



EXPERTS IN TEAMWORK 2015
BUILDING RESILIENCE
TO URBAN DISASTER:
TRONDHEIM AS A LIVE PROJECT

EIT 2015 BUILDING RESILIENCE TO URBAN DISASTER: TRONDHEIM AS A LIVE PROJECT

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"Thanks to all the great people we met during our EiT course, as well as David and Vilde, who've made the course interesting and engaging!"

On behalf of the village,
the editor team



TABLE OF CONTENTS

4	Acknowledgements
5	1 Introduction
6	2 On Resilience
8	3 Methodology
8	3.1 PLA
9	3.2 Models
10	4 Hazards
10	4.1 Climate change
10	4.2 Extreme weather
11	4.3 Quick clay
12	4.4 Fire
15	4.5 Terror
16	5 Social vulnerability and stresses
16	5.1 Poverty
16	5.2 Immigrants
17	5.3 School dropouts
18	5.4 Elderly
19	5.5 Substance abuse
20	6 Assessing the situation
20	6.1 Physical resilience
21	6.2 Social Resilience
22	7 Measures
22	7.1 SMS warning system
24	7.2 Building values and collective thinking
25	7.3 Breaking a vicious cycle
26	7.4 Get to know your neighbour
27	7.5 Alternative housing
28	7.6 Preservation through smarter communities
29	References

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1 INTRODUCTION

This report is part of the course Experts in teamwork (EiT) at the Norwegian University of Science and Technology, NTNU. This is the final product of a project that was performed during a three-week period in January 2015. The EiT village topic was “Building Resilience to Urban Disaster”, subject code AAR4914.

Shocks and stresses are harming people and property in Norway every year. In 2013, damages of a worth around 960 million nok have been reported to the Norwegian Natural Perils Pool (Norsk naturskadepool). Inspired by the campaign of the Rockefeller foundation “100 resilient cities” we have tried to get an overview of the social, physical and economic challenges that make Trondheim vulnerable (Rockefeller Foundation). All around the world, towns and cities are expanding by over one million people per week (Sanderson 2015). Natural disasters are a growing threat with hazards like fires, earthquakes, storms and floods to name a few clash with an ever-larger urban population.

The village split into four groups and each focused on a different part of the city. It soon became clear that the groups would focus differently in regards to social and physical aspects of Trondheim as well. While some groups discovered the hidden weaknesses and strengths of people themselves, others focused more on mapping out different hazards.

In this report we have tried to merge the findings of these four groups into one. The goal is to answer some key questions regarding the resilience of Trondheim. We start off with explaining some key terms, tools and models that we have used during this three-week process. This is followed by our various findings, starting with the different hazards that Trondheim face. We then move on to look at social vulnerability and stresses. After a quick conclusion on each of the social and physical aspects of the city we present six measures that we think will improve Trondheim’s resilience. These measures seek to address issues ranging from lack of housing to a need of more collective thinking.

2 ON RESILIENCE

The United Nations International Strategy for Disaster Reduction defines resilience as “the ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner” (DFID & UKaid, 2011, p. 6). The term itself is derived from the Latin word *resiliere*, which means “to jump back”. In a mechanical sense, resilience is an object’s capacity to store energy from stress and return to its normal state without breaking or being deformed (Paton & Johnston, 2006).

Today, the term is often used in a metaphorical manner in the social sciences (Klein, Nicholls & Thomalla, 2003). Paton and Johnston (2006) argue in their book *Disaster Resilience: An Integrated Approach*, that the mechanical definition fails to capture the essential meaning of the word because it refers to returning to a previous state. Often, after an urban crisis of any kind, returning to a previous state like life was before is impossible both physically and psychologically. The more modern meaning of the word is in this sense related to the ability to adapt to change. In this context, disaster can be viewed as a catalyst for change (Paton & Johnston, 2006).

In their City Resilience Framework, ARUP and the Rockefeller foundation describe four important dimensions of urban resilience, which include health and wellbeing, economy and society, leadership and strategy and infrastructure

and environment. Within these four categories, they mention 12 specific factors which indicate whether a city is resilient or not (ARUP & The Rockefeller Foundation, 2014, p. 7-9):

HEALTH AND WELLBEING

Minimal human vulnerability through the satisfaction of basic needs

Employment and diverse livelihoods

Access to life and health services

ECONOMY AND SOCIETY

Social stability and security

Availability of financial resources

Collective identity and mutual support

LEADERSHIP AND STRATEGY

Effective leadership and management

Empowered and educated population and leaders

Integrated development planning

INFRASTRUCTURE AND ENVIRONMENT

Reduces physical exposure and vulnerability

Continuity of critical services

Reliable mobility and communications

These 12 indicators can be very useful when it comes to measuring the resilience of a city or region faced with hazards. As long as a society or community cannot meet one or more of these criteria, it reveals a weakness in their resilience.

Another important element of resilience is diversity. Bahadur, Ibrahim and Tanner (2010) reviewed 16 different theoretical approaches to the concept of resilience and from that listed ten main characteristics of resilience largely similar to the ones mentioned by ARUP and the Rockefeller foundation. In fact, diversity turned out to be the factor which is mentioned most frequently in the literature they reviewed. Here, diversity refers to variance within groups of people, ecology, economic opportunities and governance (cf. Bahadur, Ibrahim & Tanner, 2010, p. 14). Diversity within social groups is a topic, which will remain central throughout this report.

The weak spots in a community's resilience indicate their vulnerability level. According to The Crunch Model developed by Blaikie, Cannon, Davis and Wisner (1994), acknowledging the vulnerability level of a community is crucial to assessing the risks related to specific hazards. Blaikie, Cannon, Davis and Wisner (1994) divide vulnerability into three factors: root sources, dynamic pressures and unsafe conditions. When

a community with several vulnerable aspects is faced with a hazard, this creates a disaster (or a crunch), as the model shows (adapted from Blaikie, Cannon, Davis and Wisner, 1994):

In our work, we have paid particular attention to the soft assets and social capital, as seen in Sanderson's resilience model, different communities in Trondheim have. Put simply, social capital refers to the links, shared values and understandings in society that enable individuals and groups to trust each other and work together (Keeley, 2007). Social capital is a key element in building resilience to disasters. For instance, ARUP and The Rockefeller Foundation (2014) mention social capital, or more precisely "collective identity and mutual support", as an important indicator of resilience (p. 7, see above).

Furthermore, Sanderson (2011) refers to several studies which have shown that aid programmes focused on building soft assets can be more successful than those focusing on hard assets and that the "[m]obilization of social assets in the form of networks and well-established relationships can (...) save lives" (p. 659). Building stronger communities within Trondheim could therefore be a powerful measure to limit the consequences of potential future disasters.

3

METHODOLOGY

3.1 PLA

In our work, we have used different methods which go under the name of PLA (Participatory Learning and Action), also known as PRA (Participatory Rural Appraisal). PLA is a methodology for gathering information about an area by interacting with its residents and users. The rationale is that people who live in an area have more information about the area and the situation both in terms of its resources and its deficits. Local residents also know what kind of development is needed and how to best go forward implementing actions (Chambers, 1997). It is a method commonly used by NGOs and other organizations that are involved in development and crisis management.

PLA is a qualitative method in research relying on triangulation and moderation, and it is a method commonly used by sociologists. Qualitative research methods do not focus on collecting a vast entity of objective information from as many sources as possible. Instead, these methods focus on examining fewer samples in greater depth and understanding different people's points of view (Kar & Chambers, 2008). It is important to note that some of the techniques can also be used to obtain quantitative results.

Triangulation is a term referring to using information collected from many different sources, which in our case are people living in Trondheim. The reasoning behind triangulation is that subjective information derived from

many different sources gives you a much better understanding of a situation than information derived from few sources (Given, 2008). In our case we combined information gathered from people on the street, key persons and secondary information such as research reports and news articles.

PLA is related to empowerment, which refers to allowing people to be in control of their own lives and futures (Wilkinson, 1998). It is a way of making sure that the official authority of people's lives belongs to them. By using PLA methods, one uses the people affected by the situation in question as a resource for valuable information rather than imposing solutions on them. Conversations, mapping, and visiting people's homes are helpful methods in this paradigm. As using PLA acknowledges the views of those affected, it feels meaningful to use these methods, particularly when working with vulnerable groups or communities.

Over the last three weeks, we have used PLA methods to gather information from residents and other people in Trondheim. The method we used the most was semi-structured interviews, as this allowed us to change the questions we planned beforehand in order to find extra information. Open-ended questions allow the interviewees to answer the questions more freely. This can provide the researcher with vital information based on the subject's perceptions of what is important (Dicicco-Bloom & Crabtree, 2006).

We made the interviews by discussing key questions we needed answers to within the group before we went outside to talk to people. These key questions could also be considered simply as conversation starters. The following are a couple of examples of questions we used:

What is your perception of the biggest threats to this area?

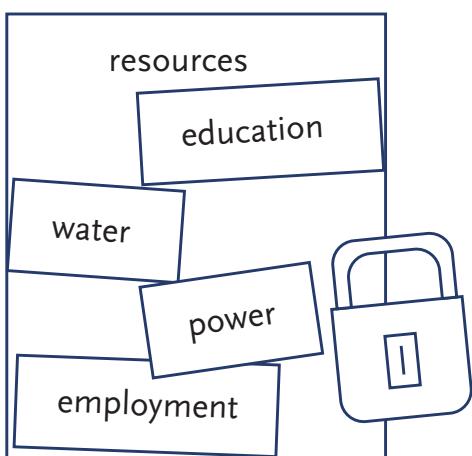
How do you consider your neighbourhood in terms of safety?

What do you consider to be the most important assets of this community?

Another method we used was mapping. We asked people to draw simple maps of the area where they lived and mark points of interest which we could investigate further. We also presented our informants with big sheets for drawing perceived threats and assets, following the resilience model. This technique allows people to feel more involved and also facilitates discussions and makes the process seem less formal.

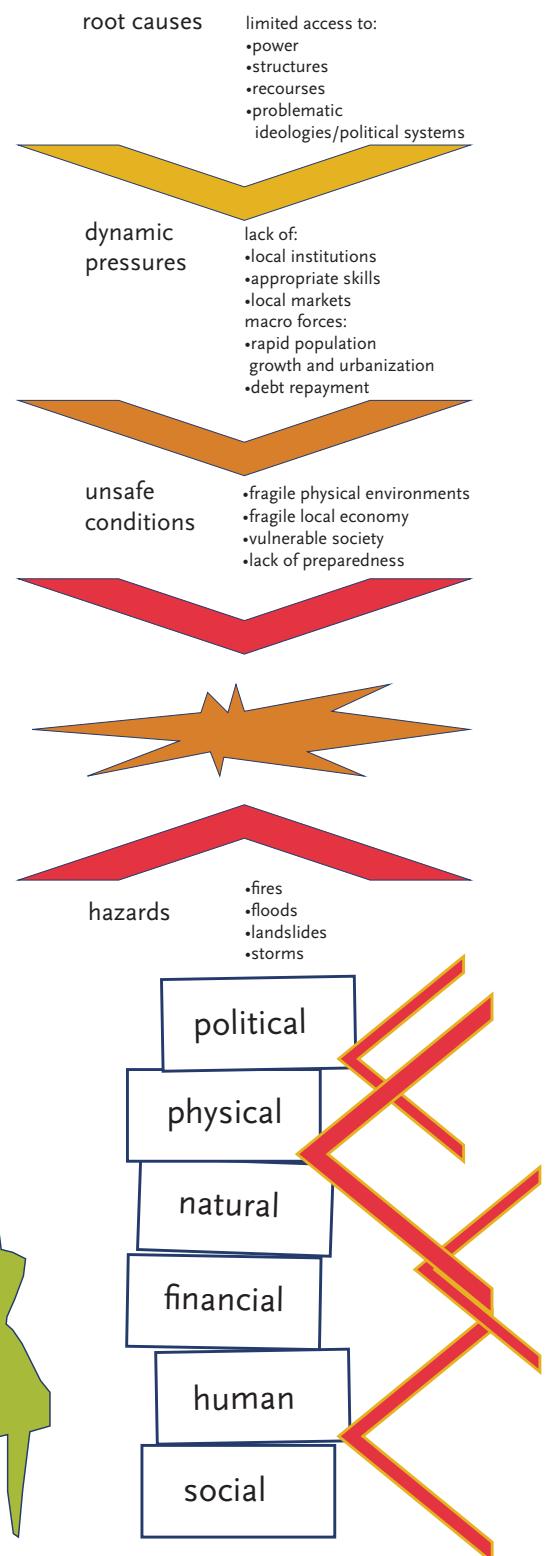
3.2 MODELS: RESILIENCE MODEL

Another interesting approach to assessing resilience within communities is what we will refer to as the resilience model, developed by Sanderson (2011). This model puts people in the centre and uses people's needs, assets and access to resources in order to judge how resilient a community is to potential hazards. The assets include both "hard assets" such as financial, physical and natural assets and "soft" social and human assets, which combined constitute the safety net, which protects an individual from disasters. In chapter 4 of this report, we will use the resilience model and its way of viewing assets in order to analyse the level of resilience of the Trondheim population.



CRUNCH MODEL

The crunch model helps explain the relationship between a hazard and vulnerability and how dependant they are on one another. When these two sides meet, a disaster is created. This model makes it clear that there are things that can be done in order to reduce the hazard as well as reduce the vulnerability. We have used this model for brainstorming and organizing the data after our interviews and discussions. It has been a very good tool for us to understand the different aspects of resilience, and the different ways to improve it.



4

4 HAZARDS

A hazard is a potentially harmful phenomenon. Often subdivided into shocks and stresses. Shocks are acute and immediate occurrences, like fires, earthquakes, hurricanes and landslides. Stresses are undesirable pressure building up over time such as drought, diseases and hostility.

4.1 CLIMATE CHANGE

Research suggests that a correlation between climate change and increases in the frequency and intensity of extreme weather events is very likely. Although Norway's economy is sensitive to climate change, recent studies show that in a global context Norway is among the world's most resilient countries with regards to climate change. However, on a smaller scale some regions and social groups are more vulnerable towards climate change and its consequences, especially as climate change aggregate the risk of hazards such as flooding, quick clay slides, fire and extreme weather (<http://index.gain.org/>; Innnbjør & Jære, 2009; O'Brien, Sygna, & Haugen, 2004).

Over the last century precipitation, wind speed and temperature have increased noticeable in Norway, this trend is expected to continue. Extreme weather like storms and heavy rainfalls are likely to occur more frequently, which is problematic as these events can trigger other

difficulties like landslides or flooding. Warmer and drier summers will increase the risk of forest and wild fires in Norway (Innnbjør & Jære, 2009; O'Brien et al., 2004). Stronger winds are a problematic factor when it comes to fire, as a recent case in Lærdal showed, where a fire spread quickly due to strong wind and destroyed 20 buildings (Aldridge, 2014; DSB, 2013).

The on-going climate change is an accelerating factor for all kinds of extreme weather and will create new challenges for the work of Civil Protection and preparedness at national, regional and local levels (DSB, 2013).

4.2 EXTREME WEATHER

The meteorological institute in Norway defines extreme weather as weather events so hazardous that, unless society is prepared, lives, infrastructure and other assets could be lost (Meteorologisk institutt).

The coast of Norway faced a troubled beginning to the New Year as the storm "Nina" ravaged many of the coastal counties. Trondheim got away with some heavy wind. However, in areas such as Bergen "Nina" reached a status of hurricane (Tvilde, Ekanger & Ottorei, 2015). Although estimation is not yet finalized the storm is predicted to have caused damages worth over 350 million NOK (NTB/NRK, 2015). It is evident

4.3 QUICK CLAY

Landslides are one of the most serious natural hazards in Norway. Since 1900, there have been over 500 recorded avalanche incidents, resulting in the loss of over 1000 lives. There are about 1750 quick clay areas mapped in Norway, with a majority in the Trøndelag area. Over 60 000 people are living within these danger zones (DSB, 2013).

that extreme weather is an expensive hazard as it often causes huge damage to buildings, infrastructure and nature. The last major storm to hit Trondheim was “Ivar”, which cost about 130 million NOK. This storm also reached hurricane status in several areas of Norway. In Trøndelag approximately 50 000 people faced a power outage. (Kroglund et al., 2013; Norsk Naturskadepool). .

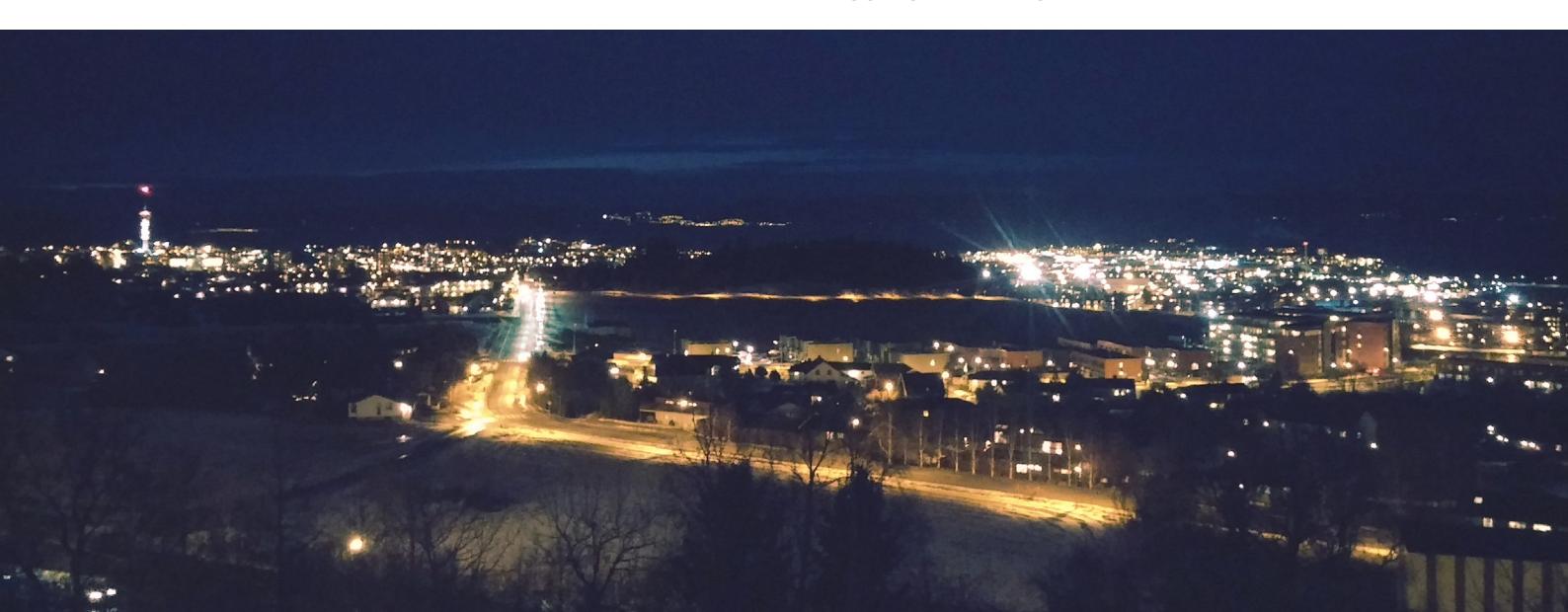
Extreme weather events such as storms are definitely one of the hazards that Trondheim is exposed to, especially when we consider the increase in frequency and intensity over the last decades (Innbjør & Jære, 2009).

“According to the people- and settlement count of 2001, 32% of all residences in Trondheim were solely reliant on heating through electricity.”

Hansen and Espenes
at Trondheim Municipality, 2012

Under normal conditions, quick clay is a firm layer in the ground. What makes it threatening is that it can lose its stability and become liquid when it is exposed to motion or sufficiently overloaded. If a slide occurs, it happens without signals of warning. Moreover, it is difficult or impossible to predict the collapse. Therefore there is often no opportunity to evacuate. Such an event has the potential to cause major damages to infrastructure and lives (Rød et al., 2012; Appendix 10).

According to the department of geo-technique in Trondheim municipality, quick clay slides occur due to two main reasons. The first is erosion, rivers and small streams can dig into the earth, and wash away the salt particles which hold the clay together. The second trigger for quick clay slides is human activity. A three to five meter thick layer of topsoil covers the clay. Because of this, the human activity that can trigger slides is not just digging in your garden. Interference needs to be





Duedalen

more severe, for example illegal building activity or dumping of masses on top of a risk prone area. (Appendix 10).

“The entire city was formed by slides, but we have so few recordings of these events, so it’s very hard to make predictions of what the risk is of one happening again.”

Appendix 10

There are 96 different quick clay zones in Trondheim. Baklandet is an especially exposed area (Appendix 10; DSB 2013). The Norwegian Directorate for Civil Protection estimates the risk for a quick clay slide in Trondheim to be fairly low, but the consequences would be serious with a high loss of lives, great number of injured people and huge material damage. Panic and civil disturbance were to be expected. The DSB simulated a quick clay slide for the Baklandet area in Trondheim. A “worst case scenario” was created with an estimated amount of 3 million m² mud would slide into the Nidelva and damming it up. Such a landslide together with a tsunami and flood triggered by it would cause huge material damage and a great loss of lives. However, the risk for this to happen is estimated as very low (DSB, 2013).

“People in generally don’t have any reason to be concerned in Trondheim. We have done so much to prevent slides from happening, and we feel that we have it under control.”

Appendix 10

In recent times there have been an increase in the awareness of quick clay and its risk. Moreover, there are laws and regulations making sure that every development project happens under safe circumstances. To prevent erosion from happening, the municipality has taken major precautions. By laying rock on the riverbeds and in the streams, water is prevented from digging into the earth. Another technique that can be applied is alteration of the terrain. If people want to build in a risk prone area, large masses can be removed from the top of the terrain to ease the pressure on the soil. Because of immense costs, this technique is mainly used in large developments (Appendix 10).

4.4 FIRE

Trondheim is a city with a history of fire. Throughout history, Trondheim has experienced large and intense fires, which are shaping the infrastructure of the city. However, fires are not just a thing of the past. We only have to go back to January 2014 to be reminded how devastating a fire can be. After a long period of little to no precipitation wildfires broke out in Lærdal, on Frøya and Fosen. The former was hit the hardest. In Lærdal 42 buildings, including garages, burned down. 71 people lost their homes (Gudvangen, 2015). One can only speculate what the consequences would have been if a similar scenario played itself out in Trondheim.

The first issue we'd like to highlight is the structural composition areas such as Møllenberg, Bakklandet, Midtbyen etc. The city generally consists of a lot old wooden buildings. Historically there are some obvious reasons as to why this is. First of all, a lot of the buildings were built before strict fire regulations were in place. Houses were built entirely out of wood, which after all was the cheapest building material.

In the City Centre, however, houses that were built after 1845 were made out of stone. After two big city fires in 1841 and 1842 building houses of wood was prohibited in the City Centre (2.1.8 ROS 2nd paragraph). At some point a lot of the buildings, especially at Bakklandet, were listed. The incentive was to protect the character of the area. Although this had some positive effects in regards to preservation, it made it more difficult for people to change what was already built (Interview ref).

As the potential for rebuilding went down, so did the interest for long-term solutions. The residents and shop owners of the area do as well as they can, some even go beyond the restrictions imposed upon them to ensure that their buildings are as safe as possible (e.g. Skydstasjonen).

In most of the dense and old wooden buildings, the attics are merged. In a lot of buildings it is one large room. This makes it very easy for fire to spread once it reaches the attic. The fire in 2002 in Nordre is a perfect example for this. A fire

that started in the kitchen was believed to have been put out, but had actually spread upwards in the building. Once it reached the attic it spread throughout the building and burnt it to the ground.

"100 men couldn't have put out this fire"

Thankfully none of the fires in the recent years have turned into an "area fire" (destroying 20 buildings or more) but the possibility was there (2.1.8 ROS 3rd paragraph). Area fires, or two separate large fires can be difficult to handle because as it is today; "...the resources of the fire department is nearly depleted when fighting a single large fire". The same thing could have happened with the pub Kieglekroa that burnt before Christmas 2014. Thanks to the firemen having learned from the incident in Nordre they went straight to the attic and managed to put out the fire before it spread too far (firefighter).

The fire department operates with a response time as follows:

1 minute from the alarm sounds to firetrucks are on their way

1 minute per kilometer from fire station to site of fire

1 minutes to get set up when arriving at site of fire

The fire was contained to the one building it started in because there wasn't any wind that day (interview with firedpt). The fire department is already in the process of closing off attics.

The second issue we'd like to bring forth is student living conditions. A lot of the apartments used by students do not meet the proper standards. However, they live there nonetheless. The most concerning thing about this is that the

photo: Trondheim byarkiv (1942)



students themselves seem to be fully aware of the situations. While some trust the owners of the buildings to take their share of responsibility in ensuring safe housing, others know of buildings, especially student housing, where the laws are not enforced in an appropriate manner. Some students value location more than safety, whereas others simply can't afford to live anywhere else. The lack of housing available to students forces the situation.

“When there was a fire in Kieglekroa in December 2014, the firefighters began fighting the fire less than six minutes after the alarm sounded. “

Their risk assessment might also be tainted by the fact that they only plan to live there for a short amount of time. Some go as far as to barbecue in their windowsill (interview from research group). However, not all students are indifferent to the risk, but they have to make the best of the situation anyway. One girl that we spoke with had a “firebox” where she kept all her most valuable belongings. This way she knew exactly what to bring with her in case of a fire. She also stated concern about where her apartment was located, but believed she would pull through, even if she had to be “a little rambo” (student).

Another student planned to; “...throw his mattress out the window to secure a safe landing when he jumped out after it” (student interview from research group). They choose to rent privately because the prices are lower. Privately owned apartments are also harder to regulate by the fire department. Based on this we wish that students were made more aware of how dangerous their living conditions actually are. Several people have stated some students live in death traps (Interview ref).

CONCLUSION

Because of the structural composition of the city Trondheim is naturally prone to fires. However, no disasters have been caused by fires for a very long time. A key part of resilience is the ability to learn from a negative occurrence and get stronger as a result (Sanderson p.23, 2015). An example of this is how the fire department used what they had learned from the fire in Nordre when battling the fire at Kieglekroa. They were also made aware of vulnerabilities in the design of the old houses that needed to be addressed. The constant threat of fires have forced Trondheim to adapt and be more resilient, but there's still room for improvement. Some students live under poor conditions, and more importantly, some live there recklessly.

4.5 TERROR

In recent years the threat for terroristic actions in the Western World, including Norway has grown. The citizens in Trondheim seem to be concerned by the possibility of a terror attack. The informants suggest that this is probably related to the horrible episodes in central Oslo and Utøya July 22nd 2011, where 77 people were killed (Gjørv et al., 2012).

Even though the capital city Oslo most likely has the biggest threatening aspects, an attack on Trondheim is a scenario that cannot be excluded.

In Norway, the police is responsible for preventing and stopping terrorism. This work, however, requires a coordinated effort involving several operators, including the Norwegian defence, health care and immigration authorities (Regjeringen, 2013).

Security has been raised after the attacks in Paris in January 2015. The officials see a high level of threat (Terrostrusselen mot Norge). However, a terror attack and its effects are unpredictable.

While the defence against terror is scaled up, an interview with the imam at Trondheim mosque reveals that even though terror is often linked to Islam, he considers the people of Trondheim to be tolerant towards culture and religion.

He also highlighted that the recent attack in Paris, although gruesome, could be seen as an opportunity for people to learn more about Islam worldwide.

5

5 SOCIAL VULNERABILITY AND STRESSES

Social vulnerability is defined as the characteristics of the population that influence the resilience of the community (Rød et al., 2012). Usual indicators to measure and assess social vulnerability are income, wealth, education, employment status and age - usually the oldest and youngest are seen as particularly vulnerable. High levels of income, wealth, education and safe employment reduce vulnerability, equivalently it increases resilience. Moreover the vulnerability of a specific area will with the number of single parents' - and of immigrant households.

5.1 POVERTY

A group that is viewed upon as particularly vulnerable is the poor. A study conducted by Trondheim municipality showed that 8,1% of Trondheim's inhabitants has an income below the poverty line, and is then by definition poor. In this case they used the EU definition of the poverty line, which says that you are living in poverty if your income is below 60% of the national average. In this study they also choose to leave out students and people with a fortune above 300 000 nok.

For the 10 biggest municipalities in Norway the average was 7,9% (Trondheim kommune). Trondheim is then relatively average when it comes to poverty in the large Norwegian cities.

However during this process we have discovered that students are among the fastest growing groups visiting Frelsesarmeen in order to receive free food (Appendix 17).

Single parents were also among the increasing groups visiting Frelsesarmeen. One of the issues that arose as a result of poverty, in addition to a lack of food, was that single parents could not afford to pay for spare time activities for their children. Due to this some children fall out of social circles at a very early age. To deal with this problem, Frelsesarmeen give money, which they receive from "Storbyfondet", to some of the single parents to help pay for these activities (Appendix 17).

What became clear after investigating this topic, was that poverty often leads to a loss of assets and thereby social exclusion.

5.2 IMMIGRANTS

We met 19 students in a Norwegian class at the Trondheim municipality adult learning centre in Lademoen. They were from 25 to 43 years old, had come from countries like Syria, Russia and Turkey, and most of them had been in Norway for less than half a year.

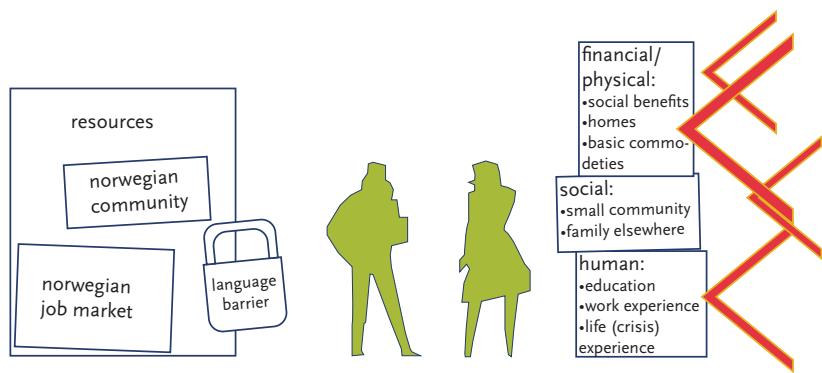
In talking to them, about their assets, vulnerabilities and how they could be more resilient, some topics repeated themselves: Immigrants seem to generally feel that their social assets are at a loss – especially for those whose family has not come with them to Norway – and that their abilities and knowledge aren't acknowledged by the system.

While the trend was that the immigrants felt as though their social assets were at a loss, they also seemed to feel welcome in the city. The main barriers to integration – they explained – are the cultural alienation they feel, and that they do not know the language. Once they learn Norwegian, things will work out: They will, for instance, be able to get work, and build and expand networks from there.

“Norway is the land of second chances”

Syrian student (25)

There are institutions to empower immigrants in Norway. The adult learning centre, for example, is an institution where the new countrymen get to learn Norwegian and learn about Norway, with what we experienced to be competent and motivating teachers. Some need more assistance in learning than what is provided, though, and have to pay the rest themselves. Around the city there are lots of language cafés, where different people can meet. The Trondheim municipality adult learning centre, for example, has a language café of its own.



5.3 SCHOOL DROPOUTS

30% of people in high school struggle with stress and anxiety on daily a basis because of the high expectations they feel they must meet (Appendix 14). As a result more than 30% does not finish within 5 years (Utdanningsdirektoratet, 2013). This is partly due to the materialistic society we live in today, with an enormous focus on individualism and material goods (Appendix 14).

“Increasing dropout in high school is a social avalanche”

Café 22B is a measure aimed at helping young people growing up in unstable home environments, some of which gets involved with crime and drugs. It is place they can come to meet other youths in similar life situations and also meet adults that do not judge them in any way. The café was started in 2004 as a part of Salem church. There are between 150 and 200 youths visiting over the course of one year, but they have a “core” consisting of 30-40 youths that stops by on a regular basis.

The younger generation can be described as “Children of wealth”. They are the sons and daughters of people growing up in the 60’s when Norway discovered the first oil fields, and as a result, the prosperity among the young generation is growing. This relates directly to the high performance pressure that is being placed on young people. As a result the “gap” between the well off students and the struggling students and youths is growing, and some see 22B as a place for “losers”, without any recognition of the incredibly tough struggles some of these youths has gone through. In order to make Trondheim a more robust society this gap needs to be closed. This is something that applies to all parts of society.

Café 22B not only provide a place where youths can come to relax and interact with other people in a safe environment, but they also help them to get back to school or work by guiding them through the different processes they need to go through and giving a thorough follow up.

The café started a program in 2013, in association with Husbanken, where youths live together with students. The students acts as a stable and reliable person for the youths, and in return they get a small discount on their rent. This allows them to introduced to a safe and stable living environment. This is something they see as very important because these public services feels intimidating to approach for many.

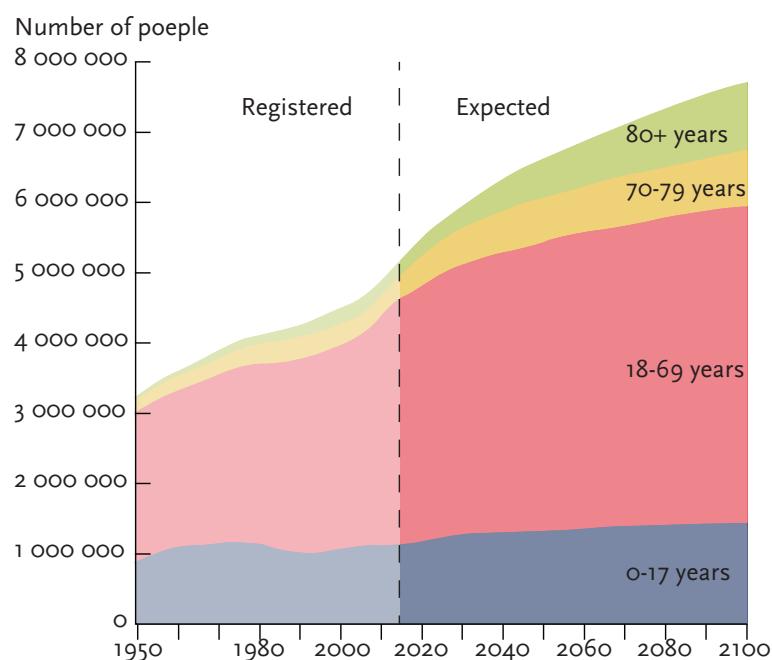
This way of combining a low threshold offer, like 22B is, with a more long-term way back into society seems like a very effective and thorough approach to a big social issue.

5.4 ELDERLY

As the different groups have performed interviewed and studies using the PRA-tools, we see a clear trend when it comes to who people perceive as vulnerable. Very often the elderly is considered the most vulnerable (Appendix 17). What people mean when they say elderly may differ, but what we know is that the 70+ group is approximately 10% of the Norwegian population. What we also know is that this group is going to grow in the next years to come (Statistisk sentralbyrå, 2014).

“It is when the dividers between people are erased that we get a robust society”

Appendix 14



Does this mean that we have to take extra measures in the future, as a bigger part of our society is considered vulnerable? To show the predicted development, we have made a graph that is based on Statistics Norway's (SSB) predicted population growth.

As we can see from the above illustration, by 2060 about 20% of the Norwegian population will be 70 years or older. There are several elderly care facilities in Trondheim, providing many different types of help. The people related to these facilities are more vulnerable than others, as many of these facilities have plans for what to do in case a disaster strikes.

5.5 SUBSTANCE ABUSE

An employee at the grocery store in Lademoen, one of the lowest income areas in Trondheim, told us that in the area there were a lot of elderly people living off of social benefits, spending much of their time and money on alcohol. They seem like “they are giving up,” she explained. “They cannot take much before they break down.”

There are also people struggling with heavier substance abuse in Trondheim. Many are located in the City Centre as this is where most of the institutions helping them are located. They are among the most vulnerable groups in Trondheim because they are socially excluded in many ways (Appendix 18). After interviewing a few people selling Sorgenfri, a magazine sold in the streets by people struggling with e.g. drug addiction, it became evident that some people perceive them differently than other vulnerable groups because they feel it is their own fault that they are in the situation they are (Appendix 15). However there was also a general conception that most people in Trondheim are caring and thoughtful, in various degrees.

Though they might be excluded from some parts of the society, there are many close and complicated relationships within the group of people that are struggling with substance abuse. Many are close friends, but for some the addiction is so strong that they sometimes resort to stealing from their friends in order to provide themselves with drugs (Appendix 18).

“They are one group but they are also enemies”

Appendix 18

Sorgenfri is a street magazine that has been sold by people with difficulties finding other work since its first release in 2007.

The Sorgenfri manager told us that Trondheim have received the magazine in a positive way. He thinks that the meetings between the sellers and the different people of the city are useful for both parties to get to know each other, and the transaction gives a dignified connection between them. Sorgenfri is an important service, because it gives opportunity of work and respect to the sellers and bridges divide between the buyers and sellers.

There are places where people with a drug addiction can go to relax, socialize, get free food and shelters where they can get a bed to sleep in, but the relationship with the municipality/governmental institutions is more complicated.

6

6 ASSESSING THE SITUATION

6.1 PHYSICAL RESILIENCE

It seems to be a general belief that Trondheim is at very low risk when it comes to threatening hazards and long-term stresses. This can be related to a strong national economy and a history without that many life-threatening events.

The most prominent hazards in Trondheim are fires and landslides. The old, dense wooden houses at Baklandet and Møllenberg make the areas vulnerable to fire spreading. Throughout history Trondheim has experienced multiple city fires and as recently as in 2002 a whole block burned down. Although fire is a clear hazard we've found that the city is generally well prepared if one was to break out. The response time of the fire department is short, and the most vulnerable areas are close to the City Centre. In addition, Trondheim's ability to learn from former mistakes makes the city more prepared after every incident.

In regards to quick clay the general consensus seems to be that there's not much more that can be done. Luckily the risk of a landslide happening is very low, but the consequences of one happening would be severe.

Another hazard that affects Norway on a regular basis is extreme weather. The New Year was met with hurricane Nina sweeping across the country. Luckily the hurricane passed Trondheim without much drama, but it could have caused a lot of damage had it hit the city at full force.

Although natural hazards have a history in this region, most people express calmness towards them. Students choose to live in dangerous apartments, and are generally not worried. However, this attitude does not extend to all hazards. Many people have expressed a concern about the increase of terror attacks in the West. With the recent attacks in Paris still making headlines the concern that something might happen in Trondheim is increasing. Even though Trondheim is a resourceful city it is difficult to prepare for something where the source and scope of the incident is unpredictable.

6.2 SOCIAL RESILIENCE

Overall, Trondheim seems to have good coverage of the basic needs of the city's inhabitants. Most of the needs are covered by charity organizations, most of which are religious - though open to everyone. They provide shelter, albeit cramped together, and hot supper every day. Through these offers, the most vulnerable are able to get by.

LOCATIONS FOR WARM DINNER IN TRONDHEIM

Monday: Soup at Bymisjonen

Tuesday: Omsorgskafeen & Folke Kjøkken

Wednesday: Gryta aktivitetssenter

Thursday: Vår Frue kirke

Friday: Omsorgskafeen

Saturday: Varme stue Vår Frue Kirke

Sunday: Omsorgskafeen

However, there seems to be a need for a low threshold, long term programme, to help people get back on tracks for good. The existing ones feel difficult to approach.

As mentioned the basic needs are well covered in Trondheim. It is a lack of assets that is the biggest issue, for many different groups. By implementing various measures, people can start building up their assets and thereby improving their resilience.

Another vulnerable group in Trondheim is the rapidly growing immigrant group. In twenty years, the group will be about 20 per cent of the total population of the city. As of now, the resilience of them are not on par, mostly due to how they're prone to having small social and economic assets, as well as a very limited access to the Norwegian job market

7

7 SIX MEASURES TO IMPROVE TRONDHEIM

Based on our research we have come up with six measures that we believe would improve the resilience of Trondheim. The measures focus on both sides of the resilience model, spanning from hazards to root causes.

7.1 SMS WARNING SYSTEM

We recommend that a Population alert system (PAS) based on SMS be implemented in Trondheim in order to inform the public of potential emergencies. PAS has been implemented in other countries based on “the four elements” defined by United Nations International Strategy for Disaster Reduction as a way to deliver “understandable warnings to those at risk”.

WHY DO WE NEED AN SMS WARNING SYSTEM?

A PAS based on text messages is a quick and comprehensive way to inform the public. This system could be used both for smaller issues concerning for instance water and sanitation, and for more critical issues related to safety and evacuation during crises such as fires, floods and landslides.

First, the benefit of this system is that one can reach a lot of people in a short amount of time, including both those registered as residents and people located in an affected area. Second, this

warning system would be beneficial for vulnerable groups such as people with hearing disabilities, who cannot hear the siren alarms being used today. Third, the advantage of SMS warnings is that one can describe exactly what is going on in several languages, whereas research shows that 50% of the Norwegian public do not know what any of the three traditional siren alarms mean (DSB, 2010, p. 43).

HOW SHOULD IT BE DONE?

We recommend that the local government in Trondheim take the initiative to implement an SMS warning system within the municipality. Ideally, this should be based on services offered by for example UMS, using both phone registers and GPS techniques to identify those located in hazardous areas at any given time (cf. “Population Alert”, par. 7-9). A PAS of this nature should be implemented as soon as possible. Based on the actors and systems that are already available, this should be possible to implement within a short time frame.

Moreover, the municipality should make important information available to the public in the form of datasets (ie. xml, json), so that those who wish can strengthen the SMS warning system by creating applications for mobile phones based on publicly available information. Local



government could encourage this by offering small economic incentives.

POTENTIAL ISSUES

An SMS warning system is dependent on a functioning and phone network with sufficient capacity, something that is fragile in times of crisis. For this reason, a system of this nature can only be one of several warning systems in use during an emergency.

Another potential barrier are the costs of implementing this system. One representative of the Norwegian Directorate for Civil Protection (DSB) has claimed that “a national warning system (...) will be too expensive” (Nilsen & Oulie-Hauge, 2013). A local system, however, may be less expensive and more applicable during smaller emergencies.

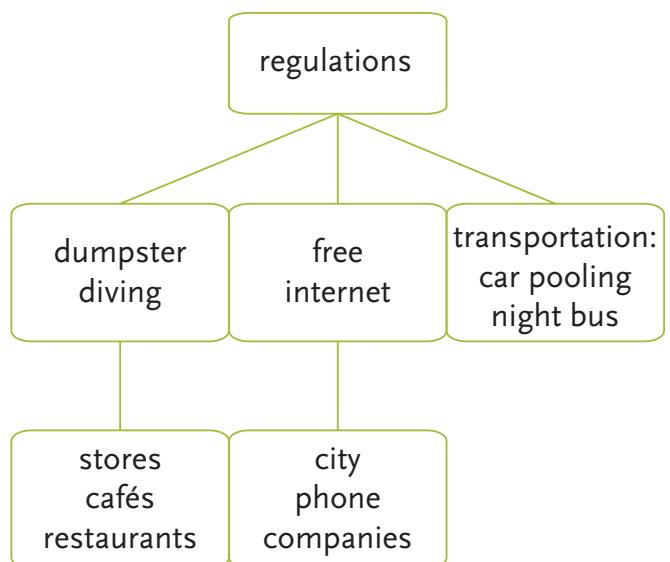
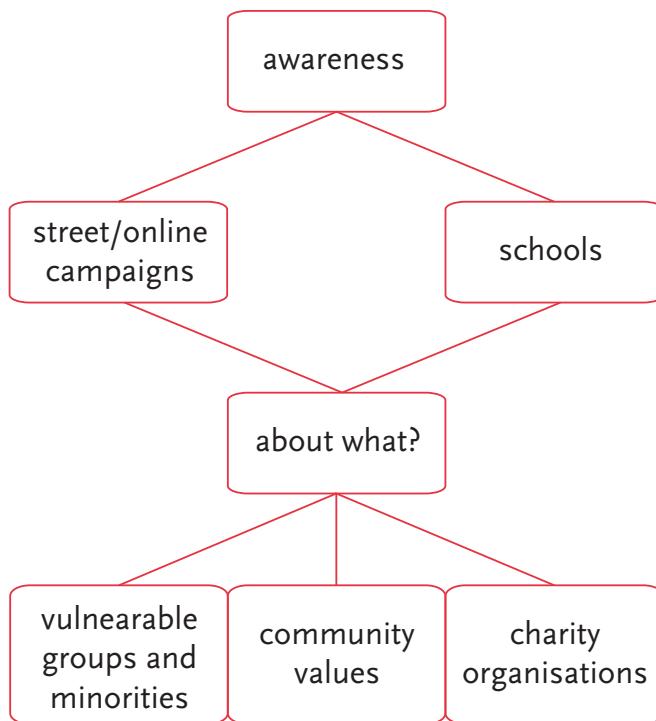
7.2 BUILDING VALUES AND COLLECTIVE THINKING

Nowadays the view that most people hold is more individualist and egocentric, hence results in consequences for our project and, at the same time, makes people more vulnerable due to fewer and weaker social networks, along with an existing divided society.

A disaster would severely affect the population of Trondheim. We believe that increasing collective thinking will increase people's resilience. To work with this issue, we have found two main departure points: awareness and regulations.

Our goal is to raise awareness about community feelings and thinking, as well as charity organisations and vulnerable groups in Trondheim. Schools followed by street and online campaigns would help on making this possible.

We also propose to change regulations to bettering the transportation system, securing dumpster diving (collecting expired food from super market waste) for those who so need it, and increasing the free internet access (WiFi) by making it available for all.



“SHARING IS CARING”

We decided to make use of commercial advertising in order to show people the different charity organisations and options this city of Trondheim offers and, at the same time, make it more accessible and visible for them.

The online campaign will make use of YouTube for spreading and making it viral and reachable in just one ‘click’ for any viewer. The videos will take the viewers on a tour of Trondheim and show the location of different charities and give a short introduction on what help they offer and how people can contribute to their work.

7.3 BREAKING A VICIOUS CYCLE

There are many easily available programs that help people survive on a day-to-day basis. However, concerning long-term programs to get people back on their feet the systems are too complicated, and difficult to approach. Basically it is easier to receive a fish each day than to ask someone to teach you how to fish for yourself.

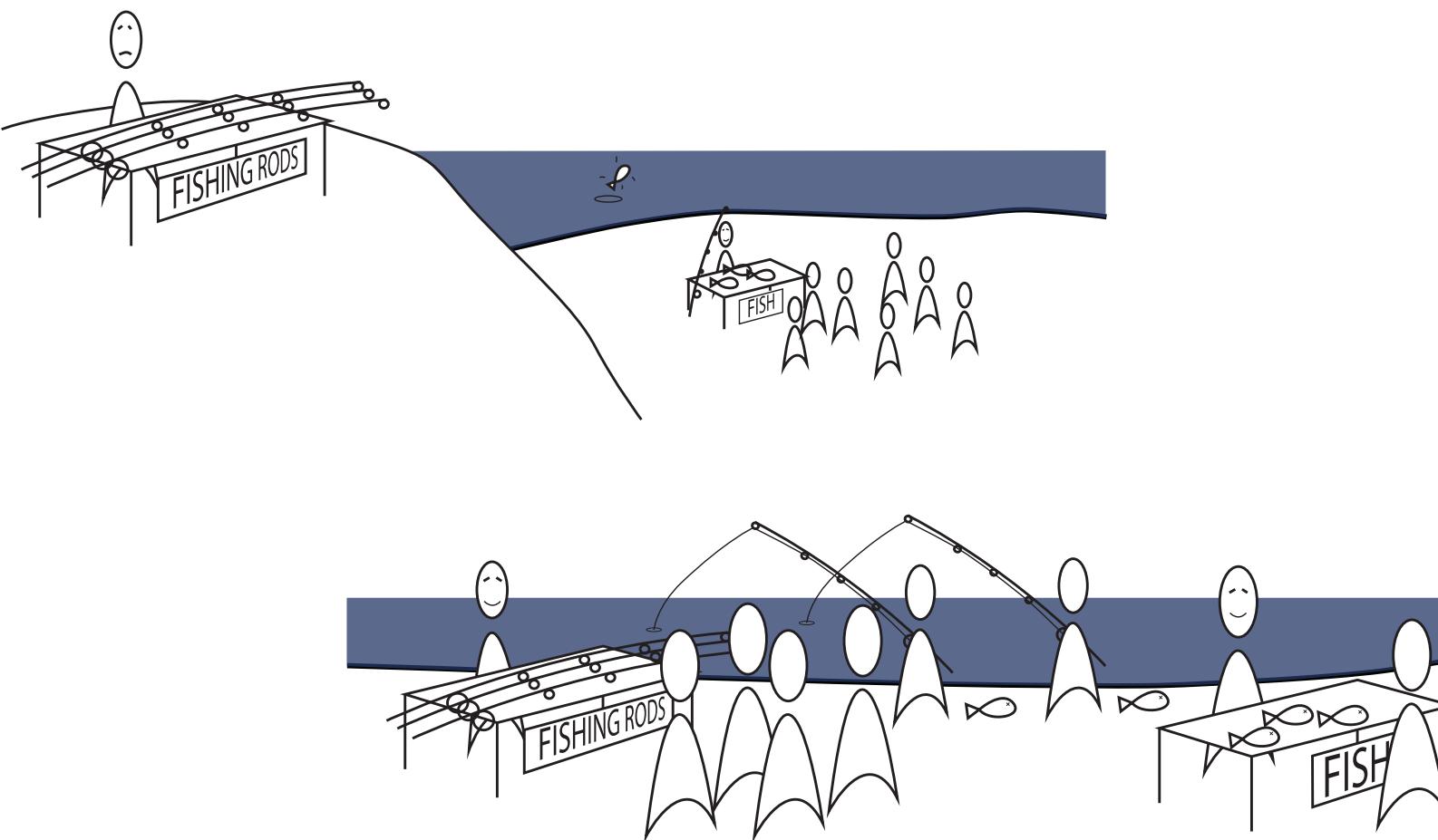
What is it about?

Improving cooperation between the government and volunteers

Lowering the threshold for long-term programs

We suggest that social workers (e.g. NAV) and advocacies of programs offering long-term help towards regaining a position in society, should, instead of sitting in “scary” offices, meet people where they are, like at the volunteer organisations.

However it is important that they cooperate with these organisations and the presence of the social workers should not affect the atmosphere of these “safe havens”, it should not appear/feel intrusive. We hope this is an initiative that could make it easier to approach, reach out for long-term help/programs.



7.4 GET TO KNOW YOUR NEIGHBOUR

“Get to Know Your Neighbours” intends to bring individuals together in order to build positive relationships of trust and friendship. It is meant to improve the networks and atmosphere in the communities. Elderly, immigrants and people with low financial assets are especially targeted in order to enable them to create connections, establish and strengthen friendships as well as social networks of help and support.

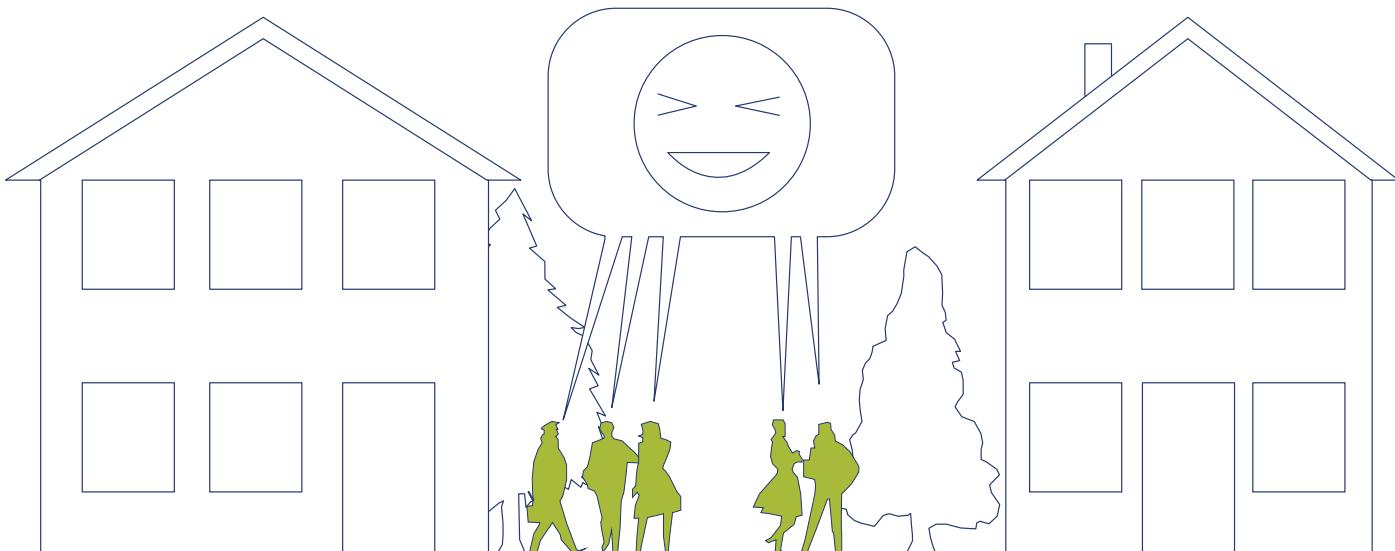
Suspicion and differentiation between ethnicity, class and age groups shall be reduced. However, the activities are inclusive and low threshold to make them attractive for everybody, as the overall goal is inclusion to enhance life-quality and security. Events could be hosted by engaged citizens, churches, institutions, social workers, landlords or Trondheim community.

All kinds of positive events are thinkable to accomplish this, for example shared work projects (dugnad), community festivals, an activity house, community campaigns, a food festival, flea market or a free fridge. It is likely that it takes some time and patience to organise events (up to several years for example for an activity house) and it probably also needs some repetitions until they are established and accepted in the community.

People’s lack of initiative and shyness in approaching each other could be an obstacle. It seems possible that with peoples decreased identification with churches, institutions and different denominations it could be difficult for some organisations to set up events.

The idea of a food festival is drawn from the “Restaurant Day” which originated in Helsinki. On several days each year, everyone is allowed to “open” a restaurant and sell homemade food on the streets. This is highly accepted and very popular in Finland’s capital. People gather in parks and central streets and offer all kinds of foods. The environment is very friendly, people chat with strangers and are interested in each other. People that came to Finland from other countries can share their own typical cuisine. Such a restaurant day or food festival could be enriching for Trondheim as well.

Food and hygiene regulations would be a challenge and it might take several food “Restaurant Days” until this event is really appreciated and established. It would be a great opportunity for people to meet, get to know their neighbours and try something new. Immigrants get chance to contribute and show their culture. This can definitely be a step to initiate a greater mutual appreciation and knowledge amongst the people of Trondheim.



7.5 ALTERNATIVE HOUSING

Trondheim is a city in rapid growth (Statistisk sentralbyrå, 2014). The increasing population leads to insufficient housing and the market pushes the prices up, leading to people living in sub-standard conditions or far from the City Centre. As a result the city is increasing in size and environmental footprint, as well as the need for infrastructure and public transport. At the same time its inhabitants are encouraged less and less to be physically and socially active (Montgomery, 2013).

To counteract this trend, two propositions are encouraged:

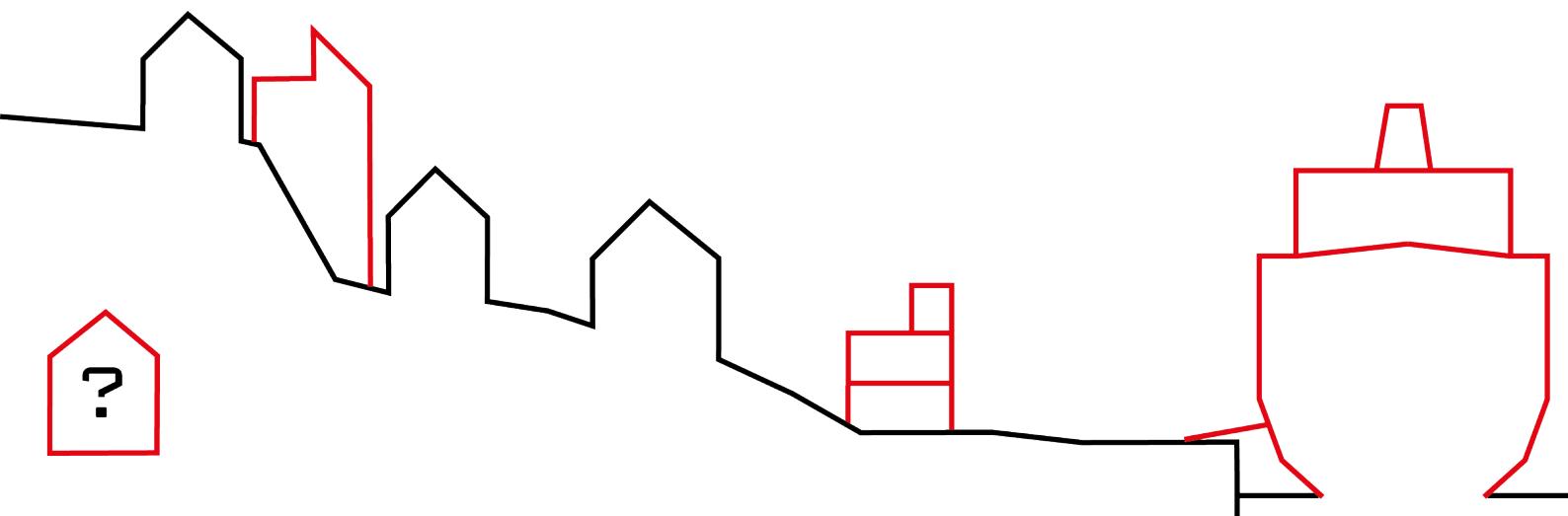
EXPERIMENTAL HOUSING

The first proposition is an experimental housing programme in Trondheim. The programme starts with student competitions, arranged by the municipality in cooperation with NTNU and private actors. This is an inexpensive way of generating new ideas for the city, and could prevent the brain drain that Trondheim experiences by keeping students engaged and involved with the city.

Arenas for the experimental housing could be the suburban structures surrounding the City Centre, making infill suburban city blocks or temporary housing units. An example of the temporary dwelling is the Stavanger based MyBox, a shipping container based apartment project.

Another pilot project is the Dutch Heijmans ONE temporary single housing projects, where the housing units can be set up or taken down in a day, and is made for affordable housing on vacant urban lots. The use of the properties keeps the areas' values up, keeps them safe, and gives a better use for the city fabric.

Other scenes for the experimental housing programme could be an entirely new pilot area, modelled on the Copenhagen Ørestad district, in which all buildings are in some way experimental, or on the fjord and river - using boats, cruise ships, and unused oil platforms as ways to live close to the City Centre.



REUSE VACANT BUILDINGS

The second measure proposed is the reuse of vacant buildings for residential purposes. First, the vacant buildings would need to be mapped and an inventory to be made of them. Why are they vacant, and for how long have they been vacant? If a building has been vacant for a year or more, the municipality should be allowed to take possession of it and turn it into social housing.

This could make sure that landlords would put these houses to good use, rather than letting them fall apart, and if they fail to do this, the municipality will.

Buildings in Trondheim that should be used include the Nidelva storage buildings and the Jugend style apartment buildings lining Elgeseter gate, that are currently up for demolition.

7.6 PRESERVATION THROUGH SMARTER COMMUNITIES

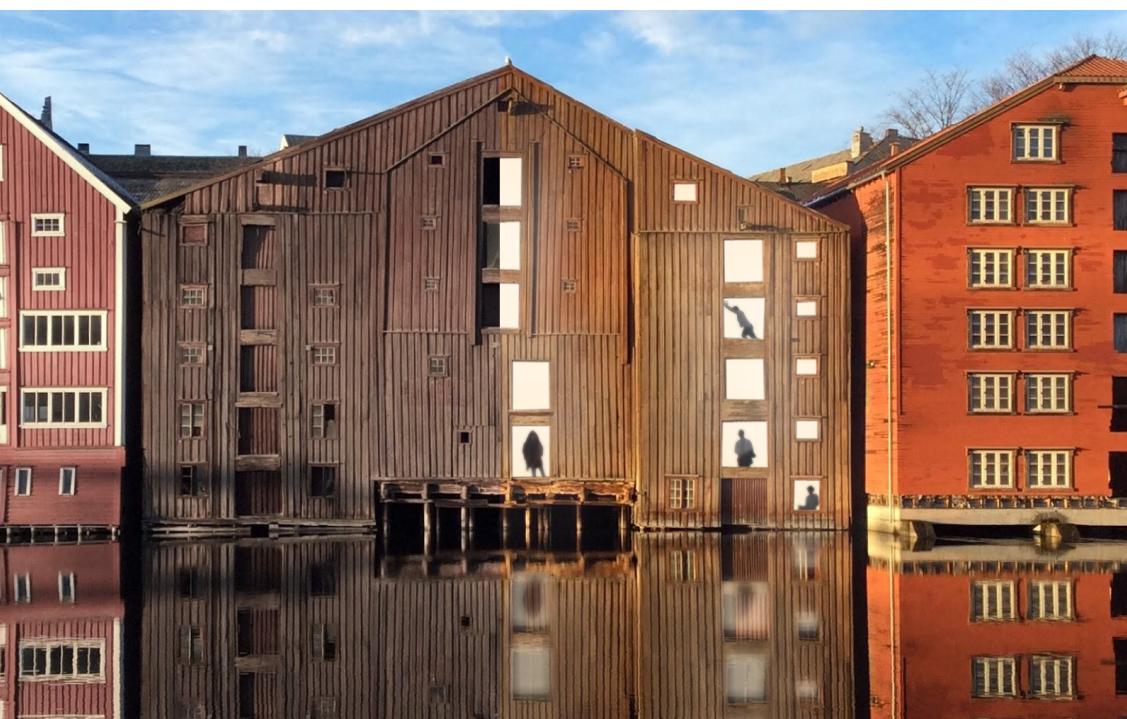
To improve the condition of buildings in Trondheim and to establish better living conditions, we suggest to: identify owners of decaying houses and give basic emergency training to appointed tenants in the local communities of Trondheim.

IDENTIFY OWNERS

Once you identify owners of decaying buildings you can research the reason behind the lack of maintenance. By making this into a public matter, more pressure is put on the owners, which may pressure them to restore and use the buildings. This forces the landlords to sell the property to people who will invest and preserve it.

COMMUNITY RESPONSE TEAMS

To decrease damage of life and property we propose to set up specialized drill teams of local inhabitants in a defined area. Some should have training in evacuation, fire fighting and paramedics. This has been done in the eco-district of Svartlamoen, where it has shown success. One of the interviewees in Svartlamoen could tell us that he had experienced a fire in his apartment building, and the Svartlamoen community managed to put out the fire long before the fire-fighters even arrived at the site.



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