

Moving from Vulnerability to Capability

The role of Social Capital for Disaster Risk and Resilience

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Abstract:

Resilience, the ability to withstand or adapt to altered conditions, gets more important as the grave effects of climate change intensify. Individuals' capacities to respond to disasters are strongly connected to their social capital (e.g. relationships and networks). The aim of this paper is to contribute to the understanding of this connection at a neighborhood level. In the first part of this paper, a theoretical analysis of the linkage between capacities for resilience and social capital is made and an analytical framework is developed to investigate this relationship further. The second part of the paper applies the framework to analyze this linkage in a case study of individuals living in Gröndal, Stockholm. Stockholm is chosen because it is predicted to be affected by climate change in the form of increased frequency of extreme weather, storms, floods, sea level rise, and heatwaves (Ekelund, 2007). Yet the city's environmental department fails to address social capital in their climate action plan. Gröndal, a neighborhood in Stockholm, is particularly vulnerable as it is predicted to experience floods (Stockholms stad, 2014). This paper shows that it is not social capital per se that enhance capacities for disaster risk and resilience, but rather '*enabling*' relationships. Enabling relationships, a concept developed throughout this paper, is a special type of social capital, which enables certain positive actions (e.g. support, changed behavior) that can help people to cope with disasters or adapt and transform in order to reduce negative effects from disasters. The results indicate that strong bonding ties (e.g. family groups, friend groups, and friendships with neighbors) promote capacities that make it easier for people to cope with hazards and recover from disasters. Relations with neighbors can enhance the capacities to be resilient as feelings of companionship and respect can encourage people to help each other and develop enabling relationships. A lack of enabling bridging ties was evident, which contributes to a lack of adaptive and transformative actions. The results also indicate a high dependence on electricity-based information and communication and a lack of awareness of contingency plans. Thus, there is a need to inform people about how they should act if disasters occur and to develop non-electricity based information and communication tools, as electricity might be compromised during disasters. Because social capital can create enabling relationships that enhance resilience within a community, disaster programs should target the social infrastructure within communities in order to be effective.

Keywords: Floods, Stockholm, Gröndal, Climate Change, Capacities, Adaptation

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"I have been to hell and back and let me tell you it was wonderful". - (Louise Bourgeois)

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List of Abbreviations

BoT Bonding Ties

BrT Bridging Ties

CCA Climate Change Adaptation

CR Capacities for Resilience

DRM Disaster Risk Management

DRR Disaster Risk Reduction

GD Gröndal

IPCC Intergovernmental Panel on Climate Change

MSB Myndigheten för Samhällsskydd och Beredskap/Swedish Civil Contingencies Agency

OECD Organisation for Economic Co-operation and Development

SC Social Capital

SMHI Sveriges Meteorologiska och Hydrologiska Institut/Swedish Meteorological and Hydrological Institute

1 Introduction

The ability to withstand or adapt to altered conditions, a concept commonly referred to as resilience, is getting more important as the grave effects of climate change intensify. The magnitude, duration, and frequency of extreme weather and climate related hazards increase as a result of climate change (IPCC, 2012). This in turn increases the risk of adverse effects from natural disasters (e.g. economic losses, deaths and injuries). Urban communities tend to be more vulnerable towards disasters because of the accumulation and agglomeration of people and human activity. How well a community can withstand or adapt to altered environmental conditions is of crucial importance for the well-being of its inhabitants and it is a precondition to achieve a sustainable development.

The capacity of individuals to respond to disasters is strongly connected to their social capital (e.g. their social ties and bonds), but how, exactly, does social capital influence individuals' capacities to be resilient? How can we understand this connection better? Aldrich (2012) argues that social capital can be more important than both financial and physical capital when it comes to disaster resilience. Social capital is argued to be both the cheapest and most effective way to address the threats of disaster (Aldrich, 2012), but how can we enhance social capital and individual capacities to respond to threats of disasters? What channels and potential tools can be used to promote resilience through social capital? The aim of this paper is to make theoretical contributions to the understanding of the relationship between social capital and capacities for resilience and to find ways to enhance individual capacities to be resilient. The following research questions are used to accomplish this task:

Research Question 1: *What is the role of social capital in disaster risk resilience at a community level?*

Research Question 2: *What channels and potential tools can enhance individual capacities for resilience?*

In order to better understand the relationship between social capital and resilience on a community level a case study is conducted in one specific neighborhood, namely Gröndal in Stockholm. Threats of hazardous events will become more evident in Stockholm as the city is expected to experience sea level rise, flooding, increased temperatures, and more extreme weathers, especially storms and rainfall, due to climate change (Ekelund, 2007). Gröndal is one of the areas that is projected to experience floods due to climate change (Stockholms stad, 2014). After an initial literature review, it was clear that the environmental department of the city of Stockholm fails to address the role of social capital and individual capacity in its action plan to climate change. Adding to this is a lack of data on

social capital in Stockholm in relation to capacities to cope with climate change. This paper aims to address these gaps in order to identify and address potential vulnerabilities towards climate change related hazards in Stockholm. The following research questions are used to accomplish this task:

Research Question 3: *What types of social capital exist within Gröndal?*

Research Question 4: *What kinds of capacities for disaster resilience exist in Gröndal?*

This research is carried out in two parts. In the first part, an extensive literature review in chapter 5 & 6 serves as the base for a theoretical analysis with the aim to conceptualize the linkage between social capital and capacities for resilience. An analytical framework is developed in chapter 7 to help identify this linkage. In the second part, chapter 8, semi-structured in-depth interviews with four individuals deepen the investigation of this linkage by applying this framework to the specific case of Gröndal.

2 Climate Change and Disasters

2.1 Climate Change Related Disasters and Capacities for Resilience

Climate change is now recognized beyond scientific doubt as a global phenomenon that affects societies and the environment. One way in which climate change affects society is by increasing the risk of hazardous events and disasters, such as floods and storms (IPCC, 2007a, 2012). Disasters cause substantial losses, both in the form of lives and economic destruction and damage (Revi et al., 2014). This calls for the need to develop capacities to cope with disaster before they occur in order to reduce these losses. The level of capacities to cope with disaster can have a significant effect on the outcomes of a disaster, such as how quickly a society can bounce back after a shock and how much damage the disaster causes.

There have been many disasters around the world where the capacities of local inhabitants have proven to be an important factor in the response and recovery phase. Information distribution and the ability to organize collective action were, for instance, important features during the Brisbane floods (Bohensky & Leitch, 2013). The community spirit as well as access to transportation turned out to be determining factors for the ability to respond to and recover from hurricane Katrina (Colten, Kates, & Laska, 2008) and Superstorm Sandy (NYC 2100 Commission, n.d.). Thus, individuals' capacities to respond to climate change is of crucial importance for the development of robust and resilient societies. These capacities are especially important to consider in areas that are likely to experience climate related disasters or hazards. Revi et al. (2014) argue that an efficient climate change adaptation (CCA) strategy should enable the capacities of vulnerable communities.

2.2 Climate Change Hazards in Stockholm, Sweden

Sweden has as an effect of climate change experienced several flooding incidents and related problems in the past 30 years and the problems are expected to increase in the future (Ekelund, 2007). Stockholm is situated by the Swedish coastline and is comprised of numerous islands and peninsulas. The OECD (2013) predicts that floods will be more frequent due to climate change. Vast parts of Stockholm can be flooded already in the current climate conditions, yet the precipitation in Stockholm is expected to increase with 20-25% during 2071-2100 from the levels measured between 1961 and 1990 (Ekelund, 2007).

Smith, Anderson, & Moore (2012) argue that it is important to make an information assessment prior to disasters in order to enable preventive action. In a report for Stockholms stad on climate change and adaptation, local vulnerability analyses and measures are called for (Ekelund, 2007). By making

assessments and analyses of how vulnerable Stockholm is now, before climate extremes occur, vulnerabilities can be reduced and ways to enhance the capacities of individuals to be capable to withstand harm can be developed.

3 The Case Study

3.1 Stockholm

Stockholm is the most heavily populated area in Sweden and it is chosen as a focus area because urban communities are, *ceteris paribus*, more sensitive to disasters. The impact of a disaster is in general higher in urban areas because cities are not only more densely populated, but are also where most human activity, infrastructure, and other assets agglomerate (Revi et al., 2014).

Urban features have a significant effect on social capital which in turn influences the individuals' capacities for resilience. Putnam (2001) argues that the trust in the thin connections¹ is lower in large cities, due to a lower level of ability to control those relations. If you meet someone in a big city and ask for a favor or help there is a high chance that you will never run into that person again and the feeling of reciprocity is harmed. Further, the trust for the generalized other is lower in large cities due to the fact that larger cities, in general, are subject to higher crime rates and this influences people's experiences and social norms which translates into a lower level of trust (Putnam, 2001). People in big cities are therefore less likely to help a stranger in need (Putnam, 2001).

Social capital is completely ignored as a factor when it comes to the city of Stockholm's environmental department's assessment of climate strategies and its investigation of how climate change will affect the city. One potential reason for this might be because there is a lack of relevant and available data of local social capital in regards to resilience. By trying to conceptualize social capital in one of Stockholm's communities and relate it to capacities towards climate change related hazards, this paper serve as a base for how to discuss climate change effects in Stockholm in this, for the region, new manner. This could potentially open up for new sets of climate strategies and policies linked to social capital.

3.2 Gröndal

Gröndal is chosen for this study because of its vulnerability to climate change related hazards. It is an urban neighborhood in Liljeholmen-Hägersten, which is a southern borough in central Stockholm. Gröndal is one of the areas in Stockholm predicted to experience floods as the climate changes (Ekelund, 2007) (See Figure 1).

¹ Thin connections refers to "the generalized other", people you share some networks with, but have little personal experience with.

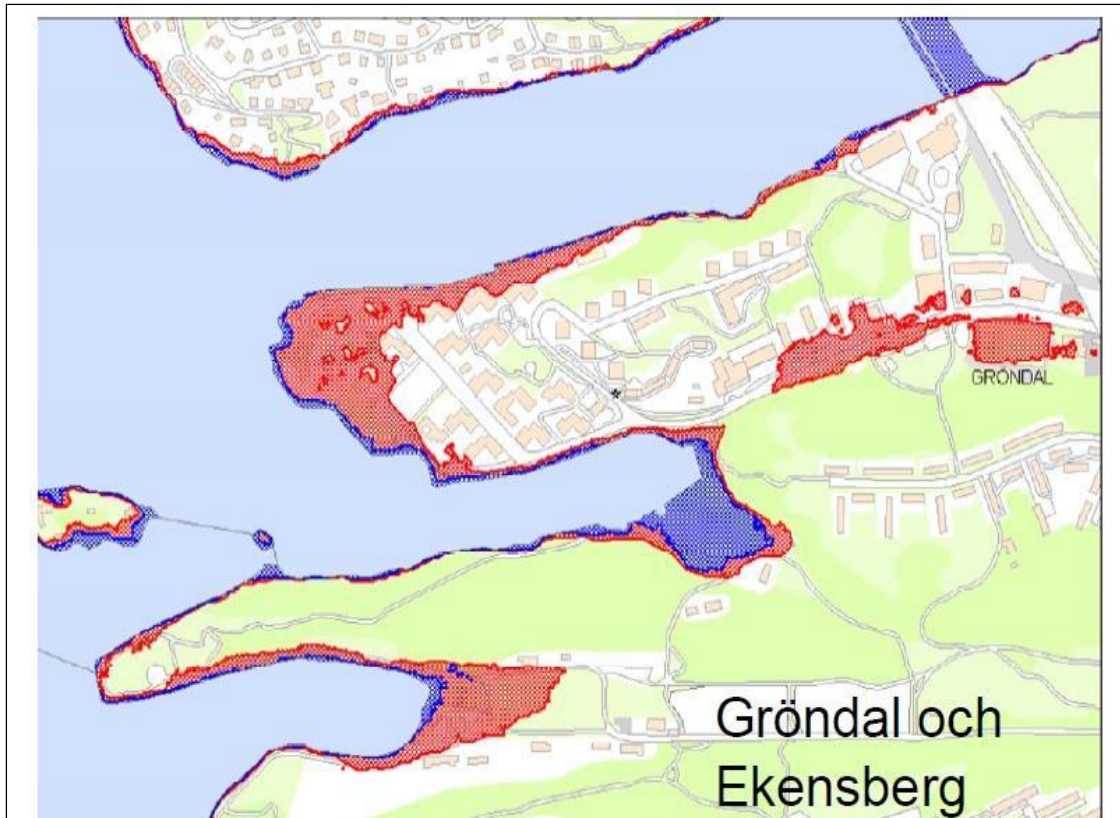


Figure 1: Map of Gröndal, Stockholm (Ekelund, 2007). The blue area indicate the so-called 100 year level (+1.30 m), which corresponds to a probability of 63% or more that a flooding incident will occur within the next 100 years. The red area is the corresponding dimensioned level (e.g. when dams are used) (+2.33 m).

Gröndal has both a higher density of people per land area and a higher rate of water to land than the average numbers in the municipal district administration². Gröndal is 158 ha, with 90 ha of land and 68 ha of water (Stockholms stad, 2014). The population growth rate between 1992 and 2002 was about 10% and the number had increased to 15% between 2002 and 2012³ and is continuously increasing (Stockholms stad, 2014). According to Stockholms stad (2014), the district had a population of 7790 people in 2013 with a density of 87 inhabitants/ha and its population is estimated to continue to grow (Stockholms stad, 2014). The district's dwelling density is, according to Stockholms stad (2014), 1,89 person/dwelling, which is slightly lower than the average number in the municipal district administration Hägersten. These features increase the districts vulnerability as more water means higher risk of flooding and a higher density of people implies that more people are affected. Moreover,

² Own calculations derived from data provided by Stockholms stad (2014).

³ Own calculations derived from population data provided by Stockholms stad (2014)

a low dwelling density could potentially decrease social capital and correspondingly the individual resilience towards disaster.

4 Research Design

4.1 Ontological and Epistemological Considerations

In order to choose a method that can provide answers to this paper's research questions, a reflection on how to get the data to answer the proposed questions (e.g. methodological considerations) needs to be made. The starting point of such reflection is to think about what kind of reality that should be explored (e.g. ontological considerations). A reflection on how to get the required knowledge for this kind of reality (e.g. epistemological considerations) needs to be made following that. Thus, an informed decision on how to proceed with this research can only be made when there is an awareness of what kind of knowledge that is needed to understand this reality.

This paper takes a constructivist ontological approach, which implies that social properties are constructed by the interactions of individuals rather than a pre-given external reality (Bryman, 2012). Although disasters and climate change can be studied with a positivist account, as they are phenomena which we can derive absolute knowledge about from real observations, I argue that the relationship between social capital and disaster resilience cannot be described by a single reality. The reason for this is because these phenomena are influenced by social actions and structural powers which are constantly being constructed and reconstructed by different dynamic forces across space and time. Thus, these phenomena are not given by themselves, rather they are constructed. How we understand these complex social phenomena are subject to shifting paradigms as how we view the world are shaped by culture and varying practices.

An interpretivist epistemology approach is chosen because there is a need to understand the social world that constructs the reality that this paper seeks to explore. Bryman (2012) explains interpretivism as an approach to gain access to people's thinking and interpret their social world from their own understanding and their actions. This approach is chosen because I argue that we can only understand reality from our own understanding of it, and this is shaped by 'the lifeworld' (Angen, 2000). Thus, we cannot be objective as we are subject to "the world of our lived experience" (Angen, 2000, p. 384) and the only way in which we can seek reality is by interpreting it. The aim of this paper is not to seek an objective truth, but rather to add to a broader scientific debate by discussing the results.

A qualitative study is chosen as the appropriate research methodology because it is by exploring attitudes and meanings that an understanding of the social world that constructs the reality can be achieved. Holliday (2007) explains qualitative studies as studies that look deeply into behavior within

certain social settings and which explore underlying attitudes and meanings as well as their underlying social values.

4.2 Methods

This research takes form in two different parts. In the first part a theoretical analysis is conducted to explore the relationship between social capital and resilient capacities. The second part of the paper analyzes the link between social capital and capacities for resilience in Gröndal. This is done by in-depth explorative semi-structured interviews with four inhabitants of Gröndal. Interviews emphasize words rather than trying to quantify data (Bryman, 2012) and could therefore help to understand and interpret people's behavior and attitudes as well as their meaning. A simple supervised questionnaire (appendix 1 & 2) in combination with the interviews is utilized to aid the process of answering the third and fourth research questions as these are less analytical and require less interpretation. The questionnaires are completed with the help of the researcher in connection to the interviews.

4.2.1 The Interviews

The respondents were informed prior to the interviews that all responses are anonymous and treated with complete confidentiality. All of the responses were recorded with permission of the respondents and transcribed. The interviews were conducted in Swedish to minimize the risk of misinterpretation, as all of the respondents are native Swedes. All quotes used in section 8 were translated to English and are therefore subject to the researcher's interpretation. The responses were transcribed in Swedish in order to avoid the loss of any linguistic undertones. The coding was made in English and was conducted in the software MAXQDA.

4.2.2 Data Analysis

The data was coded and analyzed with the approach suggested by Ryan & Bernard (2003, p.85): "1) discovering themes and subthemes, (2) winnowing themes to a manageable few (3) building hierarchies of themes or code books, and (4) linking themes into theoretical models". Further, the coding was conducted line-by-line and developed into four broad themes, namely **demographics**, **capacities for resilience**, **social capital**, and **connections between social capital and capacities for resilience** (see appendix 5 and 6). The analytical framework developed in section 7.3 was utilized in order to identify themes and specific codes. Available research and theoretical foundations were used to develop initial themes. After the interviews and questionnaires took place, these themes were developed further by looking at the data in connection to the theories. This kind of process helped to interpret and organize the data and to conceptualize the phenomena at hand.

4.2.2.1 Measures

Neither resilience nor social capital has a universally accepted measure. This paper therefore developed and tailored measures for the questionnaires and interview guide by drawing on a combination of available research and theories with regards to the ambition and scope of the paper.

The first step in this process was to determine what kinds of capacities and whose capacities to analyze. This paper focuses on individual capacities that incorporates social aspects, i.e. those that involve some sort of social exchange, (e.g. relationships, networks, communication, or information). The following measures were used to analyze capacities for resilience:

1. Presence and quality of information and communication channels
2. Awareness of risk and contingency plans
3. Access to risk information
4. Presence of formal insurance as well as informal social safety nets
5. Community competence in the form of ability of collective action, collective efficacy, collaboration and trust
6. Economic and social dependencies

When it comes to social capital the following measures were used:

1. Size of networks
2. Type of relations (e.g. informal, formal, bridging ties, bonding ties)
3. Frequency of encounters with social contacts: neighbors, friends, and family
4. Proximity to and locality of social networks and relationships
5. Engagement in associations/organizations, civic engagement
6. Strength of relations measured in degree of emotional intensity, (i.e. weak ties, strong ties)

4.2.3 Sampling

A sampling frame is a set of criteria in which we can draw our samples from. Holliday (2007) argues that a research setting must have a sense of boundedness, it should be sufficiently small and sufficiently rich, it needs to be accessible, and it should provide a variety of interconnected and relevant data. The sampling frame for this research was Gröndal. The reason for choosing one area was to be able to hold other features constant and limit the impact of other variables to influence the result. Thus, the criteria for selecting respondents was that they should live within Gröndal.

The sampling of data was done with purposeful sampling. Inhabitants of Gröndal were approached through available connections in the area, word-to-mouth, and social media directly targeted at inhabitants from Gröndal⁴. The reason for why a purposeful sampling strategy was chosen rather than

⁴ The Facebook-group and webpage *Bättre Stadsdel Liljeholmen-Gröndal* was used.

a probabilistic sampling strategy was because a probabilistic sampling strategy was not feasible, due to time constraints and limited resources, which would inhibit the ability to go in-depth and explore the responses. Further, an interpretivist researcher does not seek an objective truth, but rather aims to add to a scientific debate (Angen, 2000). Therefore a smaller number of respondents were chosen in order to explore these more in-depth to find general themes and trends rather than to give a statistical representation. A certain number of interviews were not chosen prior to the fieldwork. Yet, somewhere between three and six interviews were estimated as an appropriate number of interviews with regards to time constraints and the scope of the paper. In the end, four interviews were conducted.

5 Resilience, a Theoretical Starting Point

5.1 Resilience

Resilience refers to the ability of some entity (e.g. a building, an ecosystem, a community, a person) to deal with some type of shock or stress to a system. Even though the concept is widely used, it lacks a universally agreed upon definition. Originally it was defined by Holling (1973) as “a measure of the persistence of systems and of their ability to absorb change and disturbance and still maintain the same relationships between populations or state variables” (p. 14). This original definition focuses on equilibrium in ecological systems, but the concept has developed and is now commonly used in various branches of sustainability science that deal with social systems (e.g. Disaster Risk Reduction (DRR), Disaster Risk Management (DRM), and CCA).

When applied to social system, resilience theory has been critiqued for failing to recognize the importance of social change and transitions (Jerneck, Olsson, 2008) and for not being readily applicable, at least not in its current form, to the complexity, multi-scalar and systems features, as well as the agencies of social systems (Davidson, 2010). Even though the concept can be misused or needs further development to fit the intrinsic features of sustainability science, it still points to the crucial need of readiness towards the unavoidable adverse effects of climate change.

Moreover, when applied to social systems, resilience theory needs to draw from other social science fields, such as psychology, in order to fully understand how social resilience functions. One way in which this is relevant to our case is how different forms of biases affect people’s resilience. There are various social and psychological biases that are important to take into account when analyzing people’s behavior in relation to disasters. An awareness of these types of biases makes the process of analyzing resilience more comprehensible and enables us to target these biases better when we design tools and channels to promote resilience in specific communities.

There are different levels of societies (e.g. individual level, community level, organizational level) where resilience is important. This paper focuses on resilience of communities on a neighborhood level against climate change related hazards and disasters. A commonly used definition of social resilience, in regard to disasters, is Adger’s (2000) definition of what he calls societal resilience as "the ability of groups or communities to cope with external stresses and disturbances as a result of social, political, and environmental change". Adger’s definition is relevant in our case, but with a sole focus on stressors and disturbances resulting from environmental change.

Some communities, individuals, or whole societies are seemingly less affected in general by disasters than others. Thus, there are different degrees of resilience across time and space. Béné, Wood, Newsham, & Davis (2012) propose that there are three components of resilience, which they categorize into absorptive coping capacities, adaptive capacities, and transformative capacities. Absorptive coping capacities imply a persistence to shocks, adaptive capacities imply an incremental adjustment, and transformative capacities imply a transformational response, i.e. the creation of a new system (Béné et al., 2012). Béné et al. (2012) argue that these different responses correspond to the degree of the shock, where a smaller shock implies less change. Further, more intensive change is assumed to be associated with higher costs and greater risks (Béné et al., 2012).

If we want to avoid damage and minimize costs it is important to be able to measure resilience, or rather the lack of resilience, prior to a disaster so that it can be enhanced before a disaster hits. Yet there is a lack of data on where and what capacities lag behind, which makes it hard for practitioners to make any informed decisions or actions to enhance resilience (Winderl, 2014). A fundamental challenge when it comes to research about resilience is that it is extremely hard to measure and even harder to quantify resilience. Adding to this is that even if one succeeds to quantify resilience it can only be done in retrospect of a disaster, when the damage is already done. Another problem is that one system's resilience could never be compared to another system's resilience as the exact same shock or disaster will never hit one specific place twice, making cross-time comparisons difficult. Comparisons across-space are also difficult because the exact same disaster does not tend to hit multiple areas at the same time, thus other factors cannot be held constant. This paper will try to overcome this fundamental problem by analyzing the capacities to be resilient. As opposed to measures of resilience which focus on outcomes of an actual disaster, measures of capacities for resilience focus on outputs, (e.g. reduction of vulnerability and reduction of exposure) (Winderl, 2014). The benefit of measuring capacities for resilience rather than resilience in itself is that it could be done prior to a shock and can therefore steer action. The disadvantage is that such measures do not inform if and by how much these capacities will be used as well as their effectiveness (Winderl, 2014).

5.2 Vulnerability

Closely linked to resilience is the concept of vulnerability. As with resilience, there is no consensus on the meaning of vulnerability and the concept is used in various fields of research (Gallopín, 2006). A common feature across different definitions is the relation of vulnerability to sensitivity and exposure to shocks as well as the state of a system relative to a threshold of damage (Luers, 2005). A vulnerability assessment enables the identification of individuals and places that are susceptible to harm and what

measures that can reduce their vulnerability (Luers, 2005). Arguably, if a person does not possess capacities to be resilient he/she is more sensitive towards hazards and therefore more vulnerable. Thus, by assessing capacities for resilience vulnerabilities can be identified.

5.3 Adaptation and Adaptive Capacity

Pielke (1998, p. 159) explains adaptations as “adjustments that can be made within individual groups to reduce society’s vulnerabilities to”. Yet, adaptation does not only need to aim at the reduction of harmful exposure or sensitivity, but could also take advantage of beneficial opportunities. The IPCC (2007b) defines CCA as “adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates, harms, or exploits beneficial opportunities”. Adaptive capacity is defined as “the ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or to cope with the consequences” (IPCC, 2007b). Thus, adaptive capacity is simply the ability of a system to adapt, which does not necessarily mean that the system will adapt, while adaptation is the actual response of a system to climate change. This paper focuses on the capacities to deal with climate change, i.e. adaptive capacities. The reason for this is because the focus of this paper is on the ability to deal with future hazards rather than current or past hazards. This is because we want to be able to target vulnerabilities and capacities before a disaster occurs as it enables a reduction of harm and damage.

5.4 The Link between Resilience and Adaptive Capacities

Social resilience points to the need of building or developing capacities in different levels of a society in order to withstand or adapt in response to a broad set of risks. Norris, Stevens, B. Pfefferbaum, Wyche, & R.L. Pfefferbaum (2007) argue that communities possess the potential to function and adapt effectively after a disaster, but in order to do so they depend on certain resources that have dynamic attributes, so called adaptive capacities. These adaptive capacities are categorized into four sets: economic development, information and communication, community competence, and social capital (Norris et al., 2007).

In figure 2, I conceptualize how a resilient community depends on these different adaptive capacities. It is only when these capacities are utilized in combination that resilience is enabled. The arrows indicate the process of linking these capacities together, which when done in the aftermath of a disturbance is what Norris et al. (2007) call community resilience. Figure 2 does not describe what

creates the ability to link these capacities together, i.e. the capacities to be resilient. In order to investigate this further we now turn to the theory of social capital.



Figure 2: Conceptualization of the connections between adaptive capacities and a resilient community

6 Social Capital

6.1 What is Social Capital and Why is it Important?

Social capital exists and takes form in relationships and networks between and among actors (Dynes, 2005; Coleman, 1988). When these relations are altered in a manner that facilitates action, social capital is created (Coleman, 1988). Smith et al. (2012) conceptualize social capital as stocks of resources available to individuals through their social ties, examples of such resources are information, ideas, and support.

This notion implies that an ability to capitalize on social networks as well as features of social organization (e.g. trust and norms), can improve the efficiency of a community or society to engage in coordinated endeavors (Bankoff, 2007) and collective action (Dynes, 2005). Putnam (2001) states that there is a substantial value in social networks as they create tools and knowledge, which can enhance the productivity of an individual as well as of a group. Social networks generate channels in which people can recruit one and another for good deeds (Putnam, 2001). Putnam (2001) argues that it is from social networks that norms of reciprocity and loyalty evolve. These norms focus on the well-being of others and they are enhanced in closely tied networks (Putnam, 2001).

6.2 Agency & Structure

Within social theory there are diverging ideas of what shapes human behavior. Without taking a position in this great debate it is important to note how agency and structure can influence capacities for resilience by how they shape social capital. It is important to consider where changes in societies occur so that policies, programs, and tools to enhance resilience can target the right change agent. Further, as previously mentioned, resilience as a concept within social systems is criticized for not incorporating agency, but by viewing resilience in the light of social capital and by conceptualizing resilience as enabling relationships (see section 7.3), then agency per facto is taken into consideration. Thus, the concept of enabling relationships can add to sustainability science by making the concept of resilient more apt to social science and transdisciplinarity.

Bourdieu's concept of social capital relates to the structures of society and connects social capital to class struggles and inequalities. Bourdieu (1986) argues that the amount of capital in a given agent is dependent on two factors. The first factor is the volume of capital that the agent himself owns in relationship to those he is connected to and this could be cultural (e.g. education), economic (e.g. money) or social capital. The second factor is the size of the network of connections that the agent is capable to mobilize. Thus, one could say that it depends on the spread of connections and the

magnitude of capital accessible to the agent. The network of connections is not given naturally, but springs from an act of an institution, such as social formation of kinship relations in the shape of a family group (Bourdieu, 1986). Such networks of connections are products of investments made either knowingly or unknowingly, in a group or by an individual, in order to produce or reproduce useful social relationships (Bourdieu, 1986). One example of such network of relationships according to Bourdieu (1986) is that within a neighborhood, such a network can create strong and lasting obligations, either through institutional rights or through subjective feelings, such as friendship, gratitude and respect.

Coleman emphasize the importance of both structure and agency. He believes that social capital can take shape in a variety of forms, but that it is always comprised of two components; first it always involves some sort of social structure and second it makes certain actions easier for the actors within the structure (Coleman, 1994). Coleman (1994) argues that social capital can be defined by its function and that it enables the achievement of certain ends that would not be possible without it. Coleman (1988) believe that social capital is manifested in the knowledge and skills that an individual can obtain and that the creation of social capital at the micro scale can bring forth community connections where it can serve a broader interest. Thus, he does not believe that social capital is dependent on a class system, but rather on individual utilization.

6.3 Types and Forms of Social Capital

Social Capital can be categorized into different forms and types as outlined in Figure 3. The different categories can overlap with each other in different combinations (e.g. a bridging tie can also be a strong and informal tie etc.).

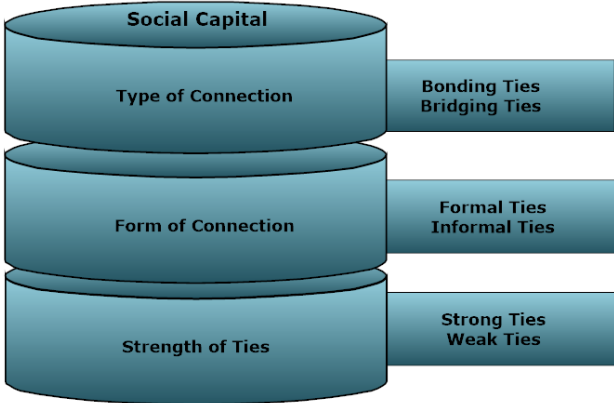


Figure 3: Conceptualization of Social Capital. Social capital conceptualized as a cake with three layers, each of which consists of different features of social capital. The different layers are comprised of two different types respectively (e.g. strong or weak.). One slice of the cake includes a specific type, form, and degree of strength of social capital. Thus, the different shapes (form, type, strength) overlap with each other, which means that a formal tie can be a strong tie and a bonding tie etc. as well.

Putnam (2001) distinguishes between bridging and bonding ties. Bridging ties are argued to be inclusive ties across heterogeneous groups, where connections to external assets and dissemination of information are enabled and identities can be diversified (Putnam, 2001). Bonding ties, on the other hand, are said to be exclusive ties within groups, (e.g. ethnic groups, family groups), which can create crucial physiological and social support (Putnam, 2001). While bonding ties can foster a narrow set of identities they also nurture a strong sense of loyalty within the group and provide a solid base for reciprocity and solidarity (Putnam, 2001).

Another distinction of different types of social capital that Putnam (2001) studied is that of formal and informal connections. Formal connections can be found within associations, such as political parties and labor unions, while informal connections refer to less official meetings, such as gatherings with friends for a drink, coffee with your neighbor or maybe a hello to the person next to you on the bus (Putnam, 2001).

Granovetter (1973) argues that the degree of strength in interpersonal ties is defined by a combination of the emotional intensity, the amount of time, the intimacy, and the reciprocal services they entail. He studied the relations between micro-level interactions to macro-level action and differentiated between weak ties and strong ties (Granovetter, 1973). Weak ties can be explained as acquaintances and strong ties as relations where you know and trust the other individual well. Thus, occasional and brief encounters with neighbors, which do not engage in any deep conversations or actions, could be explained as a weak tie. A strong tie to a neighbor on the other hand, is a relation with more or less daily encounters, mutual help and support, and is connected in a form of friendship.

Putnam's (2001) argued that people spend less time with neighbors and friends as a result of a lack of time, a generation shift, technology and globalization trends, as well as the urbanization trend which has extended the distance between the city center and the residential areas as well as expanded the suburbs, which in turn implies that more time is spent commuting. Yet, as strong ties are on a decline weak ties are taking more place, thus one-time encounters and connections that have a specific focus and a self-centered focus are given more attention (Putnam, 2001). He argues that these trends create a society with limited responsibilities.

7 Theoretical Analysis of the Connection between Resilience and Social Capital

Various studies indicate that there is a positive relationship between social capital and disaster resilience. Connections are important for the general well-being of humans for a variety of reasons. For example, social networks can act as a safety net or unofficial insurance for individuals as they can aid with financial, social, psychological, and physical resources (Putnam, 2001). Putnam (2001) states that several studies have shown that the likelihood of death, regardless of cause, is two to five times greater for people without social networks as opposed to those with close contact with family, friends and/or their local community. Smith et al. (2012) argue that there is a low likelihood of socially isolated individuals to seek medical help, receive assistance from others, and take preventive action as well as to be rescued during a disaster.

Social capital in the neighborhood is important for resilience. When a disaster hits a neighborhood the first to respond are always the locals (Aldrich, 2010). Disaster response can thus be seen as a type of collective action on the neighborhood level. As social capital can enable collective action (Dynes, 2005), it can be seen as a determining factor of the capacities for resilience within a neighborhood community. Putnam (2001) argues that connections from associations (i.e. bridging ties) with a base in the local community are more diverse as opposed to connections with a base in the workplace or religious associations. As diversity is a key feature for resilience, local connections could be argued as enablers of resilience. Smith et al. (2012) hypothesized that local resilience is influenced by the characteristics of individuals' social networks and their social-psychological dependence on their local environment.

7.1 Resilience and Different Types of Social Capital

Resilience can be enhanced both by strong and weak ties. Granovetter (1973) argues that weak ties are indispensable for individuals' integration into communities as well as for creating opportunities. Putnam (2001) argues that strong ties can almost guarantee visits during sickness or injuries. A frequent contact with people in the close surroundings increases the likelihood that someone will notice if a person is missing and goes to check on that person. Putnam (2001) refers to a study made by Bibb Latané and John Darley, called *the unresponsive bystander: why doesn't he help?*, which shows that a person who exchange only a few casual words with a stranger more quickly rushes to help the stranger if the stranger is subject to some type of attack than a person that does not exchange any contact (p. 107-109).

Yet, strong ties can also affect resilience negatively. According to Granovetter (1979) strong ties can lead to overall fragmentation by breeding local cohesion. Such fragmentation could harm resilience if it for instance leads to isolation or discourage cooperation and communication. The relation between resilience and the strength of connections is summarized in figure 4.

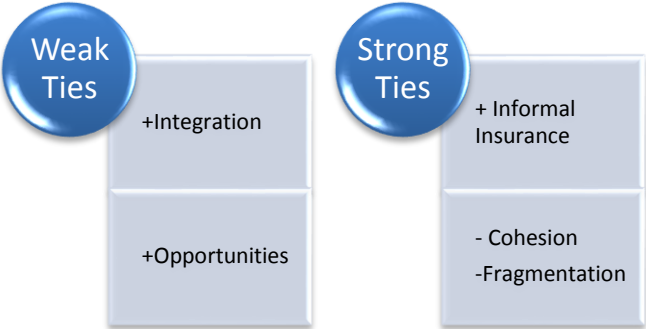


Figure 4: Relationship between the strength of connections and resilient capacities

The types of connections also influence resilient capacities. Bonding ties can enable inhabitants to cope with disasters by providing support and help. Yet, they could also harm resilience, if these narrow sets of ties imply that people are isolated from other groups and individuals and they resist necessary change. Bridging ties, on the other hand, can enhance resilience in a community, by enabling diversification of people, skills, and knowledge (Putnam, 2001). Further these ties allow information to be disseminated across groups and for access to assets from external sources (Putnam, 2001). Yet, there is a risk of losing the sense of solidarity, which is an important feature for a resilient neighborhood, in highly bridged ties. The relation between resilience and the types of connections is summarized in figure 5.

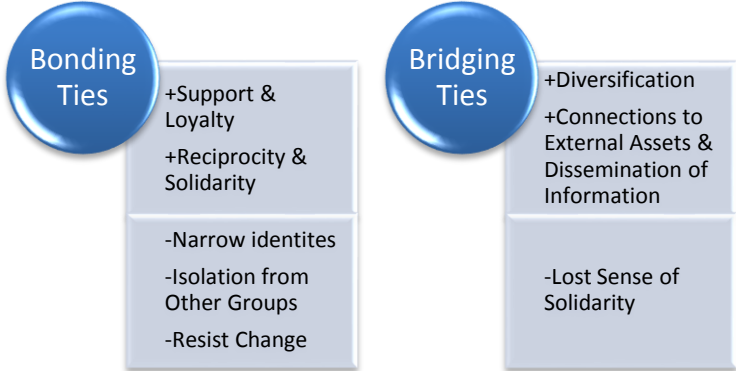


Figure 5: Relationship between the type of connections and resilient capacities

Aldrich (2010) argues that both formal and informal ties can help to overcome different problems. These ties can for example enable actions on an individual level that can benefit the collective. An example of such knowledge can be a risk awareness which modifies the collective’s behavior and enables informal early warning systems. Yet, both formal and informal connections can also instill habits and knowledge that inhibit resilience. Thus, there is no clear direction of the relationship between the form of ties and capacities for resilience. The relation between resilience and the form of connections is summarized in figure 6.

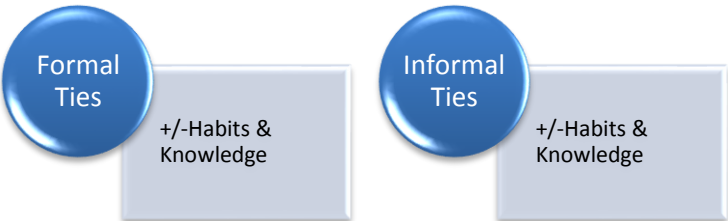


Figure 6: Relationship between the type of connections and resilient capacities

7.2 Resilience and Social Capital in Different Phases of Disaster

Dynes (2005) states that how the community responds to an event could be understood by the concept of social capital. His study shows that the participation of people in search and rescue efforts are not random, rather it is a function of how strong existing social linkages are as well as the dependencies between the rescuers and the victims (Dynes, 2005). Moreover, local volunteers have a deeper knowledge and understanding of the local context and the neighborhood than centralized planners and they can therefore respond more effectively to a disaster.

It is not only during the response phase that social capital is important for resilience. Aldrich (2010) argues that the strength of networks and the level of civic engagement within a community are also positively related to the ability of the community to rapidly bounce back after a disaster, i.e. in the recovery phase. The reason for this is that social ties enhance the distribution of information to relevant stakeholders and facilitate the coordination of action. Although social capital is an engine for the recovery onset to a disaster, most programs for disaster recovery fail to include updated understandings of social capital networks (Aldrich, 2010).

Social capital is not only important in the response and recovery phase of a disaster. In the preparedness phase, it can enable dissemination of crucial resources (e.g. information). Further, the ability to adapt can be a crucial component in all phases of a disaster. Smith et al. (2012) state that the ability of an individual to adapt to climate change can be heavily influenced by its stock of social capital. The access to social capital can both reduce and enhance adaptive capacities (Smith et al., 2012). Bridging ties can for example facilitate actions that go beyond social norms and enable adaptation to changing environmental features (Smith et al., 2012). While bonding ties, which can reduce the diversity within groups and impose rigid social norms, can discourage change (Smith et al., 2012).

7.3 Enabling Relationships, an Analytical Framework of the Connection between Social Capital and Resilience

By studying the connection between resilient capacities and social capital I have developed a simple analytical framework which is used to analyze the interviewees' responses. I argue that in order for social capital to have a positive effect on resilience it needs to lead to some sort of enabling action (e.g. assistance, support etc.). The reason for this is that enabling actions provide capacities for people to cope with, adapt to, or transform because of climate change related hazards. Yet, resilience could also be negatively affected by certain actions, which is why I have chosen to distinguish actions as enabling actions (e.g. actions with a positive effect on resilience).

Thus, what I looked for in the interviewees' responses is a type of social capital that I call enabling relationships. This kind of social capital is conceptualized in figure 7. Enabling relationships refers to relations that enable action, support, aid, or any other kind of absorptive coping, adapting, or transformative mechanism. For example, a relation with someone who helps someone to cope with a disaster, for instance by giving emotional support or by giving first aid, is an enabling relationship because it enables and enhances the individual's resilience. In order to investigate the presence of enabling relationships, questions were asked that do not entail hypothetical questions, but instead concerned actual events and encounters in the neighborhood where people have collaborated and communicated.

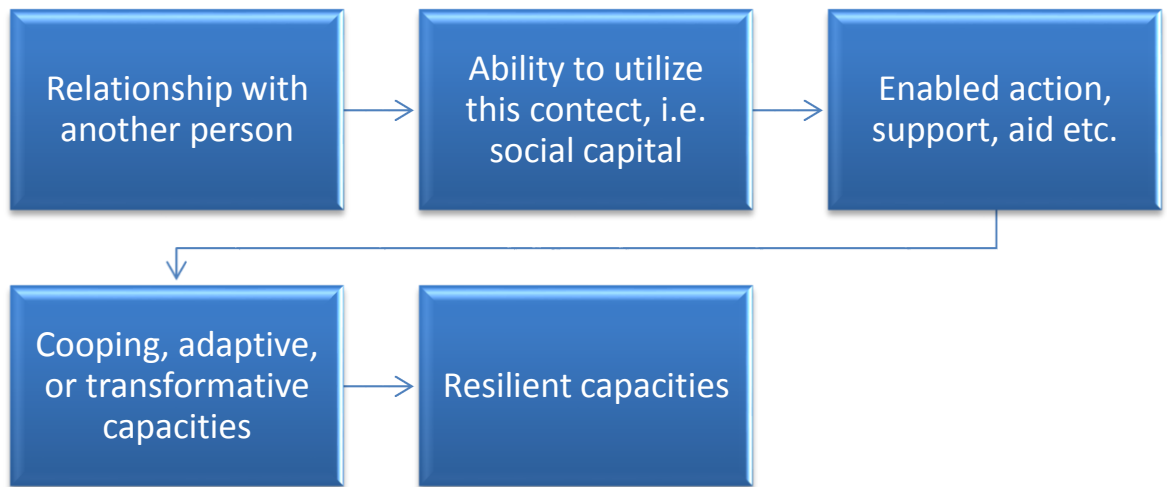


Figure 7: Enabling Relationships. Enabling relationships refer to a specific type of social capital that enables some sort of action which ultimately enhances individuals' capacities to be resilient. These types of relationships can help individuals to cope with a disaster or enable adaptation or transformation in response towards disasters.

8 Interviews: Result & Analysis

This section provides the results of the interviews in conjunction with an analysis of the answers. The reason for why I combine the results and the analysis is because of the interpretivist approach of the paper. Such approach implies that we can only know the world through our attempts to meaningfully interpret it (Angen, 2000). Thus, we can only know the results by analysing them.

The third and fourth research question of this paper are sub-research questions as they are used to aid the process of answering of the first and second research question. The analysis will therefore start with question 3 followed by question 4 and thereafter look into question 1 and question 2 respectively, but first a presentation of the respondents.

8.1 The respondents

Table 1: Representation of respondents.

Respondent	Sex	Age	Occupation	Dwelling Density	Years Lived in Gröndal
Respondent Nr 1	Male	55	Full-time employment in the health sector	Single-household	15
Respondent Nr 2	Female	32	Full-time employment in the energy sector, part-time student, and private business owner	Cohabitant	19
Respondent Nr 3	Male	32	Full-time employment in the education sector	Single-household	12
Respondent Nr 4	Female	42	Full-time employment in the public sector, (government service), parental leave	Multifamily-household	5

8.2 Social Capital in Gröndal

Research Question 3: What types of social capital exist within Gröndal?

Different types of bridging and bonding ties are evident across all respondents, the trust is generally higher for bonding ties than for bridging ties and these are also more frequently associated with support and help, i.e. enabling actions. The vast part of the bridging ties, especially those that are

strong bridging ties, are associated with the workplace. Strong ties and informal ties are more frequently mentioned than weak ties and formal ties.

None of the respondents were born in Gröndal, yet all of the respondents were born and/or raised in Stockholm or surrounding municipalities or cities. All of the respondents expressed a lack of social ties in Gröndal prior to moving there. None of the respondents had any friends or acquaintances in Gröndal prior to moving there and only one of the respondents has a family member which lived in the area prior to him moving there. Yet, all of the respondents indicated that they have gained friends in Gröndal and thus increased their networks after moving to Gröndal. Three out of four believe that this has to some extent to do with the atmosphere in Gröndal, which was described both as convivial and nice by different respondents. All of the respondents indicated that Gröndal appealed to them as a neighborhood, which for most of the respondents influenced the decision to move there:

“He also told me that it was a very beautiful community, close to everything. I had previously moved from Täby, the city with the slogan ‘a city on the countryside, and I think that I didn’t want to move into the city center straight away. So he told me that, here, we have that kind of society, a small-town in the middle of the city. “– Respondent nr 3

“...they described Gröndal like... you kind of greet each other and stuff, in the same manner as you used to do at Södermalm” – Respondent nr 1

The most common type of social capital referred to in the interviews are strong ties. All of the respondents talked about people that they have frequent contact with, some of which entail daily encounters. Several times per month is the lowest frequency that was expressed when asked about the regularity of their contact with people they consider as close family and friends. The reasons to why respondents tend to talk more about strong ties when asked about their social life could be just because they are their closest connections and may therefore be the type of relations that they value the most.

All of the respondents have family members that they expressed a strong tie to. The frequency of contact with these family members ranges from every day to several times per month and all of the respondents have family members living in Stockholm. Another reoccurring theme across all of the respondents is the presence of extended families. All respondents have some sort of strong ties in their families that are not in the traditional family, (e.g. half-siblings, ex-spouses, stepchildren and stepparents) and associated extended families. General feelings of reciprocity and trust were often expressed in connection to these ties and all of the respondents feel that they have people in close connection to them that would help and support them if something happened that would require it.

Further, these types of family members were mentioned frequently as people that the respondents have contact with and have strong ties to. Thus, it seems that a demographic and social change away from traditional families expand social networks and therefore increases social capital.

The frequency of contact and the locality of family members are important features for the capacities to be resilient. A regular contact implies that if some incident happens then the likelihood that someone finds out and aids is higher. Further, if family connections live in close connection to each other their ability to assist and aid are higher. Yet, this mostly reflects the response and recovery phase of a disaster and absorptive coping capacities, rather than transformative and adaptive capacities.

The responses show that many of the strong ties do not live in the respondents' immediate surroundings, but instead live in other parts of Stockholm. This implies that their willingness to help may not always be the most appropriate channel for emergency aid and their help may sometimes not even be possible given the type of situation that emerges. Locals always respond first to an accident and they have more knowledge about the surroundings, which could be an important factor when it comes to the ability to help and take action. This is why the relationships to neighbors are important when it comes to disaster resilience.

When it comes to the relationships with neighbors, all of the respondents indicated a strong tie to at least one neighbor. The relationships with the neighbors were often described as relations that can be categorized as informal ties. Frequently mentioned activities that the respondents engage in together with their neighbors are dinners, barbeques, and the Swedish tradition fika. Three of the respondents explicitly stated that they spend time hanging out with their neighbors and referred to them as friends, while the fourth respondent's answers implicitly indicated such relationships. Two of the respondents stated that they have both informal and formal activities in their neighborhood. They referred to general, yet voluntary, meetings with the residents of their respective buildings as well as more relaxed gatherings, such as barbeques and gardening. The other two respondents stated that they do not have any formal activities in their buildings and the only informal activities that they take part of in their neighborhood are with their friends in the building.

All the friendly relationships with neighbors have developed as a result of being neighbors and thus never from a preexisting relationship. Thus, a lack of history of ties in the area does not seem to indicate that people get more isolated and thus decrease their social capital, at least not in this part of Stockholm. The kind of convivial atmosphere of Gröndal may instead increase the social capital of its inhabitants.

“Personally, I have become a little more open with myself. I used to be more reserved with whom I become friends with, but it is more convivial here” – Respondent nr 3

“Now in the past years, the past ten years anyway, since I moved back to Sweden, I have come to know a lot of..., like sort of neighbors and stuff... and yeah like for example John⁵, he does not even live in the same street, but I know., like we sort of met. So... yeah well I guess I have become more, like... yeah well a bit more like the type of smaller places where you might know your neighbors, that’s not really common in Stockholm!” – Respondent nr 2

All of the respondents indicated that they find the atmosphere in Gröndal as positively correlated with the ability to make connections with people in the area. Further, all of the respondents stated that they, albeit in different degrees, have made friends and connections within Gröndal since moving there. This result indicates a type of social openness, a form of social capital, which could be a result of the atmosphere in Gröndal and/or due to personal attributes of the respondents. It is possible that people with a specific kind of personality, a more socially open personality, tend to like certain types of areas. It is also possible that the specific respondents are more socially open than the average inhabitant, as this type of people may be more likely to agree to an interview.

This result could also be an indication of how frequent movements increase social capital rather than the other way around, which could entail that rapidly expanding cities, such as Stockholm, can enhance the social capital within the communities and between its inhabitants. One possible explanation for this is that the type of people that tend to move a lot might be more open and outgoing in general. It could also entail a snowballing effect where people who tend to move expand their networks every time they move and as these types of people meet others they can connect their respective networks and thus expand the networks within and across communities. This makes people, especially the ones living in expanding cities, more likely to have many social contacts, which they can utilize for various purposes.

All of the respondents expressed some sort of bridging formal ties that they are connected to on a weekly basis, either through work or through voluntary associations and networks. The strength of these ties are considerably lower than with their informal ties and the associated level of trust seems to be, when indicated, lower. Moreover, no enabling actions can be directly related to these bridging ties.

⁵ John is in reality named something else

All of the respondents stated that they consider some of their co-workers as friends which they spend time with outside of work, i.e. engage in non-work related activities and discuss and talk about things not related to work (e.g. informal ties). These sorts of activities were stated to take place on average somewhere between several times per week to several times per month. Meanwhile, some respondents explicitly stated that they keep a strictly professional relationship (e.g. formal ties) to the majority of their co-workers, one of the respondents further stated that the reason for this is a lack of trust for these people. There is an indication across the various responses of a positive correlation between the level of trust and the level of activities that co-workers engage in. Although, one needs to be aware of the possibility that the level of activity that co-workers engage in could be a result of the level of trust and vice-versa, thus there is not a single causality relation between the two variables, at least not as this type of analysis can show.

The majority of the respondents talked about connections and networks that they are part of that can be described as informal bridging ties (e.g. gardening associations, parenting groups). The frequency of contact and the strength of the ties vary across the respondents, but is generally low. These bridging ties occur both within Gröndal and outside of Gröndal. All the respondents that expressed these types of bridging ties indicated a great appreciation of these contacts. Thus, it seems that these types of contacts are important as they enrich and expand the respondents' networks.

A common theme in all of the interviews is a dependence on electricity-based communication. All of the respondents rely, to a high degree, on mobile-phone services and Internet services for how they communicate with their social ties. The frequency of communication between the respondents and their social ties varies from daily to several times a week. Phone calls and text messages are the most frequent ways of keeping contact with family members and friends. Social media was also mentioned several times during all interviews and all of the respondents use Facebook to communicate with their friends or family, although to various degrees.

8.3 Capacities for Resilience in Gröndal

Research Question 4: What kinds of capacities for disaster resilience exist in Gröndal?

No economic or formal dependencies are evident. A high dependence on electricity-based information is evident and a lack of awareness about emergency- and contingency-plans is evident. There are indications of positive illusions and a discrepancy of perceived and actual capacities.

No formal dependencies are evident across the responses. All of the respondents have full-employment with at least a medium annual income⁶ and all stated that they have insurances that cover any economic losses, including loss of income. None of the respondents indicated any formal social dependency (e.g. reliance on medical assistance) that could hinder resilience.

Three out of the four respondents had experienced some sort of natural disasters in various parts of the world (hurricanes, landslides, tropical storms, and earth quakes). Although, this result is most likely only a coincidence it could also be that people with such experience are more likely to agree to do an interview about the presented topic as they feel like they have something to talk about or simply because they want to talk about it. Regardless of why this was evident it present some interesting opportunities to ask about how the respondents reacted and acted during these events.

All of the respondents who had experienced a natural disaster had not helped, aided, or assisted in any way during the event. The reasons for this vary, it was sometimes described as impossible to help or that it was not their task to do so (one of the respondents had experienced disaster in conjunction to her work).

“You couldn’t help... because ... it... it’s something like an organized chaos, when it happens so rapidly... so for me, who do not know the local language or so... well, there was really no meaning to..., even though I had medical training”. – Respondent nr 1

Only one of the respondents had experienced a hazardous event in Gröndal, namely flooding. Yet, three out of four explicitly mentioned that they had experienced some degree of extreme weather in Gröndal, especially heavy rainfalls.

“Flooding ... actually, has almost occurred here many times now when it has been these... AMAZING amounts of rain, you know! But I’ve noticed that our house is not affected ... the flow comes on that side, and then at the far downside ... [] Well, it accumulates, accumulates a lot of water, actually it has been these rainstorms here several times now in the past few years. So, consequently, on this street... it flows like a river almost. And cars cannot pass here and stuff like that.” – Respondent nr 1

It is evident in the response from the candidate that had experienced floods that although the event actually had affected his everyday life, as the light rail traffic did not run and the respondent had to stay inside during the event, he does not feel that flooding affected him. All of the respondents seem

⁶ The lowest income stated by a respondent was 300 000 SEK /year which is somewhat higher than the median annual income of approximately 280 000 SEK in Stockholm in 2013 (Ekonomifakta, 2015).

to believe that a flood would not affect them, most of them stated that the reason for this is because they live on a hill. Yet, no one really reflected upon the fact that most of the services used for everyday needs, (e.g. light rail, bus transportation, grocery shops), are not located on the hills and could be inaccessible if the floods persist for a longer period of time.

Further, the respondents do not perceive themselves to be vulnerable to neither heatwaves nor storms. Their reasons for this vary, some stated that it is because they lived close to water, have air conditioning, or because they consider their building to be safe. One respondent explicitly stated that because they live in a city, rather than on the countryside, with close connection to neighbors, they could easier access people that could help each other, which would make them less vulnerable. The same lack of awareness for the need to access certain utilities in case of persistent events, which is evident in the responses about floods, also applies to other hazards. Only one respondent explicitly stated that he is equipped with emergency supplies while another respondent explicitly stated that she is not equipped with any emergency supplies.

While none of the respondents expressed a belief that they would be negatively affected if a hazardous event occurs in the area, some of the respondents expressed concerns about climate change. One respondent explicitly stated that she would not be surprised if climate change related hazards occurred in the area. Thus, it seems to be some contradictions in people's perceptions. Although, people are aware that hazardous events may happen, they do not think that they would be affected themselves. Johnson & Levin (2009) explain such behavior as positive illusions, which implies that people tend to overestimate their own abilities to handle environmental degradation and think that there is a lower probability that they will be affected by any event personally. This spins off to how they perceive their own risk and vulnerability and it makes people less likely to adapt to changes, which ultimately make people less resilient.

When asked about how they perceive their own abilities to act collectively, collaborate, and communicate in case a hazard or emergency occurred all respondents believe that they possess beneficial qualities and/or could respond to such event in an appropriate manner. All the respondents used examples from their work or from past events where they had collaborated effectively or had aided other people. Yet, as mentioned earlier none of the respondents that had actually experienced a disaster had in that specific event collaborated with other people in order to help others. This could of course be due to those specific circumstances, but it could also be an indication of how the perceived ability to help others in emergencies may be just that, a perceived ability.

The respondents were asked about how they perceive their neighbors ability to act collectively, collaborate, and communicate if something would happen that would require it. The responses vary somewhat across the four interviewees. One stated that he does not know most of his neighbors well enough to be able to make such assessment, but the ability of those that he knows is perceived as good. Another respondent stated that she believe that all of her neighbors have a high ability to collaborate and communicate. The other two respondents stated that there are some people in their building that they perceive as highly qualified to take action and that these could help or take care of the others in their building that have a low ability to respond to threats.

A general lack of awareness is evident when the respondents were asked about their knowledge about their building or areas contingency or emergency plans. None of the respondents feel that they have enough knowledge about where to go or what to do in case of emergency and several respondents stated explicitly that they have no knowledge about their building's emergency plan.

“Fuck, nothing at all I just realized... No, nothing at all [...]...well no, I actually don't know anything! ... I do not even know what I would do, if there was a flood... or well, I would surely just stay where I live because I live on a hill (laughs). But I have no idea...well no... I don't know about the emergency plan of the building or anything...But so there is an emergency plan? Or well maybe they have to have one..., I guess?” – Respondent nr 2

A reliance on electricity is again evident when the respondents were asked about how they access information, (e.g. weather and news). All of the respondents use Internet or mobile-services, (e.g. news applications) to get updates on current events and they access this type of information on a daily basis. Only one of the respondents stated that she use TV for this purpose and only one respondent stated that he use the radio for this purpose. When either TV or radio is utilized it is done in combination with internet-based information and news. Three out of four stated that they use social media to gain information about current events and news (e.g. Facebook and Twitter).

The respondents were asked about what information channels they would use to get updated and reliable emergency information if some hazardous event would happen in their area. Their responses vary. Two of the respondents stated that they have no idea on where they can get this type of information from, but one of them reasoned that it might be possible to search for such information online. Another respondent stated that she would use *krisinformation.se* because she is sure that their information is verified, while another respondent stated that he would use MSB's, SMHI's or Stockholms stad's webpages because he believe that they provide reliable information and update

information faster than other media. Thus, a reliance on electricity-based information is again evident, specifically internet-based information.

Two of the four respondents reflected upon this dependence on electricity and the possibility of blackouts in the case of hazardous events. One of them stated that such event would make coping with the event trickier, while both of them stated that they have access to battery-operated radios from which they could access information. Yet radios generally only allow for one-way communication.

The level of trust for information channels is very low across the responses. Three of the respondents explicitly stated that they have a low level of trust for information presented to them through various channels. The trust in information from newspapers and social-media is particularly low. When respondents indicated a higher degree of trust it is associated with news channels that do not rely on 'news sensations'. Some respondents perceived public radio and local news as such channels. All of the respondents indicated to various degrees that they crosscheck information about events that they are interested in, mostly because of their lack of trust for information channels.

When asked to compare their level of trust in information about hazardous events, most respondents stated that they would rely more on information presented to the general public through various news channels than from their family and/or friends. Yet, they also stated that they would probably crosscheck the information and that the level of trust depends on the situation. When asked about their general level of trust for their close family and friends all respondents stated that they have several connections that they have a high-level of trust for and that if something happened to them they could rely on these people to help them. Thus, the lack of trust for their social ties seem to only concern their ability to provide accurate information rather than being related to feelings of reciprocity and reliance for assistance.

8.4 The role of Social Capital for Capacities for Resilience

Research Question 1: *What is the role of social capital in disaster risk resilience at a neighborhood level?*

The importance of social capital when it comes to capacities for resilience is its ability to enable some sort of action or response, thus it is not relationships per se that are important for resilience, but rather *enabling* relationships. A complex mix of different types of social capital is needed to enhance resilience. While *bonding* ties enhance absorptive capacities to cope with disasters, *bridging* ties can enhance adaption and transformation, but only if they are utilized for action, i.e. *enabling* bridging ties. The bridging ties evident in the responses have not enabled any action and therefore have little

effect on the capacities for resilience. Adaptation and transformation are associated with a higher intensity of change than absorptive coping actions. Extreme hazardous events have not yet been manifested in Gröndal, thus intensive change has not been needed, which could be the reason to why adaptations and transformations (through enabling bridging ties) are not evident.

All of the respondents who had experienced a natural disaster indicated that they during the event had kept contact with or had stayed together with friends or associates. Both formal and informal ties, as well as strong ties and weak ties were utilized during the events. Thus, the type of social capital does not seem to matter as much as the ability to utilize the relation for support. One of the respondents explicitly stated that this connection felt like a security and that it would have felt very onerous if they had not stayed together. Thus, an ability to utilize social capital during a hazardous event can bring an emotional and psychological support, which increases the feeling of safety and enhances the capacity of the respondents to cope with the event. These relationships can be described as enabling relationship, but they only enhanced the ability to cope with disasters, rather than abilities to adapt or transform. The reason for this may be because during an event the primary focus is to survive. Adaptation or transformation is usually associated with the phases prior or after an event has occurred. As the respondents did not live permanently in the places where the events occurred this type of capacity is hard to investigate.

When it comes to the relationships in Gröndal (e.g. relationships to the neighbors) questions about actual events and encounters were asked to see if they indicate any resilient capacity in the form of enabling relationships. The majority of the respondents indicated relations of mutual assistance and support to their neighbors, thus enabling relationships are evident.

“We talk to each other in the stairs and give each other stuff ... and the things you need... and things like that... Ask for help” – Respondent nr 1

“In my building, there are two old ladies who have lived there for forever... that you, well, help and so... [] ...check so that they are ok, things like that ... if something happens...” – Respondent nr 4

The types of informal activities that the respondents stated that they engage in with their neighbors can potentially be very important for resilience as they can form feelings of respect and companionship among people in their close surroundings. These relations are important as they can serve as a kind of informal insurance (Putnam, 2001). Several respondents indicated that they would check upon their neighbors if a disaster or emergency occurred and that they believe that this feeling is mutual.

“...if something happens, if you have to evacuate and seek shelter, they would knock on my door and ask how I was doing” – Respondent nr 3

All of the respondents expressed a belief that if some sort of disaster or emergency happened in their area, at least some of their neighbors would and could help them. Three out of four respondents also expressed that they would help their neighbors in case something happened. The number of this type of relationship vary across the respondents. One of the respondents stated that he only knows one of his neighbors, while the other respondents stated that they have relations of mutual support with a few to several neighbors.

Questions about the belief and perceptions of abilities are by definition hypothetical and may not always reflect the true ability of the respondents and their neighborhoods. Yet, these types of questions are important. The belief of abilities is important as it can generate a feeling of safety and comfort, which is important for the general well-being of individuals. The general well-being can in turn be important for social capital, which in turn is important for the resilience of a community. Yet, feelings of safety may not always enhance the actual resilience, for example if a false feeling of safety leads to attitudes and actions that inhibit the actual safety.

It is clear across the responses that the perception of a neighbor's ability is generally associated with the amount of time spent with the neighbor and how well the respondents know the neighbor. It seems that strong ties are associated with a higher perception of his/hers capacities than weak ties. This perception can be because the respondents value the people that they are close to, but it can also be an indication that stronger ties are more likely to collaborate and help each other.

Most of the respondents indicated that the strong ties that they have in the neighborhood entail a relation of mutual help and assistance and they could provide examples of how they have helped or assisted each other in the past. Thus, there is an indication of a positive correlation of the strength of ties and likelihood of mutual support. This entails that a strong tie to your neighbors is one type of enabling relationships, which can potentially be utilized both during response and recovery phases of a disaster, yet if it enables adaptation or transformation for prevention and preparedness is less clear. Strong ties have the capacity to enhance readiness for and reduction of the vulnerability of disasters, but only if people can capitalize on these relations by getting access to other people's skills (e.g. medical training), communication and collaboration so they can help each other during hazardous events. Yet, none of the responses provided or indicated any evidence that strong ties make them adapt or transform to enhance their resilience.

Thus, although enabling relationships and networks are evident in the responses across the interviews, the types of resilient capacities that they entail seem to be mostly directed to absorbing coping capacities rather than adapting or transforming capacities. Coping capacities can facilitate the disaster response and recovery. Yet, prevention and preparedness are equally, if not more, important phases of disaster risk management and adaptation or transformation are often needed in order to be prepared for and to prevent disaster. Only one segment of one interview indicate a potential transformative action when one respondent indicated that he is thinking about moving from Gröndal because of the risks of floods in the area. This transformative action cannot be directly related to social capital, but is a response directly related to an exposure of climate change hazards.

The strong bonding ties and the lack of enabling bridging ties across the responses could be one reason to why there seems to be a lack of adaptive and transformative actions. The literature review indicate that bonding ties are so rigid that they make adaptations less plausible as they discourage change. While bridging ties are argued to be important for resilience as they enable a diversification because they give access to external information, knowledge, resources, and support, which facilitates adaptation and action that goes beyond social norms. Thus, a lack of *enabling* bridging ties can reduce the ability to mobilize and utilize ties. A combination of bonding ties and a lack of enabling bridging ties makes adaptations and transformations less likely, a result in line with the literature. Further, the literature suggests that weak ties are indispensable for resilience as they enable integration into societies, this is in line with the respondents' ties to some of their neighbors which seem to have integrated them better in the community and increased their capacities to cope with disasters.

8.5 Potential Channels and Tools to Enhance Capacities for Resilience

Research Question 2: What channels and potential tools can enhance individual capacities for resilience?

The workplace can serve as an important place to enhance capacities for resilience because people spend a lot of time there and because bridging ties (e.g. work relations) can spur adaptive and transformative actions. Alternatives to electricity-based communication and information tools ought to be considered. Programs are needed that inform about emergency and contingency plans. Tools that enable shared information and resources within neighborhood communities ought to be developed.

The results indicate a lack of adaptations that can limit the exposure of risk or the sensitivity to risk, thus actions that decrease the vulnerability within the area. Even though it might not be possible to

prevent floods or other hazards per se, increased preparedness can reduce the negative consequences of hazards. In this case, this would require adaption of communication and information channels as well as transportation modes as the ones currently used are subject to exposure during hazardous events. All of the respondents use the light rail, yet during previous floods in Gröndal the light rail could not be used. Most of the communication and information channels that the respondents indicated that they would use in case they would experience a hazard are electricity-based channels. Such channels can be compromised during storms and other hazardous events and alternatives need to be considered.

A reoccurring theme in the responses is indications of lack of time to invest in relationships, a result in line with Putnam's (2001) analysis of the reasons for the deterioration of social capital.

"Actually, I wish I had more time to meet people. And that I could entertain (my) relationships a little better..." – Respondent nr 2

"...well, you go out after work...or trying to, because everyone works a lot and has a lot of children..." – Respondent nr 4

This result can serve as an indication that relationships and networks in the workplace are or will become more important for social capital. If this is true then the workplace can serve as an important target for capacity building processes. Team-building processes and activities in workplaces can enhance social capital directly, which could indirectly enhance capacities for resilience, especially since work relations often are bridging ties and those are important for adaptations and transformations.

The results indicate a discrepancy between the perceived ability to act, assist, and aid in emergencies and the actual ability to do so. In order to move from a perceived ability to an actual ability some sort of collaborative training might be appropriate to enhance people's readiness and capacities to be resilient. Some of the respondents possess some crucial skills or knowledge that might come in handy during a disaster (e.g. medical training, disaster management knowledge). To make people aware of each other's skills and know-hows can enhance collaboration and enable people to capitalize on each other's assets. Increased awareness about others' resources cannot only enhance capacities for resilience, but also enhance social capital in itself. Aldrich (2010) argues that social ties and bonds can be created and strengthened by external programs and that local initiatives and interventions of agencies can influence social capital. The results also indicate a lack of knowledge about contingency and emergency plans which needs to be addressed. Mobile applications could be a potential tool that can enhance this knowledge and which can be used to share information and resources in local

communities, especially as mobile phones are frequently used in most people's daily lives and could therefore target a wide audience.

8.6 Limitations

When conducting interviews there is always a possibility that the data are biased as a result of the type of questions asked as well as because of the researcher's interpretation. This paper tries to minimize this possibility by being as clear as possible during the interviews and by being as transparent as possible when reporting the results. All interviews were recorded with consent from the respondents and stored and transcribed. The respondents were told that they could stop the interview at any time and that they should ask if they need clarification or explanation of any question.

There is a possibility that the type of respondents will bias the result, especially as only four interviews were conducted in our case. Increasing the number of interviews could have minimized this possibility, yet the process of finding available respondents proved to be cumbersome and time constraints limited the possibility to try and find more respondents. The results are not meant to be representative in a statistical sense, but rather point to general trends and themes that might be representative on a larger scale and to check the applicability of theories and the analytical framework. There is a possibility that people that agree to be interviewed are more open and out-going, which would influence the result, especially since the paper investigates social capital. Yet, this limitation is hard to overcome in this type of study where the unit of analysis is a private person, thus there is no way to force people to participate.

All of respondents have family connections in Stockholm, which might not be representative as many people move to Stockholm from different areas as the city is expanding. This could of course influence the results as all respondents indicated strong family ties, which enhance their capacity to cope with hazards. Yet none of the respondents had a strong network in Gröndal prior to moving there and as the first people to respond towards hazards are always locals this limitation may not be significant. Another limitation of the paper is that all respondents have a relatively high economic standard. Yet the economic standard in Stockholm is generally high, thus this may not be a vast problem.

9 Conclusions

This paper investigates how social capital is related to individual capacities to be resilient against climate change related hazards and disasters. Disasters are getting more intense and frequent due to climate change with severe negative effects to whole societies. Reducing vulnerabilities towards hazards and enhancing capacities to withstand harm before disasters occur can save lives and reduce damages and associated costs. Social capital is argued to be the most important form of capital for disaster resilience, and the cheapest and most effective way to enhance it (Aldrich, 2012).

The first part of this paper makes a theoretical analysis of the literature on social capital and resilience in order to conceptualize its linkage and to develop an analytic framework for how social capital influences capacities for resilience. The second part of the paper investigates this linkage further by applying the framework and theories in a case study of Gröndal, a neighborhood in Stockholm that is predicted to be affected by floods. Semi-structured and explorative interviews in conjunction with supervised questionnaires were conducted with four inhabitants of Gröndal. The results indicate that what enhances resilient capacities is not social capital per se, but a kind of social capital that spurs positive actions (e.g. support, aid, adaptations, and transformations). I conceptualize this linkage with a concept that I call enabling relationships. Enabling relationships can create actions, which provides individuals with capacities to cope with or adapt towards hazards (i.e. resilient capacities).

The interviews indicate that the respondents have networks and connections that can help them cope with disasters as they happen and in the recovery phase. These connections are both weak and strong ties and can often be described as informal bonding ties within family groups, friend groups, and with neighbors.

A lack of connections that foster adaptation and transformation is evident, which could be related to a lack of enabling bridging ties. Although bridging ties are evident, most often in the form of relationships related to the workplace, there is no evidence that these ties create any enabling actions. The reason for this may be that adaptive and transformative actions are associated with a higher intensity of change (Bene et al., 2012), which has not yet been required within Gröndal as intense and frequent hazardous events have not occurred yet. Programs and policies should be designed to target these types of connections to reduce vulnerabilities and enhance capacities. It is important to do this before disasters occur to minimize damages and costs.

The results also indicate a lack of awareness about contingency and emergency plans as well as a dependence on electricity-based information and communication. This implies that there is a need to inform people about how they should act in case of emergency and develop tools that are not dependent on electricity, as electricity might be compromised in case of disasters events. Yet, as electricity-based tools are frequently used they can be used as tool to enhance social capital and resilient capacities within communities. Examples of this could be early-warning systems through social media and mobile applications to share information about resources and skills within and across neighbors.

9.1 Future Research

As only people with a relatively high economic standard were interviewed it would be interesting to look at a lower level of the economic stratum. This could for example be done in other areas that are also subject to risk of climate hazards, but has a lower level of economic development.

The interviews indicate that a lack of historic ties in the neighborhood is not related to isolation and decreased social capital. Instead it seems to have increased the social capital, possibly due to Gröndal's atmosphere or the nature of people that move around. It would therefore be interesting to investigate if this is a general result for Stockholm and how the ongoing and strong urbanization trends influence resilience at various places.

As people spend more time working, especially in large cities, the workplace can possibly play an important role for people's social capital and thus their resilience. This also indicates a high likelihood that you may be stuck at work if a hazard occurs. Relationships at the workplace are therefore important for resilience, something that is worth investigating, especially how trust in, and strength of those relationships can be enhanced.

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Appendices

Appendix 1: Questionnaire

Undersökning: Socialt Kapital & Risk Resiliens i Gröndal, Stockholm

Namn:

Ålder:

Sysselsättning:

Årsinkomst (netto):

Kön:

Civilstånd:

Om du har möjlighet att delta i en intervju under den närmaste veckan/veckorna ange ditt telefonnummer och/eller e-post där jag kan nå dig. Alla svar i både denna enkät och eventuell intervju behandlas konfidentiellt!

Telefon nr:

Epost:

Del 1: Boende i Gröndal, Stockholm

1) Hur länge har du bott i Stockholm? Svar:

2) Hur länge har du bott i Gröndal? Svar:

3) Hur nära ifrån din familj och/eller vänner bor du? Svar:

(Uppskatta avståndet i antal kilometer till den familjemedlem eller vän som bor närmast dig, om du inte kan uppskatta avståndet ange istället vilken stad han/hon bor i, om det är i Stockholm vänligen ange stadsdel, exempelvis Kristineberg.)

Del 2: Socialt Kapital

4) Hur väl anser du dig känna dina grannar?

(Från en skala 1 till 10, där 1 avser att du inte överhuvudtaget känner någon av dem och 10 att du känner åtminstone en utav av dem mycket väl)

1 2 3 4 5 6 7 8 9 10

5) Ungefär hur många av dina vänner och/eller familjemedlemmar bor i Gröndal?

(Ifall ditt svar är 0, hoppa över fråga 6)

0 1 2-4 5-7 7-9 10 eller fler

6) Hur väl skulle du säga att du känner de vänner eller familjemedlemmar som bor i Gröndal?

(Avser den som du känner bäst, från en skala 1 till 10, där 1 innebär att du inte känner den särskilt väl och 10 är känner den mycket väl)

1 2 3 4 5 6 7 8 9 10

7) Är du aktiv medlem i någon förening/organisation? Exempelvis en kyrka eller idrottsförening.

Ja Nej Vet ej

- 8) **Hur ofta har du kontakt med de som du betraktar som din familj?**
(Avser den person som du har mest kontakt med.)

En eller flera gånger per dag
En eller fler gånger per vecka
En eller fler gånger per månad
Mindre än en gång per månad

- 9) **Hur ofta träffar du dina vänner?**

En eller flera gånger per dag
En eller fler gånger per vecka
En eller fler gånger per månad
Mindre än en gång per månad

Del 3: Kapacitet & Risk Resiliens

- 10) **Hur ofta uppdaterar du dig om lokala händelser/nyheter och/eller lokalt väder?**

En eller flera gånger per dag
En eller fler gånger per vecka
En eller fler gånger per månad
Mindre än en gång per månad

- 11) **Hur medveten är du om din stadsdels och/eller byggnads beredskapsplan?**

(Vet du till exempel vart du ska gå om det börjar brinna i ditt hus? Från en skala mellan 1 och 10, där 1 är inte alls och 10 är fullt medveten och informerad.)

1 2 3 4 5 6 7 8 9 10

- 12) **Har du någon formell försäkring?**

(Exempelvis livförsäkring, sjukförsäkring, hemförsäkring)

Ja Nej Vet ej

- 13) **Är du beroende av någon form av service, stöd eller assistens?**

(Kan vara antingen ekonomiskt stöd eller någon form av sociala assistens/support)

Ja Nej Vet ej

Tack för din medverkan!

Appendix 2: Translated Questionnaire

Questions

Part 1: Background living arrangements, Gröndal, Stockholm

1. How long have you lived in Stockholm?
2. How long have you lived in Gröndal?
3. How far away do you live from your family or friends? (consider the one family member or friend that lives closest to you and indicate in km (approx.), if you do not know how far away it is in km, please name the area and city where they live)

Part 2: Social Capital

4. How well do you know your neighbors? (From a scale 1 to 10, where 1 is not know any of them at all and 10 is that you know at least one of them very well)
5. Approx. how many of your friends and family members also live in Gröndal?
6. How well would you say you know the friends/family members that also live in Gröndal (consider the ones you know the best)? (From a scale 1 to 10, where 1 is not know them very well and 10 is know them extremely well)
7. Are you an official member of any formal network/association in Stockholm? (Example church, sports organizations, political parties etc.) If yes explain
8. How often do you have contact with your family (consider the one you have most frequent contact with)? Once a day or more, once or several times per week, once or several times per month, less than one time every month
9. How often do you have contact with your friends (consider the one you have most frequent contact with)? Once a day or more, once or several times per week, once or several times per month, less than one time every month

Part 3: Capacity and Resilience

10. How often do you access information about daily and/or weekly events (news, weather) in your region? Once a day or more, once or several times per week, once or several times per month, less than one time every month
11. How aware are you about your neighborhood's or building's contingency/emergency plans (for example do you know where to go in case of fire in your house? Do you know about the evacuations plans etc.?) From a scale from 1 to 10, where 1 is not at all and 10 is completely aware and informed.
12. Do you have any formal insurances? (For example life insurance, home insurance)
13. Do you rely on any kind of formal service or support? (Could be either economic support or social support)

Appendix 3: Interview Guide

Intervju guide (alla svar är anonyma och behandlas med sekretess) tack för att du tagit dig tid att träffa mig, detta är helt frivilligt så om du vill avbryta eller om det är någon fråga som du inte vill svara på så är det bara att säga till. Om du har några frågor så får du gärna säga till när som helst under intervjun. Jag kommer börja med några generella frågor om dig och vart du bor.

Avsnitt 1: Face Sheet

Namn: _____ Civilstånd: _____

Ålder: _____ Kön: _____ Yrke: _____

Ung. netto årsinkomst: _____

Avsnitt 2: Bakgrund boende-arrangemang

Kan du börja med att beskriva hur du bor (hur länge du bott där med vem och vart?) (Själv, tvårumslägenhet etc.)

Hur kommer det sig att du är bosatt i Gröndal och Stockholm (varför flyttade du hit?)

(OM DU INTE har bott i Gröndal hela livet) Har du några tidigare kontakter/relationer i Gröndal och/eller Stockholm innan du flyttade hit, 2.4 om ja hur skulle du beskriva att dessa relationer/kontakter är nu idag? (har du fortfarande kontakt, i så fall hur mycket som då, mer/mindre?)

Har ditt sociala liv förändrats sedan du flyttade hit, i så fall hur?

Avsnitt 3: Relationer (Socialt kapital)

Kan du beskriva din relation till dina grannar? (Frekvens, känslor, aktiviteter)(Har ni några informella sammankomst såsom fika, drycker, middag, fester, och/eller idrotts aktiviteter, Har ni några formella sammankomst såsom städning en gemensam trädgård, möten med hyresvärdar osv?)

Kan du berätta om din familj och er relation(Hur definierar du din familj, kan du beskriva din relation till dem?)

Kan du berätta om dina vänskapskrets och ditt sociala liv? (Hur skulle du beskriva ditt sociala liv? Spridning och djup, typ av relationer, frekvens, geografiskt läge. Vilken typ av aktiviteter gör ni, hur skulle du beskriva din tillit till de, finns det en känsla av ömsesidighet mellan dig och dina vänner?)

Är du medlem i några organisationer eller föreningar, om ja kan du berätta om din relation till dem? (frekvens, typ av verksamhet, hängivenhet, känslor) och dina relationer med människor i dessa föreningar/organisationer, vart ligger dessa organisationer/föreningar?)

Kan du berätta om ditt jobb och de relationer du har där? (vilken typ av kontakter/ relationer tar du med dig från ditt arbetsliv in i ditt privatliv? fikar ni, tar en drink eller middag etc. tillsammans utanför arbetet?)

Avsnitt 4: Resiliens/Kapacitet

Kan du berätta om hur och när du tar del av information om aktuella händelser, lokala nyheter, väder etc.? (Vart vänder du dig för att få sådan information och hur ofta du tar du del av sådan information? I vilken utsträckning skulle du säga att du litar och lita på dessa kanaler?) (statliga organisationer?)

Kan du berätta om hur du kommunicerar och håller du kontakten med din familj, vänner och bekanta? (Vilka kanaler använder du? Frekvens, tillit) Förklara

Skulle du säga att du har mest tillit och litar på information som kommer från din familj och/eller vänner eller från människor som du har kontakt med genom olika organisationer, arbete, idrottsklubbar osv? (förklara)

Har du upplevt någon naturkatastrof eller naturolycka? Kan du berätta om den erfarenheten? (extrem väder)

Om någon form av klimat- eller väderleksrelaterade katastrofer inträffar (t.ex. översvämningar, kraftig värmebölja, eller storm): Kan du berätta om hur tror du att du skulle bli påverkad av en sådan händelse? (Känner du dig kapabel att hantera den? Har du försäkring som skulle täcka eventuella skador på dig själv eller din egendom? Skulle du försöka hjälpa människor omkring dig om du kunde, eller bara personer du känner, eller bara dig själv?)

Känner du att du vet vart du kan få tillförlitlig information om händelsen? (Vet du var du ska vända dig om du behöver stöd eller hjälp i en sådan händelse?)

Känner du att du har människor som är anslutna till dig som skulle kunna och vilja hjälpa dig i nödsituationer eller farliga händelser, berätta? (Hur skulle de kunna hjälpa dig?)(Informella försäkring)

Generellt sätt, hur skulle du beskriva din egen förmåga att agera kollektivt, kommunicera, samarbeta? (är du en sådan som tar initiativ och kontakt, hjälper andra, Har du någon erfarenhet av något liknande, berätta om dessa upplevelser, (hur kände du dig, vad var resultatet))

Generellt sätt, hur kompetent tror du att människor i ditt bostadsområde är att samarbeta? (Hur troligt är det att ni skulle samarbeta och kommunicera med varandra i någon form av katastrof eller händelse?)

Slutligen är du beroende av någon form av support eller service, antingen ekonomisk eller social, i ditt vardagsliv i så fall hur påverkar det dig? (Kan du klara dig utan den hjälpen? Vad skulle hända om du inte kunde tjäna pengar under en längre tid, hur skulle du klara och hur länge skulle du kunna hantera det?)

Tack! (Har du några frågor? Berätta om forskningsprocessen)

Appendix 4: Translated Interview Guide

Interview guide (all answers are anonymous and treated with confidentiality)

Section 1: Face Sheet

Name:

Relationship status: Age: Gender: Occupation:

Approx. net annual income:

Section 2: Background living arrangements

Can you describe your current living arrangement? (By yourself, two-room apartment etc.)

Can you elaborate on the reasons to why you live in Gröndal and Stockholm (why did you move here /How come you live here)?

(IF THE RESPONDENT HAVE NOT LIVED IN GRÖNDAL HIS/HER ENTIRE LIFE) Did you have any prior connections in Gröndal and/or Stockholm before moving here, (if yes how would you describe that those relationships/connections are now, do you still have contact, as much as then, more/less?)

Has your social life changed since you moved here, if so how?

Section 3: Relationships (Social capital)

Can you describe your relationship to your neighbors? (Frequency, feelings, activities)
(Do you have any informal gatherings such as fika, drinks, dinner, parties, and/or sport activities, do you any formal gatherings such as cleaning a shared garden, meetings with landlords etc.?)

How do you define your family, can you describe your relationship to them?

Tell me about your friendships and social life (how would you describe your social life? the spread and depth, type of the relationships, frequency, locality. What kind of activities do you engage in, how much would you rate your trust in them, is there a feeling of reciprocity between you and your friends?)

Are you part of any organizations or associations, if so can you tell me about these (frequency of activity, type of activities, devotion, emotions and relationships with people in those communities, the locality of those organizations/associations?)

Can you tell me about your job, what kinds of connections/relationships does it bring into your private life? (Do you go for fika, drinks, diner etc. together outside of work?)

Section 4: Resilience

Where do you turn to for information about current events, weather etc. and how often do you access such information? (To what degree would you say you rely and trust these channels?)

How do you communicate and stay in touch with people, family, and friends? (What channels do you use? Explain)

Would you state that you trust and rely mostly on information that comes from your family and/or friends or from people you engage with in organizations, work, sports clubs etc.?

Have you experienced any natural disaster event, tell me about that experience?

If any kind of climate or weather related disaster event happens (example flooding, heat stress, and storm) in Gröndal: How do you think an event would affect you and do you feel capable to deal with it? (Do you have insurance that would cover damage to yourself or your property? Would you try and help people around you if you could, or only people you know, or only yourself?)

Do you feel that you know how you could get reliable information about the event? (Do you know where to turn to in case you need support or help in such event?)

Do you feel like you have people connected to you that could and would help/support you in case of emergencies or hazardous events? (How could/would they help/support you?)

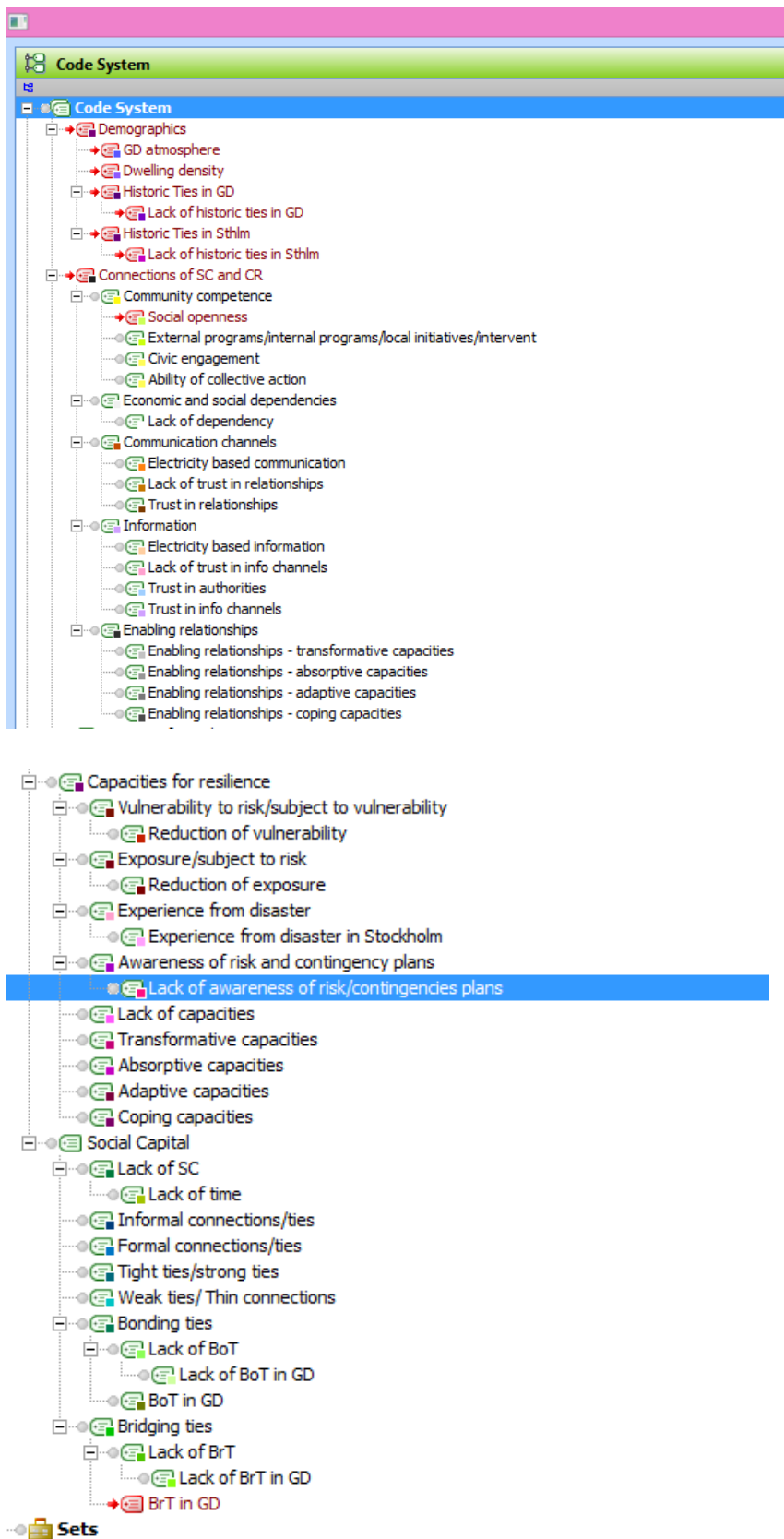
How would you rate your own capability to act collectively, communicate, and cooperate? (Do you have any experience in doing so, tell me about those experiences, (how did you feel, what was the outcome)

How competent would you state that people in your neighborhood are to collaborate, in general? (How likely are they to cooperate and communicate with each other in any kind of event?)

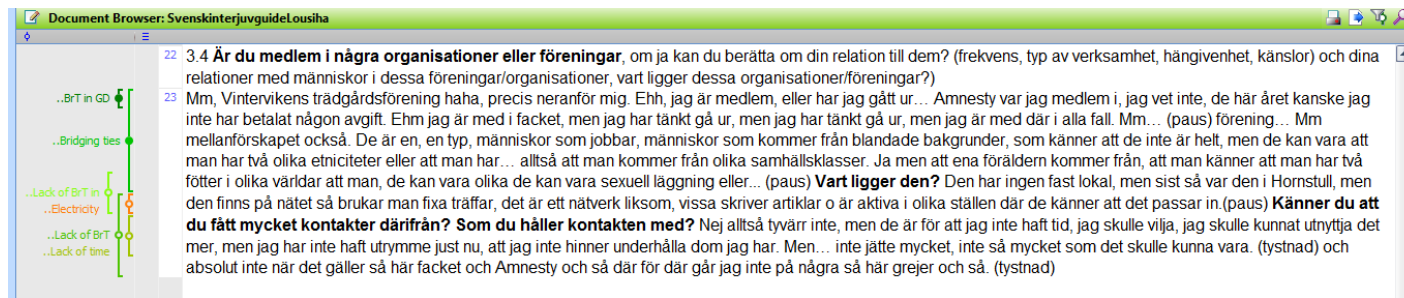
Finally, do you rely on any support/service, either economic or social? If so how does it affect you? (Could you cope without it? What would happen if you could not earn money for an extended period, how would you cope and how long could you manage without it?)

Thank you!

Appendix 5: List of Codes



Appendix 6: Example of Coded Text Segment



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22 3.4 **Är du medlem i några organisationer eller föreningar**, om ja kan du berätta om din relation till dem? (frekvens, typ av verksamhet, hängivenhet, känslor) och dina relationer med människor i dessa föreningar/organisationer, vart ligger dessa organisationer/föreningar?)

23 Mm, Vintervikens trädgårdsförening haha, precis neranför mig. Ehh, jag är medlem, eller har jag gått ur... Amnesty var jag medlem i, jag vet inte, de här året kanske jag inte har betalat någon avgift. Ehm jag är med i facket, men jag har tänkt gå ur, men jag har tänkt gå ur, men jag är med där i alla fall. Mm... (paus) förening... Mm mellanförskapet också. De är en, en typ, människor som jobbar, människor som kommer från blandade bakgrunder, som känner att de inte är helt, men de kan vara att man har två olika etniciteter eller att man har... alltså att man kommer från olika samhällsklasser. Ja men att ena föräldern kommer från, att man känner att man har två fötter i olika världar att man, de kan vara olika de kan vara sexuell läggning eller... (paus) **Vart ligger den?** Den har ingen fast lokal, men sist så var den i Hornstull, men den finns på nätet så brukar man fixa träffar, det är ett nätverk liksom, vissa skriver artiklar o är aktiva i olika ställen där de känner att det passar in. (paus) **Känner du att du fått mycket kontakter därifrån? Som du håller kontakten med?** Nej alltså tyvärr inte, men de är för att jag inte haft tid, jag skulle vilja, jag skulle kunnat utnyttja det mer, men jag har inte haft utrymme just nu, att jag inte hinner underhålla dom jag har. Men... inte jätte mycket, inte så mycket som det skulle kunna vara. (tystnad) och absolut inte när det gäller så här facket och Amnesty och så där för där går jag inte på några så här grejer och så. (tystnad)

Annotations on the left side:

- ..BrT in GD
- ..Bridging ties
- ..Lack of BrT in
- ..Electricity
- ..Lack of BrT
- ..Lack of time