be done to analyse the topic of study. There were three benefits on qualitative methods in this research; qualitative approach had the capability to unfold social setting overtime instead of what quantitative approach gave -static image of social reality (Bryman, 2012, p. 408). Qualitative approach would also make the research open-ended since it was not limited to predefined variables as quantitative approach required (Ibid.). On the other hand, quantitative approach was considered too rigid towards the base theories they used, which would leave them *unexamined and unchallenged* (Silverman, 2013a, p. 3).

However, I did not want to limit the research merely on the distinction between qualitative and quantitative, as both approaches had their own capabilities. Tjora (2018, p. 14) had mentioned that qualitative analysis would be vulnerable to researcher's subjectivity for the personal theoretical interpretation must had been constructed in the early stage. Moreover, the dichotomy of the two would limit this research needed to be flexible. Thus, a **mixed approach** would be used in ways that Bryman (2012, p. 633) mentioned as *Sampling* and *Diversity of views*. *Sampling* would mean that the qualitative or quantitative approach was selected based on the capability to facilitate the sampling process of a method. Then *Diversity of views* would mean that the research would try to see from the point of view of both me as the researcher (mainly quantitative) and people as the respondents (qualitative).

3.2 Research process

The process of the research was inspired by the diagram of *UEP Research Process* (Gotsch, 2020) as could be seen in figure below. The research was derived from my own personal interest theme, which I got when I was reading on High Lane project and its criticism on the topic of social inclusion (Haase *et al.*, 2017). Personal prior knowledges of mine also took part to the research question generation. Then I tried to expand those topics to a project that I might be able to visit, to see if the same situation applied there or any other phenomenon happened on the site.

The research process was not a linear process, some looping had been done as an adjustment to certain situations. Even though prior knowledges had been gained before the research, learning from the theories was still be done throughout the research process to gain a more diverse view. So the theory was part of the outcome of the research rather than a concrete base (Bryman, 2012, p. 384), this would benefit the qualitative research to answer the research question which was asking a process rather than static reality. On the other hand, some of the data gathering methods and

analysis were appeared not beneficial for the research, therefore some re-adjustments needed to be done.
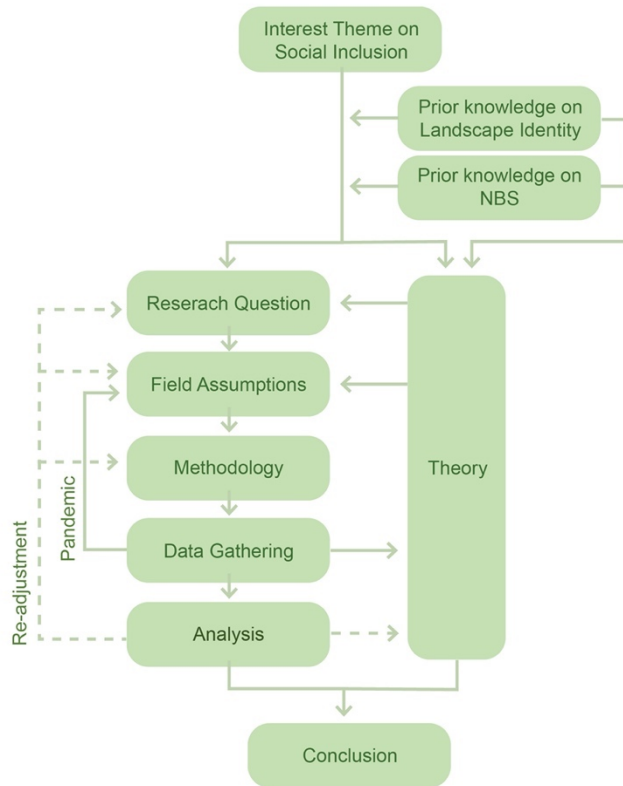
Figure 3.1 Research process diagram (Source: Author)

3.3 Case study

Here in this research, case study based approach was required to get an empirical phenomenon from the field (Yin, 2003, p. 13) to answer the research question. Single case study approach was tried to be done with the rationale to challenge and to expand the phenomenon found from the theory (Ibid., p. 40); with an in-depth observations. On the other hand, doing multiple case study approach within 6 months period was considered only touching on the surface level. Restrictions on travel (explained in subchapter **Error! Reference source not found.**) might also make it difficult to do any fieldwork on more than one place. Another attempt to respond the

pandemic situation was the flexibility on case study selection, meaning that the selected case study could be changed as the research was progressing. So, a relevant case study was needed to be prepared with an alternative, in the case of inability for a field visit (explained in subchapter 3.6).

The research was looking for a case that was considered as a good practice of NBS in urban area, predominantly urban river restoration project since it would need wider space within densely populated area. European Centre for River Restoration (ECRR) had the lists on river reopening projects throughout Europe (*Run query: Case study query simple*, 2020), looking for projects listed there had helped me to the case-selection process.

3.4 Literature studies

I had taken an online course about Nature-based Solutions from Lund University in 2020. From there, I had already had some literature references from there. Some literature readings were also be selected from Rohling (2020) -whose had the same background interest with me, since she had done a research to the topic on critiques and challenges of NBS. Some other literature were also selected by looking at the references from the previous reading. Other literatures were obtained through internet browsing with the keyword of "Landscape Identity" and "Nature Based Solutions", with additional keyword of "pdf".

3.5 Data Gathering

Since gathering people was also discouraged because of the pandemic, the methods to be used for data gathering would also be limited to one-to-one interaction; any methods involving discussions amongst the respondents were not prioritized. However, high usage of the internet and social medias from the targeted respondents had help me to have more data. Therefore, there were chances to have observations on the internet which allowed me to work on desk-based data gathering, other than relying on just one method of data gathering.

LEVEL OF INTERACTIONS

DISTANT ← → CLOSE

| Complete Examiner | Examiner as Participant | Participant as Examiner | Complete Participant |

Documents

Observations on Social media

Observations on Activities

Observation on Advertisements

Interview

Social media interaction

Walking Interview

Events

Field Experiencing
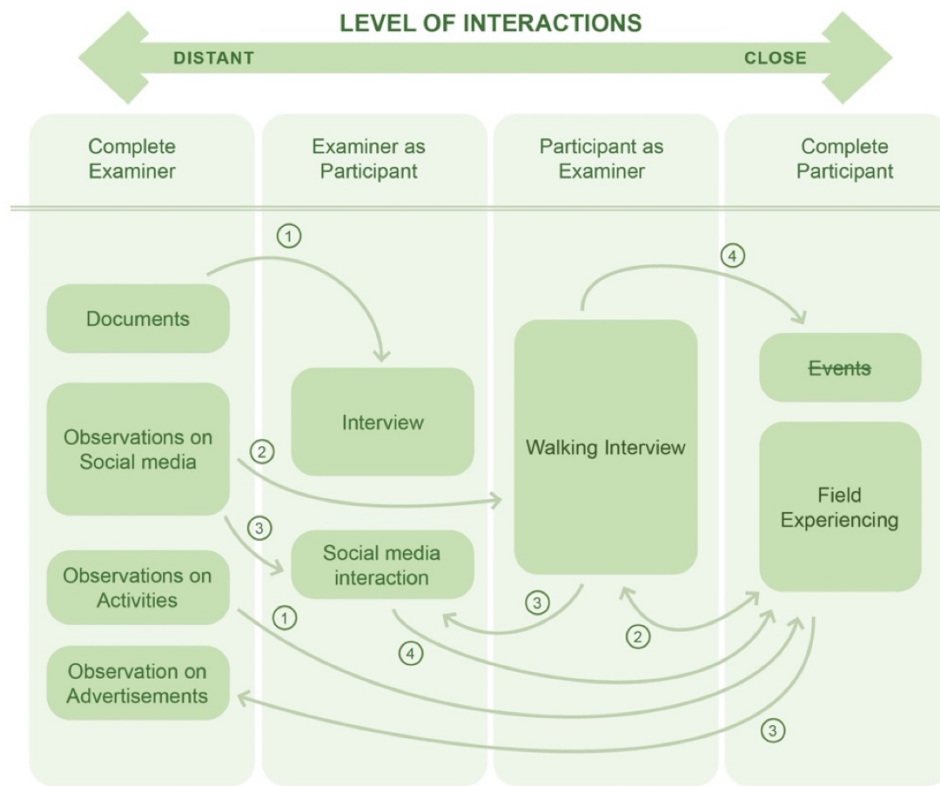
Figure 3.2 List of data gathering method in this research (Source: Author)

To catch phenomena that was not biased by any group of people, me as researcher would try not to place my research based on one method of data gathering, as it was considered important to gain both personal experience and in-depth information. Therefore, the data gathering methods that I used would be divided by four research roles -which were based on the level of interaction between the researcher and the samples (Gold, 1958; cited inTjora, 2018, p. 58). It included me as: a complete examiner, examiner as participant, participant as examiner, and complete participant.

Instead of just relying on one method, I tried to cover all these four roles with several methods in this research in order to prevent the bias from respondents, as what Crang and Cook (2007) explained as the act of *"pleasant people with good motives"* and even the best respondents did not have the *"perfect knowledge"*. So, the main data gathering would be still focused on on-field data, any information regarding the

identity of the landscape would be confirmed with other possible data gathering methods. To conclude, Figure 3.2 summarized the list of methods that were used in this research.

3.5.1   Complete examiner

Researcher as a complete examiner would make me do the research on distant, observing samples without interactions. It included the method of observations through documents available from various sources, social media observations, observations on activities, and observation on accommodation advertisement in the study area.

Documents

Internet searching would be done in this method by using some relevant keywords such as "river reopening" or "stream reopening", "social inclusion", "green gentrification", and "planning paradox". Examination was done to check the if it was published with a trusted publisher. Other internet searching would be related to academic source or governmental institutions such as European Commission and local Norwegian institutions. From this method, I found the "Study Visit" program to introduce the public about the climate change measures applied in Oslo as European Green Capital. From there, I contacted the program coordinator and then the project leader, which led me to more other documents which some of them were not available on the internet.

I also looked into online reports from the authorities in Norway and even from cities around Europe. The results were information regarding examples on reopening projects around Europe and the issues that had risen from the project.

Documents regarding land-use planning of Trondheim could be found in the website of municipality of Trondheim. The plan included current plan for 2012-2024, and previous plans in 2007-2018 and 2001-2012 (Trondheim Kommune, 2020).

Observation on social media

In the growing use of the internet and in addition with pandemic situation, the observation on social media was making so much sense since people had the capability to get connected online without borders. Facebook was one general platform that people use in the context of Norwegian population. Through that platform, I had found several Facebook groups related with Ila with different purposes. Several Facebook groups that might benefit the research are *Ila Frivilligsentral* (volunteer center) , *Ila Historielag* (History team), *Hva skjer I Ila* (what happens in Ila), *Mitt Ila* (My Ila), and *Ilaparken og IlaBekken venner* (Friends of Ila Park and Ila Stream).

Observation on activities

The method was aiming to see daily activities of the people in the area. Documentation was done with a journal that I made right after the observation. Documenting the observation with a 360-Camera had helped me to see any missing details that I did not capture on site.

Observation on accommodation advertisements

This method would aim to see how people would advertise the area to an outsider. It allowed me to see what were the qualities from the neighbourhood that people would think as a strength to promote their business. The sources would be some accommodation searching websites such as Airbnb, Hybel and Finn.

3.5.2   Examiner as participant

In this researcher's position, the samples that I was aiming to gather data with would knpw that I was there in the situation to do examinations. The difference from *complete examiner* is located in the sample's consciousness towards the research. It included online interviews and interactions through social media.

Online interview

Any conventional interview where the researcher prepared structured questions would be done in online format, since the usage of technology was highly recommended to limit physical contact. This type of interviews was still needed to be done because it provided more rapid information than what observations would give (Silverman, 2013b, p. 8) and to see how individual and communities valued the spaces in which they live in (Evans and Jones, 2011, p. 850). Even though I had prepared some questions, the interview was still needed to be semi-structured to have an open ended results.

Respondents of the method included a former researcher on Nature-based Solutions topic, BR which had done the research in 2020. The second respondent was a project leader on stream reopening, HK. However, the lockdown in Oslo had made him/her unable to respond properly, so text interview was done. Then to get a more technical side, I interviewed a researcher on Nature-based Solutions, GR. The last two respondents were all found by looking at the internet, using the keyword "Nature-based Solutions" and either "Olso" or "Trondheim".

Social Media Interaction

This method included the use of Facebook group page that was mentioned in the *complete examiner*. After some time spending on the platform, I had found several Facebook group that I found relevant. Then I joined the conversation by asking questions in the group. Since all the posts in the group had been in Norwegian language, so I assumed that a question in Norwegian would be more comfortable to be answered by the people in the group. Translation help was needed to done from both online dictionary and a trusted personage.

3.5.3   Participant as examiner

While the *examiner as participant* emphasised the sample's consciousness. Towards the research, it had made the interactions were done in a more formal setting. This method of *participant as examiner* wanted to bring me as a researcher to participate

more in the situation, also making some examinations. Sometimes it resulted in a situation where samples forgot that they were being examined.

Walking interview

This method was inspired by the *Go-along* method (Kusenbach, 2003, p. 463) which was in-situ and more casual. Here the researcher acts as both participant and examiner, to capture data without being affected by research intention, so it could be "deeply interactive" (Tjora, 2018, p. 62)

In this interview, I wanted to get the identity of the area but would be overwhelming for respondents to directly give an answer about Ila's identity. So instead, the interview would like to give the respondents the freedom to explain about anything they might find interesting to tell, and me as the researcher would just respond as needed and avoid participating the content of the narratives. They would decide the route – showing places they were familiar with. Then when the respondents had already out of topics to talk about, I would start to occasionally mention some of the keywords that this research had (based on the 4 quadrants equally, for example: reopening, nature, social life) into the "casual talk".

With camera 360, the camera helps to capture moments that the interviewer missed while focusing on other things. The camera helps also to save the information that the interviewer does not understand on the moment of the interview, but able to look for more information afterwards on the *video method*.

Sample selection was done by contacting people from Facebook, through *Ila frivilligsentral*, *Ila Historelag*. and *Mitt Ila* group page. References from personal acquaintances had also been part of the sample selection. Summary on the respondents of both the online interviews and walking interviews were summarized in Table 3.1.

Table 3.1 The participants of the interviews (Source: Author)

Samples	Role	Contribution	Method	Date
BR	Student	Methodology	Online	27 January 2021
HK	Project Leader	Theory	Text	25 February 2021
GR	Researcher	Theory	Online	2 March 2021
HS	Resident	Analysis	Walking	8 April 2021
LS	Resident	Analysis	Walking	20 April 2021
ON	Project Engineer	Analysis	Walking	26 April 2021
OF	Project Leader	Analysis	Walking	3 May 2021
OD	Resident	Analysis	Walking	23 May 2021

3.5.4   Complete participant

In this type of position, researcher was expected to fully participate to the situation, with the same level as other participants. Here engagement with the samples was needed and they would act without knowing that the situation would be examined. Thus, examination on people was being challenged with the ethical issues. So in this researcher's position, I would limited the methods to be more personal.

Field experiencing

This method was a continuation from the other methods such as *observations on activities*. The activity included took the hike along the stream, spend time to enjoy

the park, came to events, and visited the local restaurants and cafes. The method would be documented through a journal.

Events

In this method I was trying to join the events in the site. I had found some events that would happen by the time of the research, Fleet market on 18 April 2021 and Iladagen. However Iladagen was supposed to be held on June but was postponed until August because of the pandemic situation that got worse in May 2021. Other smaller events were unfortunately limited to targeted attendants to limit social contact.

3.6 Methodological Challenges and Reflections

After and during the research, I realized that there were challenges and limitations that I had to overcame. To cover these, I divided them into three main topics: case-study change, subjectivity, and technical challenges.

Case-study change

Prevention on case-study change had been done by using the criteria of case study selection, which was: *the location should be in the same country that I resided in since overseas travel is highly discouraged.* There were some stream reopening projects in Norway, including Trondheim and Oslo. However, the projects in Oslo would be prioritized since the projects were in a more urbanized area. However, major challenges was occurred when I need to change the case-study in the middle of the research. This happened because of the domestic travel restriction to Oslo and extended area that happened in March 2021 and kept being discouraged even in months after. Then a case of stream reopening in Trondheim (the municipality I resided in) would be evaluated and be used for the research purpose.

Subjectivity

The limitation that I found was that many of the methods that I used here were subject to subjectivity, especially when the product of the method was a qualitative data. Methods like the *walking interview* were depended on how good the interaction was while I was doing the method (Tjora, 2018, p. 13).

My subjectivity on the results from *walking interview* had also affected the method to be a trial-and-error process, which I might develop in every sample, thus might resulted in different quality on the outcomes. The first two walking interviews that I made was quite well-prepared. However, the data gathered became too focused. Even though the samples still responded to the topic of study, but they had been biased with the main topic of the research, often resulted with text-book explanations instead. Then, I decided to be more open on the other interviews afterwards, as Kusenbach (2003, p. 465) described on his *Go-Along* method, he intentionally gave the participant as little guide as possible which led him to open-ended information, putting out the researcher's ego and give the samples the power. Then in the next two walking interviews, I only mentioned the general topic on the selected case. Then on the last interview I had, I did not explain the selected case study at all. Then, the results turned out to be vary.

Technical Challenges

There were some technical challenges occurred as well, such as language barrier and interaction hesitancy during the pandemic. Another technical challenge was resulted from the variety methods I adopted, to be able to have a more flexible research. However, that had resulted with scattered and overlapping data which was hard to organize. Documenting the method was also challenging since the walking interview was intended to be recorded with the camera 360 which I was not familiar with. It also required big amount of memory. The camera was assumed to bother the interviewee, but the other way around had occurred. As what Crang and Cook (2007, p. 4) had mentioned, the camera helped the interview to be seen as "professional" by

the respondents, which led to a more serious attention towards. I could describe the aim of the research better. I could establish rapport to the respondents.

To conclude and to answer the research question on how to do research on social inclusion in uncertainties situation, the methodologies were adapted to be flexible by preparing several supporting methods. The plan was to use walking interviews as the main data gathering method and supported by other methods that could be done desk-based. By doing this, the research would still be able to answer the aim question within the uncertainties of the pandemic situation.

4 Case Presentation 3700/10

This chapter explained about the selected case, Ila Stream reopening in Trondheim. To begin, position of Nature Based Solutions in Norway would be discussed, followed by the position of river reopening project in Nature Based Solutions in the context of Norway. Then moved to the context of the project, Trondheim, in relation with its climate change adaptation plan and the vulnerabilities. Next would be focusing on Ila Stream. It covers the restoration project, the history of the stream, the affected group of people, and its relations with Nature Based Solutions.

4.1 River reopening as Nature Based Solutions in Norway

NBS had gained its popularity in the recent years. In Norway, the Research Council of Norway had financed Klima 2050 as part of Climate Change Adaptation strategies, aiming on building innovations to strengthen Norway's innovation capability (SINTEF, No date). Innovations in the centre had been using NBS as main strategies to be align with NOU (2015), the national strategies on climate change adaptation predominantly related to water strategies (GR, interview). Moreover, the NBS concept had been identified as a priority concept towards a more sustainable development across Europe Kalsnes and Capobianco (2019, p. 9) with its related work listed in **Error! Reference source not found.**.

Regarding river reopening, NOU (2015, p. 69) mentioned that river restoration had the capability to provide all three scenarios in the case of storm water run-off, part of storm water management mentioned in Figure 2.6. The concept might cover 10 of the 21 NBS points mentioned (see Appendix) such as waterways, vegetation and grass covering, wetlands, floodplain, and riverbanks, rainwater management, water bodies and permeable covers, drainage, re-naturalization of grey infrastructure, green areas, and open water.

The concept of river restoration had been a major part in recent storm water management plan in cities in Norway. The municipality of Olso for example, had

applied the concept to be an integral part of CCA plan and had brought the city to win the European Green Capital Award in 2019 (European Union, 2018).The proposal included restoring all the 10 waterways to foster diversity, recreation area for the community, and to improve water quality.

4.2 Ila Stream, Trondheim

Through looking at the list on river restoration projects throughout Europe by ECRR (*Run query: Case study query simple*, 2020), I have found several cases that might be relevant for the research. In Trondheim, one river restoration project in the urban area was listed, the reopening of Ila Stream.

Trondheim was the third populous city in Norway after Oslo and Bergen with the population number of 207.595 (SSB, 2021). The city had been perceived as the education city as it is home for the biggest university in Norway, The municipality also tried to engage with that identity to develop the city (Trondheim Kommune, No date-b). The identity could be seen in the number of students that was one out of five of the population, and one in seven for citizen that worked within innovation and academic field, predominantly in green technology (Trondheim Kommune, 2021).

In line with the national storm water management strategies, the city had adapted some restoration projects on the piped streams. As like any other piped stream in Norway, the streams in Trondheim were being culverted underground due to immense pollution resulted from the industrial activities around the area (ON, walking interview), or as HS (walking interview) said, *"we just did not really care much about nature. So, it was practical for one and another reason"*.

There are five major projects in Trondheim that included restoring piped streams. They include Ila Stream that was finished in 2008, Sverresdals Stream in 2009-2010, Steindals Stream in 2006, Nardo Stream 2018, and Ungla Stream in 2019 (Nilssen, 2020, p. 3).
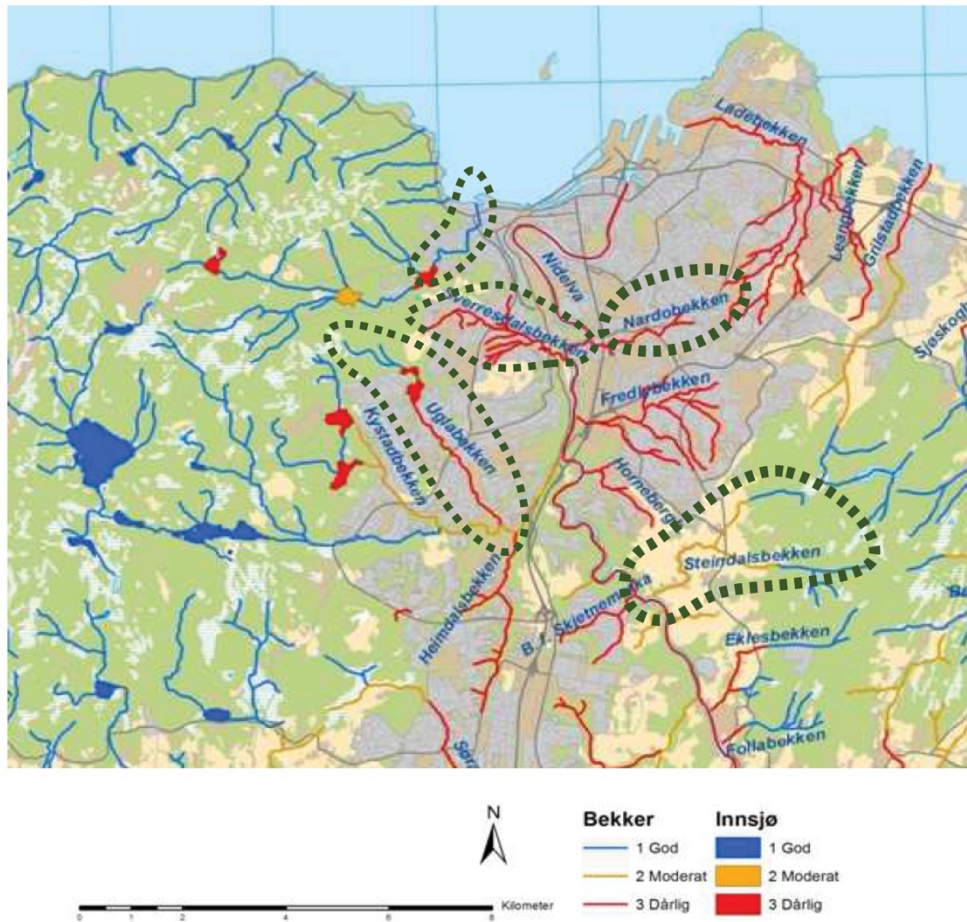
Figure 4.1 Major stream restorations in Trondheim (Source: Author, developed from: Nilssen, 2020)

As the project engineer in the municipality, ON had been involved with the reopening projects in Trondheim. Ila Stream was the first stream to be opened in Trondheim and he was involved in the process. The other reopening projects after Ila Stream had been much easier to be done since people could see the benefits from the project. The project on Ila Stream was considered as the pilot project and best practise to be referred to any other reopening projects in Trondheim, or even in national level (ON and OF, walking interview).

Figure 4.2 Ila stream located at the outskirt of the city (Source: Author, developed from OpenStreetMap, No date)

Through the map of postal code shown in Figure 4.1, the areas that Ila Stream (blue line) passed through were on the outskirt of Trondheim, west-side of the city. The overall watercourse lied 7 km from the forest area, through three main dams: Kobberdammen, Baklidammen, and Theisendammen. For the explanation purpose, the Ila Stream that will be discussed is just the stream from the last dam - Theisendammen to the fjord, includes the area of Ila and Ilsvikøra.

4.2.1 Climate Change vulnerability

As per 2015, 682 people live in the area. It has an increase of population number for 41,2% from 2000 to 2015, almost double the number of increase in the whole

46

Trondheim, 23,9%. (CYBO, No date). So it could be said that number of housing is increasing in this neighbourhood, resulting in a denser population. While having a denser population over time, There is a risk of flooding in the area due to increase volume of stream water and sea level rise resulted from climate change. Figure 4.3 shows the risk area around the Ila Stream.
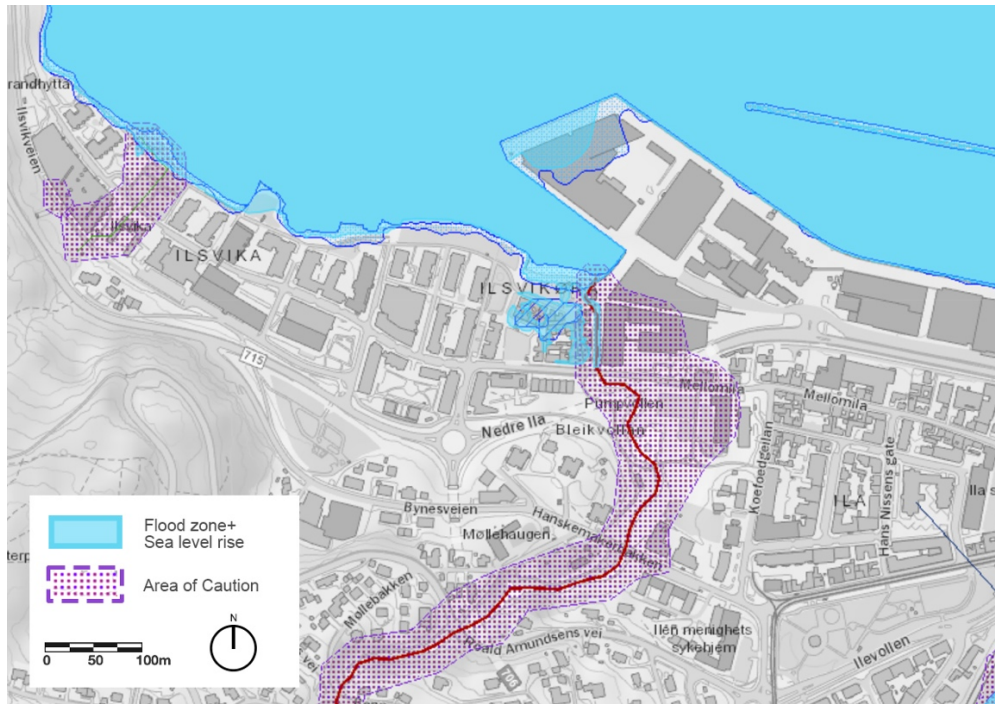
Figure 4.3 Risk of flooding around Ila Stream (Source: NVE, 2021)

Measures on mitigating the hazard has been done, a restoration of the stream was the major strategy to fight the increasing amount of water volume. As can be seen in Figure 4.4, the stream were prepared with green banks with slanted angle to be able to contain more water volume.

Figure 4.4 Ila Stream in Iladalen Park (Source: Author)

4.2.2 The Reopening Project

The stream has the history for being culverted for 700 meters long. It started with the downstream area in Ilsvikøra where the stream was piped for 100 meters. As showed in Figure 4.5, gradually until 1960s, total 700 meters long part of the stream was fully piped underground. In 2006, the stream was restored started from the downstream. Then in 2008 the whole stream was restored and started to become a recreational area. Figure 4.6 shows a comprehensive timeline about the status of the stream. From 1960 there was no discussion regarding the stream until 1996 that a student pitched a proposal regarding the idea. However it was completely forgotten since resistances from the community were strong. Until 1998 when there was another importance from the national road development plan made the project be brought up again.
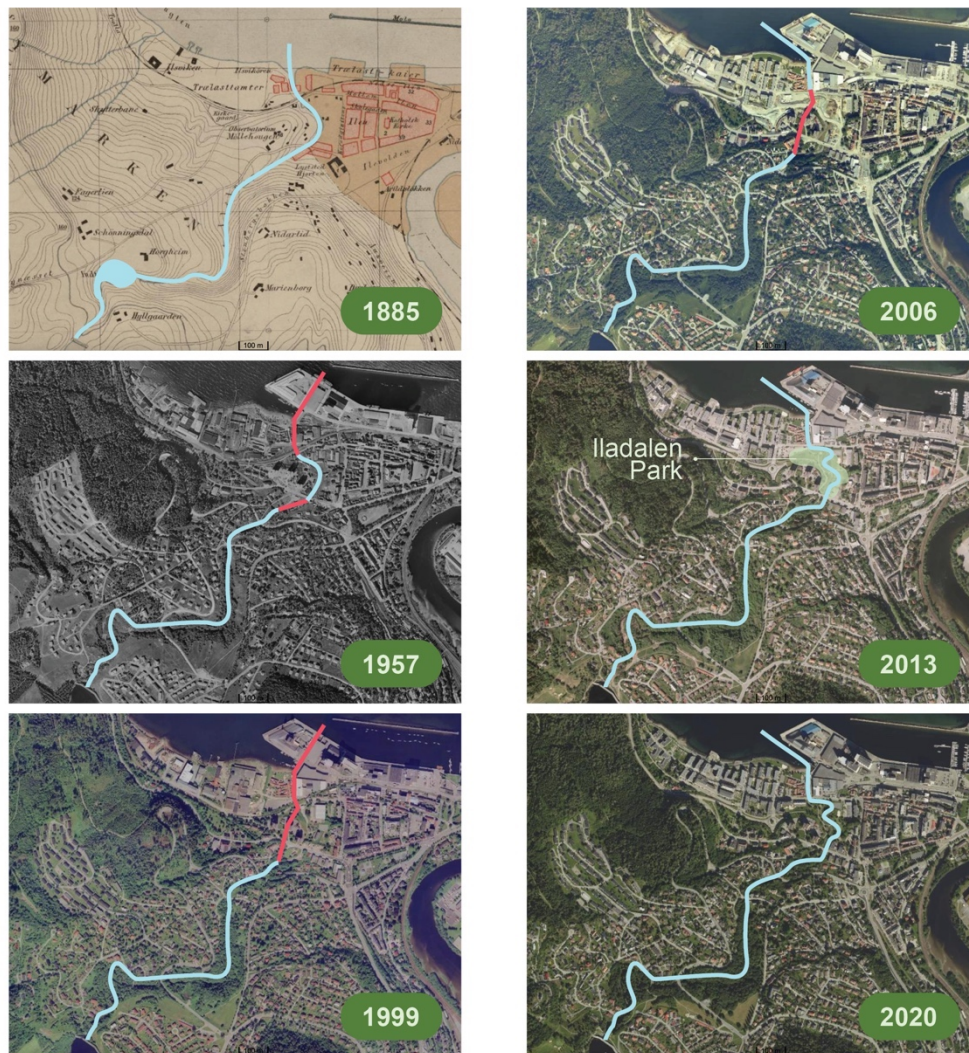
Figure 4.5 Ila Stream line through time (Source: Author, developed from: Finn, 2021)
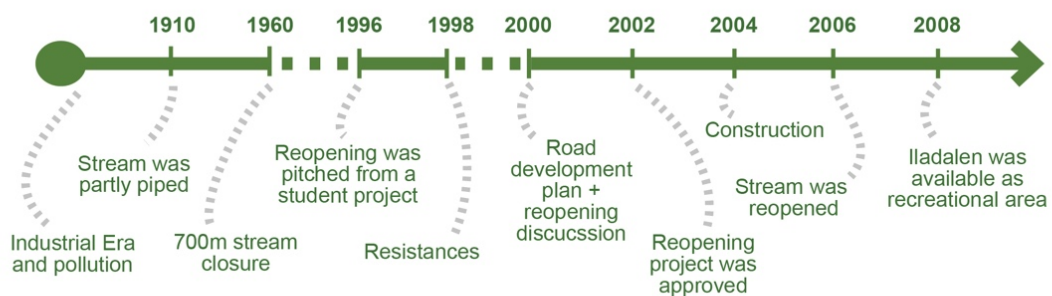
Figure 4.6 Timeline of the Ila stream and the reopening project (Source: Author, developed from OF, walking interview)

The changes with the stream situation had affected the neighbouring settlements. In the upstream, more to the south area, there were landed houses and a kindergarten. In the middle, there is a park that is opened after the restoration project, Iladalen Park. Next to the park are two kindergartens. The downstream area affected Ilsvikøra. Ilsvika area will also be affected through the developments in the area even though it does not connect with the stream physically (explained in chapter 6).

4.2.3   Current situation

People that live in Ila called themselves as *"ilinger"* (OD, walking interview). The population of the neighborhood covered 682 people (CYBO, No date). Through the population age distribution in Figure 4.7, it can be seen that the area is more popular for people in the group of *young adults* and *elderly,* with higher number than the median number in the whole city of Trondheim. Through personal experience, I realized that kindergartens are located in every corner of the area. Though, both from the figure and through the interview with HS, the neighbourhood is lacking of children and youth.
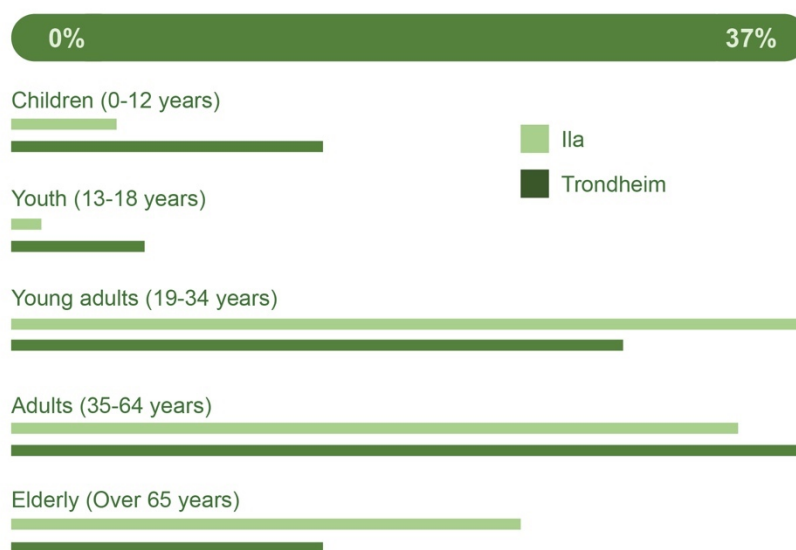
Figure 4.7 Population based on age group (Source: Nabolag.no, No date)

Figure 4.8 Activities around Ila stream (Source: Author)

Around the stream, there are activities that people in the surrounding neighborhood do. As shown in Figure 4.8, it includes recreational purposes such as young adults having picnic in the park or just stop by the area to enjoy the weather, kids playing around with some features in the park, a walk to the woods, kid learning to ski on the hilly part of the park, etc. Another activity that was found was exercising, involved jogging through the path along the stream and street sides, and outdoor group exercise for older people. Daily activities that were found were ranging from walking the dog, passing through the park to buy groceries or go to work, commercial activities such as cafes and restaurants, kids that were going to school, etc. Also,

social activities such as gardening in the community garden, children's activities from the kindergartens, church outdoor services, street market event, etc.

Commercial activities were not much happening in the area as compared to other places in the city (LS, walking interview). Though through personal experiencing to some cafes and restaurant in May and June 2021, I found that there are more customers than what had described from the interview, although factors such as weather condition and holiday time might be a factor that affected my experience.
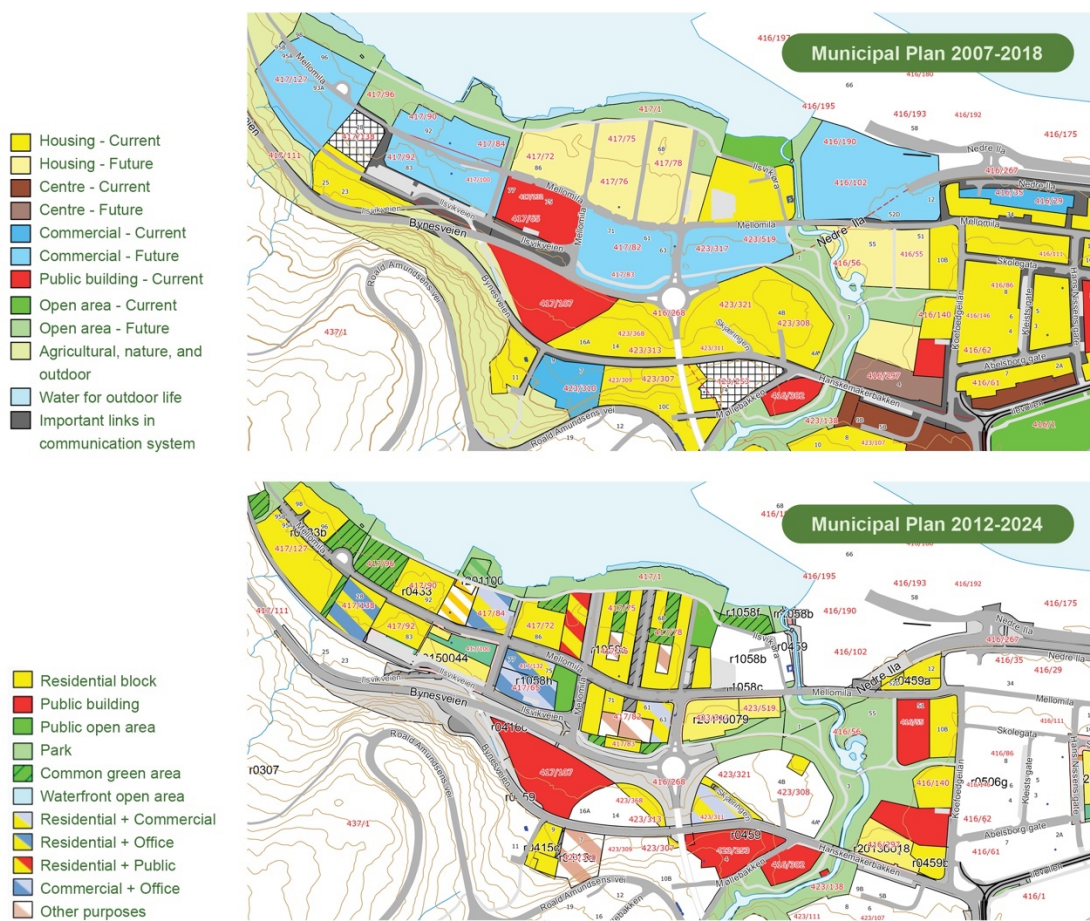
Figure 4.9 Land-use plans of Ilsvika (Source: Trondheim Kommune, No date-c)

Looking at the land-use, Trondheim Kommune (No date-c) had published the current plan which is in the period of 2012-2024 and the previous plan that is in the period of 2007-2018. By having the two, I can have the chance to look at the initial plan and

compare it to the current plan to see what has been changed (See Figure 4.9). The area at the west side of the stream -East Ila, did not have a major change between the two plans. Noticeable change is located in the Iladalen Park, where the new plan has more green space than the previous plan. It also included a public building with the function of kindergarten. So, the residential area in Iladalen Park was getting smaller, to provide more green space and a kindergarten.

Another change that occurred here is the new municipal plan acknowledged more on the multifunctionality with the mix-use area planning, notably in Ilsvika. Residential area was initially located separately with the commercial area. With the mix-use approach as seen in Figure 4.10, the eye-level perception towards the area has become livelier without compromising privacy on the housings above.

Figure 4.10 Mix-use of commercial area with residential area in Ilsvika (Source: Google Maps, 2021)

4.2.4   NBS

As the concept of restoring stream quality is part of what NBS strategy applies, here I wanted to review the project on how it applies some of the NBS concepts that were mentioned in chapter 2 on Theory.

NBS has put emphasis on its multifunctionality. Considerations on different aspects are also essential in order to have a successful river restoration by RESTORE (2013, p. 14).

Access and recreation

Part of the reopening project was to connect the urban area in Ila to the recreational forest in west Trondheim, *Bymarka*. The hike path ended in *Theisendammen*, an upstream dam of Ila Stream. On the other hand, it also connects the forest to the coast line, where the municipality is trying to improve another walk path.
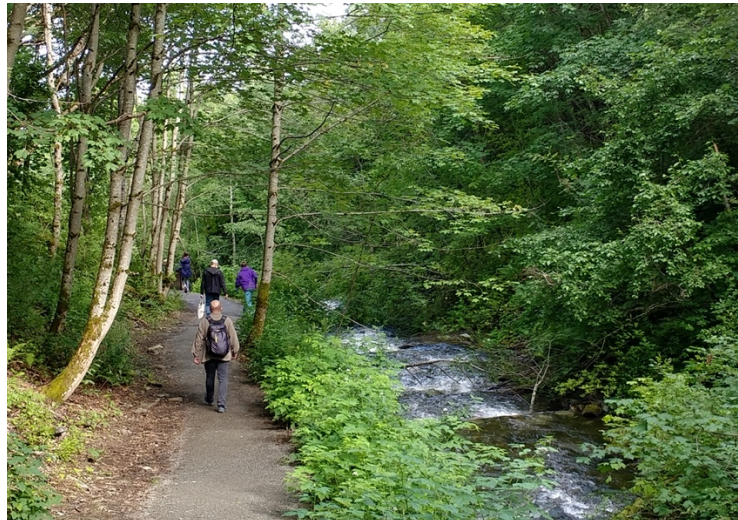
Figure 4.11 Walking access to the nature for recreational purpose (Source: Author)

For the people that lives around Iladalen Park, the park itself is not just being used for a recreational purpose, but also for daily function as well. It connects residential area to grocery shops, schools, work place, etc. The park acts a shortcut and an intersection between different paths.

Green Spaces

Green spaces are needed to be built to get people closer to nature. In line with the restoration project, Iladalen Park was built and has provided the neighbourhood with a green public space. The park provides the connection to the water with wide green coverage on surrounded by the stream.

Biodiversity

The reopening project has involved with the closure of numbers of tunnels. The unused tunnels then had invited bats to use it for shelter. This was an unintentional plan to bring up biodiversity in the area, but the project team together with the university have been involved in preserving the bats.

The reopening project was also expected to be able to bring back fish to the stream. Through some supporting features such as current speed control, fish ladder, depth of the water, and the stones are all included into consideration to have fish back to the stream. The result is considered a success with the presence of sea trout in the stream the next year after the stream was reopened.

Heritage and cultural environment

Since the initial plan of the reopening, the team had already decided to move back the stream within the same location as it used to be. The stones that are present on the stream now were product of imitating the past condition of the stream. Exceptional was done in Iladalen Park, the stream line was adjusted because of heritage building preservation. Other adjustment was also done to give more open green space for the kindergarten.

Education

The restoration project on Ila Stream has played a part in educating the people about the importance of nature. The project itself is a pioneer reopening project in Trondheim, and has been used as a best practise to be implemented in other area, even in the national level.

To communicate to the general public, signages were built around the area to explain about the history and idea behind the current stream. Through meetings and public gatherings, the project has been indirectly educate people to care more about the environment. The kindergartens that were located close to the stream also have the chance to let the children closer to the "nature" and have a consciousness on the environment since the early age.

Natural Flood Risk Management

The first one is about the three scenarios by NOU (2015, p. 67) to mitigate water run-off in Norway: **filtration, containment, diversion**. The nature of the stream itself is to lead run-off water to the designated area. However, in this case of reopened Ila Stream, the filtration process was still considered by providing green spaces on the stream banks, although it was not applied to all part of the stream. The containment function was not evident in this case, even if there is a presence of a pond in Iladalen park to contain water, but the main function of diverting water way to the fjord is more apparent.

Management and cost

The involved stakeholders for the management system of the stream is divided into several departments in the municipality. The water quality is the responsibility of the water and waste water agency, the green stream banks are the responsibility of the environmental agency, while the walking path is the responsibility of the road agency. While the bureaucracy seems complicated between the three agencies, good communication has made it possible (OF, walking interview).

The management of the restored stream includes periodical check and ongoing research on the biodiversity purpose. Once every three years the stones need to be rearranged to allow the fish to breed and lay eggs in the stream. On the other hand, the community did not have a major implication for the maintenance of the stream.

Hybrid Infrastructure

Depietri and Timon (2017) proposed a mixed approach of grey and green infrastructure to meet the lack of space in a dense urban environment. In the Ila Stream restoration project, there are combinations between the two approaches. In Ilsvikøra, the stream was put in a channel due to similar reason, lack of space (see Figure 4.12).

Figure 4.12 Ila Stream next to Ilsvikøra (Source: Author)

While the part next to Ilsvikøra, the grey infrastructure was made because of certain limitations. In other part of the stream, grey infrastructure was made because of the value the municipality wanted to show in the area. Once the stream was restored, the team realized that in some occasion the water infiltration was intense, resulted in disappearance of the visible water. Then the team decided to make a concrete channel in that particular part of the stream so the water would not be infiltrated (Figure 4.13). By doing this, the design of the stream was actually cancelled the first priority of the storm water management plan from NOU (2015), skipped and directly to the third scenario -diversion.
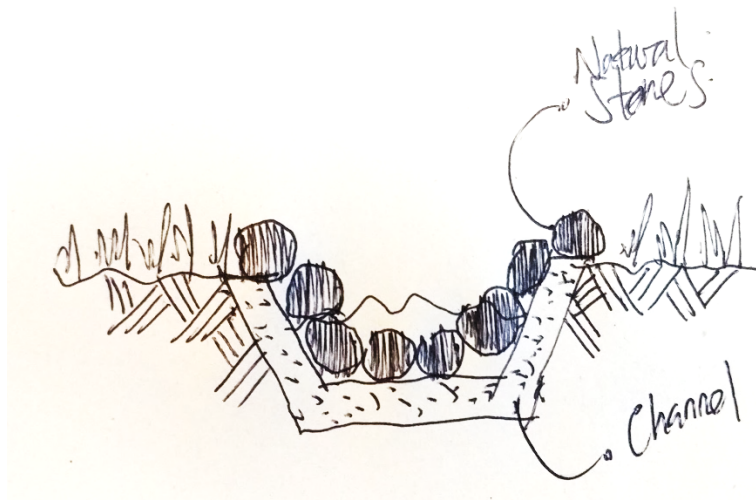
**Figure 4.13 A sectional sketch of attempt on preventing over infiltration of water
(Source: Author, developed from OF, walking interview)**

Social Inclusion

On the topic of social inclusion, the project would be evaluate based on the prerequisites of socially inclusive greening project by Haase *et al.* (2017, p. 45). When the project was initiated in the beginning, it required to demolish some of the building in the area that now is Iladalen Park. OF told me that there were houses in the area and the authority had already discussed about the reopening project for long. The discussion that took place for quite a long time resulted in less resistance from the community, even though they did not have the chance but to move out. The authority how ever had prepared spaces for them, the space in Ilsvika was part of it. So, the first prerequisites of socially inclusive greening project by Haase *et al.* (2017, p. 45) -consideration on the presence of inequalities, was present. Through implementing process, HS did not enjoy it because the whole area was a mess. However after several years of construction time, she is very happy with the result. The project had also given the chance for the community to discuss about the construction, resulting in a good communication. This has made the second prerequisites -on including contrasting opinions- to be present as well.

58

The third prerequisites however, did not applied well since the project did not mention any social outcome other than making a better recreational area. In terms of the fourth prerequisites -serving the diverse group of people, the project was not putting a specific group of people to benefit from the project. The storm water management plan will decrease the vulnerability of the people in Ila and Ilsvikøra to flooding, but the recreational purpose was made to serve the whole city. As for the fifth prerequisites -about multi actors governance, OF mentioned that he considered this project as a success and it was resulted from a good communication and team work amongst the related stakeholders and active community. Even though not all of the residents were involved with the design, implementation, and managing the project, but the community bond was strong resulted in an equal benefit. The sixth prerequisites -on other obscured motives, here the restoration project acted as secondary project alongside with the national road development plan, instead of acting as the main plan.

Based on this bland analysis on the prerequisites of socially inclusive greening development, it could be hardly said if the project is inclusive or not since many of the points were not clear.

Table 4.1 A table to conclude on NBS concepts implementation in Ila Stream reopening project (Source: Author)

NBS related to	Presence in Ila Stream
Access and recreation	• Pathways to the forest was built, along with the restoration project. • The park also provides pathways and acts as intersections
Green space	• In line with the restoration of the stream, Iladalen Park was made and has provided the neighborhood with a green public space
Biodiversity	• The design of the reopened stream was considering the ability of fish to be able to breed in the stream.

Heritage and cultural environment	- The location of the stream has been mostly imitated with the natural path of the stream in the past. - The project also put a consideration on some geographically valuable sites in the area.
Education	- Kindergartens were located close to the stream to bring the children closer to the "nature" and have a consciousness on the environment since the early age. - There are also signages to educate people on the history of the stream
Natural flood risk management	- Medium impact in filtration phase. The stream has green stream banks which are able to filtrate much more water than the piped channel. - Low impact in containment phase. There is just one small pond in Iladalen Park. - Strong impact in diversion phase. The stream plays an important role in directing the water run-offs to the fjord. It also capable to hold the capacity in containing more water than it was needed to for now
Maintenance and cost	- The maintenance was divided into several stakeholders in the Trondheim Municipality - The rocks in the stream also need to be rearranged periodically - No major engagement with the community
Hybrid Infrastructure	Green infrastructure with some grey infrastructure that was camouflaged so that it feels green
Social Inclusion	- Prerequisite 1, strongly present - Prerequisite 2, present - Prerequisite 3, low - Prerequisite 4, medium - Prerequisite 5, present - Prerequisite 6, not relevant

5 Analysis12000-15000/30-40

This chapter was aiming to gather all the data from the point of view of the theory, which was focusing on landscape identity. Therefore, the subchapters here would be divided by the four quadrants of Landscape Identity framework by Stobbelaar and Pedroli (2011).

5.1 Personal – Existential (Quadrant I)

The first quadrant would discuss on the people's perception towards the landscape when it came to discussion on individual's experiences related to the area, integrating the landscape to the own personal meaning. There were several topics that was emphasised often with the methods that I used.
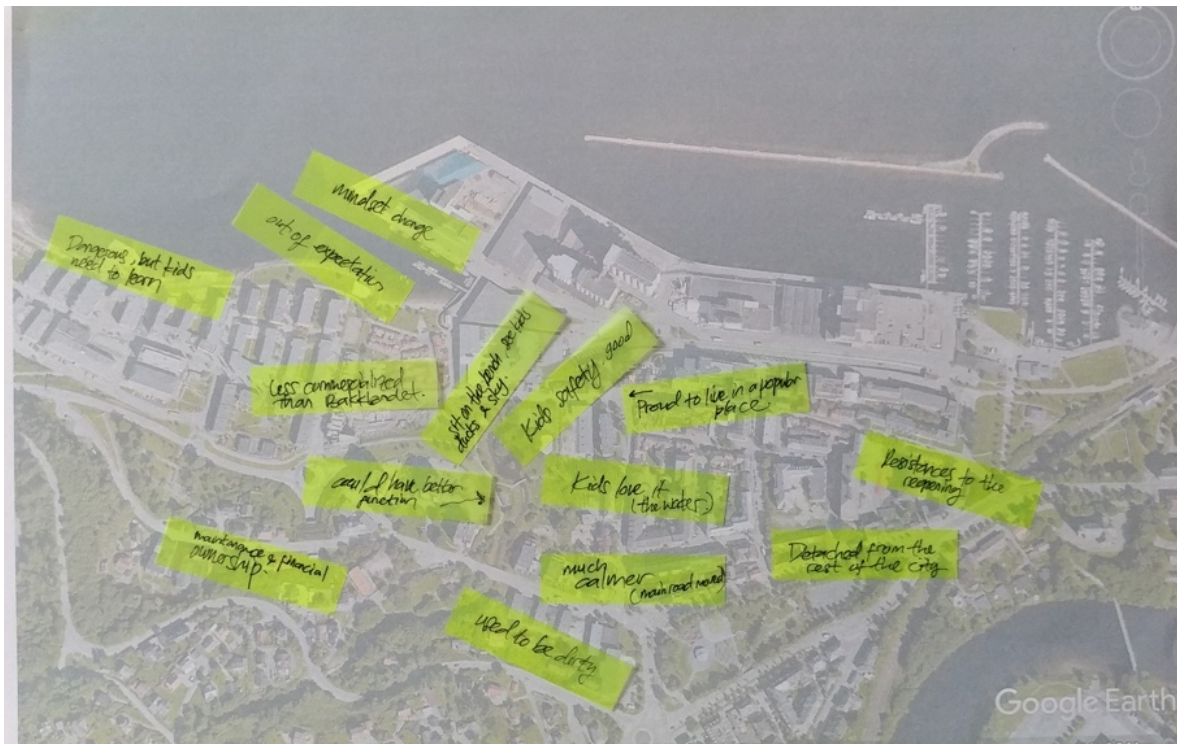
Figure 5.1 Main points for the personal-existential quadrant (Source: Author)

Upside-down Change

The discussions about Ila would not distant from how it had changed from the past to the current time. First, was about how it had changed since the industrial area. It was considered as a heavily polluted area, but now was the complete other way around, environmental friendly residential neighbourhood. The differences were mentioned in all public groups in Facebook that I joined regarding Ila: *Ilaparken og IlaBekkens venner, Mitt Ila,* even though there was a dedicated Facebook public group to talk about history – *Ila Historielag.* As what had posted in *Mitt Ila* by a lady who grew up in Ila in the 50-60s*, "(…)seeing today's Ilsvikøra is a delight, well-groomed house and gardens. I enjoy life, again in my Ila"* (social media observation).

OD, a resident of Ila, mentioned (walking interview) that he never had an interest on the area during his early life. In fact, he had never been here in this area before he decided to move in to live with his partner that resided in Ila. Now that he had lived here for 15 years, he experienced the change and concluded that current Ila has become the complete opposite than it had used to be.

Figure 5.2 A picture posted in the *Ilaparken og IlaBekken venner* Facebook group about Ila in the past (Source: Solem, 2021)

In the other Facebook group, *Ilaparken og IlaBekken venner,* attachment to the memory of the past could easily be found as well. This could be seen as someone had posted a picture shown in Figure 5.2, then the group members started to give

comments on which building they had lived in their childhood and stories that had ever happened in the buildings.

The second change was mentioned by the engineer involved in the reopening project. *"I did not expect the reopening project would be realized here in such area, out of my expectation"* (ON, walking interview). For him, the reopening project had changed the way he think on people. He used to get resistances from the residents that would be affected from the reopening project. However, as generation had changed and more and more young people came to Ila. These younger generation cared more on the environment and they were really positive towards the reopening project and even helped to promote it. Until to the point that the older generation did not resist anymore. As someone working at the municipality, ON would refer this as *societal mindset change.* It reminded him that society is dynamic and change in any community was possible to be made.

Detachment from other areas

From all the walking interviews to the people that lived in Ila, they all considered the whole home, even though some might mentioned distinctive quality on their own home street. For example LS had described how she and her neighbours have breakfast together every day, or at least a morning coffee in the winter time when having a meal outside is not convenient. It was the benches in front of her house that acted as a meeting point for them to have this daily ritual. Besides that, all the residents that participated in walking interview would feel safe and comfortable once they are in Ila.

Another detachment was about the distinction of Ilsvikøra to Ila, to the city, even to the rest of Norway. Through walking interviews and documents and reports from the municipality, Ilsvikøra was described as a separate neighbourhood with its uniqueness on its historical demographic population (explained in subchapter 6.2) and its architecture (explained in subchapter 6.3). Attempts on demolishing the area was there and did not occur because of strong resistances from the residents.

Another quality that made the neighbourhood different is the calmness. LS mentioned that she feels relax and calm around the park, considering the area is just next to the city centre. On the other hand, OF also explained that the municipality had had the thought on this issue before the initial plan of the project (explained in subchapter 5.3). The main road used to pass through the neighbourhood was moved underground because the long-term plan the road would expected to contain more vehicle mobilities. As could be seen in Figure 5.3, the road passed through below the park, leave the park unaffected by the noise from the vehicles.
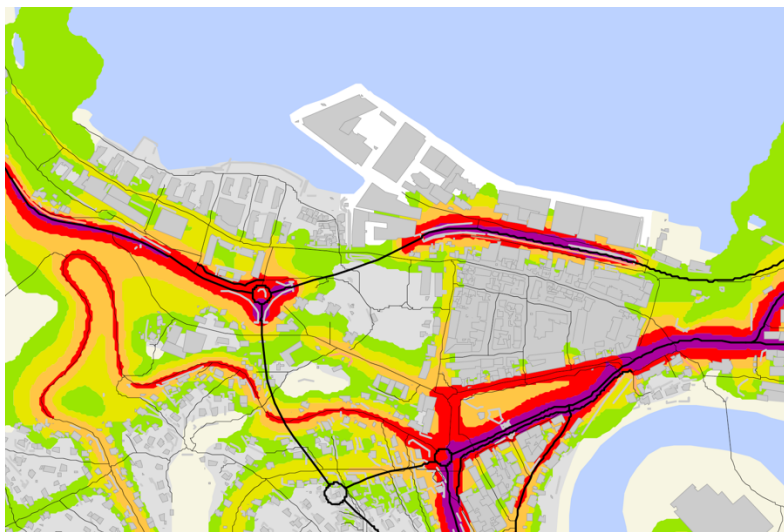
Figure 5.3 Iladalen Park was unaffected by the noise resulted from the high mobility in the underground tunnel road (Source: Trondheim Kommune, 2020)

Attractive public space

Iladalen Park was a new public space made after the restoration project. Through walking interviews, residents said that they were happy with the park. OD explained how his son used to come to the park every day since it has a lot of space for them to run around. HS also used the park in daily basis. She liked it lively, and often stop by the park to sit on the bench and look at the kids, ducks, and greet her friends that passed by. HS also needs to pass through the park to get groceries and had known a

lot of people pass through Iladalen Park to work since it was located in the intersection from all sides (explained in subchapter 6.3). So, besides the attractive recreational use, the park was also functional and practical.

From the interaction through a Facebook group, *Ila Historielag* (Appendix C), a respondent told me that she used to go to Ila Park often in the past, but now Iladalen Park is the oasis of the area. In the interview, ON also mentioned that the park had received many good impression within media publications.

Through personal observation to the site, when the weather was fine, I found huge number of people using the public space. The kids played around everywhere in the area, around the trees, on the river banks, and even in the water since the current was not strong. Young adults were enjoying the sun in groups. The benches were occupied with the older adults and elderlies that were having a conversation in exciting tones. Not just people from the surrounding neighbourhoods, people from the other part of the city also attracted to come to the area. Regarding to this, LS and OD were proud to live here in a popular place and generally felt comfortable with that and did not feel any threat.

5.2 Cultural – Existential (Quadrant II)

The second quadrant was about the social aspect of the landscape. It embodied the fact that the inhabitants are essential in a neighbourhood and sometimes the landscape was identified by their activities (Shao *et al.*, 2020, p. 6). The discussion with the participants involved how the neighbourhood perceived to be socially active, how they feel safe for letting their children be around the area, sense of belonging to the community, and how it feel so easy to meet people and socialize.
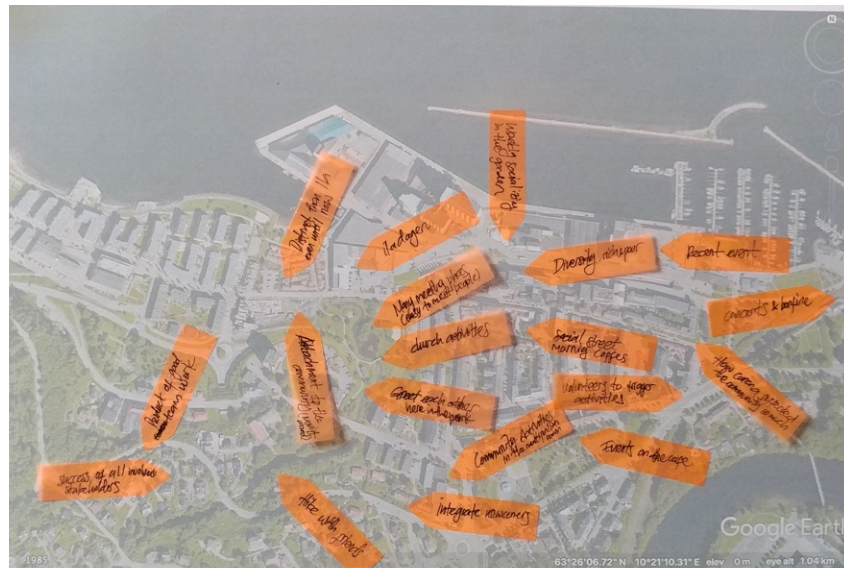
Figure 5.4 Main points for the cultural-existential quadrant (Source: Author)

Socially active neighbourhood

Social activities in Ila had been emphasized by most of the walking interviews by the participants that resided in the neighbourhood. All the participants that I found had involved in events in the area. LS mentioned that she took a week off from her work place to organize *Iladagen*, a summer festival that was held annually, created by voluntary efforts and financed by contributions from local business and Municipality of Trondheim. Unfortunately, the 2021 Iladagen was postponed from June to August due to pandemic situation that got worse in May 2021, so I did not have the chance to do observe the celebrations in the area.

Another popular activity in the area was the *Ila Brainnstasjon* café. The café was initiated by OD and some other friends that had the same interest to trigger activities in the neighbourhood. The small café provided a stage for musicians and bands to do live performances. It has been a meeting point for musicians and music enthusiasts to share their art. It had been known for its Sunday Jazz program and sometimes stand up and poetry by various artists.

Figure 5.5 A concert in the cafe Ila Brainnstasjon (Source: ILA BRAINNSTASJON, 2020)

LS was glad that she got the chance to have a spot in the community garden because the space was limited and not every residents in the neighbourhood received the opportunity to use it. The community garden was the place that she can plant vegetables and socialize with others while doing the gardening work. Through this activity, she knew some new neighbours that had lived there for long. So the community garden had increase the social interactions in the neighbourhood.

Figure 5.6 A participant of walking interview was showing her pots in the community garden (Source: Author)

Besides the those activities, Ila had a volunteer base *called Ila Frivilligsentral.* The centre was aiming to be a mediator to connect people in the neighbourhood. It was an active institution that had an impact in the community. The activities were ranging from easy activities as such: knitting day, chess competition, waffle and coffee break, sports class, bingo, bowling, bouldering, to activities that were targeting wider group of people such as food distribution of oversupplied food to prevent food waste in collaboration with *Matsentralen,* shopping help for the people in quarantine for the recent pandemic situation, Norwegian language practise for immigrants, etc. Unfortunately most of the activities were not happening by the time this research was being done due to the pandemic situation. Even if something was held, it would be limited to the targeted participants.

On Sunday, April 18th, the neighbourhood had the street market in the whole area. The activity was initiated by OD and was aiming for the residents to sell anything that they could offer, including things that they would not use anymore. More than 40 participants signed up to be a seller in the event with people from the whole city came to enjoy the market and get around the neighbourhood.

Figure 5.7 Street market held from the residents (Source: Author)

Children's safety

From the documents available on the internet, it could be seen that the issue of safety of the young was a big discussion when the municipality started to pitch the project to the community. The neighbourhood had been detached from the presence of the stream for almost 50 years, the idea of bring back the stream closer to them was a threat for adults with kids. What they had remembered was there are some stories about kids being drowned in the water in the past time.

Now that the project was done, it needed to address the issue to make sure that the children can play safely in the area. Attempts from the project team were there, it included consideration on the maximum water height was 50cm (Figure 5.8). So, in case broken ice layer on the lake, kids would not be drowned. Another attempt was the slope of the river banks, it was made in a certain angle so kids would have the ability to crawl up in case of drowning accident.
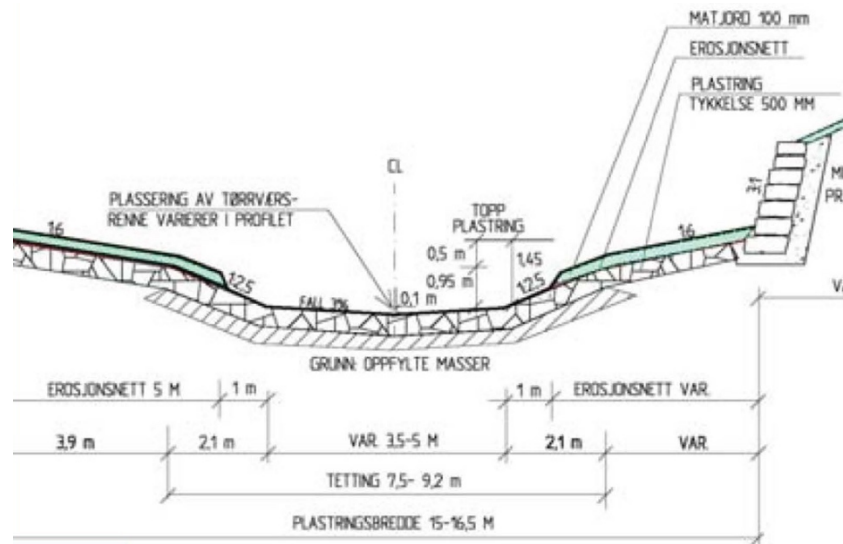
Figure 5.8 A sectional drawing of the small lake in Iladalen Park (Source: ON, walking interview)

From the perspective of the residents, the drowning safety of young people in the park was considered a little threatening for some people, predominantly those who have smaller kids. However, the issue did not detach the children from the park. The neighbourhood decided to have an unofficial rule regarding this, that the kids need to be accompanied by an adult when they are in the park. A lady that I interviewed even stop by the park just to make sure that the kids did not play unwatched.

Population diversity

HS and OD had mentioned the diversity of the people of Ila, they were ranging from the rich to the poor, youth to pensioners, and also immigrants. HS had mentioned that there were several immigrants in the neighbourhood, some were trying to socialize and be integrated to the community, but some did not. In the interview, OD had showed his interest in integrating new comers to the community, including the immigrants. He had the thought that every neighbourhood should have a integrating system that allowed newcomers to find the right community within the

70

neighbourhood. LS also mentioned in the interview that she would not know that she had an Italian neighbour if it was not because of the Community Garden program.

Through the Facebook group *Hva Skjer i Ila,* a Indian and Nepalis restaurant was mentioned. By personal observation and a casual talk with the owner that is an Indian-Nepalis couple, I found that the restaurant was new and had been there not even a year yet they felt very welcomed to the neighbourhood. Another business owned by an immigrant was a café not far from the previous restaurant, the owner was a 24 years old man that had lived in Norway since 2015 (trd.by, 2021).

For the people that work on the reopening project such as ON and OF, Iladalen Park and the whole opened stream was the product of a good team work within huge amount of different stakeholders. They both considered Iladalen as a successful project, and it was a success for all, not just the municipality or the community alone, but also for all involved stakeholders.

Sense of community belonging

Physical distinction could be a sign for sense of community belonging, The denser housings typology in Ilsvikøra is one of the example (explained in subchapter 6.3), the typology indicates a different community in the area. HS explained that people that lived in Ilsvikøra would not say that they are from Ila, they would refer Ilsvikøra as another different district -even though the physical area was not that big, compared to the area that HS perceived as Ila area. This could be track through the history of the area.
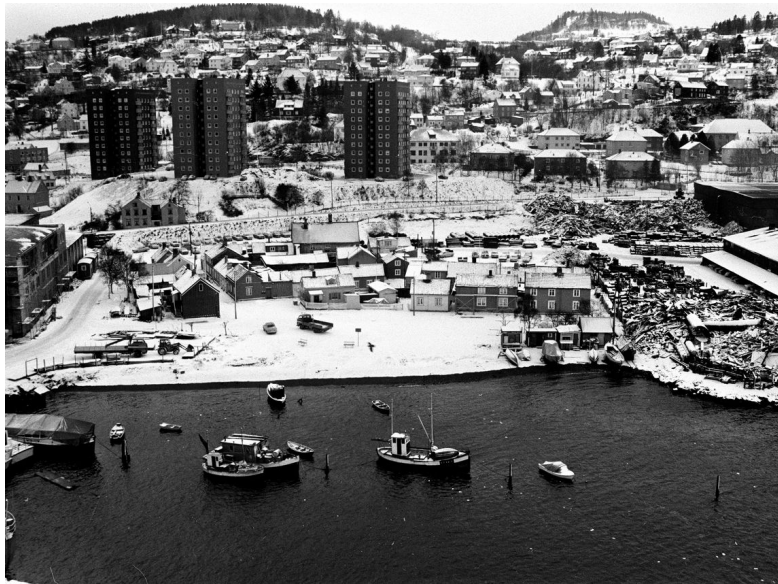
Figure 5.9 Picture of Ilsvikøra in the past (middle), housing towers and residential area on the back, with industrial area on the right side (Source: Brissach, 2015)

Ilsvikøra neighbourhood was known as the village for fishermen at the past, with the beach next to the area functioned as the docks for the ships. The dock was also being used for the ships to export wood to the other part of Europe; HS knew that some buildings in the Netherlands used the wood from this area. Not only timber business, other industries were emerged in the area and a lot types of industries flourished; but fishery. As modern developments occurred, the fishermen in Ilsvikøra got the pressure to be swept away, demolished to accommodate flourishing industries. However resistances from the community was strong, resulted in the existence of the neighbourhood until the current time. Now, generation has changed over time. Even if the source of livelihood from the residents of Ilsvikøra was not based on fishery anymore, the strong sense of community is still there.

The attachment to the community could also be seen in some older generation of Ila. HS and LS mentioned that the housing developments were both good and bad. They did not certain quality of the new developed housings(explained in subchapter Figure 5.3), however, the housings were useful because sometimes the older people had lost

the ability to keep and maintain the wooden house, since it was listed as heritage from the authority. One practical solution to this was just to move to the available apartment within the same area, so they would still be connected to the neighbourhood with less burden on the maintenance of the house. HS explained that two of her friends were now arranging to have the apartments across the street, so that the balconies were facing to each other.

Ability to meet people easily

It was easy to meet people and have a social interaction in Ila. LS even stated that *"it is impossible to live in Ila and not to communicate".* The quality was supported by the huge number of events occurred in the area, with variety of interests. OD, as someone working for the volunteer centre, aimed to maintain and increase the variety of interests to be able to include more people in the area.

Physical qualities of the area also supported this quality. As I went through the neighbourhood, I could see benches were everywhere in Iladalen Park. The walk with HS also brought us to sit down in a bench, looking at people passing by. Some of them greeted us at the park.

"People greet each other. Sometimes, I mean. Ha-ha. I guess we know that Norwegians are… more… happy when they are in the nature, they even greet strangers. And this, we are not in the woods, not in the mountain, but still the chance that strangers will greet each other is much bigger than in other places" (HS, walking interview).

5.3 Cultural – Spatial (Quadrant III)

The third type of identity is about features that has the capability to distinguish an area to another (Stobbelaar and Pedroli, 2011, p. 330) which can be tangible or intengible. In the case this project, people shared the same history understanding towards the area as the ugly old times. The various architecture style has been a unique feature in Ila, from the wooden heritage and modern buildings to industrial

73

building. The public area as a feature in required neighbourhood, Iladalen high quality public area, and the underground tunnel

Figure 5.10 Main points for the cultural-spatial quadrant (Source: Author)

The ugly old times

In the beginning of the walking interview, OF had explained the background of the reopening project. It has been said that the area was flooded a lot, it had possessed the flood since the stream was piped down. ON also added that the only solution that people used at that time was just making a bigger pipe. However, pipes are not sustainable to contain ever growing amount of water in regards with climate change. So since the industrial era, the area was flooded annually. Now, the reopening project had proven to solve the previous flooding problem even though the area is still prone

to flooding from the stream overflow and sea-level rise (see Figure 4.3). Though the majority of the community have not experienced much impact from the flood, they had stories about the disaster in the past. Thus, identity of flooding is not either personal-existential or cultural-existential, but more as a history that had passed through to the current population.

I also asked about the people's perception towards Ila particularly before the reopening project. The area was the bad side of the town for ON, land full of garbage according to HS, douche side for LS, backyard of the city as for OF. *"I haven't even been to Ila before moving here"* told OD. Considering that it used to be an industrial area would make more sense towards those perceptions, since the industries contributed to polluted lands and water. Now on the other hand, the current condition of the neighbourhood is perceived as a place where everyone wanted to move in. LS once had an interest on some of the new housings, but they were sold directly at the same day they were opened for sale.

Figure 5.11 Recent housing development in Ilsvika, the upper photo is in 2010 and 2021 for below (Google Maps, 2021)

Mixed architecture styles

In the beginning of the interview, OD had already showed me his favourite view of the area. It was just several steps away from his house. Shown in the Figure 5.1, the view consisted a combination of industrial, post-modern, modern, and wooden architecture, all could be seen in this street. Even though he led the topic to the diversity of the people in the neighbourhood, he seems to have an interest with the view of the buildings in this particular street.

Figure 5.12 Mixed architecture styles from industrial, post-modern housing, modern housing, and heritage houses (Source: Author)

Besides that, HS also mentioned that Ilsvikøra had an unique building typology. As she explained in the interview:

"But my main reason to protest is because Ilsvikøra is an unique place. You don't find many places like this. The oldest building started to be built from the17th century. There were fisherman and workers lived here. And the 60s or 70s they wanted to tore it down and make another industry. That was a big fight. And the people… We don't live in villages usually in Norway. We lived one km apart haha. But this is the village and the people have a strong network and loyalty, it was a world on their own in a way" (HS, walking interview).

By the time this village was built, it was not common for houses in Norway to be built close to each other. However here in Ilsvikøra the houses were built next to each other. Resulted in a denser neighbourhood that could be seen in Figure Figure 5.9 and Figure 5.13. The contrast showed as it wanted to resist the pressure from outside world.

Figure 5.13 Picture of Ilsvikøra in the past (Source: Brissach, 2015)

The presence of the modern housings were also distinct in Ila. The buildings had used part of the park as LS told me, and HS added that they had blocked the view too from the up-stream area. There was a street that you can stop by and enjoy the view of the fjord together with the neighbourhood. Another concern was about the sun light, the proposed design of the building would block the winter sun light to Ilsvikøra. After several discussion with the protesters, the developer then decided to find a middle ground by lowering the building height, limited to 2 levels in the area next to Ilsvikøra. The same developer had developed the land next to that with full height design. That resulted on different heights of buildings with similar finishing façade.
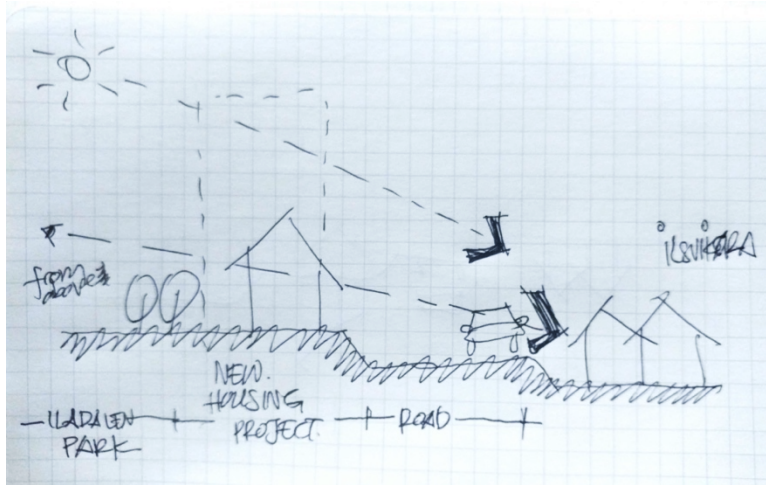
Figure 5.14 Diagrammatic section showing that the new housing had blocked the view from the street from up-stream (Source: Author)

Easy access to the city and nature

Through observation on accommodation advertisements from several accommodation service websites (Appendix D), it could be concluded that Ila had the quality of close to both the city centre and the nature. With just scrolling through how the hosts described Ila, people with no prior knowledge to the city would understand that Ila is close to the city centre with both walking distance and frequent direct bus line. At the same time, the area also had proximity to parks and the woods. OD used to rent his place on the online websites as well. He told me that he would also put the emphasis on its easy access both to the city centre and the nature.

High quality public area

This topic would be able to be linked with the topic that I discussed in subchapter 6.1 on attractive public space where the park was discussed with its benefit to a more personal being. The topic here would be more on the effects of the park towards the society through events and perceptions from many.

Creation of urban area had been mentioned in the interviews several times. The reopening project had resulted a new urban space in Iladalen Park. The place was being used for summer activities such as picnics, church services and baptisms, sport games, etc. During colder days, there were some activities that were mentioned such as ski and skating, but they were not as much as what people had described in the summer. However, even though the intensity of the activities were vary, the park was hosted activities all year long.

The idea on bringing back the water to the surface land was a threat (explained in subchapter 6.2). Presence of the water in the park on the other hand became another point that had made Iladalen Park was attractive. HS and LS told me that the sound of rippling water had made them feel more relaxed. LS did not afraid to let her children to play around in the park, even in the water.

The underground tunnel

ON, the project engineer, and HS explained the prior plan for the reopening was derived from the road development plan. The National Public Road Administration was planning to improve the main road that passed through Ila in order to increase mobility to the neighbouring cities. As it would affect the dense community in Ila, therefore the plan was to move the main road into an underground tunnel. This could be linked into the detachment of the area towards the busy road explained in subchapter 6.1. However, the tunnel road was not able to be built because the piped stream was blocking the way. The first idea was on building a deeper tunnel which would cost way more budget and more work area.

OF elaborated more on that, said that the idea on reopening the stream was there even before the tunnel road plan. It was pitched by some researchers from the university without any further impact to the municipality. The road plan was there and gave the opportunity for the reopening project to be initiated. Instead of building a deeper road tunnel, the budget could just be allocated to remove the piped stream and move it up to the surface, which was the initial state of the stream -an open stream.

In the walking interview, OF had showed his interest with the tunnel by showing me where the tunnel was located under the park, even that there was no signage to mark the exact location of the tunnel.

5.4 Personal – Spatial (Quadrant IV)

Personal-spatial identity is characterized by recognizability of an area by individuals to orient themselves and involves features that not perceived in an equal importance by everyone (Stobbelaar and Pedroli, 2011). The topic of discussion regarding this type of identity includes the presence of nature in the area, arts, division border, visible feature, hidden feature, and unproductive feature that might have some opportunities.
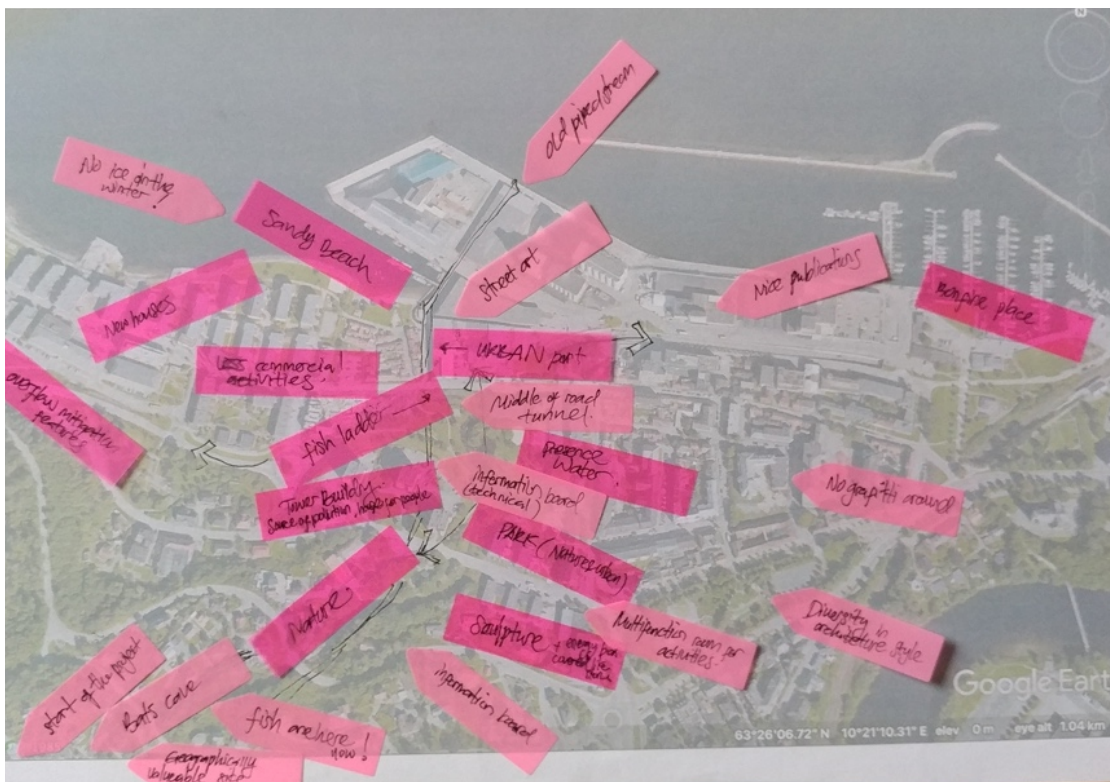
Figure 5.15 Main points for the personal-spatial quadrant (Source: Author)

Nature

The topic on reopening project was not far from its effect on bringing the feeling of nature to the neighbourhood. There are some point of discussion that might relate to this, it included the physical feature to support biodiversity in the stream, and to support activities and concerns around the area,

All the walking interviews had mentioned the fish ladder close to the downstream area. The ladder shown in the Figure 5.16 was built to accommodate certain types of fish from the sea to come to the stream as part of their biological process to lay eggs in the fresh water. Together with other measures explained in the subchapter 5.2, the result had been successful as the occurrence of the sea trout in the stream and the project had been considered as environmental revival (Olsen, 2019).

Figure 5.16 Physical feature to bring back the fish to the stream (left) and the occurrence of fish (right) (Source: Olsen, 2019)

The reopening plan was also made possible not just by looking at the environmental impact by bringing the fish come to the stream. OF also mentioned that the authority was putting much interest in the idea on connecting the neighbourhood to the hiking

path in *Bymarka* through *Theissendammen*, the upstream lake of Ila stream. So part of the reopening project was also a walking path to the upstream. This means that the path need to pass through some geographically valuable sites that contains rocks and mosses. Regarding this, the path design could not be able to do any permanent construction that would destroy the rocks. Then the landscape designer came up with the wooden steps. From my personal experience that took the path to the upstream, the usage of the natural material to build the ladder had increased the "natural feeling" other than concrete stairs.

Figure 5.17 Wooden stairs with temporary structure to not intervene with the geographically valuable rocks (Source: Author)

Here in the up-stream where single houses were around, ON and OF had heard many complaints about the water noise from the stream and the waterfall in the first months that the project was finished. However, people got used to with the noise easily, and even the price of the houses were increased just because how the noise had made the houses "closer" to the nature.

For HS and LS that passed through the area in daily basis, the open stream had made them to feel the natural feeling. The stream current would vary depending on the season and the weather. So, it never got boring for them to walk around the area.

In the downstream near the beach in Ilsvikøra, where the fresh water meet the sea water, OF also mentioned a water mixing system that would let the fresh water coming from the stream would not contaminate the fjord. This was important for the boat activities since the fresh water would tend to freeze easily during the winter time and would disturb the boats.

Figure 5.18 A mixing system in the water to not let the fresh water from the stream to be released to the fjord, causing icy surface in the winter time (Source: Author)

The history of timber business in Ilsvikøra also affected how ON perceived the landscape, predominantly the view of the woods on the hills in west of Trondheim. He explained how the exported timber came from the forest in West-Trondheim, which was not far from Ilsvikøra. That makes the view of the green hill that you could see from Ila -now- used to be not so green in the past. His perception of the past made him identified the place with the presence of the green woods on the hills.

Figure 5.19 The green hill in the west Trondheim as seen from Ila (Source: Author)

Arts

There were some presence of art in the area that were found in the area, mostly mentioned by the participants of the walking interviews. It included street art alley, sculptures and also the jazz café.

Street art alley was built as part of the event of *Trondheim Kunstfestival* (Trondheim Street-Art Festival). The event had engage with the community in the area as well. Children from the school and kindergartens were participating in the activity as well (Skoglund, 2018). Through observations to the area, I did not caught the area because it was quite secluded with industrial buildings facades and not visible from the main street, there was no sense of attractiveness and safety. However after OD brought me and introduced me to the art wall, the space was felt much lighter than the prior feeling that I had without knowing the presence of the art. So, the presence of these arts on the wall -that involved various artist and the community- had increased the attractiveness of the alley.

Regarding on the graffities, OF had mentioned that he felt glad that there were not much occurrences of graffiti, for him it was the sign that the community was taking

care of the area. The less occurrence of graffities might be resulted because there were given the space to express their art in the area, which was the street art alley.
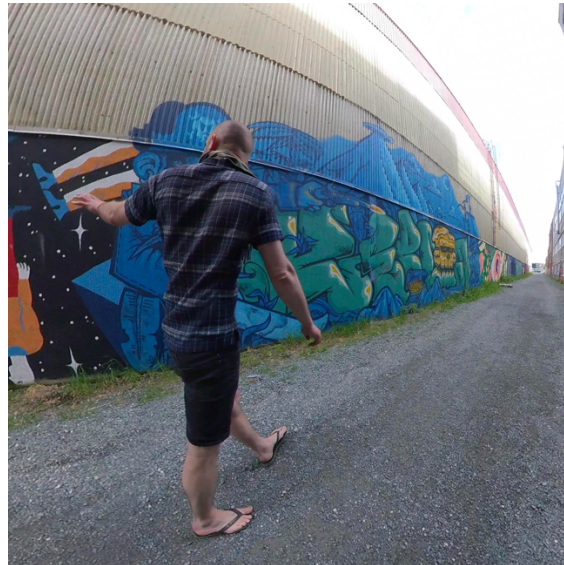
Figure 5.20 Space for artists to express their art (Source: Author)

Another art project that impacted the community was a photography project called *Ilinger Gatelangs*. The aim   of the project was to capture the relationship between people and their place (Theodorewithfoto, 2018). It captured some of the people that lived in Ila -*Ilinger*, with the background of the buildings in *Skolegata*, a street in Ila that was famous for its heritage buildings. The project was initially done for the street art festival that happened in 2018 as well, but the photograph was still put on the wall by the time I visited the area, as could be seen in Figure 5.21.

Figure 5.21 A photography project was shown on a wall in the area (Source: Author)

On the walk through the pathways to Theisendammen, there were some sculptures that I found. It was a little hard to recognize the sculptures since they were in a shape that blended well with the surroundings. Later that I found from document observations that those sculptures were part of an art project called *Gallus ludens* (Trondheim Kommune, No date-a). It was part of the reopening project to make the public space more attractive. The art was inspired by the stream reopening itself. The stream was piped hidden underground and now was visible again and could be experienced. This had inspired Stefan Christiansen -the artist- to start with the shape of bones. All the ten sculptures had light with them and used generators that were located close to each sculptures. Through interview with OF, he showed me some natural features on the area was not really "natural", just a camouflage to cover the light generator for the sculptures. This had made me realize on how much the project was considering the "natural" feeling to be perceived by the users.

Division border

While many of the participants of the interview and advertisements were mentioning about the proximity to both urban area and natural environment, it had made the area was in the border. Distinctions had been recognized by people as HS emphasised on the division when she wanted to socialize and meet people, she would go to the more urbanized area, the Iladalen Park. Then when she wanted to be alone and relax, she would go to the south which she perceived as nature (see Figure 5.22). The border would be the street on where she lived in.
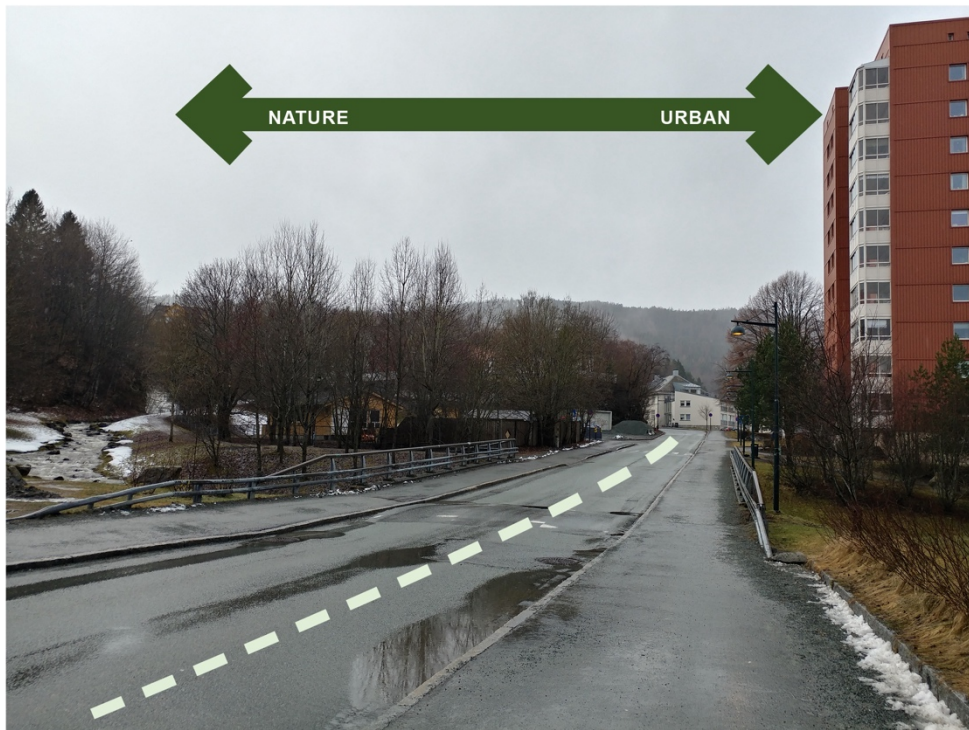
Figure 5.22 The street as the division between what HS perceived as Urban or Nature (Source: Author)

Borders also happened with the presence of contrast between the buildings. In Figure 5.1, the preserved wooden houses in Ilsvikøra was looking contrast with the modern housing across the street. Not just the one shown in the figure, but there were places around the area where similar contrast were found. This had been resulted since the area had quite variety of architecture styles built from different eras. The old wooden

houses were preserved because of the local heritage. Industrial buildings were around, with the function as housings or industrials. New housing developments also filled up the area, providing more contrast, thus made visual divisions around the area.

Figure 5.23 Contrast seen between the housing types (Source: Author)

Visible feature

The housing blocks in Ila was the tallest building in the surrounding area. building, source of pollution, house of the moved workers in the past

As a volunteer from the volunteer centre, HS had always work in arranging activities for the people in the neighbourhood. The multifunction building in the area was one of the physical feature that she connected to. For OD, the same thing happened with a firepit located a bit further than the stream. OD told me that the firepit was famous through internet and people needed to make a reservation in order to use it. Everyday all year long the fire place was usually been used with some people. Even though the

location was technically apart from Ila, people had always refer it to Ila since people usually buy the firewood from OD whose lived in Ila.

Figure 5.24 Gathering space to enjoy the fjord in the cold weather (Source: Author)

The waterfall in the up-stream area was an trial-and-error process. For OF, the location signified the beginning to the project, where the piped stream began. So he put more effort on building a better feature here in the location. First attempt on the design of the waterfall was considered not working. Stones were stacked and water passed through in between the stones, leaving no water was visible. Although it did not have any environmental impacts, ON considered the phenomena as a failure and needed to be rebuilt. The project team then again rebuilt the waterfall so that the falling water could be visible. This had made me think about the same thing as what OF did to make the electrical generator camouflage with the landscape by putting a stone-like cover. The feeling of "nature" was really emphasised in the project even though it did not have any technical impacts.

Figure 5.25 The experiences on the construction of the waterfall was explained by OF (Source: Author)

Some people identified the stones on the stream. It was said by ON that the fish needed the stones to breed and lay eggs. He was experimenting with the shape of the stones as well for other reopening project in the city, so the shape of the stones in Ila Stream mattered for him. In Iladalen Park, OF mentioned the stones were placed to imitate the previous condition of the stream that was rocky as seen from the photographs from the past time. LS recognized the stones in a different way. Her children used the stones to jump around and the ability of them to jump on bigger stones had reminded LS on how her children had grown. So for her, the stones were benchmarks to measure her children's maturity.

Another visible feature mentioned was the information boards. By walking through the area, they could easily be found. They explained technical and historical information regarding the area. It had helped the respondents to explain things to me. With the emphasis on OF, he had always stopped to the each of the boards and took a moment to explain the things written on the board to me. He made it like he knew exactly what was the information needed to be told to the people, in every exact

spots. This had made me think that the aim of the project did not stop on the realization, but there were some attempts from the project team to educate the public, one attempt was through these information boards that was also carefully planned.

Figure 5.26 Information boards to recall the history of the area (Source: Author)

Hidden Features

One notable detail that not many people would realize was the fence-less design of the pond in the park, despite that many children from the kindergartens were around the park. OF brought this topic as he had fought for such concept in the beginning of the planning process while the national regulations asked for fences. To compensate the safety issue, other measures had been done such as the low water level in the pond and safe slope of the stream banks.

As part of the overflow mitigation plan, ON mentioned there were some features in the area that was built to support overflow run-offs. It included bumps on the street and gutters. There were urban furniture acted as part of the plan as well, for example

the selection of concrete low wall and some openings with stell railings. They were all made to direct the water flow towards designated route. However, OF was not sure if anybody might know these plan, made it "hidden" for the community.

From the waterfall case, OF had emphasised on the importance of the visibility of the water so people could enjoy the "nature". From the first few months after the reopening, the water was disappeared in some part of the stream. The low current had resulted in infiltrated water flow. Again- though it did not affect the environment, the project teams decided to rearrange those part of the stream, put the stream in a concrete channel, yet covered with natural stones (see in order to have the "natural" feeling. This concrete banked stream was not visible for people that just passed through the stream. What they perceived would be just the presence of water and on the stones cover.

Figure 5.27 A concrete channel was built to prevent over infiltration of water (Source: Author, developed from OF, walking interview)

Unproductive features

Walking down to the Iladalen park, everyone would be faced with an obvious structure in the middle of the park, a red-painted wooden building that looked abandoned as shown in Figure 5.28. The building was listed in historical preservation buildings in Trondheim, so called as *Rødhuset* (Trondheim Kommune, 2010, p. 7). The area consisted of buildings that had been turned down for developments of the tunnel road and stream reopening, which resulted in demolition of many of the buildings. The *Rødhuset* was preserved due to its historical value on compact housings in the area in the industrial era. OF, the reopening project leader, told me that not much has been done in that house other than filling up the basement for safety purpose.

The preservation had been seen differently by LS and HS. For LS, *Rødhuset* had the opportunity to be commercialized*. "I want to open a café here. Imagine if there is a café here, I can drink coffee and have breakfast here and I think many people will think the same"* (LS, walking interview). On the other hand, HS did not really see any point to keep the house here since no one had been allowed to live in.

Figure 5.28 Abandoned building in the middle of the park (Source: Author)

Through observation on accommodation advertisements, the area was mentioned to be highly commercialized by activities such as restaurants, cafes, gyms, barbershops, etc. From this, I got the impression of a busy eye-level street in the neighbourhood. However, through a walk around the area, I found that the area was consisted low number of commercial activities. In some area, predominantly the west-side of Ila, the street sides was filled with parking lots and plain walls, resulting in an unattractive eye-level street.

Figure 5.29 A street with parking space on both sides and low activities (Source: Author)

When I mentioned the topic in the walking interview, OD and ON on the other hand, did not like the idea on any commercialization of the area, especially on cafes or restaurant. They resisted the idea because they preferred any development on public spaces that can be used by the community to have activities.

Figure 5.30 A former water way, closed, and covered with a graffiti (Source: Author)

With the field experiencing method through the walk to Theissendammen, I had found that there were some visible holes on the wall of the stones that lied just next to the stream. ON and OF showed me several places along the stream where we saw human-made feature as shown in Figure 5.30. There were some tunnel holes being used for a former water way and transportation system to support the industrial function of the area in the past. Through looking at the documents, there was a drawing to map the route of the railway (Figure 5.31). Now that I had already had an idea on how the railway worked and passed through certain area, it was all make sense and I have got a sense of direction by having the map in my mind. There were graffiti drawings on those hole covers, meaning that it was perceived by some people

as well, even though it was seen in a different way than most people. It was seen in a way that they wanted to make a personal sign through a street art.
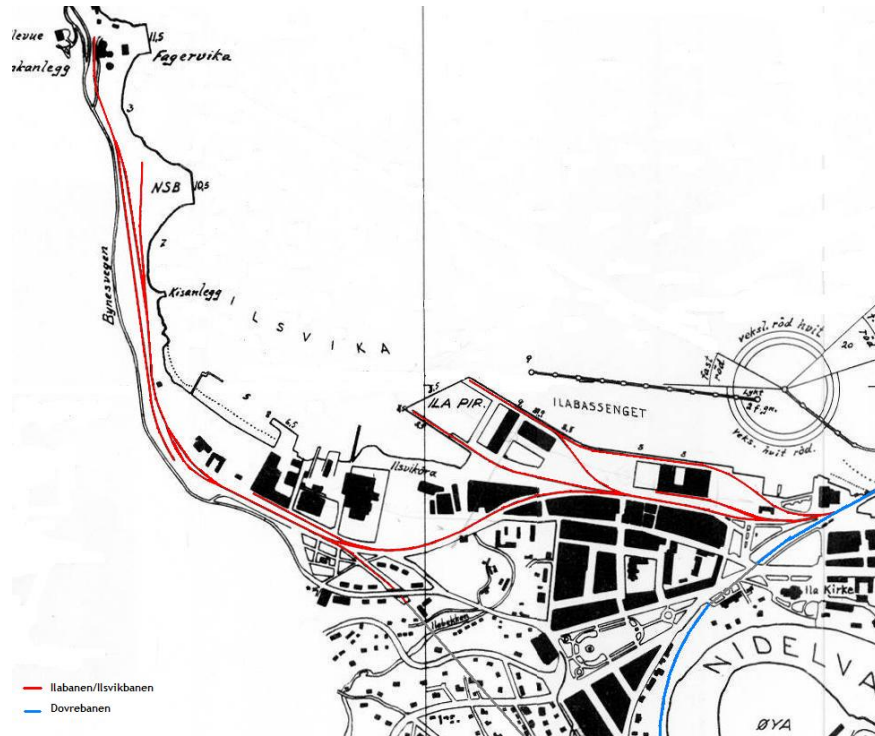
Figure 5.31 Route map of the railway from 1953 (Source: Edvardsen, 1953)

6 Findings and conclusions3700/10

After the gathered data were organized and analysed in such manner, here in this chapter I would summarize them in the point of view of some of the main keywords in this research. The first would be regarding the framework of this research, landscape identity. Then the Nature Based Solutions and social inclusion would be discussed next. To conclude, this chapter would be ended with a discussion on how the two were related.

6.1 Landscape identity

In the first quadrant, *personal-existential*, the topic were mentioned on how people find Iladalen Park as an attractive public space with its overall quality. Residents also mentioned about how the area feels detached from the rest of the city while still have a physical proximity at the same time. Most of the residents said that they would be proudly introduce themselves for being *ilinger* other than someone from Trondhiem. Quality of the public space that Iladalen Park possessed also had provided to generating a distinct identity to the area too. Though it had become popular for the whole city and a lot of outsiders came to the area, the resident's attachment to the park was still apparent.

In the second quadrant, the identity that the area possessed were the vibrant social life. Huge number of events that happened in the area was the identity that many would associate with Ila. It might relate with sense of belonging to the community in the neighbourhood, and how meeting people and socialize was easy in the area. The pandemic in 2021 had showed the people in Ila that the community really depended on the social cohesion.

For the third quadrant of identity, the community had shared the same notion on how the place had an unpleasant environment in the past time. The dynamics that changed the unpleasant past to the better current was creating a vibrant physical environment, including the various architecture styles. Some might identify its proximate location

97

both to the city and nature, the wide space the park had given and the presence of water that had made the park unique from other public space in the city.

In the personal-spatial quadrant, there were quite a lot perception found. This might be because every person had their own personal character that might recognize or orient her/himself with various features in the area. Many features were mentioned, in order to group them, I divided them based on the bigger topic on nature, arts, borders, visible and hidden features, and opportunity of certain unproductive features. Identification on natural feature was really strong in the area, not limited just around the stream, but around to some other places. Hidden features were identified by the people that involved with the design, construction, and maintaining the project. It involves everything that camouflaged to mimic the nature. Summary of the four quadrants could be seen in Table 6.1.

Table 6.1 Main topics in each quadrant (Source: Author)
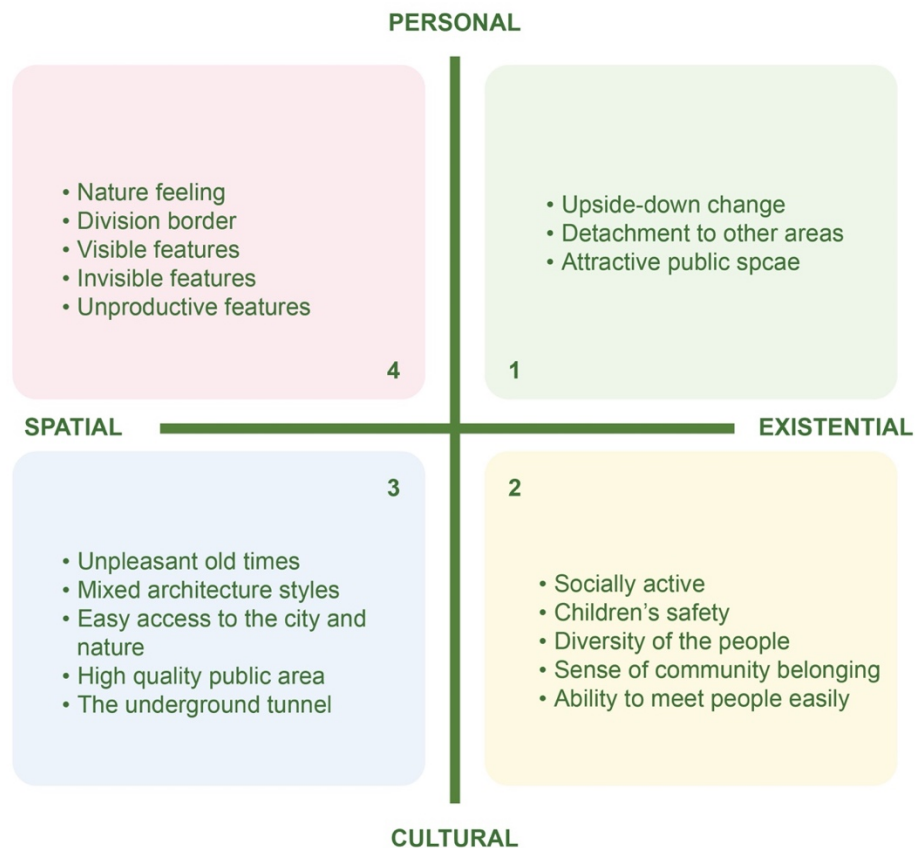
I realised that there were some overlapping topic between quadrants. The topic of public space for example, it could be discussed how a person perceived it as a "common place" (cultural-spatial) or more towards the favourite activity to be done (personal-existential), as a mean to meet people and socialize (cultural-existential), or just a "signage" that reminds him to pass through to visit the grocery shop every other day. The different perception also had impacted the study in which the discussion was started to expand from the focus on Ila Stream into the neighbourhood level.

Therefore, conclusion on which identity is stronger than the other could not be able to be done by doing a quantitative conclusion based on the number of the topics shown in Table 6.1. Thus, a linkage between the topic was needed to be done to see if any quadrant of the landscape identity were impacted the dynamics more than the others.

Figure 6.1 showed the link between each related topic. Driving back to the main topic of *Ila Stream reopening*, it was driven by the identity of the area that was considered *"bad"* and there was an emerging needs of from the *road development purpose* that made the reopening project possible to be done. The ugly old time contributed to build up a *sense of community* that was based on similarity in "ugly" background history. The stream reopening also impacted the area by making *a sudden change* with providing *a high quality public space.* Sense of community combined with sufficient space resulted in a *society that was active and cohesive.* However it also could emphasis on the *detachment* to other area. On the other hand, the "nature feeling" in the area also affected the area to be more *attractive,* thus *increase in population diversity*. The *increase in population* despite the *detachment* was indicating that sense of community was strong, but **not exclusive.**
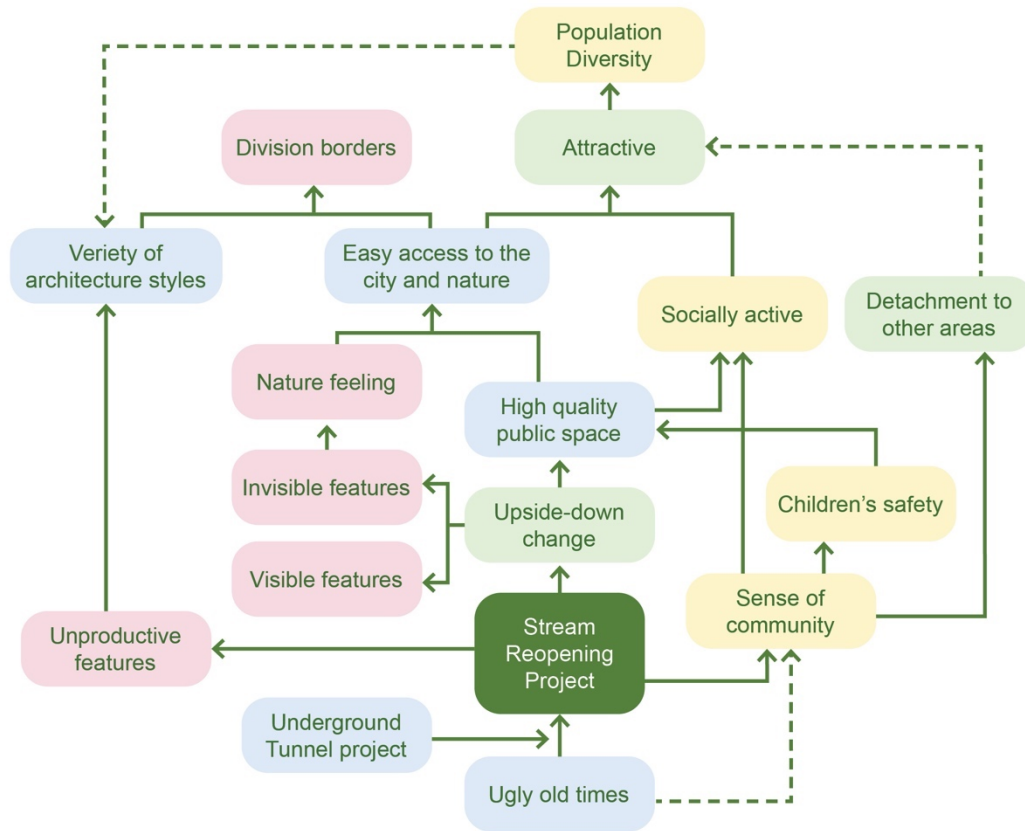
Figure 6.1 Illustration on connection between each topic (Source: Author)

From the figure then it could be concluded that the cultural-existential (quadrant 2) and cultural-spatial (quadrant 3) identity had impacted to the dynamics more than the other two quadrants. Personal-existential (quadrant 3) had a minor impact on the dynamic. On the other hand, personal-spatial (quadrant 4) was being perceived heavily by the people, however its impact on analysing social inclusion was not apparent.

Implications on theory

Landscape Identity assessment could be one useful tool to frame the topic on social inclusion. Stobbelaar and Pedroli (2011) emphasised that focusing on one quadrant only would make unsustainable solutions. With the attempt on using the framework

in this research, **focusing on one is simply not able to be done** as it will not complete the whole story**.** This can be seen in **Error! Reference source not found.** where the topics of discussion on Ila Stream was linked to each other, the grouping was not based on the four quadrants of identity proposed. They were mixed, even though the personal-spatial (quadrant 4) had a lesser tendency to be merged to the whole dynamic.

To complete the answer of the second supporting research question on how to evaluate inclusivity by landscape identity assessment, the framework does have the ability to analyse social inclusion topic. However it is not as simple as identifying strongest and weakest identity of landscape, but it requires deeper analysis on how each of the perceptions linked to each other.

6.2 NBS and Social Inclusion

From the discussion in Chapter 4, Ila Stream restoration did use NBS approach and had been stated inclusive in some of the prerequisites. It involves two ways of perspective: by the community and by the authorities. From the point of view of the community, the bonding was strong and active, thus impacted to the willingness to be part of the development in their own area. From the point of view of the authority, they gave up by the strong resistances from the residents in the beginning. However by having more engagement to the community, the project could become into a realization. From the analysis on the landscape identity assessment, it could be concluded that Ila Stream restoration was considered inclusive in a way that the sense of community is strong but not exclusive.

6.3 Conclusion

Based from the findings on assessment on landscape identity in the case of Ila Stream, the Nature Based Solutions was implemented inclusively. It could be seen as social cohesion in the community was produced despite the newcomers keep coming into the area. Attempts to include more diverse population had always been done by

101

the community even though the current sense of community was strong, which was resulted from the drastic change occurred from applying Nature Based Solutions.

The phenomenon had reminded me on how Attia (2011) described the production of public space, which used Kropf (2001) notion on two different types of change; *evolutional change* which I recognized as the role of **society to create urban space.** On the other hand, *developmental change* used spatial design to control how the society behave in the space, **urban space to create society**. The two have to work simultaneously in order to achieve urban space that is socially inclusive.

Coming to the research question regarding "what extend NBS is socially inclusive?", the question possessed the notion that social inclusion is **a product** of NBS. In the case of Ila Stream, NBS could not be inclusive if there was not any community bonding involved in the beginning of the project. On the other hand, strong bonding alone without the physical space would not be able to have a sustainable community. So, NBS is socially inclusive only if the concept was built a way that it might build the community bonding simultaneously since the early stage of the development.

Other reflections from the research includes:

1. Landscape Identity of Ila Stream and neighbouring area in the past was perceived as an unpleasant environment. NBS has changed the way it was perceived to the better. The *personal-spatial (quadrant 4)* identity has been affected which is related to various physical features that the project has given to the landscape. Even though the identity was apparent, it has little contribution to social inclusion topic, showing that it is not the physical attributes of the NBS that make the concept inclusive or not.

2. In addition, the common irritating history has made the inhabitants to grow a much stronger *cultural-existential (quadrant 2)* identity which is related to sense of community.

3. The research has put a stronger evidence on what Stobbelaar and Pedroli (2011) stated as landscape identity had always been "contested". This can be seen in the case study, as the residents mentioned a lot about any distinctions.

4. The methodology of the research have the opportunity to relate to other stream reopening projects since most of the piped stream was done in the past for the same typical reason during industrial era, pollution (ON, walking interview).

5. In the case Global-North where this research was done, more and more people have valued nature as a need of consumption (Baviskar, 2002), made it easier for people to accept NBS concepts. Another attempt on evaluating he topic in the context of global-south would give different dynamic.

7 References

Andersson, E., Borgström, S. and McPhearson, T. (2017) Double Insurance in Dealing with Extremes: Ecological and Social Factors for Making Nature-Based Solutions Last. pp. In Press.

Attia, S. (2011) Rethinking Public Space in Cairo The Appropriated Tahrir Square, TRIALOG 108 109 p10-15, *Trialog*, 108-109, pp. 10-15.

Baró, F. and Gómez-Baggethun, E. (2017) Assessing the Potential of Regulating Ecosystem Services as Nature-Based Solutions in Urban Areas. pp. 139-158.

Baviskar, A. (2002) *The Politics of The City*. Unpublished paper presented at SHADES OF GREEN: a symposium on the changing contours of Indian environmentalism. New Delhi.

Bianpoen (1990) The City as an Ecological Region *Untuk Apa? Untuk Siapa? Rangkaian Pemikiran Lingkungan Berkelanjutan.* Bandung: UPH Press, pp. 256.

Brissach, I. (2015) *«Øra» fikk bestå.* Available at: https://www.adressa.no/pluss/nyheter/article10687060.ece?rs5900201623972968267&t=1 (Accessed: 16 June 2021).

Bryman, A. (2012) *Social Research Methods*. OUP Oxford.

Bush, J. and Doyon, A. (2019) Building urban resilience with nature-based solutions: How can urban planning contribute?, *Cities*, 95, pp. 102483. doi: https://doi.org/10.1016/j.cities.2019.102483.

Crang, M. and Cook, I. (2007) Filmic Approaches *Doing Ethnographies.* SAGE Publications Ltd, pp. 104-128. doi: 10.4135/9781849208949.

CYBO (No date). Available at: https://postal-codes.cybo.com/norway/7018_trondheim/ (Accessed: 26 June 2021 2021).

Depietri, Y. and Timon, M. (2017) Integrating the Grey, Green, and Blue in Cities: Nature-Based Solutions for Climate Change Adaptation and Risk Reduction.

Dooling, S. (2009) Ecological Gentrification: A Research Agenda Exploring Justice in the City, *International Journal of Urban and Regional Research*, 33, pp. 621-639. doi: 10.1111/j.1468-2427.2009.00860.x.

Dorst, H. *et al.* (2019) Urban greening through nature-based solutions – Key characteristics of an emerging concept, *Sustainable Cities and Society*, 49, pp. 101620. doi: https://doi.org/10.1016/j.scs.2019.101620.

DS+R (No date) *The High Line*. Available at: https://dsrny.com/project/the-high-line (Accessed: 19 May 2021).

ECRR (2019a) *Why restore rivers?* Available at: https://www.ecrr.org/River-Restoration/Why-restore-rivers (Accessed: 10 December 2020).

ECRR (2019b) *What is river restoration?* Available at: https://www.ecrr.org/River-Restoration/What-is-river-restoration (Accessed: 10 December 2020).

Edvardsen, C. (1953) *Map over Ilsvika-Fagervika in Trondheim*. Available at: https://no.wikipedia.org/wiki/Ilsviklinja (Accessed: 21 June 2021).

EEA (2012) *Climate change, impacts and vulnerability in Europe 2012*. (ISSN 1725-9177). Copenhagen: EEA(Accessed: 11 December 2020).

EEA (2021) *Nature-based solutions in Europe: Policy, knowledge and practice for climate change adaptation and disaster risk reduction.* (EEA Report No 1/2021). Luxembourg. Available at: https://www.eea.europa.eu/publications/nature-based-solutions-in-europe (Accessed: 20 May 2021).

European Union (2018) *Oslo, European Green Capital 2019*. Luxembourg:. Available at: https://ec.europa.eu/environment/europeangreencapital/press-communications/brochures-leaflets/ (Accessed: 18 June 2021).

Evans, J. and Jones, P. (2011) The walking interview: methodology, mobility and place. Applied Geography, 31(2), 849-858, *Applied Geography - APPL GEOGR*, 31, pp. 849-858. doi: 10.1016/j.apgeog.2010.09.005.

Finn (2021). Available at: https://kart.finn.no/?finnkode=27285941&adType=SALESOBJECT&mapTitle=ila%2C+Trondheim%2C+7018+Trondheim&mapType=finnvector&utmx=268987&utmy=7041751&zoom=14&geoa=5#:~:text=ila%2C%20Trondheim%2C%207018%20Trondheim%20p%C3%A5%20FINN%20kart (Accessed: 26 June 2021).

Google Maps (2021). Available at: https://www.google.com/maps/@63.4325579,10.3530411,3a,60y,299.78h,90t/data=!3m6!1e1!3m4!1s-M5hzGvrMoNEQKu8N-yJuQ!2e0!7i16384!8i8192 (Accessed: 17 June 2021).

Gotsch, P. (2020) EXERCISES 2AB AND THESIS OUTLINE, 3 November 2020.

Haase, A. (2017) The Contribution of Nature-Based Solutions to Socially Inclusive Urban Development– Some Reflections from a Social-environmental Perspective, in Kabisch, N.*, et al.* (ed.) *Nature-Based Solutions to Climate*

Change Adaptation in Urban Areas: Linkages between Science, Policy and Practice. Cham: Springer International Publishing, pp. 221-236.

Haase, D. *et al.* (2017) Greening cities – To be socially inclusive? About the alleged paradox of society and ecology in cities, *Habitat International*, 64, pp. 41-48. doi: https://doi.org/10.1016/j.habitatint.2017.04.005.

Hobson, B. (2017) *Architects can help to manage gentrification caused by projects like the High Line, says Liz Diller*. Available at: https://www.dezeen.com/2017/07/27/elizabeth-diller-interview-riba-architects-learn-lessons-high-line-manage-gentrification/ (Accessed: 19 May 2021).

ILA BRAINNSTASJON (2020) *Fredagskos med Jostein Steffensen*. Available at: https://www.facebook.com/ilabrainnstasjon/photos/3543302689074793 (Accessed: 14 June 2021).

IPCC (2012) *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change*. Cambridge University Press. Available at: https://www.ipcc.ch/report/managing-the-risks-of-extreme-events-and-disasters-to-advance-climate-change-adaptation/.

IUCN (no date) *About*. Available at: https://www.iucn.org/theme/nature-based-solutions/about (Accessed: 10 December 2020).

Kabisch, N. *et al.* (2016) Nature-based solutions to climate change mitigation and adaptation in urban areas: Perspectives on indicators, knowledge gaps, barriers, and opportunities for action, *ECOLOGY AND SOCIETY*, 21, pp. 39. doi: 10.5751/ES-08373-210239.

Kabisch, N. *et al.* (2017) Nature-Based Solutions for Societal Goals Under Climate Change in Urban Areas – Synthesis and Ways Forward. pp. 323-336.

Kabisch, N. and van den Bosch, M. A. (2017) Urban Green Spaces and the Potential for Health Improvement and Environmental Justice in a Changing Climate, in Kabisch, N.*, et al.* (ed.) *Nature-Based Solutions to Climate Change Adaptation in Urban Areas: Linkages between Science, Policy and Practice.* Cham: Springer International Publishing, pp. 207-220.

Kalsnes, B. and Capobianco, V. (2019) *Nature-based Solutions. Landslides Safety Measures*. (16). Trondheim: Klima 2050. Available at: https://www.sintefbok.no/book/index/1234/nature-based_solutions_landslides_safety_measures (Accessed: 1 March 2021).

Kaymaz, I. (2013) Urban Landscapes and Identity.

Kropf, K. (2001) Conceptions of change in the built environment, *Urban Morphology*, 5, pp. 29-42. Available at: https://www.researchgate.net/publication/294544969_Conceptions_of_change_in_the_built_environment.

Kusenbach, M. (2003) Street Phenomenology: The Go-Along as Ethnographic Research Tool, *Ethnography*, 4(3), pp. 455-485. doi: 10.1177/146613810343007.

Lee, D. and Peters, K. (2020) *ENSURING INCLUSIVE AND ACCESSIBLE PUBLIC SPACES IN AN AUSTERITY CONTEXT*.

Mack, N. *et al.* (2005) *Qualitative Research Methods: A Data Collector's Field Guide*. Family Health International.

McCormick, K. (2020) *Cities, nature and innovation : new directions*. Lunds University.

Muller, E. K. and Tarr, J. A. (2003) The Interaction of Natural and Built Environments in the Pittsburgh Landscape, in Tarr, J. A. (ed.) *Devastation and Renewal.* University of Pittsburgh Press, pp. 11-40.

Nabolag.no (No date). Available at: https://profil.nabolag.no/221345226/menneskene (Accessed: 26 June 2021).

Nilssen, O. (2020) Bekkeåpninger, hva kan gå galt, i Kommune, T. (ed.). Trondheim. Available at: https://fagus.no/wp-content/uploads/2020/10/Torsdag_1140_Bekkeapninger-hva-kan-ga-galt.pdf (Accessed: 26 June 2021).

NOU (2015) *Overvann i byer og tettsteder*. Oslo: Departementenes sikkerhets- og serviceorganisasjon Informasjonsforvaltning.

NVE (2021) *NVE Atlas*. Available at: https://atlas.nve.no/Html5Viewer/index.html?viewer=nveatlas&layerTheme=null&scale=10000&basemap=&center=268999.01695528976%2C7041972.983514078&layers=2DnpbD0ePUka (Accessed: 21 May 2021).

Olsen, T. (2019) *Utvikler urbane områder med naturlige økosystemer*. Available at: https://www.vanytt.no/2019/05/14/utvikler-urbane-omrader-med-naturlige-okosystemer/ (Accessed: 14 June 2021 2021).

OpenStreetMap (No date). Available at: https://www.worldpostalcodes.org/l1/en/no/norway/map/r2/map-of-postalcodes-in-trondheim (Accessed: 26 June 2021).

Pauleit, S. *et al.* (2017) Nature-Based Solutions and Climate Change – Four Shades of Green. pp. 29-49.

Perrault, E. *et al.* (2020) *Placemaking in the Nordics*. Available at: https://futureplaceleadership.com/toolboxes/placemaking-in-the-nordics/.

RESTORE (2013) Rivers by Design: Rethinking development and river restoration (pp. 43). Bristol: Environment Agency. Available at: https://www.ecrr.org/Portals/27/Publications/131223%20Rivers%20by%20Design.pdf?ver=2016-02-25-102205-050 (Accessed: 20 June 2021).

Rohling, B. (2020) *Nature and the city as a shared habitat - How Nature-based Solutions support hybrid infrastructures and social inclusion in the city of Beirut: Three case studies at a small urban scale*. Master Thesis, NTNU.

Run query: Case study query simple (2020). Available at: https://restorerivers.eu/wiki/index.php?title=Special%3ARunQuery/Case_study_query_simple (2021).

Shao, Y. *et al.* (2020) Understanding Landscape Identity in the Context of Rapid Urban Change in China, *Land*, 9, pp. 298. doi: 10.3390/land9090298.

Silverman, D. (2013a) Applying Qualitative Research *A Very Short, Fairly Interesting and Reasonably Cheap Book about Qualitative Research.* Second Edition edn. SAGE Publications, Ltd, pp. pages 86-122. doi: 10.4135/9781526402264.

Silverman, D. (2013b) On Finding and Manufacturing Qualitative Data *A Very Short, Fairly Interesting and Reasonably Cheap Book about Qualitative Research.* Second Edition edn. SAGE Publications, Ltd, pp. 31-55. doi: 10.4135/9781526402264.

SINTEF (No date) *WHAT WE DO*. Available at: http://www.klima2050.no/what-we-do (Accessed: 21 June 2021).

Skoglund, U. (2018) *POPULÆR GATEKUNST I ILA*. Available at: https://trondheim2030.no/2018/08/29/populaer-gatekunstfestival/ (Accessed: 15 June 2021).

Solem, A. (2021) *Her er ett bilde for dem som savner orginalfargene på blokkene i Skjæringen.* Available at: https://www.facebook.com/photo?fbid=591171002273347&set=gm.3925014577548216 (Accessed: 6 June 2021).

SSB (2021) *Fakta om Befolkningen*. Available at:
  https://www.ssb.no/befolkning/faktaside/befolkningen (Accessed: 27 June
  2021).

St. Meld. 33 (2012-2013) *Climate change adaptation in Norway*. Oslo: Norwegian
  Ministry of Climate and Environment.

Stobbelaar, D. J. and Pedroli, B. (2011) Perspectives on Landscape Identity: A
  Conceptual Challenge, *Landscape Research*, 36(3), pp. 321-339. doi:
  10.1080/01426397.2011.564860.

Tarr, J. A. (2003) Introduction: Some Thoughts about the Pittsburgh Environment, in
  Tarr, J. A. (ed.) *Devastation and Renewal.* University of Pittsburgh Press, pp.
  1-10.

Theodorewithfoto (2018) *Ilinger Gatelangs*. Available at:
  https://www.theodorwithfoto.no/ilinger-gatelangs (Accessed: 26 June 2021).

Tjora, A. (2018) *Qualitative Research as Stepwise-Deductive Induction*. New York:
  Routledge.

trd.by (2021) *Da Fadel (24) kom til Norge, var planen å bli ingeniør. Nå er det satt
  på vent for å realisere en annen drøm*. Available at:
  https://trd.by/aktuelt/2021/04/26/Da-Fadel-24-kom-til-Norge-var-planen-
  %C3%A5-bli-ingeni%C3%B8r.-N%C3%A5-er-det-satt-p%C3%A5-vent-for-
  %C3%A5-realisere-en-annen-dr%C3%B8m-
  23864945.ece?fbclid=IwAR130elNFYAIGDizt7H75XyTsTrpoS6DaBAMWu
  -G21tsere-Acb_Ah2ucsk (Accessed: 15 June 2021).

Trondheim Kommune (2010) Iladalen - Byutvikling. Trondheim.

Trondheim Kommune (2020) *Kommuneplanens arealdel Trondheim 2012-2024*.
  Available at: https://www.trondheim.kommune.no/tema/bygg-kart-og-
  eiendom/arealplaner/kommuneplanens-arealdeldelplaner/kpa12-24/
  (Accessed: 14 June 2021).

Trondheim Kommune (2021) *Trondheim, Norway's Innovation Capital*. Available at:
  https://www.trondheim.kommune.no/english/trondheim-norways-innovation-
  capital/ (Accessed: 26 June 2021).

Trondheim Kommune (No date-a) *Kunst - Iladalen*. Available at:
  https://www.trondheim.no/kunst/kunst-i-uterom/kunst-iladalen/ (Accessed: 21
  May 2021 2021).

Trondheim Kommune (No date-b) *University City TRD3.0*. Available at: https://sites.google.com/trondheim.kommune.no/universitetskommunen/englis h?authuser=0 (Accessed: 26 June 2021).

Trondheim Kommune (No date-c). Available at: https://kart5.nois.no/trondheim/Content/Main.aspx?layout=trondheim&time= 637603788134313546&vwr=asv (Accessed: 21 May 2021).

Twigger-Ross, C. and Uzzell, D. (1996) Place and Identity Processes, *Journal of Environmental Psychology - J ENVIRON PSYCHOL*, 16, pp. 205-220. doi: 10.1006/jevp.1996.0017.

UN (no date) *Biodiversity and Nature-based solutions*. Available at: https://www.un.org/en/climatechange/climate-solutions/biodiversity-and-nature-based-solutions (Accessed: 18 May 2021).

UN-Water (2010) *Climate Change Adaptation: The Pivotal Role of Water*. Available at: https://www.unwater.org/publications/climate-change-adaptation-pivotal-role-water/ (Accessed: 17 May 2021).

UNDP (2019) *Pathway for Increasing Nature-based Solutions in NDCs: A Seven-Step Approach for*

Enhancing Nationally Determined Contributions through Nature-based Solutions. New York. Available at: https://www.ndcs.undp.org/content/ndc-support-programme/en/home/impact-and-learning/library/nature-based-solutions-for-ndcs-pathway-framework.html (Accessed: 18 May 2021).

UNEP (2019) *Compendium of Contributions Nature-Based Solutions*. Unpublished paper presented at Climate Action Summit 2019. New York.

WWAP/UN-Water (2018) *The United Nations World Water Development Report 2018: Nature-based Solutions for Water*. Paris: UNESCO. Available at: https://unesdoc.unesco.org/ark:/48223/pf0000261424 (Accessed: 17 May 2021).

Yin, R. K. (2003) *Case Study Research: Design and Methods*. Thousand Oaks: SAGE Publications.

Appendices

APPENDIX A: Covid-19 Measures

Covid-19 measures that might affect this research would be:

- Domestic and international travel were restricted to avoid virus transmission to/from other country. Travel could only be done for necessary purpose, in addition with quarantine (https://www.fhi.no/en/op/novel-coronavirus-facts-advice/facts-and-general-advice/social-distance-and-fewer-contacts/?term=&h=1, accessed on March 23, 2021, 16.45).
- Physical social contact beyond those you do not live with was not encouraged in general. Necessary social contact still could be done with application of other measures such as: one-meter (two-meter for high-risk groups) distance, usage of face masks, and avoiding uncirculated indoor area (https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public, accessed on March 24, 2021, 16.45).
- Limitations for having a gathering. The measures varied depending on certain situations. In general, only five guests were allowed to gather, outdoor setting was highly encouraged, host should provide the possibilities for attendees to practice good hygiene and enough distances (https://www.helsenorge.no/en/coronavirus/infection-and-incubation-period/#how-to-prevent-transmission, accessed on March 24, 2021, 16.45).

APPENDIX B: Interview Notes

Sample HS

Sample LS

Sample ON

Sample OF

1985

END in theisendammen.

Sample OD
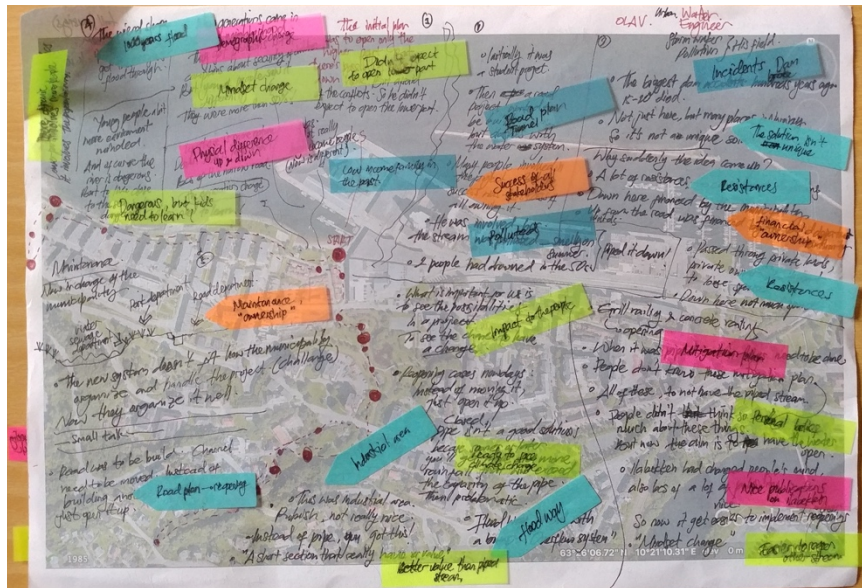
APPENDIX C: Interaction in Facebook group – *Ila Historielag*

The text was originally in Norwegian.

Question #1 (Wednesday, 26 May 2021, 12:58 PM)

*"Hei! Mitt navn er Robin, og jeg er en mastersstudent i Urban Ecological Planning ved NTNU. Jeg gjør foreløpig forskning på «Landskaps identitet» på Ila's nabolag. I den anledning, så ønsker jeg å spørre alle et generelt spørsmål: **Hva føler du om Ila personlig?** – Det kan være alt fra hva du liker og ikke liker ved stedet, og tanker om hvordan det var før i forhold til i dag osv. Din deltakelse er satt stor pris på!"*

"Hi! My name is Robin, and I am a master's student in Urban Ecological Planning at NTNU. I am currently doing research on "Landscape identity" in Ila's neighborhood. Therefore, I want to ask everyone a general question: How do you feel about Ila personally? - It can be anything from what you like and do not like about the place, and memories in the past or current condition, etc. Your participation is greatly appreciated!"

Reply #1 (Wednesday, 26 May 2021, 01:18 PM)

"Jeg vokste opp i Ila, i Arildsgata, på 1950-tallet. Fantastisk bydel å vokse opp i. Liten trafikk og gode lekeområder. Det bodde mange unger i gata vår og i områdene rundt. Vi spilte kanonball i gata, hoppet parris på "Helgesenhjørnet", lekte i Ilaparken om sommeren, gikk på skøyter der om vinteren- Vi kunne sykle relativt trygt over alt. Da vi ble større hadde vi både Elsterparken og Skansen som lekeområder. Trikken gikk hvert tiende minutt. Den gikk til Lademoen. Vi hadde Gråkallbanen som gikk til Lian, og buss til Skistua. Men det var ikke alltid vi tok buss eller bane for å komme oss opp i marka, - ofte gikk vi opp Steinberget med tunge treski på ryggen. Ila hadde en haug med butikker. På vår side av parken hadde vi to slaktere, to bakere, to melkebutikker, en fargehandel, to fruktbutikker, tre kolonialbutikker, en gavebutikk, en garnbutikk, en bank (og et postkontor. På den andre sida av parken var det også en del butikker, bl.a. en skobutikk , et apotek, et bibliotek og en gavebutikk som hadde alt mulig (Parkmagasinet). Jeg har ikke helt oversikten over hva man sitter igjen med av butikker i Ila i dag. Lykke til med arbeidet!"

"I grew up in Ila, in Arildsgata, in the 1950s. Fantastic district to grow up in. Little traffic and good play areas. Many kids lived in our street and in the surrounding areas. We played cannonball in the street, jumped parris on "Helgesenhjørnet", played in Ilaparken in the summer, went ice skating there in the winter- We could ride relatively safely everywhere. When we grew up, we had both Elsterparken and Skansen as play areas. The tram ran every ten minutes. It went to Lademoen. We had Gråkallbanen which went to Lian, and bus to Skistua. But we did not always take a bus or track to get up in the field - we often went up Steinberget with heavy wooden

skis on our backs. Ila had <u>a bunch of shops.</u> On our side of the park, we had two butchers, two bakers, two dairy shops, a paint shop, two fruit shops, three grocery stores, a gift shop, a yarn shop, a bank (and a post office. On the other side of the park there were also some shops "Among other things, a shoe store, a pharmacy, a library and a gift shop that had everything possible (Parkmagasinet). I do not have a complete overview of what you are left with of shops in Ila today. Good luck with the work!"

Reply #1.1 (Wednesday, 27 May 2021, 03:08 PM)

"Og ikke å forglemme Havanna-kiosken og Godtemplarkafeen, St. Elisabeths hospital og Ila Skole. Jeg bodde på Byåsen, men gikk på Ila skole. Ofte ble fristelsen å bruke busspengene hjem på godteri i Havanna-kiosken for stor, og da var det godt å ha kompiser i Steinberget, Benneches vei og Dyrborgveien hvor jeg kunne ta en pause, ofte med innlagt enkel servering, før jeg trasket den tunge veien videre opp Steinberget, Sverresborg Allé og Gamle Oslovei. Gylden tider. 🤩 Ingen bydel var/er som Ila. ❤️"

"And not to forget the Havana kiosk and Godtemplarkafeen, St. Elisabeth's hospital and Ila Skole. I lived at Byåsen but went to Ila school. Often <u>the temptation to spend the bus money home on sweets in the Havana kiosk was too great,</u> and then it was good to have friends in Steinberget, Benneches vei and Dyrborgveien where I could take a break, often with simple serving, before I trotted the heavy road further up Steinberget, Sverresborg Allé and Gamle Oslovei. Golden times. 🤩 No district was / is like Ila.   ❤️"

Reply #2 (Wednesday, 26 May 2021, 06:16 PM)

"Helt enig , Ila var en fantastisk bydel å vokse opp i . Bodde nederst i Steinberget , var mye i Arilds gt og spilte kanonball😊🤩. Kjenner igjen alt du beskriver🤗🤗"

"Totally agree, Ila was a <u>wonderful neighborhood to grow up in.</u> Lived at the bottom of Steinberget, was a lot in Arilds gt and played cannonball😊🤩. Recognizes everything you described🤗🤗"

Reply #3 (Wednesday, 26 May 2021, 07:30 PM)

"Nærhet til byen når vi trenger det, men fred og ro ellers. Mange hyggelige folk som bor her."

<u>"Proximity to the city when we need it, but peace and quiet otherwise. Lots of nice people</u> living here."

Question #2 (Monday, 31 May 2021, 01:50 PM)

"Takk for flotte tilbakemeldinger! 😄 Jeg lurer i tillegg på om åpningen av Ilabekken i 2008 har påvirket dine følelser for Ila? Synes dere at det ble bedre eller verre?"

"Thanks for the great feedback! 😄 I also wonder if the opening of Ilabekken in 2008 has affected your feelings for Ila? Do you think it got better or worse?"

Reply #4 (Saturday, 12 June 2021, 06:25 PM)

"Det eneste skåret i gleden er vel at tusenhjemmet ikke fikk stå."

"The only cut in the joy is probably that the mill home was not allowed to stand."

Reply #5 (Saturday, 12 June 2021, 06:26 PM)

"Født og oppvokst i Brodtkorbs vei. Ila var et flott sted å vokse opp. Da jeg var 14 flyttet vi til Byåsen, Men jeg lengtet alltif tilbake til Ila. Og på midten av 80-tallet flyttet jeg inn i Arids gt og har bodd der siden .Det flotte med Ila er at her finner du alle slags folk. Unge og gamle, studenter, pensjonister og barnefamilier. Og et sammensurium av arkitektur. Alt fra idylliske små trehus i Ilsvikøra, moderne blokker, 60- tallshus og 1900- talls villlaer, og til vanvittige kornsiloer. Vi har en flott Ilapark og Iladalen som er blitt bydelens oase. Kort vei til badestrand, og byens beste utekafe Skansen. Vi har Hanskemakerbakken med sine 3 spisesteder, norsk, indisk og syrisk, og en tyrkisk restaurant litt lenger ned. Og Brannstasjonen, populær blandt langt flere enn oss i Ila. Ikke lange veien til bymarka, eller til sentrum av Norges 3 største by. Vi har ALT og nærhet til ALT❤️"

"Born and raised in Brodtkorbs vei. Ila was a great place to grow up. When I was 14 we moved to Byåsen, but I always longed to return to Ila. And in the middle of the 80's I moved into Arids gt and have lived there ever since. The great thing about Ila is that here you will find all kinds of people. Young and old, students, pensioners and families with children. And a jumble of architecture. Everything from idyllic small wooden houses in Ilsvikøra, modern blocks, 60s houses and 20th century villas, and to crazy grain silos. We have a beautiful Ilapark and Iladalen which has become the district's oasis. Short way to the beach, and the city's best outdoor café Skansen. We have Hanskemakerbakken with its 3 restaurants, Norwegian, Indian and Syrian, and a Turkish restaurant a little further down. And the Fire Station, popular with far more than us in Ila. Not a long way to the city field, or to the center of Norway's 3rd largest city. We have EVERYTHING and proximity to EVERYTHING❤️"

Reply #6:

"Og når det gjelder Iladalen og åpning av ilabekkken, så var det en genistrek spør du meg. Det har gjort Ila til et enda bedre sted å bo i❤️"

"And when it comes to Iladalen and the opening of ilabekkken, it was a stroke of genius, you ask me. It has made Ila an even better place to live in❤️"

APPENDIX D: Accommodation advertisements

The text was originally in Norwegian.

Source: FINN

1. **Large 2-bedroom in attractive area. Central. Calm. Sunny balcony and fjord views. Close to Bymarka. Parking. Elevator. - 2,890,000 NOK**

About the home
Large 2-room with entrance hall, bedroom, living room, kitchen, bathroom and toilet. The apartment can easily get an extra bedroom. The apartment has a large and sunny glazed balcony facing southwest. Fantastic fjord views from the balcony, living room and kitchen. Several upgrades have been made in recent years. The wood burning stove in the living room heats up the apartment quickly on cold winter days. Very well-run housing association, with a very good living environment and its own caretaker. Elevator in the building of more recent date and good size. Private parking and guest parking just outside the block, possibility of charging station. Two stalls of good size.

Location
The apartment is located on the popular Ila, and has a very central location. Peaceful location by lush Iladalen Park. The home has immediate proximity to Trondheimsfjorden in the west, and the path along Ilabekken locks you straight into Bymarka in the south. Close to campuses such as NTNU, BI and St Olav's hospital. Several kindergartens and schools within a short walking distance. Grocery stores, restaurants and tasty cafes in the area. 3T Ilsvika a stone's throw away. Public transport with frequent departures within 1 min walk from the block.

2. **Spacious and pretty 2-room apartment. Large west-facing balcony with good sun conditions. Parking space in the basement. Elevator. – 3,288,242 NOK**

In a very downtown area, lies this beautiful and spacious 2-room condominium. The apartment has a nice location on the 4th floor of the building, where you have easy access via a lift. Past the front door awaits a spacious and open apartment, which contains the kitchen and living room in a large wonderful open solution. The living room has large windows that combined with an open solution, gives a good feeling of space. The kitchen is secluded in the room, and has a practical decor with several upper and lower cabinets. From the living room there is also direct access to a spacious west-facing balcony, where you have very good sun conditions. Furthermore, the apartment contains a large bedroom and a nicely tiled bathroom.

There is also a separate parking space in the basement, as well as a storage room in the basement where there is plenty of space for storage of equipment.

3. **ILA – TRONDHEIM Airy 2-bedroom freehold from 2016 | South facing balcony | Proximity to bus, tram and grocery stores | Short way to sea and beach - 4 010 927 NOK**

Welcome to Hanskemakerbakken 6 - A bright, airy and inviting 2-room freehold apartment from 2016. The apartment is located on the third floor, and has a partly covered, south-facing balcony by the living room.
Inside, the apartment stands out with stylish color and material choices, balanced ventilation, good standards and area-efficient floor plan. Here there is a bright and open living / kitchen solution with freedom of furnishing and a modern, well-equipped kitchen, a nice entrance hall, a fully tiled bathroom / wc / laundry room and a bedroom with wardrobe.
Worth to notice:
Central and very attractive location
Immediate proximity to bus stop
Walking distance to tram stop and train station
Short walk to several grocery stores
Proximity to park, beach and sea
Storage space in storage of approx. 3.5 sqm
Available basement storage of approx. 5 sqm

4. **ISA Inviting & upgraded 2-room - Good layout - Close to the center, campuses, fields and the fjord - Shared roof terrace - 2,853,406 NOK**

Proaktiv Eiendomsmegling v / Christina Hornes is pleased to present an inviting and bright 2-bedroom on attractive Ila. The apartment has a practical floor plan, and with living room and kitchen in open plan of spacious 25 sqm. The home has undergone several upgrades since 2018 and maintains a consistently good and modern standard. The condominium has a shared roof terrace with great sun conditions, and in the backyard there is a cozy green area with barbecue and seating. The apartment has two external storage rooms for good storage space.

Qualities of the local area:
Proximity to the city centre, Trondheimsfjorden and Bymarka
Quiet and secluded area
Sunday open BUNNPRIS in the immediate vicinity
Walking distance to Ilaparken with beautiful green areas and park life
Cycling distance to several study places
Good public transport with frequent departures

5. **Ila. Beautiful & spacious 3-room on the 2nd floor | Kitchen & bathroom TG1 | Balcony w / good sun conditions | Firewood | 3 boder | Ready to move in – 3,500,633 NOK**

Welcome to Mellomila 39 A. This beautiful condominium on the 2nd floor can offer, among other things:

- Practical floor plan with a spacious living room of 24 sqm
- Wood burning as an energy-saving heating
alternative - Stylish kitchen with appliances included in the sale (TG1)
- Bright tiled bathroom with underfloor heating (TG1)
- Two large bedrooms of 14 and 8 sqm respectively with plenty of space for a double bed
- Airy balcony with good sun conditions facing a quiet backyard
- Three storage rooms; one in the attic and two in the basement
- Possibility of quick takeover
- Central and attractive location in popular Ila, with proximity to everything downtown and Bymarka has to offer

Welcome!

6. **NEW PRICE! Spacious 3-room owner. No access. View of the city field and Trondhjemsfjorden. Parking space – 3,064,750 NOK**

Location
The property is located in an idyllic street with wooden houses from the 19th century in Ila. The surrounding area has many park areas with playgrounds, beach and beach volleyball court. It is a short walk to the seafront promenade with outdoor pool and diving tower, and the Nidelven's beautiful park.

The area is central, with both a convenience store open on Sundays and restaurants within a few minutes walking distance. It takes about 12 minutes to walk to Midtbyen. There are good bicycle connections and a city bike rack nearby, and frequent public transport departures to both the city center and the city land from the Ila stop. At Skansen, there is a train station for north- and south-going trains, which, among other things, go directly to Værnes Airport.

Description
Welcome to Mellomila 34!

The apartment faces the backyard and has an end location. This means that the apartment has good lighting conditions and very limited visibility. The apartment has

a spacious floor plan, with entrance hall, bathroom, hallway, two bedrooms and open plan living room and kitchen.

(…)

Building: The apartment, according to the appraiser, is located in a former industrial building, which has been converted into apartments. The building is built on three floors, with attic and basement. The main construction is in concrete, exterior facades are bushed, floor dividers are in concrete and the roof has a salt roof shape. The board is in the process of renovating the facade, replacing windows and the pipe systems will be checked. It must therefore be expected either an increase in joint debt or

Parking: The condominium has 38 spaces in the backyard - contact the board in the condominium when it comes to applying for space.

7. **Ila. Very nice 2-room apartment of 58 sqm GOOD - Demanded location - Great surroundings - Elevator - Roof terrace - Close to the centre – 3,152,083 NOK**

Welcome to Nedre Ila 27, presented by EiendomsMegler 1 v / Christian Furuhaug Aa. Here you live right by the sea and with immediate proximity to beautiful surroundings at Skansen. Walking distance to Trondheim city center, as well as to NTNU Gløshaugen and St. Olavs Hospital. In addition, there is a short way up to Bymarka with year-round hiking terrain. Large communal roof terrace with great sun and view conditions.

Of qualities I would like to highlight the following:
- Spacious rooms of comfortable size
- Well-kept and inviting apartment with inviting color choices
- Wet room in good condition
- Shared roof terrace
- Good with storage with an internal storage room, as well as storage room in the basement
- Elevator in the building
- Possibility of parking in the basement, these have electric car charging from Ohmia Charging. Parking space outside the block, where four have charging stations for electric cars.
Well-run housing association with good finances and which has made major improvements in the last five years: Roof, facade, fire alarm system etc.

8. **Ila. Gorgeous 3-room freehold of 91 m² in charming apartment building | View towards Ilaparken | Generous ceiling height & deep window frames – 3,718,329 NOK**

Welcome to Ilevollen 16 - A charming apartment building, centrally located on <u>attractive Ila, with Ilaparken as the nearest neighbour</u>. The apartment is very spacious at its 91 m², with 2 living rooms, 2 bedrooms and a separate kitchen. From the house it is walking distance to Skansen, Bymarka, various campuses and Sunday grocery store.

Qualities worth noting:
Consistent apartment building character with large room solutions, generous ceiling height and deep window frames
<u>Close to well-known campuses such as NTNU, St. Olavs & BI</u>
<u>Sunday open grocery store, 100m away from home</u>
Beautiful views and <u>immediate access to Ilaparken</u>
2 good bedrooms on resp. 11 and 7.5 m²
Living room, dining room and separate kitchen
Large, tiled bathroom of 12 m²
Basement of 16 m²

9. **Ila / Skansen. Great 3-bedroom from 2007 on the 3rd floor. TG1 on everything. Parking space. View. Good ceiling height. Roof terrace. IN scheme. District heating. Elevator – 3,466,384 NOK**

Welcome to a modern 3-room apartment in an excellent location in Ila. Here you live in <u>an established area close to the fields and the sea, yet centrally with only 15 minutes' walk to *Trondheim Torg*. The</u> home has a nice location on the 3rd floor and enjoys a view, while being sheltered from view.

One of the city's best roof terraces with great sun conditions.
Modern standard from 2007 with TG1 in all respects.
Large window surfaces that let in a lot of natural daylight.
Possibility of individual repayment of joint debt.
District heating, hot water, TV and internet incl.
Kitchen from 2007 with integrated appliances.
Tiled bathroom with arrangement for washing machine.
Parking space in shared, heated garage.
Storage room in the basement with access via elevator.
<u>Bus stop and grocery within 2 min.</u>
<u>Proximity to Ilaparken, Skansen and Ilsvika.</u>

Source: HYBEL

1. A room in an apartment – 6,000 NOK

Hi! AVAILABLE IMMEDIATELY :)
I rent a 3-room apartment in Ilsvika Extra (a condominium)
Now looking for a new person to take over a vacant room.
There is also a small Ragdoll of 8 kg living here. His name is Mjølnir (…)
The available space is 7.5 sqm
This modern apartment was completed in December 2012. Open living room and kitchen. The apartment is 63 sqm and is located in a quiet area with very nice green surroundings in summer.
Included in rent: electricity, fiber (internet), cable TV, (…)
Also included in the rent:
Free access to a large gym that is well equipped (24/7)
In addition to the gym, there are separate men's and women's wardrobes, each with its own saunas and showers. The fitness room also has a fancy ping pong table.
In the common room of this condominium, there is also a large living room that (…)
Guest parking:
There are dedicated parking spaces (…)
Info about me, (…)
Other advantages of this home:
A stone's throw away from the sea, about 3 min walk to 3T, Rema and bus stop, another 60 second walk to Coop prix, doctor's office, cafe, Ilsvika restaurant, hair salon. 25 minutes' walk (about 2km) from the center. 5 minutes to the outskirts of urban land. The yoga house is located next door.
For questions or viewing - get in touch.
Hope to find a kind and nice person :)

2. Apartment, 2 rooms – 13,000 NOK

Nice apartment right by the sea with a 14sqm porch.
The apartment has a very nice floor plan that is well suited for a couple or living alone. There is also a storage room on the ground floor. District heating, electricity, cable TV, furniture, appliances, hot water and Internet are included in the rent.
Parking is free in ila.
It is located in ilsvika right by the sea, city land and several nice parks.

3. Apartment, 3 rooms – 16,500 NOK

3-room apartment. Newly renovated 2015. 1 minute to the nearest bus stop, fitness centers 3t-ilsvika and Easyfit, hairdresser, solarium, beach / sea, and grocery store Rema-1000. Coop Ekstra is 3 minutes walking distance, center approx. 17 minutes to walk.

Not allowed with pets.

Parking: in case of strong interest, parking can be rented at an additional NOK 500 per month.

4. House, 2 rooms – 11,200 NOK

Annex is rented out. Living room / kitchen / bathroom and bedroom of 12 m2 on the 2nd floor with direct access to a private terrace of 12 m2. Beautiful views and good sun conditions during the day. <u>Located within the city center border in Ila and among other things 15 min walk to Trondheim square. Close to all amenities by the way. Quiet residential area with direct access to urban land. Contact us for further information.</u>

5. A room in an apartment – 6,000 NOK

Hi! I am looking for a person who wants to rent a room in a larger apartment in Ila. My current roommate moves out at the end of June, and it is therefore desirable to take over around then.
I rent the place myself, but the landlord is nice and easy to deal with. I myself work as a sports journalist.
Both sexes are welcome. Will post photos eventually, but it is a large apartment with everything included.
Get in touch if it will be relevant and see if we can be a good match :)

6. Apartment, 2 rooms – 7,000 NOK

Hey! We sublet our apartment from 18.06-18.07 when we go home to Eastern Norway! 😊 A brand new and modern apartment, with everything you need !! It is about <u>10 minutes walking distance from Midtbyen, and there is a bus all the time! Also</u> has 2 bikes that can be borrowed! 😊

7. A room in an apartment – 5,000 NOK

The apartment has a good standard and is 100 sqm. The apartment is <u>located on Ila, which is central in Trondheim, the city center only 15min on foot and 3min by public transport. It is close to several grocery stores, public transport, the city center and the countryside.</u> Beautiful roof terrace with a view over the whole of Trondheim. Access to 2 large sheds in the basement, also a bicycle shed in the backyard. Parking in front of the apartment.

When I move out of the collective, I'm looking for a new tenant for my room. We are a collective of three who are looking for a system! We are two girls and a boy and we would love to stay with another boy!

A little about the collective:

We are a social group who like to have (…)

Looking for someone who wants to get to know us and (…)

8. Room in shared flats – 4,500 NOK

Large room available now in a pleasant collective on Ila. Available now!

The rent is NOK 4500, -. Electricity and internet are in addition, but shared by the total of 3 residents. The collective consists of 3 large rooms and a shared kitchen / living room and 1 bathroom.

Free use of laundry room included in the rent.

The collective is located in an apartment building in Ila with a cozy backyard with garden.

Ilaparken is a 2-minute walk away and is very popular in the summer with sunbathing and barbecuing. It takes 10-15 minutes to walk to the center and 20 minutes to walk to NTNU Gløshaugen. Grocery store which is also open on Sundays about 5 min walk away. Otherwise very good bus connections to / from the city center and by direct bus to Dragvoll, Gløshaugen and BI.

Pets and smoking not allowed.

Get in touch for viewing

9. Room in shared flats – 5,250 NOK

Welcome to this central and newly renovated apartment at Ila in Trondheim.

The entire apartment was renovated in April 2021, and the apartment has a high standard.

Here you can move straight into a cozy living community, where the entire apartment and all the dormitories are fully furnished.

The apartment's bathroom has a washing machine and (…)

The kitchen has (…)The living room is of a good size with (…)

Prices per room vary from NOK 5 250 to 6150, -

Cable TV and internet are included in the rent.

Electricity expenses are paid with a fixed price of NOK 300, - pr. mnd pr. room.

Price list bedrooms.

• Bedroom 6 approx. 6sqm: kr. 5250 pr. mnd.

Viewing can be arranged with (…)

Worth noting:

• The entire apartment was renovated April 2021
• Very good public transport and bicycle connections
• Central and popular location, close to most campuses
• Shared bicycle shed for residents in the apartment building
• Access to own and locked storage room.
• The bedrooms are rented fully furnished
• Free parking along the entire street outside the front door
• Close to grocery store
• Affordable rental prices compared to location and standard

Location
apartment is located on Ila in Trondheim, which is a popular residential area with a downtown location. It is walking distance to St. Olavs, NTNU and BI Norwegian Business School, as well as a short way to Bymarka with its hiking opportunities.

In addition, there are very good public transport offers by tram and bus right outside the apartment with frequent departures. The nearest grocery store is Bunnpris which is located approx. 300 meters from the apartment. You also have a Sunday open Joker which is located approx. 500 meters away. There are several fitness centers you can use such as 3T Ilsvika and Easyfit.

Distance by bike to well-known campuses from the apartment:
• St. Olavs approx. 4 minutes.
• BI Trondheim School of Business approx. 6 minutes.
• Queen Maud's memory approx. 14 minutes.
• Calfskin approx. 5 minutes.
• Gløshaugen approx. 9 minutes
• NTNU Business School approx. 10 minutes
• Dragvoll approx. 30 minutes

10. Room in an apartment – 4,400 NOK

1 very central dormitory in the center of Trondheim is now vacant. This is a pleasant living community with 5 rooms with shared bathroom, living room and kitchen. Spacious storage room. Free parking in the street outside and in its own garage. Located right by Ila park. Walking and cycling distance to most things. The rooms should be seen as the pictures do not tell much. Welcome to view!

You are of course also warmly welcome to a viewing in the more traditional sense. In that case, contact one of our brokers to make an appointment.

APPENDIX E: Journals

Journal from first observation in the area.
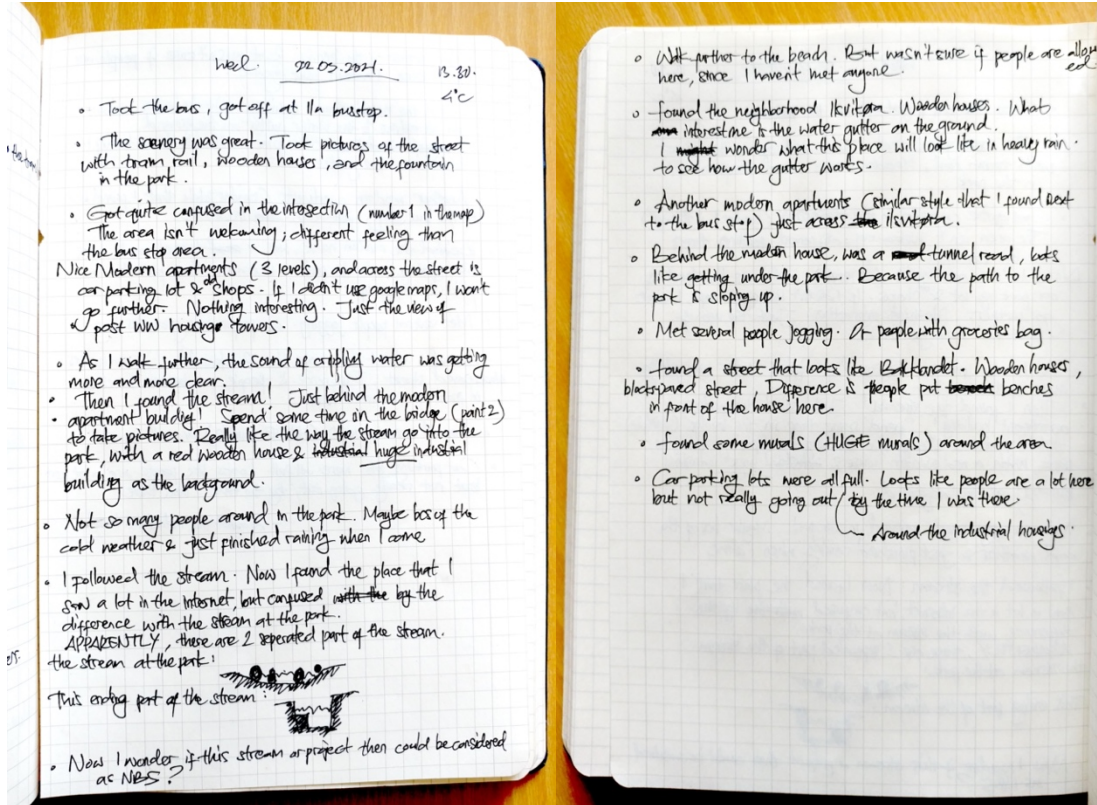
Journal from field experiencing.

Thurs. 10. June. 2021

Sunny. 21°C feels like 25°C

Has been sunny for days in Trondheim. I decided to have a picnic here in Ila with a friend.

The difference here is now I have already heard some ideas on the area. What do people do and some of their favourite spots. And I got it right.
As I arrived to the Iladalen park, it was FULL of people. I arrived around 12:30 PM.

Young people are everywhere on the west side of the stream, enjoying the sun. On the east side of the stream were kindergarten kids. Lots of them.

Presence of kids and people in enjoying the sun made me hesitant to take pictures.

It was said that there will be an eclipse at 12:45. So I saw some people with special glasses for looking at the eclipse.

But because there are lots of people. We didn't have our lunch there. We moved and walked through the along the stream to Ilsvikøra. There are still some people on the beach. So we moved again to the west side of the beach. Then we found our spot. Concrete low wall just next to the beach & green area. With the view of the fjord, & the sun!
There are people here, but mostly individuals that stop by while jogging, or with the dogs. While on the beach and the park, mostly people in groups.

- Then we spent some time there, finishing our lunch. While looking at boats coming in and out to the docks just across the bay.

- Then we visited a bakery around the area. It was said that cafes aren't well-prospect here bcs. not a lot of people buying stuffs from there.

- But as I experienced here, we were here with another group of people at another table.
Not all the tables are able to be used bcs of corona restrictions. Over 2 hours., our table has never been the only busy table. There had always been someone else in the cafe other than me & my friend. Groups of 2, or alone with a dog. Or just stop by and buy something to take away.

- Then we had dinner at an Indian & Nepali restaurant, mentioned in a facebook group about Ila.
The cooks are a couple of Nepali and Indian. They have (and most likely the owner too) lived here for some years now. They said that they the restaurant is new, and now trying to advertise it to the asian communities mostly. The foods are authentic, they said. Bcs some other indian restaurant in Norway are adapted with local Norwegian taste preference. But here they want to keep the authenticity. With smaller portion and cheaper price, so other immigrants want to come here. They are happy with the location and feel very welcomed.

APPENDIX E: Points of NBS coverage in Norway

NBS related to	Hazards
Water, waterways, rivers, and streams	Flood, erosion
Forest	Flood, stormwater, landslides/avalanches, erosion
Vegetation, grass covering	Flood, erosion
Other vegetation	Flood, stormwater, erosion, landslides, sea level rise, drought, climate
Wetlands, floodplains, riverbanks	Flood, erosion
Edge vegetation	Flood, storm water , erosion
Geotextiles	Flood, landslides, erosion
Rainwater collection/management	Stormwater, drought
Green roofs and walls	Stormwater, temperature, climate
Waterbodies and permeable covers	Stormwater
Drainage	Stormwater, landslide
Forest and vegetation near to the sea and coast	Sea level rise, storm surge and tsunami
Soil walls/dikes/dunes	Sea level rise, storm surge and tsunami
Hybrid and natural habitat solutions	Sea level rise, storm surge and tsunami
Soil mass movement	Landslides
Drought tolerant and fresh vegetation	Drought
Forest / land management/ use of fire	Wildfire
Re-naturalization of grey infrastructures	Temperature, climate, air pollution
Building green areas	Temperature, climate, air pollution
Open water surface	Temperature, climate, air pollution
Building green areas, establish climate resistant vegetation	Temperature, climate, air pollution