

**Social resilience in the context of urban
development in Christchurch, New Zealand**

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Abstract - Resilience has increasingly found its practice in urban development plans. In response to prepare cities and their residents for uncertainties, social resilience capacities are crucial characteristics of people when facing hazards. Since Greater Christchurch has been deeply suffering from a series of earthquakes in 2010/2011, an urban development strategy was established emphasising on the dimension of resilience. This study evaluates whether social resilience is being established through the strategy. Based on a qualitative content analysis, the Resilient Greater Christchurch urban development strategy was analysed under following indicators *governance, diversity, social capital* and *social resilience capacities*. It was found that social resilience is not explicitly classified in the Resilient Greater Christchurch strategy. Although people are identified to be at the core of creating resilience, governance structures appear to be deeply influenced by public sector organisations and agencies. Decision-making and empowerment capacities of residents seem undermined. Nevertheless, various projects propose and offer collaboration and gathering opportunities for people in order to strengthen and build social networks. The study has proven that the Resilient Greater Christchurch strategy serves as a social resilience driver whereas additional investigations are necessary to propound further findings.

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List of Abbreviations

<i>Abbreviation</i>	<i>Explanation</i>
100RC	100 Resilient Cities
BBC	British Broadcasting Corporation
CERA	Canterbury Earthquake Recovery Authority
LinC	Leadership in Canterbury
M _w	Moment Magnitude Scale
SDG	Sustainable development goal
UN	United Nations
WCED	World Commission in Environment and Development

1 Introduction

The first chapter deals with the relevance of social resilience in urban development. Research hypotheses are presented before the bachelor thesis' structure is indicated.

1.1 Relevance of Research

Nowadays, numerous threats occurring from both natural hazards and human-made events happen in every part of the world. Stress is not only put on our ecosystem but also on cities and regions regarding communities' functionalities. In order to react to these challenges and to reduce vulnerabilities in response to growing urban complexity, various concepts have been introduced to urban development concentrating on the discussion to become resilient. Since the era of sustainable urban development concepts seems subliminal, the notion of building resilient urban landscapes becomes increasingly popular.

New Zealand is deeply vulnerable due to its geographical location regarding the fact of an increasing number of natural hazards. Especially earthquakes occur on a regular basis in the area of the City of Christchurch. In response to these events, urban development makers are in demand to react. Not only cities' degree of vulnerability should be reduced but especially the development of social resilience capacities of Christchurch's population is of central importance.

1.2 Research Objectives

The objective of this bachelor thesis is to evaluate whether the *Resilient Greater Christchurch* urban development strategy (100RC 2016) is able to provide social resilience in the Greater Christchurch region. Thus, the main hypothesis H_0 goes

'Social resilience is being established through the urban development strategy in
Christchurch, New Zealand'.

Additional hypotheses underlying the main hypothesis are as follows:

- H₁: Holistic participation possibilities and processes are being enabled through Christchurch's urban development strategy.
- H₂: Christchurch's urban development strategy fosters measures for knowledge transfer and exchange between all stakeholders.
- H₃: Christchurch's urban development strategy improves measures for social capital enhancement.

1.3 Organisation of Research

The bachelor thesis' structure indicates two main parts, firstly the theoretical part about resilience and urban development and secondly the analysis about social resilience in Christchurch. Lastly, further reflections on the foregoing topics are given.

The first chapter following the introduction broadly introduces the essential concepts of resilience and its genesis before leading over to defining the concept of social resilience. As the concept of vulnerability propounds the view of vulnerability being "the other side of the [resilience] coin" (Gallopín 2006 in Mattissek/Sakdapolrak 2016:24) the issue is shortly seized on the Pressure and Release model. Then, the relevance of urban development is outlined and eventually connected to the dimension of resilience. As the dimension of sustainability guidelines is omnipresent in context to spatial planning its grounds are roughly covered.

The empirical part with the analysis of the Resilient Greater Christchurch urban development strategy follows. Chapter four shortly introduces the regarded case study of Greater Christchurch in New Zealand. A qualitative content analysis of social resilience in context to its geographical foundation is carried out in the subsequent chapter. Indicators of social resilience centre on the significance of governance characteristics as well social capital requirements and lastly show the enabled social resilience capacities. After providing a summary of the analysis' findings by evaluating the thesis' hypotheses, a critical reflection about the analysis design and further research needs and possibilities is given. Thereafter, chapter six points out the crucial importance of social resilience capacities based on positive outcomes on the example of the case in New Orleans in the United States of America. Finally, questions and considerations that have remained open are shortly dealt with before giving an overall conclusion.

2 The Term Resilience

The term *resilience* has its origin in the Latin language simply meaning *resistance*. It arises from the Latin verb ‘resilire’ which describes the process of ‘bouncing back’ in various contexts. (Wink 2016:1, Fookien 2016:24, Voss/Dittmer 2016:184, Scharte/Thoma 2016:128, Fekete/Grinda/Norf 2016:219)

Yet, a distinction between the word *resilience* and *resistance* should be made. While *resilience* stresses the recovery, *resistance* emphasizes withstanding. Ultimately, resilience includes resistance. Nevertheless, the foregoing definition is too narrow in order to serve as full-thought meaning. (ebd.)

The following chapter gives a short chronological introduction into the different main resilience theories. These offer the background information before the social dimension of resilience is outlined.

2.1 Genesis of Resilience

The first scientific use of resilience is dated back to 1625. Sir Francis Bacon¹ used the term in order to describe an echo bouncing back. (Bacon 1625:245 quoted after Alexander 2013 in Voss/Dittmer 2016:184) Then, in the 18th and 19th century, resilience was used to describe the ability to recover in terms of physical elasticity (Alexander 2013:2708 in Voss/Dittmer 2016:184).

Resilience has been used in a medical context in the 1920s, social psychologists further developed the research on resilience in the 1940s. The objective was to examine the way of how children and adults were able to cope resiliently in times of crises such as domestic or mental violence. (Voss/Dittmer 2016:184f.)

To give a short overview, Table 1 chronologically illustrates the three main resilience concepts’ key characteristics which are discussed in the following section.

Resilience Concept	Characteristics
Engineering resilience	Maintain a system’s functions, resistance, recovery, constancy, focus on one ecosystem part.
Ecological resilience	Stability at various levels, focus on an entire ecosystem.
Socio-ecological resilience	Reorganisation, learn, adapt, transform, self-organise; coherence of a social system and an ecosystem

Table 1: Concepts of resilience. Source: Own illustration based on Voss/Dittmer 2016, Scharte/Thoma 2016, Brand/Hoheisel/Kirchhoff 2011, Folke et al. 2010, Bürkner 2010, Holling 1973.

¹ Sir Francis Bacon was an English philosopher and statesman. His modern scientific knowledge made him become a pioneer. (BBC 2014)

The origin of resilience is stated to be coming from the functioning of ecosystems which was introduced by Crawford S. Holling² (Mattissek/Sakdapolrak 2016:23). His so-called *engineering resilience* refers to one single part of an ecosystem that returns to its former state after being disturbed (Folke et al. 2010:1). Focus is put on maintaining efficiency of a system's functions as well as its constancy. A single steady state, called equilibrium, is assumed to be predictable. Engineering resilience ultimately stresses the resistance and recovery ability of a system in response to disturbance and change. (Folke 2006:256 in Voss/Dittmer 2016:186) Crawford S. Holling expanded the field of research by taking the ecological perspective into account in 1973 (Folke et al. 2010:1, Scharte/Thoma 2016:124ff., Deppisch 2016:200, Holling 1973:14). He applied resilience to an entire ecosystem and identified it as being stable at various levels (Scharte/Thoma 2016:124ff., Brand/Hoheisel/Kirchhoff 2011:78). Eventually, resilience was connected to the survivability of a system during sudden instability. (Scharte/Thoma 2016:124ff.) Holling's idea of ecological resilience stated that an ecosystem will not necessarily return to its former state of that before disturbance (Holling 1973:14).

In the 1980s, resilience was linked to the ability of dealing with catastrophes (Scharte/Thoma 2016:124ff., Bürkner 2010:6ff.). Furthermore, the emerging of sustainability research started to pay attention to resilience in other disciplines such as economy, sociology and spatial planning (Brand/Hoheisel/Kirchhoff 2011:78, Bürkner 2010:6ff.).

During the 1990s a shift towards social-ecological resilience came up regarding the coherent status between an ecological and a social system (Blum et al. 2016:160, Deppisch 2016:201, Mattissek/Sakdapolrak 2016:23, Schilling 2016:15). This understanding arose when nature was realised not being 'natural' anymore (Brand/Hoheisel/Kirchhoff 2011:78, Deppisch 2016:201). Moreover, human's influence on nature and the environment was revealed and interdependencies were recognised (Klee/Gradel 2004 in Brand/Hoheisel/Kirchhoff 2011:78). The social-ecological system approach regards social factors that determine humans' interaction with the environment (Schilling 2016:15). Nature and humans are stated to influence each other thus building one system instead of two separates (MEA 2005 in Deppisch 2016:201). This context emphasises the ability of such a system to re-organise and to persist its functions and structures despite sudden disruptions (Deppisch 2016:201). Social-ecological resilience is understood under the following conditions (Walker/Salt 2006 in Deppisch 2016:202, Berkes et al. 2003 in Deppisch 2016:202, Brand/Hoheisel/Kirchhoff 2011:78):

² Crawford S. Holling is a Canadian ecologist (Holling 1973).

1. A socio-ecological system is able to build a disturbance capacity of a system without leaving its status-quo.
2. A socio-ecological system is able to learn and adapt up to a certain degree.
3. A socio-ecological system is able to self-organise up to a certain degree.

Today's resilience concepts are considered as holistic approaches towards problem solving in various contexts (Scharte/Thoma 2016:127ff.). Resilience therefore focuses on a future condition that includes retrospection of for example historical developments or norms within societies (Kegler 2014:15). Ultimately, the term resilience is central to scientific research in many fields such as ecology, sociology and disaster management (Wink 2016:1, Bürkner 2010:6f.). Therefore, it is important to differentiate between several some issue-adapted interpretations of the concepts of resilience in order to entirely apply them in a context-based field (Walker et al. 2004:2).

As the thesis' regards the dimension of social resilience in urban development, the theory of social resilience is explained in the following chapter.

2.2 Social Resilience

A main component of what resilience means and relates to has already been outlined in the chapter before (Compare with chapter 2.1). When referring to social resilience, both words social and resilience should be defined respectively.

The word *social* is grammatically defined as an adjective. It refers to the noun *society*. (Oxford dictionaries 2018a.). Generally, a society or community reflects peoples' needs, attitudes and interests through its behaviour. Considering the term *social* under these aspects as a description of a noun the expression *social* relies on a social process. (Dolwick 2009:21ff.)

In a broad sense, social resilience is understood as an ability, also stated as capacity, of social units (Keck/Sakdapolrak 2013 in Mattissek/Sakdapolrak 2016:23). "The ability or power to do or understand something" (Oxford dictionaries 2018b) is referred to when relating to the word capacity. This implies different characteristics of social units. To achieve these abilities about potential events, successful preparation and planning measures ought to be considered. (The National Academies 2012:2 in Scharte/Thoma 2016:128)

A social unit may be a group, organisation or even an individual. Ultimately, social resilience relies on the entire community or society which needs to deal with disturbance. (Keck/Sakdapolrak 2013 in Mattissek/Sakdapolrak 2016:23) Practices of establishing social resilience can be informed through power relationships, knowledge, resources and human

abilities which also differ depending on the peoples' socio-economic backgrounds. (Keck/Sakdapolrak 2013 in Matissek/Sakdapolrak 2016:24)

2.2.1 The pillars of social resilience: Coping, Adapting, Transforming

This thesis identifies three capacities of social resilience as a base for further research. Those are (Matissek/Sakdapolrak 2016:24):

- 1 Coping capacity
- 2 Capacity of adaption
- 3 Capacity of transformation

All three capacities lead to social resilience and differentiate in terms of time scopes, degree of change and target future outcomes. Thus, coping capacities are used right after the occurrence of an event whereas adaption and transformation capacities are rather considered as preventative measures before the appearance of disturbance. (Matissek/Sakdapolrak 2016:23f.) Both adaption and transformation bear in relation with each other (Folke et al. 2010:3 in Brown 2014:112). Table 2 shortly differentiates between the three capacities before they are separately defined.

	Capacities		
	Coping	Adaption	Transformation
Interaction with disturbance	ex post	ex ante	ex ante
Time scope	short-term	long-term	long-term
Degree of transition	low, status-quo	intermediate, slow transition	high, radical transition
Outcome	Recovery of well-being to actual condition	Guarantee of future well-being	Enhancement of present and future well-being

Table 2: Capacities of social resilience. Source: Keck/Sakdapolrak 2013 in Matissek/Sakdapolrak 2016:24.

2.2.1.1 Coping Capacity

The social resilience concept implies the ability of social units to cope with different kinds of change and disturbances. Coping deals with short-term actions that aim at re-establishing a society's pre-disaster condition. Therefore, low levels of transition or change to a society itself are implied. Mainly, people's well-beings shall recover. (Matissek/Sakdapolrak 2016:23) Moreover, coping capacities refer to a community's capability to preserve its critical functions, rudimentary characteristics, structures and services after the occurrence of disturbance.

(Jha/Miner/Stanton-Geddes 2013:10, Mattissek/Sakdapolrak 2016:23, Carpenter et al. 2012:3249, The National Academies 2012:2 in Scharte/Thoma 2016:128, Walker et al. 2004:2) The presence of such capacities to cope can be reflected in social capital or other relationships such as networks that exist in societies. The coping capacity, ultimately, is defined as a reactive capacity (Obrist/Pfeiffer/Henley 2010:289).

2.2.1.2 Adaption Capacity

Further, the capacity to adapt to occurrences characterizes social resilience. Adaption refers to a long-lasting approach that fosters slow transitions through raising residents' awareness of dangers. The outcome shall guarantee a societies' future well-being. (Jha/Miner/Stanton-Geddes 2013:4, Mattissek/Sakdapolrak 2016:23)

The responsibility for societies' safety and well-being must not only be considered as the duty of a state (Scharte/ Thoma 2016:144f.). To achieve social resilience, the local commitment of residents should be supported with urban development. When this happens, social resilience is rooted in local communities' own willingness supported by professional or national actors. (Coaffee et al. 2009:230ff. in Scharte/Thoma 2016:144)

Educating a society about potential risks and hazards is identified as one crucial component of adaption (Jha/Miner/Stanton-Geddes 2013). A resilient society should therefore develop towards a knowledgeable, open-minded community in terms of understanding and living with future transitions, uncertainty and adaption (Rockefeller Foundation 2014 in Fekete/Grinda/Norf 2016:228, Scharte/Thoma 2016:130, Deppisch 2016:204f.).

Moreover, understanding results from well-planned urban development processes that foster interactions between groups and people (Schmidt 2011:72). The process of learning is important to be linked with various peoples' needs and ideas as well as experiences and reflections from past events (Folke et al. 2010:3, Obrist/Pfeiffer/Henley 2010:290f.). Learning should therefore be cross-sectoral as it "is seen as being embedded in social practice, activities, and interaction." (Schmidt 2011:72) (Deppisch 2013:204f., Pahl-Wostl/Mostert/Tàbara 2008 in Schmidt 2011:72). Ultimately, knowledge transfers increase. The interactions of heterogeneous groups with a range of characteristics such as awareness, resources, values and interests define a society. If a society contains various attributes that are found in redundancies, variations or other capacities, a society will be able to build a social "resilience pool" (Voss/Dittmer 2016:192) against potential dangerous developments. As a result, social cohesion as well as social capital development increases. (Voss/Dittmer 2016:192)

Besides, resilient societies should establish the characteristic of being dynamic. This implies the compensation of and adaption to disruptions in terms of reacting flexibly to hazards and

endangerment (Scharte/Thoma 2016:127, Bürkner 2010:24ff.). Initially, resilience is not a static state. A resilient society holds the attribute of reducing probable damages to its best possibilities through constant flexible advancements. (Fekete/Grinda/Norf 2016:228, Scharte/Thoma 2016:124ff.)

This capacity is defined by proactive human competences that are built and enabled (Obrist/Pfeiffer/Henley 2010:289f).

2.2.1.3 Transformation Capacity

The third capacity deals with pre-disaster transformation and is considered as a number of actions that are performed in response to adaption capacities. Transformation emphasises alternative developments and actions instead of returning to the status-quo. (Mattissek/Sakdapolrak 2016:23f.) Ultimately, enhanced conditions shall be established.

In order to advance the present and future well-being of a society, the long-term vision is regarded. (Mattissek/Sakdapolrak 2016:23) While adaption implies a smooth transition, transformation is a rather radical approach. As transformation refers to deep-seated effective changes, for example resettling housing areas from vulnerable lands, possibilities for encouraged self-organisation should equally be given to people on their enhanced basis of knowledge. (Blum et al. 2016:153, Deppisch 2013:204f., Bürkner 2010:6, Folke et al. 2010:4) Transformation capacities shall evoke new meanings, perceptions and patterns regarding those of all different actors. (Folke et al. 2010:5 in Brown 2014:112)

Self-organisation within civil society happens in newly formed cooperatives and associations. People build enduring networks through formal and informal relationships that include many values and norms (Schmidt 2011:69). Consequently, if this cohesion exists reactions to change turns out positively (Tippelt et al. 2009 in Schmidt 2011:29). The “ability to act” (Schmidt 2011:70) is given by social capital (Schmidt 2011:70).

Ultimately, governance and participation abilities as well as capacities of a society should be anchored in urban development strategies (Compare with chapter three).

2.2.2 The Role of Social Capital

The term *social capital* paraphrases social cohesion. It is often defined as being a value in terms of fostering or supporting certain measures for particular groups or individuals. In the context of social resilience, social capital equals a tool. (Hanke 2011:14)

The significance of social capital has been deeply discussed by Pierre Bourdieu, James Coleman and Robert Putnam. All three authors approach the term differently. For this thesis, the approach of Putnam is chosen as he focuses on operationalising social capital.

Putnam (1995:65) defines social capital as a presence of networks. He states that “‘Social capital’ refers to features of social organisations such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit.” (Putnam 1995:65) Further, social capital is not bound to a single person (Putnam/Leonardi/Nanetti 1993:167ff.). Instead, it is the result and value of relationships between actors. (Putnam/Leonardi/Nanetti 1993:72ff.) Formal and informal relationships in networks are the precondition for building social capital. Social capital builds public goods that have benefits for the entire society. Moreover, Putnam’s approach evaluates the outcome of social capital on democratic structures. Trust is being established and democratic processes are being pushed. Consequently, social capital is an indicator for participation and communitisation both leading to social resilience. Distribution and accumulation of social capital are described as actor-related in the participation process. Ultimately, the entire participation process is evaluated through the social capital which is gained from different actor’s interactions. (Putnam/Leonardi/Nanetti 1993:72ff.)

According to Putnam/Goss (2001:25f.), there are four attributes of social capital. Firstly, there is formal social capital which is enabled through networks such as corporations that have fixed tasks and rules. The other form is informal social capital which develops in loose networks of e.g. friends. (Putnam/Goss 2001:25f.)

The second kind is identified through high or low-density relationships (Putnam/Goss 2001:26f.). This depends on the multiplicity of relationships in networks. High density, for instance, can be identified in families that are characterised by strong ties. On the contrary, low density relations may be acquaintances. (Putnam/Goss 2001:26f.)

Thirdly, social capital can either be introverted or extroverted. Introverted capital develops through fostering relations within the network. Hence, the networks’ interests are targeted. Extroverted social capital produces public goods and follows public interests. It is therefore characterised through altruistic attributes. (Putnam/Goss 2001:27f.)

The last kind distinguishes between bridging and bonding social capital. Bridging capital exists in a network of heterogeneous actors. Members are of different ages, ethnicities and other characteristics. New sets of information are generated from rather loose relations between people. Bridging social capital fosters trust and offers very inclusive approaches. In contrast, bonding social capital exists between a homogenous group of people. High density of relationships within the network results in social cohesion and support. Whether a network is identified being heterogeneous or homogenous depends on factors such as ethnicity or social positions. A social network can also include both bridging and bonding capital. (Putnam/Goss 2001:27ff.)

Social capital is measurable through an analysis of the amount of network actors and feasible connections in relation to the sum of all possible actors (Jansen 2006:108, Gefken 2011:67ff.).

In urban development, social capital is of high importance as it evolves local effects. While actors encourage each other, solidarity develops. This can lead to higher participation in politics and subsequently, better social and economic conditions are achieved within an area. (Mayer 2002:37ff.) Endogenic local resources such as common visions may give impetus to urban development (Hannemann 2002:264).

As already stated above, social capital facilitates self-organisation. In case of a disaster, the provision of information, non-financial and financial resources, aid and other services are initiated through social capital networks (Elliott/Haney/Sams-Abiodun 2010; Hurlbert/Haines/Beggs 2000, Kaniasty/Norris 1993 in Aldrich/Meyer 2015:256). Ultimately, social capital is a highly important feature of social resilience (Aldrich/Meyer 2015:256). “Communities with high trust, norms, participation, and networks were able to more quickly recover from disaster” (Aldrich/Meyer 2015:260). Moreover, further rapid recovery results from community leadership (Aldrich/Meyer 2015:260).

Time Banking and *Community Currency* are two approaches that have been proven to raise social capital (Lietaer 2004 in Aldrich/Meyer 2015:262). Both systems are based on the exchange of skills, rewards or incentives for volunteers who work on a communal project. Participants may convert their gain at local merchants which offers connections to small-scale traders. Additionally, people who may not volunteer from an intrinsic motivation are being engaged and encouraged. Projects as these have resulted in solid benefits in terms of both mental health as well as material recovery. (Aldrich/Meyer 2015:262)

Moreover, social events such as social activities or parades show benefits regarding social capital (Aldrich 2010 in Aldrich/Meyer 2015:262). Trust and social cohesion are recognised as positive results (Richey 2007:69 in Aldrich/Meyer 2015:262). One last method towards rising social capital is to include residents in the creation of their physical environment. Peoples’ identification with their city plays a role as well (Mayer 2002:268f.). Gathering spots offer interaction possibilities as a side-effect through enabling the notion of belonging between residents and their city (Aldrich/Meyer 2015:263).

Based on the foregoing review, it should be noted that dilemma can be passed easier when social capital exists (Putnam/Goss 2001/20f.).

2.3 Counter Model Vulnerability

Vulnerability is an important issue in context to resilience as it is identified as the resilience counter model. According to Bürkner (2010:6) vulnerability is defined as the situation of being exposed to mankind and objects during endangerment. This implies that vulnerability is an ambiguous term that refers to social, economic, institutional and environmental dimensions. (Birkmann/Bach/Vollmer 2012:297, Bürkner 2010:10, Birkmann 2008:5ff.)

When talking about disturbances it is important to classify those as either shocks or stresses, or a combination of both which a system or society is vulnerable to. The term *shock* refers to a short and sudden disturbance such as an earthquake. Yet, *stress* implies a long-term disturbance that is for instance climate change. Disturbances refer to both environmental and societal issues. (Mattissek/Sakdapolrak 2016:24)

Social vulnerability is often referred to as the other side of the same coin of that of social resilience (Gallopín 2006 in Mattissek/Sakdapolrak 2016:24). The concept of vulnerability is based on lacks and shortages. That means that firstly interactions between external disturbances and secondly internal helplessness are at the core of social vulnerability. Societies may lack the capacity to deal with disturbances. Ultimately, internal and external factors affect social vulnerabilities. (Mattissek/Sakdapolrak 2016:22) In contrast, resilience draws attention to enhancing abilities and the transition vulnerable people (Mattissek/Sakdapolrak 2016:24).

Vulnerability relates to social inequity, social disparities such as segregation, financial risks in terms of debts, economic crisis and environmental risks such as natural hazards (Beckmann 2013:9). Morrow (2008:4 in Christmann/Ibert 2016:238) states that “social vulnerability occurs when unequal exposure to risk is coupled with unequal access to resources”. (Morrow 2008:4 in Christmann/Ibert 2016:238)

Social vulnerability is often higher in groups with less social, cultural and economic capital, who live in hazardous regions and are consequently not able to reduce risks (Christmann/Ibert 2016:239).

Vulnerability refers to uncertainty for instance in the context of natural hazards (Jha/Miner/Stanton-Geddes 2013:12). The complexity of a system such as a city increases and includes unpredictable events as ‘new risks’ as “a consequence of living in an increasingly connected world” (Longstaff 2009:49 in Blum et al. 2016:160) with “many dimensions: political, economic, ecological, biophysical, among others” (Longstaff 2009:49 in Blum et al. 2016:160, Müller 2011:3f.).

Disasters are explained as the result of vulnerability and natural events (Mattissek/Sakdapolrak 2016:22). The Pressure and Release Model (PAR) is a tool explaining

the link between vulnerability and natural disasters (Wisner et al. 2004 in Matissek/Sakdapolrak 2016:22). This approach follows the questions of "who [is] when, how and why exposed to vulnerability." (Matissek/Sakdapolrak 2016:23). Ultimately, the PAR can be used in order to analyse how vulnerable people become affected. Figure 1 describes the PAR model. The two opposing pressures of first vulnerability considering socio-economic factors and secondly risks regarding physical exposures build up and release disasters.

The PAR model introduces three causes for the increased vulnerability of humans. Firstly, root causes for vulnerability result from factors such as a lack of social capital, and a shortage of ecological or economic resources which are identified as everyday difficulties. Similarly, these causes are isolated from the disaster. Secondly, dynamic pressures are put on responsible organisations that are believed to handle and provide resources such as education and knowledge. Ecological change, social disturbance or debts may then be caused. Due to those pressures, lastly, unsafe conditions or uncertainties arise on different scales. Unsafe livelihood may be addressed. These circumstances depend on peoples' well-beings and their access to general resources. Moreover, a state may fail at providing disaster risk prevention plans. These vulnerabilities of people meet risks that arise through natural hazards such as earthquakes. Consequently, the product of risks and vulnerabilities are natural hazards. In order to release pressures, vulnerability should be decreased. (Meyer et al. 2017:29, Matissek/Sakdapolrak 2016:22)

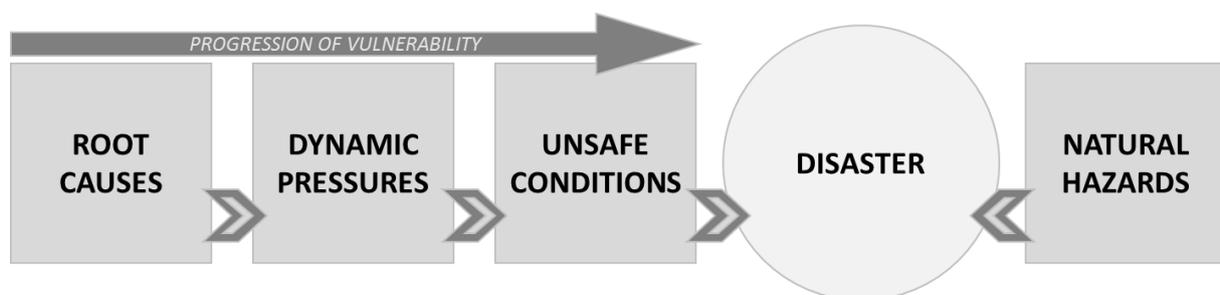


Figure 1: Pressure and Release Model. Source: Own illustration adapted from Meyer et al. 2017:29.

3 Urban Development

The following chapter firstly defines urban development in order to gain an overall understanding about its intentions. Secondly, urban resilience is discussed to link the resilience context with urban areas. Lastly, the topic of sustainable urban development is outlined as it marks a significant milestone in urban development.

3.1 Definition

Urban development is defined as spatial, historical and structural overall development of an urban area. It is an active planning and transition process regarding either an entire city or single zones. (Albers/Wekel 2013:58ff, Streich 2011:540f.) Urban development means leading the overall development of a city including for example social, economic, cultural and ecological dimensions (Deutscher Städtetag 2013:12). Strategic urban development asks for interdisciplinary, integrated and future-sighted actions (Deutscher Städtetag 2011:7 in Heineberg/Kraas/Krajewski 2017:275, Albers/Wekel 2013:58ff., Streich 2011:540f.). That means that single measures such as projects are implemented into an entire urban development strategy (Deutscher Städtetag 2011:7 in Heineberg/Kraas/Krajewski 2017:275, Albers 2006:43ff., Hutter 2006:210ff., Ritter 2006:129ff.).

Urban development planning forms the cross-sectional area of politics and administration, civil society and the private business sector (Deutscher Städtetag 2013:15). Nowadays, urban development should contain urban governance processes that include civil society engagement (Deutscher Städtetag 2011:7 in Heineberg/Kraas/Krajewski 2017:275, Bock/Beckmann 2013:75). Urban governance depicts a tool for inclusive urban development in order to face adjustments to challenges in a successful way (Bock/Beckman 2013:75). Urban governance means the enhanced participation of civil society within planning and development processes of public and private actors (Deutscher Städtetag 2011:8 in Heineberg/Kraas/Krajewski 2017:275, Knieling 2014:62, Hanke 2011:11). Stakeholders of disciplines such as economy, society, culture and ecology should be approached (Knieling 2014:62). Cooperation between all actors shall be established through for instance public-private partnerships or Corporate citizenship. Other forms of cooperations are possible. (Knieling 2014:63) Higher standards of living and well-being are to be achieved by means of urban governance (Heins 33:1998 in Hanke 2011:11).

Concerning these findings, governance may be defined as followed: “All those interactive arrangements in which public as well as private actors participate aimed at solving societal problems, or creating societal opportunities attending to the institutions within which these Governance activities take place, and the stimulation of normative debates on the principles underlying all Governance activities” (Kooiman 2002:73 in Knieling 2014:62).

Further, decision-making shall be carried out transparently which leads towards more acceptance of decision-making bodies (Wotha 2018:242). Addressing and stressing the way how to handle uncertainty should therefore be regarded in relation to decision making: Instead of idealising the best possible answer layout, emphasis should be put on a broader decision-making approach. (Jha/Miner/Stanton-Geddes 2013:12) With the help of urban governance, a city becomes turned into complex and networked system by including a whole range of different stakeholders (Bock/Beckmann 2013:75). Participation and decision-making should focus on long-term basis by policy makers (Jha/Miner/Stanton-Geddes 2013:4).

Consequently, urban development is asked to set frameworks for future developments including the participatory and decision-making measures. Future developments should be responsive to uncertainties in urban areas that arise due to ongoing mega trends. Such trends are seen within the context of for example the demographic transition, globalisation processes and climate change. Increasing numbers of extreme natural hazards may cause social segregation that evolves social conflicts. (Deppisch 2016:205, Beckmann 2013:8) Spatial development is about reducing vulnerability and increasing resilience by establishing urban development strategies (Bock/Beckmann 2013:75, Birkmann/Bach/Vollmer 2012:296).

3.2 Urban Resilience

The concept of urban resilience emerged as response to increasing uncertainties in urban life (Carmin/Nadkarni/Rhie 2012 in Meerow/Newell/Stults 2015:42).

Nowadays, cities cope with different kinds of risks which are (Bürkner 2010:23)

- Natural risks, that are naturally occurring shocks and stresses
- Technical/strategic risks, such as critical infrastructure maintenance
- New risks, such as terrorism

Here again, the scope of renewal and ability to learn is informed. It includes technological, cultural, social and institutional aspects (Bock/Beckmann 2013:75). Urban resilience consists of four dimensions which are social, infrastructural, economic and institutional resilience (Jha/Miner/Stanton-Geddes 2013:11). Infrastructural resilience deals with the built environment, such as the rebuilding of building structures. Moreover, services, structures and the functional integrity that keep a city going are addressed. Additionally, the capacity of a community to cope with disturbances is addressed. (Jha/Miner/Stanton-Geddes 2013:11, Bürkner 2010:23) When speaking of economic resilience, several disciplines such as employment after the occurrence of hazards are referred to in terms of their ability to maintain (Deppisch 2016:205, Jha/Miner/Stanton-Geddes 2013:11). The organisations' functionalities on both non-governmental and governmental levels are approached when institutional resilience is mentioned (Jha/Miner/Stanton-Geddes 2013:11).

A city is referred to be an area in which interactions between humans and nature take place (Pickett et al. 2013 in Meerow/Newell/Stults 2015:43). Therefore, cities are often defined as “highly complex, adaptive systems” (Meerow/Newell/Stults 2015:39). This leads a city to be a socio-ecological system (Deppisch 2016:205, Meerow/Newell/Stults 2015:43). Either internal or external risks evoke change that an urban area needs to cope with (Deppisch 2016:205).

An important feature that forms urban resilience and also appears in the context of uncertainty is redundancy. Constructing a redundant system is essential and similarly includes the component of flexibility. (Jha/Miner/Stanton-Geddes 2013:3) Unfortunately, compromises are often made between both resilience and redundancy (Montenegro in Jha/Miner/Stanton-Geddes 2013:3) since including alternative components into a system such as an urban area equally means expanding its “size and complexity” (Jha/Miner/Stanton-Geddes 2013:12). Godschalk (2003 in Deppisch/Schaerffer 2011:28) claims that “a system is resilient when confronted with catastrophes principles such as redundancy, diversity, efficiency, autonomy, collaboration and adaptability are present”. (Deppisch/Schaerffer 2011:28)

Urban resilience can be understood as an urban area’s ability to adapt to uncertainties (Brown et al. 2012:166 in Meerow/Newell/Stults 2015:44, Bock/Beckmann 2013:75). Besides, the term further reaches out to “maintain basic functions [...] [that] improve and prosper” (Brown et al. 2012:166 in Meerow/Newell/Stults 2015:44). Consequently, the urban resilience describes possibilities as well as abilities of cities to become resistant and flexible towards crisis and distress (Bock/Beckmann 2013:75).

Urban resilience may also be paraphrased with “preparedness” and “readiness” towards uncertain future events. This process of preparation bundles social capacities of urban areas in order to achieve adaption and transition attributes. Shortly, this number of attributes and abilities in a city should be supported and fostered through political concepts and strategies as stated above. (Jakubowski/Kötter/Weiß 2018:14)

Resilience is central to urban and regional planning in order to communicate cities how to cope with transitional processes and greater complexity (Deppisch 2016:199f.).

Due to the fact that all cities differ from each other one holistic meaning of urban resilience cannot be defined (Müller 2011:3). Ultimately, “a resilient city is supposed to indicate an urban environmental ideal condition as a system which is able to flexibly react to new challenges and is able to include high dynamics of urban processes (demography)” (Resilience Alliance 2007 in Fekete/Grinda/Norf 2016:224).

3.3 Excursion: Sustainable Urban Development

Often, urban development strategies reflect certain guide lines or ideas. Regarding the development of a resilient city, the topic of sustainable development is shortly reflected.

The sustainability term reaches back to the Brundtland report “Our Common future” from 1987 (WCED 1987). The World Commission on Environment and Development (WCED) came up with a milestone approach that defined sustainable development on a global scale. The core stresses the interlinkages between the three main pillars of economic growth, social inclusion and environmental protection that all result in sustainability. (WCED 1987:41ff., UN n.d b) Ultimately, following definition arose: „Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED 1987:41). Therefore, sustainability means the ability to sustain resources for our future generations (Grober 2010:19f. in Kegler 2014:34). A fourth pillar got linked to sustainability in relation to culture. Although this is not anchored in the Brundtland Report, it is still an important dimension which should be acknowledged. (Meyer et al. 2017:9ff.)

In context to resilience, the 2030 sustainable development goals (SDGs) should be considered when talking about the characteristics of resilient systems (Beckmann 2013:7). SDG 11 states “Make cities inclusive, safe, resilient and sustainable” (UN n.d. a) Within that, the pillar of resilience is recognised as being connected to that of urban development.

Lastly, the UN-Habitat III conference in Quito in 2016 sets the latest guideline on how sustainable development is considered within urban development (UN 2017). The *New Urban Agenda* shall support to develop sustainable cities through a broad and inclusive approach. The document’s overall target addresses sustainability. Herein, resilience depicts a tool to achieve this target. (UN 2017)

Ultimately, resilience is determined by sustainability targets. All-inclusive, interdisciplinary participation leads to more sustainability and equally to more resilience. Being included into decision making is key to sustainability. (Beckmann 2013:13)

4 Case Study: Social Resilience in Greater Christchurch

Chapter four introduces in the bachelor thesis' case study. To begin with, the relevance of resilience is explained in context to the geographical location of Christchurch in New Zealand. Then, an overview about the Resilient Greater Christchurch urban development strategy is given to emphasize its development and content.

4.1 Relevance of Resilience in Greater Christchurch

The country New Zealand is located in the southwestern Pacific Ocean and consists of two land mass islands, the North Island and South Island as well as numerous smaller islands. The country is separated by the Tasman sea from Australia in a distance of approx. 1,500 kilometres to the east. The main islands' latitudes reach from 34° to 48° South and the longitudes reach from 166° to 179° East. Wellington is New Zealand's capital. (Michael/Munt 2008:182)

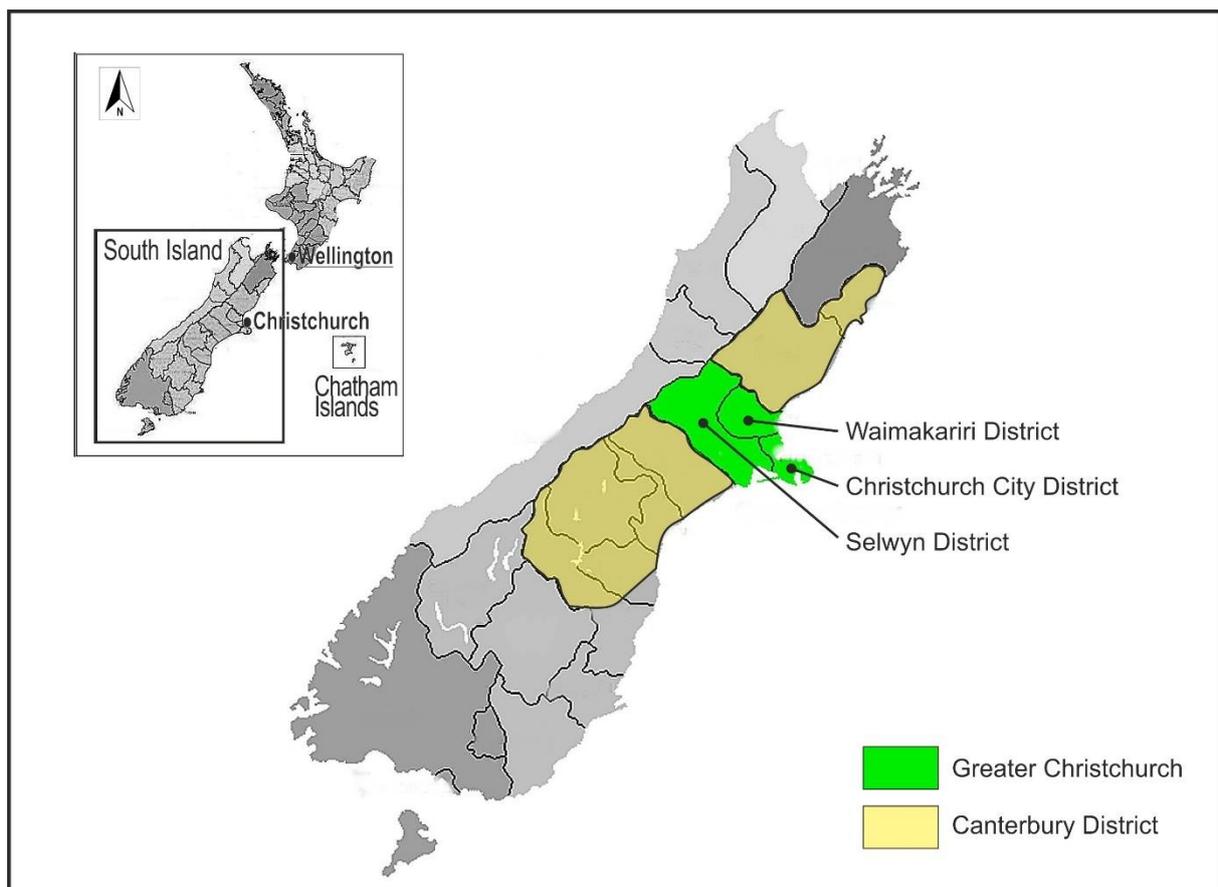


Figure 2: Map of New Zealand's South Islands Authority Districts. Source: Own illustration based on Wikipedia 2017.

Christchurch, or Ōtautahi, is New Zealand's second largest city located on the east coast of the South Island. The term *Greater Christchurch* defines the administrative areas of the Selwyn

District Council, Waimakariri District Council and Christchurch City Council in the Canterbury region. Moreover, the adjacent coastal marine area is referred to. (100RC 2016:2, CERA 2013:44) Figure 2 on page 17 depicts New Zealand's South Island and highlights the Greater Christchurch region.

Considering the fact of increasing numbers of natural hazards, New Zealand is deeply vulnerable due to its geological location. Shortly explained, the Pacific and Australian tectonic plates lay under the land mass of New Zealand and move towards each other. The Alpine Fault marks their boundary. Figure 3 indicates the tectonic plates in relation to New Zealand.

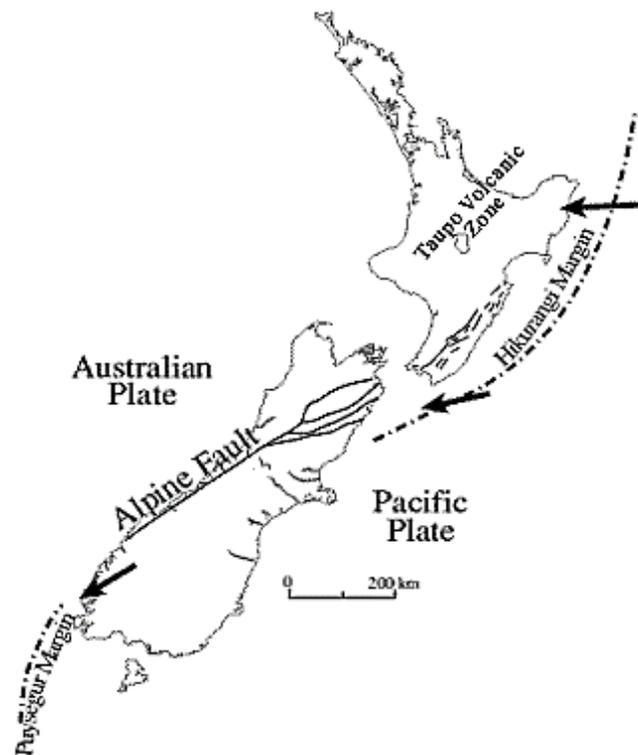


Figure 3: Tectonic Plates in context to New Zealand. Source: University of Otago n.d.

The Pacific Plate to New Zealand's northeast shifts towards the Australian plate and is being subducted below the latter one. On the contrast, the subduction of the Australian plate below the Pacific one happens in New Zealand's south. The movements of both plates result in earthquakes of different magnitudes. (University of Otago n.d.)

Christchurch was extremely hit by such events. On the 4th of September 2010, the so-called Darfield earthquake struck Christchurch with a magnitude of 7.1 moment magnitude scale (M_w). Only five months later, on the 22nd of February, an aftershock hit Christchurch at a magnitude of 6.2 M_w . These earthquakes were followed by many aftershocks that caused much damage in especially the central city due to the earthquakes' strengths. (100RC 2016:10)

Yet, not only earthquakes show risks to Greater Christchurch. Moreover, natural hazards resulting from climate change such as floods or droughts are likely to occur. Shortly said, global warming affects Christchurch in a way that temperatures increase rapidly leaving the east of New Zealand, including Christchurch, with drier areas. Ultimately, climate change is going to have various impacts on the society and economy. (Christchurch City Council n.d. a, Renwick 2017, Renwick 2016)

Other stresses result from social processes. Globalisation, demographic transition, housing and social equity as well as health issues are identified as future challenges. (100RC 2016:19) Based on of the former stated events and hazards New Zealand is vulnerable to various kind of risks. Therefore, urban development is required to react not only to decrease the degree of vulnerability of cities but also to build capacities to act resiliently.

4.2 100 Resilient Cities – the Resilient Greater Christchurch Strategy

In response to the Canterbury earthquake series, an application for participation in the 100 Resilient Cities (100RC) Centennial Challenge was send out to the Rockefeller Foundation by the City of Christchurch in October 2013 (100RC 2016:10).

100RC is a worldwide network of cities which came into life in 2013 by the Rockefeller Foundation. Each city involved had been supported in strengthening their resilience considering economic, social and physical aspects in order to increase adaptability to several risks. The process was featured by supervision from collaboration with various actors and resulted in a tailored resilience strategy. (100RC 2018)

The *Resilient Greater Christchurch* plan marks an urban development strategy. The main developers form the *Greater Christchurch Partnership* (until June 2017 referred to as Urban Development Strategy Partnership) (Greater Christchurch n.d.). Ultimately, the partnership is informed through the collaboration of local councils (Christchurch City Council, Environment Canterbury, Selwyn District Council and Waimakariri District Council) and local Iwi³ (Te Rūnanga o Ngāi Tahu). Furthermore, government agencies such as New Zealand Transport Agency, Canterbury District Health Board, Regenerate Christchurch and Greater Christchurch Group are developers (Greater Christchurch n.d., 100RC 2016:2ff.). Together as leaders, empowerment of and cooperation with Greater Christchurch's societies shall be enabled (Greater Christchurch n.d.). The main target addressed in the plan is informed through "participatory planning and collaborative decision-making" (100RC 2016:10) which should lead to social capital growth and actual transition in Greater Christchurch (100RC 2016:10).

³ Iwi refers to Māori tribes. "The Iwi today is the focal economic and political unit of the traditional Māori descent and kinship-based hierarchy of: Waka (founding canoe) - Iwi (tribe) - Hapū (sub-tribe) - Whānau (family)." (Statistics New Zealand n.d. a)

Nine interrelated opportunities and challenges have been recognized as foundation of the strategy’s aims (100RC 2016:32ff.):

- “Community and social cohesion
- Securing [the] future in the eastern parts of Christchurch
- Understanding risks and tools for mitigation
- Housing affordability and accessibility
- Urban form of Greater Christchurch
- The role of innovation
- Community leadership
- Building trust between the community and decision makers
- Connection with our natural environment”

These nine points address the topics of ecology, economy, infrastructure and the society. Moreover, Figure 4 depicts the overall resilience framework which is supposed to connect to the challenges and opportunities. It is informed by four dimensions portrayed in Figure 4’s inner circle and 12 surrounding urban resilience drivers. With the help of the framework the upper stated challenges and opportunities are re-addressed and faced.

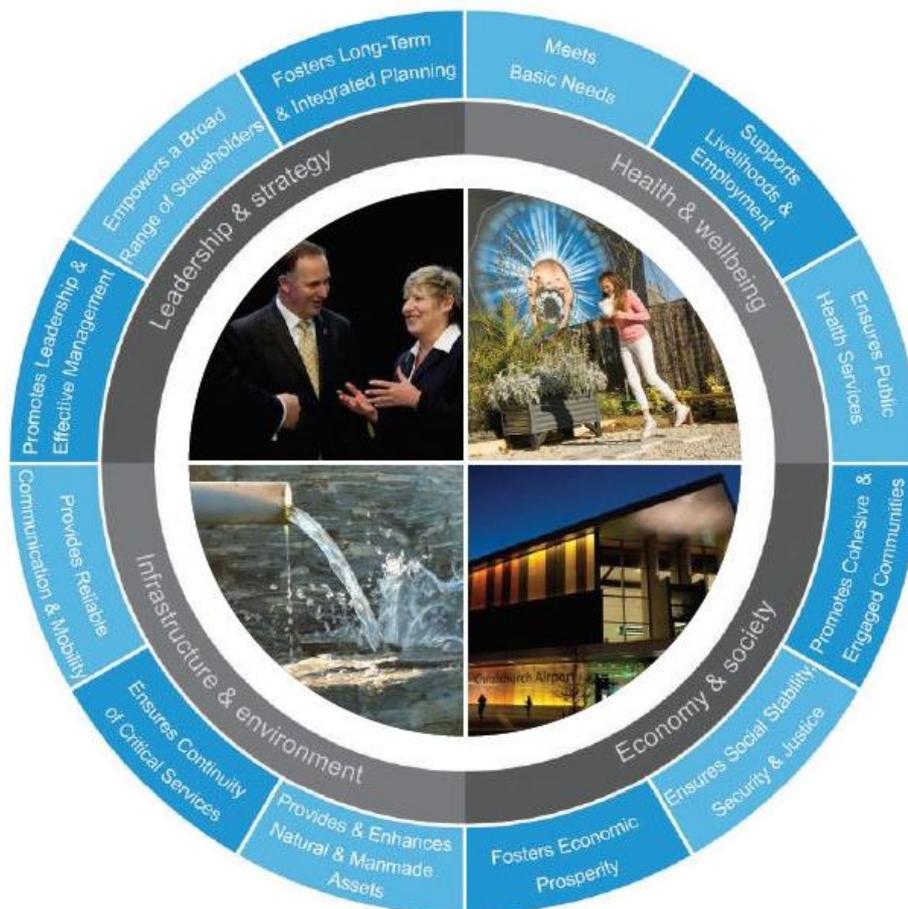


Figure 4: Resilience Framework. Source: 100RC 2016:35.

The entire Resilient Greater Christchurch strategy underlays two leading principles and the four goals of *Connect*, *Participate*, *Prosper* and *Understand* build the main dimensions of the urban development strategy. Figure 5 on page 22 illustrates the leading principles, the four goals and eleven resilience programmes. The programmes are further distinguished in various projects and actions as the *implementation plan* within the Resilient Greater Christchurch strategy shows. With that, the strategy's purpose is to achieve capacities towards resilience. (100RC 2016:38)

A meaningful Treaty partnership with Ngāi Tahu			
Consistency and collaboration across all tiers of government			
CONNECT	PARTICIPATE	PROSPER	UNDERSTAND
We are connected communities living in adaptable places	We are a community that participates in shaping our future	We are prosperous by sustaining the vitality of the environment, fostering innovation and attracting people	We understand risks to be better prepared for future challenges
1 Connect people	4 Build participation and trust in decision-making	6 Connect internationally	9 Improve community understanding and acceptance of risk
<p>A Develop events and local information resources to help new residents build connections with people in their immediate communities.</p> <p>B Develop, improve and sustain support programmes for vulnerable people as an enduring resilience-building activity.</p>	<p>A Experiment with alternative forms of public participation to promote awareness of issues and engage people in decision-making.</p> <p>B Develop tools, mechanisms and processes that enable individuals to be more active participants in the success of Greater Christchurch.</p>	<p>A Build strong national and international connections as foundations to attract people, develop markets and stimulate collaboration.</p> <p>B Future proof our physical infrastructure to safeguard our economic performance and overseas trading connections.</p> <p>C Invest in attracting and retaining workers from overseas to supplement our ageing workforce and stimulate new business ideas.</p>	<p>A Develop and agree objective risk evidence and definitions in a non-technical language as starting points to engage the community about risks they face.</p> <p>B Openly engage the community to explore risk scenarios as a foundation for dialogue about risk reduction.</p>
2 Create adaptable places	5 Support community organisations and leaders	7 Foster a culture of innovation	10 Manage the risks we face
<p>A Consolidate and enhance our network of strategic and local centres to provide accessible focal points for communities.</p> <p>B Promote transport alternatives in everyday life to reduce car dependency.</p> <p>C Collaborate with communities to create healthy, safe and welcoming facilities and places.</p>	<p>A Provide support services that enable community groups and leaders to resolve administrative and regulatory processes.</p> <p>B Facilitate networking between community organisations as a means to develop shared direction and more efficient use of resources.</p> <p>C Strengthen funding arrangements to build confidence and stimulate investment in the community and voluntary sector.</p>	<p>A Support an environment that enables innovation and creativity as means to diversify our economy and add value to our production.</p> <p>B Commissioning of research and regular reviews of global and technological trends to maintain awareness of fast moving change.</p> <p>C Support the emergence of the social enterprise sector as partners in driving change in our communities.</p>	<p>A Develop a risk reduction framework to help us invest efficiently in interventions around our threats and hazards.</p> <p>B Review the role and use of insurance as a tool for risk transfer.</p> <p>C Support community preparedness in response to acceptance of risk.</p>
3 Improve the quality, choice and affordability of housing		8 Sustain the vitality of the natural environment	11 Securing our future in the eastern parts of Christchurch
<p>A Continue to support and develop initiatives to improve the quality of new and existing housing.</p> <p>B Develop a consistent source of housing research to inform proactive planning for Greater Christchurch's future housing needs.</p>		<p>A Build capacity to source food from our local and urban environments to sustain our people and rediscover our relationships with nature.</p> <p>B Develop projects and initiatives that support restoration of indigenous biodiversity across an ecological network.</p>	<p><i>During 2016/17, the newly formed Regenerate Christchurch will set out an initial list of priorities and projects which the Implementation Plan (at the back of this document) will pick up.</i></p>

Figure 5: Resilience Programmes (numbers) and Resilience Projects (letters). Source:100RC 2016:39.

5 Analysis: A Social Resilient Greater Christchurch?

This chapter deals with the analysis of the Resilient Greater Christchurch strategy. Therefore, the used methodology is explained before it is being applied.

5.1 Methodology: A Document Analysis

In order to assess whether social resilience is being established in Greater Christchurch the Resilient Greater Christchurch urban development strategy is analysed.

The so-called *document analysis* belongs to the field of qualitative-interpretative analyses. The benefit of this type of analysis is that the material does not have to be collected as data are already available with the given document. (Mayring 2002:46ff.) Nevertheless, information gathered from personal interactions cannot be considered in the analysis (Mayring 2002:49). The choice of documents to be analysed depends on the author's subjective point of view (Mayring 2002:47) which is likewise reflected in the latter interpretation. The chosen material can be varying. A document analysis is helpful to evaluate the validity of documents. (Mayring 2002:49) Mayring (2002:48) suggests six criteria concerning validity, that are

- 1) The kind of document
- 2) External features
- 3) Internal features
- 4) Intention of document
- 5) Proximity of issue
- 6) Origin

The Resilient Greater Christchurch strategy is identified as a statutory document and therefore offers a legal paper. Its content is supposed to propose urban development matters and approaches regarding the Greater Christchurch area (see chapter four). Ultimately, the document is identified as being valid. Therefore, the interpretation of the strategy can be carried out.

According to Mayring (2002:48f.), a document analysis follows the subsequent steps:

- 1) Clear formulation of the problem
- 2) Selection of raw material
- 3) First assessment of the documents value
- 4) Interpretation

Additionally, material is analysed step by step by a *qualitative content analysis*. (Mayring 2002:114) There are three types of qualitative content analyses (Mayring 2002:115):

- 1) Summary
- 2) Explication
- 3) Structuring

This thesis uses the first type *Summary*. The chosen material is being reduced on the basis of inductive categories. Then, it is analysed and interpreted in relation to the problem with indicators. (Mayring 2002:114f.)

Here, the categories of *governance*, *diversity*, *social capital requirements* and *social resilience capacities* are identified. Indicators are developed on the base of both social resilience attributes and those of urban development. It is evaluated whether governance processes are found throughout the Resilient Greater Christchurch strategy in order to indicate social resilience.

Firstly, the aspects of governance approaches comprise the sub-categories *decision-making*, *participation* and *empowerment*. For that, projects which are listed in the *Implementation Plan* of the Greater Resilient Christchurch strategy are regarded. Indicators are developed and sorted into four categoric sectors in order evaluate a holistic participation process including various stakeholders:

- Public sector: includes Government Agencies, District Councils, Ministries and other organisations working under New Zealand authorities
- Private sector: includes profit-orientated businesses and entrepreneurs
- Community sector: refers to individuals, Whānau and groups acting on behalf of their local communities'
- Non-Governmental Organisations (NGO's): refers to grassroots organisations, voluntary groups, foundations

Secondly, the pillar of diversity is regarded considering the use of language (English/ te reo Māori) and ethnical features. Lastly, assumptions concerning the built social capital resources are made supported with the previous findings before an assessment of whether social resilience capacities are established through the projects is taken out. Both social capital characteristics and social resilience capacities refer to the attributes discussed in chapter two.

5.2. Implementation of Social Resilience in the Urban Development Strategy

The following chapter carries out the analysis of social resilience in the Resilient Greater Christchurch urban development plan. Firstly, the definition of social resilience used in the Resilient Greater Christchurch strategy is looked at. Then the actual implementation of social resilience features based on the structure proposed in chapter four follows.

5.2.1 The Notion of Social Resilience in the Strategy

The aim of this thesis is to examine social resilience in the Resilient Greater Christchurch strategy. As an urban development strategy, the plan is supposed to include the dimensions of economic, infrastructural, social, ecological and institutional resilience (Jha/Miner/Stanton-Geddes 2013:11). Due to the fact that the strategy holds a non-specified term title of resilience it is necessary to evaluate whether and how *social resilience* is being applied throughout the strategy.

The Resilient Greater Christchurch plan acknowledges that there is a range of resilience definitions and a range of understandings. The understanding of what resilience means to different individuals, groups and organisations is outlined in the Resilient Greater Christchurch strategy and shortly discussed in the following section. (100RC 2016:36) A quote from the former Urban Development Strategy 2007 states that resilience was understood as risk uncertainty management that gets informed through a strategy. It targets the ability to positively respond to hazards to organisations, communities and individuals. This is stated in the actual strategy that is being analysed. (100RC 2016:36) Moreover, in this strategy residents are identified as being the driver towards general resilience. Further, the Mayor's emphasis is put on a social basis of resilience as being its core (100RC 2016:36). The 100RC makers' definition is broader and might be applied to various sectors (100RC 2016:36). Additionally, Ngāi Tahu's definition in the Resilient Greater Christchurch strategy rather emphasises on the Māori worldview⁴ and states a genealogical understanding of ancestors and history to be crucial to resilience (100RC 2016:36). Nevertheless, no precise definition is proposed.

⁴ "Māori [...] see themselves as a part of ecosystems rather than separated from ecosystems. To achieve well-being, humans require basic materials, health, good social relations, security, and freedom of choice and action. Many of these basic necessities are provided directly and indirectly by ecosystems. Humans not only depend on ecosystems, they influence them directly through land use and management. The strength of this interdependency between humans and ecosystems may be conceptualised as a reciprocal relationship comprising *manaaki whenua* (caring for the land) and *manaaki tangata* (caring for people)." (Harmsworth/Awatere 2013:276)

Yet, the notion that resilience is informed through social attributes is identified by the ability to gain the characteristic “to be resilient” (100RC 2016:14). Herein, the strategy highlights that skills are needed which are identified as capacities and abilities. Therefore, Table 3 illustrates all attributes gathered in the Greater Christchurch Resilience plan (100RC 2016:18ff.). A range of verbs describe the actions that are planned to be taken out and achieved. Moreover, these actions are put into relation with the three previously stated social resilience capacities in order to evaluate whether critical capacities are being addressed. This is shown in Table 3.

Social resilience capacities	Actions co-relating with social resilience
Coping capacity	To recover To absorb To survive To maintain To cope
Adaption capacity	To plan To prepare To co-create To adapt To understand
Transformation capacity	To thrive To grow To foster To build To sustain

Table 3: Social resilience capacities in relation to actions identified in the strategy. Source: Own illustration based on 100RC 2016.

It is visible that social resilience capacities are suggested. The first social resilience assessment shows that abilities proposed in the strategy co-respond to key capacities of coping, adapting and transforming. Ultimately, it seems that social resilience is regarded in the Resilient Greater Christchurch strategy.

As these actions depicted in Table 3 need to be taken out by humans, the following analysis points out who is being addressed. The strategy reveals that “place people at the heart of a Resilient Greater Christchurch” (100RC 2016:37) which is shown in Figure 6.



Figure 6: Actors of actions. Source: 100RC 2016:37.

This implies that residents of Greater Christchurch are identified as being both the target for as well as driver of general resilience. Moreover, Figure 6 gives the notion that actions shall be taken out from the micro level (individuals/households) over the meso level (Whānau, communities) to eventually spread over to the macro level (organisations).

Ultimately, the strategy is informed by the finding of the society being the base for all future developments towards social resilience building.

These findings correspond with the drivers of social resilience which are outlined in the resilience framework (compare with Figure 5 on page 22). The pillar of "Health & Wellbeing" (100RC 2016:35) emphasises the dimension of social resilience as the term *basic needs* which refers to those of people. Moreover, another pillar "Economy & Society" acknowledges the role of community by obviously naming its part in resilience building. Development of social resilience is identified by supporting social cohesion and engagement of communities. (Compare with Figure 4 on page 20)

To summarise the findings about social resilience indicators it is evaluated that social resilience is immanently related to as being essential to the establishment of overall resilience. The importance of creating social cohesion is supported by putting individuals at the core of acting in order to enable social resilience capacities.

5.2.2 Governance

The importance of including people from and in different formations and contexts is highlighted in the strategy by stating “[...] the term 'we' is entirely used and is intended to be inclusive as we all have roles to play in resilience building" (100RC 2016:37), as it is believed to create greater levels of resilience. (100RC 2016:37). Nevertheless, the statement is undermined by the fact that the reference 'we' is broadly defined. Further identification should be taken out by asking *who is we?* Obviously, the pronoun shall evoke a notion of belonging by producing feelings of togetherness between all residents. Creating general resilience is immanently handed over to ‘everyone’ which is further stated with "Everyone has a role to play in achieving collective outcomes, each looking out for one another"(100RC 2016:44). Yet, both examples show approaches to giving residents responsibility for the development of social resilience. Including a whole range of heterogeneous actors and interest groups is at the heart of achieving holistic participation results and therefore the following part deals with the assessment of governance structures.

5.2.2.1 Decision-Making

A total of 58 projects is outlined in the implementation plan of the Resilient Greater Christchurch strategy. The projects’ identified leaders are sorted into four categories of public sector, private sector, community sector and non-governmental organisations (NGOs) in the notion that governance processes shall be informed by a variety of actors. It is assumed that the lead position holders of a project equally serve the position of decision-makers. Table 4 shows the share of leading organisations per sector per project.

LEAD	Total of projects	Public Sector	Private Sector	Community Sector	NGO	To be confirmed
Sum	58	47	0	5	2	4
Sum in %	100	81,03	0,00	8,62	3,45	6,90

Table 4: Share of organisations in leading positions per sector. Source: Own Table based on 100RC 2016.

The analysis of the projects’ leaders indicates overwhelming evidence corroborating the notion that the public sector is the prominent driver of the proposed projects. Based on this finding,

47 actions are undermined by the public sector's lead which makes more than 80% publicly led actions. Ultimately, the strategy is informed through numerous top-down approaches that limit the say of societies and communities in decision-making.

This evidence connects to the pillar of trust. Due to the fact that bottom-up processes rather built trust between the different stakeholders, the degree of trust evoked through the projects in the implementation plan leads to the assumption of lower levels of trust.

Especially *Goal 2 Participation* is informed through the notion of Rangatiratanga⁵ and Whānaugatanga⁶. People's participation is presumed in a manner of referring to cultural values and norms of Māori people whose decision-making has always been informing future developments. Social cohesion of Māori people is stated to be exemplary for social resilience. The importance of collaboration is emphasised (100RC 2016:57). It is recognized that certain capacities are needed in order to deal with unexpected situations and that these capacities shall be entirely understood and fostered through participation. (100RC 2016:58)

5.2.2.2 Participation

The strategy targets "participatory planning and collaborative decision-making" (100RC 2016:10) and emphasizes the role of participatory urban development. As already indicated above collaborative cross-sectorial decision-making does not exist as Table 4 indicates.

Goal 4: Understand connects to participatory urban development. A change in governance structures in terms of participation towards profound transparency is proposed and intended. (100RC 2016:60) This development shall establish change through "holistic thinking" (100RC 2016:12). Thus, it is not defined what the term *change* exactly refers to. Change, in the context of social resilience, may refer to transition (Compare with chapter 2.2.1.3).

Further, it can only be assumed that broad participation possibilities and many involved stakeholders are meant with "holistic thinking" which eventually leads towards transition. The outcome of this are a range of cross-cutting knowledge bases. (100RC 2016)

Transparency shall be achieved through engaging urban actors such as community groups, individuals and others. Empowerment through easy collaboration and inclusive urban planning processes shall be accomplished. (100RC 2016:60ff.) This is where awareness and

⁵ Rangatiratanga: "Leadership through collaboration, maintaining a high degree of personal integrity and ethical behaviour in all our actions and decisions"(100RC 2016:58)

⁶ Whānaugatanga: "Respecting, fostering and maintaining relationships with each other." (100RC 2016:58)

communication attributes are addressed. Understanding shall be supported and moreover, governance abilities are expected to have individuals take leadership. (100RC 2016:61)

Participation is informed through local peoples' knowledge and support by civil society and volunteers (100RC 2016:62). Moreover, networking is recognised as a tool to simplify knowledge exchange. (100RC 2016:63)

The Table 5 represents the number of partners of different or the same sector in relation to the projects.

Number of partners	LEAD only	1	2	3	4	≤ 5
Number of projects Σ 58	5	18	17	13	5	0

Table 5: Number of partners in relation to projects. Source: Own Table based on 100RC 2016.

Most projects show a collaboration with one or two partners. 13 projects are even identified by having three partners where as five projects have no partner.

Table 6 indicates that the community sector is involved in 30 of 58 projects which is more than half of all projects. This shows that community collaboration is implied. Moreover, the majority of 41 projects identifies the public sector as a partner. The involvement of the public sector indicates rather formal groups and partnerships.

	Public Sector	Private Sector	Community Sector	NGOs
Number of projects	41	22	30	18

Table 6: Number of projects that each sector is involved in. Source: Own Table based on 100RC 2016.

A list of 68 different project partners (see Appendix 1) in total is formed by the public, private and community sector and NGOs. The following Table 7 indicates the number of different stakeholders per sector.

Sector	Number of stakeholder	Share of partner (in %)
Total	68	100,00
Public Sector	32	47,06
Private Sector	21	30,88
Community	5	7,35
NGO	9	13,24
Other/ Non-Identified	1	1,47

Table 7: Share of stakeholders in relation to sector. Source: Own Table based on 100RC 2016.

It is visible that the community sector has only five different interest groups that are specifically named. This means that a total of five community groups/organisations is involved in 30 projects. Depending on their size, participation may either be broad or narrow in terms of members. Furthermore, it appears that different terminologies are used to express the same: “community boards and community organisations, community sector and the wider community” (Appendix 1, 100RC 2016). It remains unclear who within the community is being addressed although every group may feel addressed at the same time. Residents are being passively addressed, and it appears that active inclusion is superficial.

Regarding the public sector, a total of 32 diverse organisations or agencies is identified. This marks almost 50% public organisations involvement. Nevertheless, polycentric government structures are indicated which lowers the assumption of only top-down approaches.

Collaborations between different partners can be identified in the implementation plan. The most common collaborations between two partners are those between the public and community sector. Moreover, public-private partnerships seem to be established as it is in four projects identified (100RC 2016:49ff., Projects 2B, 6A.1, 6A.2, 6B).

Hence, it seems that social collaboration and participation come along with various lacks. Governance structures shall aim at developing resilience *with* residents. A supremacy of public sector organisations seems to emphasise the level of governance *for* residents.

5.2.2.3 Empowerment

Empowerment of people is identified through projects that target at especially the community sector.

Community leadership is essential in case of emergency or disaster. The Resilient Greater Christchurch strategy offers people in Canterbury the opportunity to develop leadership skills. They are being encouraged to participate in the Leadership in Canterbury (LinC) Project which aims at broadening leadership abilities in skills of community members. Hence, barriers to take part are equally built up. This is due to the fact that the membership of LinC follows an application process. Bureaucratic efforts exclude those who are not able to deal with complicated enrolments. Despite, access to and skills to use the internet are needed. Exclusion may appear to people such as Elderly. (LinC Project 2017, 100RC 2016:44ff.))

On the contrary, the Resilience Greater Christchurch strategy offers low-barrier participation possibilities through informal setting. Projects such as ‘Meet your street – summer in Selwyn’ (100RC 2016:52) clearly recognise the vision of social resilience. Participation is encouraged

through gathering possibilities within close distance. Neighbourhoods get to know each other under the aspect of Selwyn being expected to rapidly grow in terms of migrants and new residents (100RC 2016:52). Considering the pillar of vulnerability, the Resilient Greater Christchurch strategy supposes migrants and new residents as vulnerable by explicitly highlighting their inclusiveness. Empowering those social groups that, on the one hand are subject to quick changes and on the other hand are vulnerable, is supported in Selwyn. Ultimately, network-building between residents is encouraged by the project and identified as a crucial factor towards social resilience. (100RC 2016:52)

The community's identification with the area's as well as the environment's settings and places and generally space is crucial. The strategy targets participation possibilities through the tool of placemaking. Concerning the aiming at creating adaptable places (100RC 2016:48), many actors are taken into consideration creating the process of place-making. (100RC 2016:48) The importance of well-created places is acknowledged as being a driver towards social engagement and social cohesion (100RC 2016:48). Initiatives such as GapFiller turn public vacant spaces in Christchurch City that have once been used by buildings into "new public environments" (100RC 2016:48). By offering both residents and visitors, for instance, musical events and cultural activities on those empty places, the destroyed urban place and environment is becoming connected to personal experiences. Community organisations and volunteers support a basis for expanding social capital (100RC 2016:48).

Moreover, placemaking in terms of connecting communities with their natural environment in Christchurch City is emphasised. It considers increasing degrees of social resilience. Ultimately, "resilient communities are rooted in resilient environments" (100RC 2016:74). Especially the sustainable relationships of Māori people with their environment are stressed and taken as a positive example. Similarly, activities such as community gardening build "social hubs" (100RC 2016:75). These hubs offer places for community growing together by participating. When there are enjoyable places for people, these might be used as gathering locations in the future. (100RC 2016:48)

Herein, different forms of knowledge and informal relationships lay the foundation of social capital. The fact that rongoā⁷ and common gardens support cultural diversity in terms of knowledge exchange fosters cultural acceptance and tolerance. Thereby the facet of learning and understanding from each other is being supported. Through establishing the *Christchurch*

⁷ The term 'rongoā' refers to the Māori word for medicine gardens (100RC 2016:75). It includes traditional healing responses within a cultural context through traditional understanding and knowledge (Ministry of Health 2018).

Food Resilience Network (100RC 2016:75ff.) that organises events such as urban gardening, self-organisation capacities of communities are being supported.

The placemaking process is further being underlined by attaching importance to diversity of not only cultural but also to diverse events. Through cultural events, understanding an awareness building is supported in terms of getting to know and approaching other's cultures. (100RC 2016:47) Ultimately, such events are identified as a crucial tool towards the empowerment of people.

Although many projects are being led by public organisations, a range of different locations is addressed regarding neighbourhood and community building projects. These projects evoke both formal and informal participation possibilities. People are engaged through formal collaboration activities such as the establishment of the *Little River Community Plan* or the *Waimakariri Red Zone* engagement process (100RC 2016:61). Collaboration requires the communities' willingness to be part of these processes.

Table 5 on page 34 shows participation possibilities under both formal and informal as well as informal-formal settings. It portrays projects that relate to the pillar of societal participation. The projects indicate the goal they are sorted into as well as the location they address.

Goal 1: Connect underlays the notion of stressing the importance to build networks between community members through mostly informal, low-barrier possibilities of participation. *Goal 2: Participation* identifies rather formal settings of participation. The pillar of *Goal 3: Prosper* is referred to through formal settings. Understanding about risks is not informed by *Goal 4: Understanding* although it would have been assumed to be. All in all, there is balance between formal and informal projects.

Furthermore, a range of projects locations is identified. It is visible that most projects are situated in Christchurch itself and emphasises issues in the city.

GOAL	Pro-gramme	Project	Location	Setting
GOAL 1: Connect	1a	Meet your street / Summer in Selwyn	Selwyn	Informal
	1a	Brave - A Daisy Poetry Promenade	East Christchurch	
	1a	ACTIS - Aranui Community Trust Incorporated Society	Aranui	Informal-formal
	1a	International Cultural festivals, including the Diwali and Lantern Festival	Christchurch City	Informal
	2a	Christchurch City Council Transitional Programme; Life in Vacant Spaces Trust, Gap Filler, Greening the Rubble work	Christchurch City	Informal
	2a	You Me We Us Kaiapoi	Kaiapoi, Waimakariri	Informal
	2a	Ngā Whāriki Manaaki - Woven Mats of Welcome	Otakaro/Avon River	Formal
GOAL 2: Participate	4a	Eastern Vision/Evo::Space	Easter flatland suburbs of Christchurch	Formal
	4a	Let's Plan - Waimakariri Red Zone engagement process	Kaiapoi, Pines Beach and Kairaki	Formal
	4b	Little River Community Plan	Little River	Formal
	4b	Snap Send Solve	Christchurch City	Informal-formal
	5a	Lyttleton Time Bank / Lyttleton Harbour TimeBank	Lyttleton	Informal
	5a	Student Volunteer Army (SVA)	NZ	Informal
	5c	LinC Project	Canterbury	Formal
GOAL 3: PROPSER	6c	Starts with a smile	Christchurch	Formal
	8a	Whaka-inaka	Heathcote/Opawho and Avon/Otakaro rivers	Formal
	8a	Edible Canterbury	Greater Christchurch	Informal-formal

Colour codes	Informal (7)	Formal (7)	Informal-formal (3)
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Table 8: Projects' participation settings. Source: Own illustration based on 100RC 2016.

5.2.2.4 The Pillar of Diversity

The strategy claims that increasing numbers of migrants are expected to settle down in Greater Christchurch in the following years. These are on the one hand New Zealanders and on the other hand people from overseas with other cultures. (100RC 2016:32) Not only these new residents addressed, moreover the indigenous population of Greater Christchurch builds a crucial pillar of social resilience. The challenge is to keep support and social cohesion as well as open-mindedness in order to achieve a constant level of social resilience.

Eventually, the analysis distinguishes two fields of research that refer to the influence of indigenous values and to cultural diversity, respectively. The dimension of cultural diversity focuses on interactions between different ethnicities and how these encounters offer opportunities towards social resilience.

Matauranga Māori vs Western knowledge

It is clearly visible that the Resilient Greater Christchurch strategy is informed of indigenous understanding not only by collaborating with Ngāi Tahu (100RC 2016:27). The strategy includes Māori values and uses in the Māori worldview to explain the inter-connectedness of Māori and the environment (100RC 2016:9). Māori expressions such as *Whānau* (100RC 2016:37) build a key feature of expressing social resilience in terms of acknowledging an added dimension of social cohesion which is not present to Western norms.

The most striking fact, however, is the statement of recognising tikanga Ngāi Tahu⁸ at the core of resilience building (100RC 2016:26ff.). The implementation of this essential understanding to the Resilient Greater Christchurch plan shows acceptance and tolerance towards a bi-cultural country. Further, the partnership between Māori and the Crown through the Treaty of Waitangi⁹ (100RC 2016:27) becomes emphasised. The immanent meaning considers social cohesion between both partners and shows the process of moving forward through referring back to historical events.

By laying the following six values and principles as a base to each resilience goal as it is visible in Table 9 on page 36, growing transformation towards the bi-cultural foundation of New Zealand is stressed. Including the Māori language into the strategy, moreover raises awareness to understanding diversity. The matter of trust is addressed by showing the notion of offering guidance to and from Māori people.

⁸ Tikanga Ngāi Tahu: Cultural values and principles (100RC 2016:26).

⁹ New Zealand's founding document is called the *Treaty of Waitangi*. It was developed by both the British Crown and Māori chiefs. Yet, debate about the Treaty has been at the core of many discussion based on the language differences in the English and Māori versions. (Ministry for Culture and Heritage 2017)

Māori value/ principle with meaning	Rangatiratanga:	Kaitiakitanga:	Manaakitanga:
	Actions shall be informed of collaboration, personal integrity and ethical behaviour	Protection and guardianship of the environment for present and future generations	Reciprocity Hospitality Caring
social resilience capacity	Adaption	Transformation	Coping, Adaptation
Māori value/ principle with meaning	Tūrangaewae:	Tohungatanga:	Whānaungatanga:
	Everyone shall be engaged into the wider wellbeing, a place of standing and belong	Value of experience, expertise and knowledge benefits society	Relationships with shall be informed of respect, maintenance, fostering
social resilience capacity	Adaption	Adaption	Adaption

Table 9: Cultural Values and Principles. Source: Own illustration based on 100RC 2016:26, Harmsworth/Awatere 2013:284f.).

As Table 9 outlines, Māori values correspond to social resilience capacities. Collaboration, engagement and participation of “everyone” is identified as being the key towards achieving resilient outcomes on community levels. Furthermore, the value of kaitiakitanga refers to the dimension social and ecological sustainability. Herein, resilience is regarded from a social-ecological point of view and stresses the long-turn time scope. (100RC 2016:26)

Fostering Understanding through Cultural Projects

There are different cultural groups named within the entire strategy: “Samoan speakers” (100RC 2016:93) and “Māori language speakers” (100RC 2016:93). By explicitly naming these two groups, the impact of Samoan and Māori language speakers is supposed to be important. Equally, these may also be considered as being vulnerable to a higher degree than other residents. Furthermore, the influence of different ethnicities is further displayed through projects.

First, the “Brace – A Daisy Poetry Promenade” (100RC 2016:52) marks an art project which relates to the Samoan people and their culture. Although it is stressed that connections with communal artists are built, it should be assumed that these relationships are built between Samoan people as the event’s topic shall show Samoan culture aspects.

Moreover, “International cultural festivals including the Lantern Festival and Diwali” (100RC 2016:48) are identified regarding the ethnical lens. The Diwali Festival is an Indian festival and the Lantern Festival a Chinese celebration (Indian Social & Cultural Club 2017, Christchurch

City Council n.d. b). Those festivals let assume that Chinese and Indian people are further population groups of importance in Greater Christchurch.

The paramount inclusion of those four ethnicities is indicated. Cultural festivals are well-made in order to get to know and to understand other peoples' cultural roots. Nevertheless, these festivals may not help to shape heterogenous networks or even relationships. Hence, stronger ties may result within these ethnic groupings. Therefore, social resilience in terms of building resilience capacities of understanding other people's culture is addressed as well as homogenous relations. The pillar of connections and participation does not seem to be affected. By taking out such events, however, residents are encouraged to take part at the wider well-being. Events foster well-being. By not only attending but interacting with cultural practices and habits, open-minded people are being the result.

5.2.3 Social Capital Requirements

Social resilience is informed through social capital. The occurrence and amount of social capital within a society can be assessed through a networks analysis. The thesis, however, does not allow to take out such an analysis. Therefore, assumptions are made.

Due to the fact that different projects have been proposed in the Resilient Greater Christchurch strategy it should be assumed that networks are equally established. These may be informed by both formal and informal relationships with various actors and stakeholders (compare with Table 8 on page 34). Hints for formal relationships between residents and the public sector as leading organisations are given through projects which on the one hand aim at making legal documents and on the other hand are depended on the population's participation. This may be the development of e.g. the Waimakariri Red Zone plan (project 4a, 100RC 2016). Informal capital can be expected to have been built especially in Lyttleton through Time Banking (project 5a, 100RC 2016). Other projects (compare Table 8) are identified to enable a mix of formal and informal networks.

It is rather difficult to identify the density of relationships as a characteristic of social capital without a network analysis. Yet, the extra pillar of 'Whānau' (100RC 2016) within the strategy implies high density relationships especially between Māori people. Connections have always had important meanings.

It can be highly assumed that bridging capital does exist between the participants of networks. Yet, bonding capital may prevail projects. Considering the previous chapter events that focus on cultural topic may exclude people of another culture.

Yet, social capital enhancement is generally targeted through setting up community projects such as the LinC Project. Offering everyone the opportunity to take part in basketball matches supports community engagement as well as “increasing knowledge, skills, and confidence.” (100RC 2016:64) A public hub is given for participation and exchange.

The project of Lyttleton Time Bank / Lyttleton Harbour TimeBank (project 5a, 100RC 2016) is recognised as a driver towards social capital enhancement as proposed in chapter 2.2.2.

Nevertheless, a network analysis is unavoidable in order to find out more about the capacity of social capital within Greater Christchurch.

5.2.4 Social Resilience Capacities

Within the Resilient Greater Christchurch strategy’s emphasis is put on the axis of “understanding the risks and challenges” (100RC 2016:3,18) that Greater Christchurch faces. The process of ‘understanding’ is on the one hand identified to be reached through measures of co-creation and adaption and on the other hand the third pillar of social resilience. Moreover, the second pillar of social resilience ‘adaption’ is implied and recognises governance possibilities for societies. Furthermore, the power of regeneration from disasters through empowerment of communities is defined as a driver towards resilience. (100RC 2016:3) As the former analysis shows governance structures are expandable. Therefore, the following chapter deals with the possible creation of social resilience capacities through projects named in the Resilient Greater Christchurch strategy.

By stating the target of “a shift from recovery to regeneration” (100RC 2016:3) the deeper understanding of resilience is latent. This implies that the strategy acknowledges that the term recovery, emerging as coping capacity, ought to be broadened in terms of moving towards developing adaption if not even transformation capacities.

It should be noted that the fourth goal of the Resilient Greater Christchurch strategy directly addresses to the capacity of building understanding abilities. This shows the recognition that abilities to understand about general resilience are critical. The plan figures that a certain base of knowledge will further lead to critical abilities of managing risks. Knowledge about possible stresses and shocks shall be enhanced. Furthermore, accepting risks is emphasised to be crucial for resilience planning. (100RC 2016:84) Talking to people about their vulnerability increases their awareness building oo specified hazards, responding to specified resilience (100RC 2016:85).

Table 10 on page 40 illustrates the social resilience capacities which are believed to be enabled by each project. The assignment of the capacities follows the in chapter two identified attributes.

It is obvious that project 5a under *Goal 2: Participate* clearly addresses all three dimensions of social resilience capacities. While only two projects directly address coping capacities, most projects focus on developing adaption abilities on residents in terms of connecting people with each other on the levels of individuals/households, Whānau and communities. It should be positively noted that transformation capacities are enabled by developing self-organising skills through leadership programmes. Especially the development of legal documents such as the Waiamakariri Red Zone open possibilities to transform space on a long-term basis.

Moreover, a broad range of topics are addressed in the projects such as the environment, sports, arts, music and culture (100RC 2016). This, however, is not taken a deeper look at.

Ultimately, the projects mirror future-sighted attitudes towards increasing social resilience capacities.

GOAL	Pro-gramme	Project	Capacities addressed
GOAL 1: Connect	1a	Meet your street / Summer in Selwyn	2 Connect residents
	1a	Brave - A Daisy Poetry Promenade	2 Learn about other cultures, participate in cultural events
	1a	ACTIS - Aranui Community Trust Incorporated Society	2 Support and connect people
			3 Self-organisation through assessing peoples' own needs and development of leadership abilities
	1a	International Cultural festivals, including the Diwali and Lantern Festival	2 Connect people through participation, learn about other cultures
	2a	Christchurch City Council Transitional Programme; Life in Vacant Spaces Trust, Gap Filler, Greening the Rubble work	2 Connect people, make people participate, build trust in the public sector, create adaptable places
			3 Transformation of public space and place
	2a	You Me We Us Kaiapoi	2 Connect and cooperate with the neighbourhood and community
2a	Ngā Whāriki Manaaki - Woven Mats of Welcome	2 Understand the impact of culture	
		3 Placemaking of public space	
GOAL 2: Participate	4a	Eastern Vision/Evo::Space	2 Empowerment of people
	4a	Let's Plan - Waimakariri Red Zone engagement process	2 Understand risks
			3 Transformation of legal land
	4b	Little River Community Plan	2 Understand risks
			3 Transformations
	4b	Snap Send Solve	2 Participate in well-beings
			3 Transformation
	5a	Lyttleton Time Bank / Lyttleton Harbour TimeBank	1 Cope, Exchange skills
2 Engagement with neighbourhood			
5a	Student Volunteer Army (SVA)	3 transition through self-organisations	
		1 Cope and help right after an event	
5a	Student Volunteer Army (SVA)	2 Connect volunteers	
		3 Self-organisation through leadership abilities	
GOAL 3: PROPSER	6c	Starts with a smile	2 Encouragement to take part and collaborate in societies
	8a	Edible Canterbury	2 Understand

number codes	1: Coping Capacity	2: Adaption Capacity	3: Transformation Capacity
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Table 10: Social Resilience Capacities enabled in projects. Source: Own illustration based on 100RC 2016.

5.3 Summary

This section deals with a concluding summary of the foregoing analysis results of the Resilient Greater Christchurch strategy. The hypotheses introduced in chapter one are tested with the results gathered.

First of all, an analysis regarding the classification of social resilience was carried out owing to the fact that the Resilient Greater Christchurch strategy does not use the term particularly. The results indicate that social resilience and its capacities are indirectly addressed by considering verbs used to describe resilience. Likewise, the capacities to cope, adapt and transform are latent. Still, skills and abilities are named as critical attributes for people in order to achieve social resilience.

Additionally, the Resilient Greater Christchurch strategy recognises people to be the core of resilience building. Herein, the pillar of social resilience is addressed as being driven from micro to macro levels that are individuals/household, Whānau, communities and organisations. Although the strategy once explicitly refers to the pillar of society it is also viewed in relation to the economy. Yet, social cohesion is explicitly identified as a main motor towards higher levels of resilience. Ultimately, considerations of the paramount dimension of building social resilience are generally addressed within the strategy by giving ‘everyone’ the task and responsibility over its development.

H₁: Holistic participation possibilities and processes are being enabled through Christchurch’s urban development strategy.

and

H₂: Christchurch’s urban development strategy fosters measures for knowledge transfer and exchange between all stakeholders.

Urban development ought to be informed by functioning governance structures in order to achieve effective outcomes within its geographic scope. An analysis in the projects’ proposed decision-makers has found that the public sector is a prominent leading actor in more than 80% of all projects. Consequently, transparent community decision-making possibilities are undermined by top-down approaches. Similarly, high levels of trust between the society and the public sector are not expected to be reached.

Furthermore, the dimension of holistic participation possibilities is partly proven. The projects to be taken out show the indication of interdisciplinary networks as they underlie partnerships of between one and three partnered actors from different sectors. Although 41 projects are influenced by the public sector’s engagement it should be noted that most projects consist of

at least one other partner of a different sector. Moreover, a range of different agencies and organisations arise and certainly give the notion of polycentric government structures. Yet, the community sector's involvement counts 30 projects and with that marks almost half of all 68 projects. In contrast to the various public-sector organisations it should be emphasised that the partners referred to as the community sector are not clearly identified but described with ambiguous expressions. Eventually, the involvement of explicit community groups and organisations are obscured.

Nonetheless, empowerment structures are identified through low-barrier participation possibilities that support peoples' self-organisation and leadership capacities. Location-based projects offer residents networks to be actively part in either a neighbourhood or area. Especially placemaking projects provide informal settings of building relationships and exchanging implicit knowledge as well as experiences. Vacant plots in Christchurch City build room for placemaking projects which on the one hand serve as social hubs and on the other hand connect people to place. Being bound to its environment not only on a natural basis provides peoples' feelings of belonging. Other projects rather address formal settings in terms of establishing legal documents in collaboration with vulnerable communities.

Apart from considering the heterogeneous dimension of actors, the term further refers to ethnical diversity and social cohesion. Supplementary to placemaking, ethnical events suggest low-barrier accesses to not only getting in touch with heterogeneous cultures but moreover to expand peoples' awareness and understanding about their surrounding cultures.

Since New Zealand is a bi-cultural country, not only the English language but also Māori expressions deeply inform the entire Resilient Greater Christchurch Strategy. Māori norms and values in te reo are emphasised in the strategy's four goals as guide lines. Similarly, the inclusion of all Māori aspects supports the former difficult relationship between the Crown and the Māori experiences positive achievements. Referring to a countries history ultimately offers enabling resilience and increases the peoples' understanding and open-mindedness towards each other. The Western lens has not only been added a Māori one but contributed to an expansion and exchange of various kinds of knowledge. The strategy offers indirect possibilities for governance processes through participation and empowerment intended projects.

All in all, the it can be figured from the so-far concluded arguments that the hypothesis H_1 : *Holistic participation possibilities and processes are being enabled through Christchurch's urban development strategy* can only be partly verified. The same is valid for hypothesis H_2 : *Christchurch's urban development strategy fosters measures for knowledge transfer and exchange between all stakeholders*.

The second analysis' topic referred to social capital. Considering hypothesis H_3 : *Christchurch's urban development strategy improves measures for social capital enhancement*, it should be stated that no explicit proof can be provided. Owing to the fact that only a network analysis is an effective tool for social capital assessment, the thesis offers results of intended social capital requirements. It can be assumed that informal and formal relationships formed with the help of projects are developed on the previously stated arguments. Yet, the other social capital characteristics could not be evaluated.

Ultimately, the main hypothesis H_0 '*Social resilience is being established through the urban development strategy in Christchurch, New Zealand*' can primarily be proven. This finding adds on the previous findings based on H_1 , H_2 and H_3 and supports the social resilience capacities addressed in the framework and projects. While only a few projects indicate the abilities of all three social resilience capacities, the majority outlines adaption and transformation targets. Subsequently, the urban development projects face the pre-disaster preparations. Nevertheless, the term social resilience is not used explicitly in the entire strategy. Yet, its ambiguous meaning become clear.

To sum everything up, the entire analysis could only give an overview about what social resilience might look like in urban development. Nevertheless, definite effects cannot be measured or assessed. Ultimately, the bachelor thesis' measurement of social resilience in the context of an urban development strategy is identified as challenging and insufficient.

5.4 Reflection of analysis design and outlook for further research

The foregoing analysis gives the notion of having served as a 'scratch on the surface' of a deep-rooted, far-reaching topic with manifold aspects. For the purpose of an expanded research on social resilience in Greater Christchurch, the chapter shortly reflects the analysis design. The evidence from the study additionally suggests a variety of ideas for further research.

First of all, a literature-based analysis lacks the characteristic of not generating primary data (compare with chapter five). Therefore, an evaluation of the actual outcomes that occur from the Resilient Greater Christchurch strategy's projects cannot be considered. To get a proper overview about projects structures and impacts, each project including their sub-projects should be assessed in order to gather profound sets of data. An impact analysis may be a tool to evaluate the achieved outcomes of events as well as their developments on and of societies.

It is obvious that the Resilient Greater Christchurch strategy does not offer essential monitoring assessments which is regarded as a fundamental deficiency. Therefore, it appears that the crucial pillar of monitoring is left to each organisation or project. The four overall resilience goals including their projects should be run through regular monitoring assessments in order to ensure that not only the social resilience building processes' outcomes but also the general application of the urban development strategy is characterised by effective and efficient developments. Community organisations' evaluations and views on improvements and developments of social cohesion are believed to underlie a subjective lens. To avoid the notion of rose-coloured glasses, objectivity in evaluation is central.

Additionally, expert interviews give the opportunity to mirror the analysis' results with the interviewed persons' individual impressions and opinions. Interviewed people of different interest groups would support or disprove findings. This method is similarly expected to yield attitudes regarding each project's structure as well as actual information about various participation attendees. (Mattissek/Pfaffenbach/Reuber 2013:158ff.)

Adding to the assumption that social capital is enhanced by peoples' participation, a network analysis would further expand the findings (Jansen 2006:108, Gefken 2011:67ff.).

All in all, further research in this area should include the method of triangulation of various research instruments in order to gain a holistic research process (Flick 2017:309ff.).

6 Social Resilience in New Orleans

The following short example is chosen as a good practice example of the effectiveness of social resilience in response to a natural disaster. Furthermore, the United States of America provide a comparable foundation to New Zealand in terms of both being a developed country. Additionally, New Orleans and Christchurch estimate comparable numbers of populations. (US Department of Commerce 2017)

New Orleans is a city in the state of Louisiana located United States of America close to the Gulf of Mexico (Michael/Munt 2008:196).

In 2005, Hurricane Katrina hit the town and left huge devastation (Boettke/Smith 2009:3ff.). A Vietnamese-American community in New Orleans East was identified as one of the most vulnerable communities in New Orleans. Furthermore, it should be mentioned that these peoples' places have been hit the worst compared to other areas in New Orleans. Within that neighbourhood, the Mary Queen of Vietnam Catholic church has been identified as being at the heart of recovery after the hurricane. (Boettke/Smith 2009:16f., Campanella 2006:143ff.) The provision of organisational structures by the church has enhanced individuals' recovery and well-being (Chamlee-Wright/Storr 2009:28f.). Various tasks were taken out successfully by residents through their self-organisation abilities. Moreover, skills and knowledge of residents as well as their resources were critical to the cooperation processes. Civil society's collaboration displayed enormous resilience capacities. In the aftermath of the storm, community bonds resulted in being further strengthened. Additionally, the present level of social cohesion between community members showed a great amount of social resilience. (Boettke/Smith 2009:16f., Campanella 2006:143ff.)

The example of New Orleans clearly outlines that strong community ties are the most important features a society relies on when it comes to flexibly acting and responding to. Ultimately, these capacities are recognised to be crucial in the aftermath of disasters even without urban development actors' interactions or instructions.

7 Further Reflections

The following chapter reviews both the concept and use of the term *resilience*. This section serves as a 'platform' to question factors that have not yet been examined, and are generally important to be considered.

Not only the diverse definitions but moreover the analysis has given the notion of 'fuzziness' within the whole idea of resilience, and even social resilience. It is recognised that the different concepts partly overlap in their meanings. This, nonetheless, might be regarded as a benefit. Inaccuracy in terms of blurred definitions could support discussions about the actual context-based resilience meaning between heterogeneous actors, and ultimately serves as a "motor of communication" (Fekete/Grinda/Norf 2016:220). (Fekete/Grinda/Norf 2016:220)

The imprecise not yet vague term's application to reality comes along with challenges (Upton/Ibrahim 2012 in Jha/Miner/Stanton-Geddes 2013:10). It seems that the hypothetical research lens has not yet overcome the practical social resilience framework. Subsequently, the issue of operationalising (social) resilience is clouded by the former stated facts.

Additionally, the resilience glass dome is obscured by desirable goals or guiding lines. Considering applying resilience to an urban context, differentiations between "resilience *in* cities (focused on a local-to-regional scale), and a resilience *of* cities (operating at the scale of city networks)" (Wolfram/Vogel 2012:325) need to be made. The Resilient Greater Christchurch strategy may have implied this approach. On the one hand, specific areas and places in the Greater Christchurch area are identified as being highly critical to social resilience development. On the other hand, city networks are emphasised by referring to peer cities within the 100RC network (100RC 2016:30). Although global connections to other partner cities seem to be a well-thought-through way, the dimension does not consider local governance and may not reach 'simple individuals'. Still, the scale of city networks cannot be regarded as a successful 'how-to-manual'. (Endreß 2015 in Blum et al. 2016:153, Müller 2011:6)

Taking a look from a catastrophic social resilience lens, it is claimed that humans do not understand the cohesion of a holistic system to its fullest. This lack of apprehension leads to peoples' actions that are believed to be right and helpful to achieve a considered target. Yet, the complexity of a system is hardly entirely imponderable. Therefore, not all arrangements are believed to certainly lead to positive outcomes. Consequences on a system or society, however, can only be perceived by the actors to a limited amount since holistic knowledge does not exist. (Voss/Wager 2010 in Voss/Dittmer 2016:188)

The shortage of a system's entire apprehension responds to absent considerations of social constructs of vulnerability and resilience. Bohle/Glade (2007 in Bürkner 2010:6) believe that resilience and vulnerability are the results of social processes. These evoke as a social construct of reality which is created by people. Further, it relates to distributions of power and

accesses of individuals and groups to unequally shared resources. The author adds that perceptions of different social groups for instance of risk awareness and understanding should be taken into account in resilience building. Therefore, resilience is being looked at as a desirable goal which can be practically achieved by social production. (Endreß 2015 in Blum et al. 2016:153, Bohle/Glade 2007 in Bürkner 2010:6)

A further important point addresses the non-detachable dimension of different social resilience theories. The case study of Christchurch often subliminally indicates that social and ecological resilience are interdependent. This leads to the challenge and difficulty of assessing only one single dimension of resilience. Especially regarding New Zealand's history, the Māori worldview anchors the natural environment in the concept of life. Therefore, it is hardly possible to only regard a society's resilience, specifically in New Zealand, without referring to the basis of the environment and a country's identity. (Harmsworth/Awatere 2013:274f.).

Yet, the historical dimension of resilience is referred to. Considering the Resilient Greater Christchurch urban development strategy's bi-lingual structure, it should be noted that less than 5% of New Zealand's total population is capable to speak te reo Māori (Statistics New Zealand n.d. b). Although there might be translations to English, Māori values and norms can never be understood to the full extend as they are viewed from a Western knowledge lens. Herein, social resilience may not be achieved due to heterogeneous ways of knowledge and understanding. Additionally, the danger of social segregation may occur due to the former stated reasons.

A better approach might have been two have two different versions of the strategy in both only-English and only-te reo Māori. The hierarchical use of the English language would additionally have been reduced. Still, encouraging people to become familiar with Māori values fosters acceptance.

All in all, on the one hand the application of social resilience in practice needs to be context-based whereas on the other hand the non-existence of resilience is considered as a contrasting idea. Moreover, different resilience dimensions should be regarded as being interrelated.

8 Conclusion: Social Resilience in Urban Development

The closing chapter of this bachelor thesis summarises the entire study's main content in a chronological order.

After the era of engineering and ecological resilience approaches, the pillar of socio-ecological resilience has fostered the debate on resilience research. The interrelation between the ecological and social environment has put forwards the view of dealing with complex systems that need to be approached through holistic theme-based concepts. Today, resilience is persistent to several studies and areas. Its state at the heart of a growing number of research fields considers aiming for positive future developments and outcomes.

Referring to social resilience, the creation of either individuals' or groups' capacities is relied to. The abilities can be sorted into coping, adaption and transformation capacities which differ from each other regarding scopes, degrees of change and future outcomes on communities and their environments. While adoption and transformation capacities are central long-term pre-disaster approaches, coping capacities focus on peoples' short-term abilities right after the occurrence of an event. All three capacities have the target of social well-being in common. Furthermore, coping abilities refer to the re-establishment of critical infrastructures. Relationships within community members reflect a certain base of social capital which supports the reactive and immediate ability to act.

Adaption capacities come along with communities' willingness to understand about present and future risks as well as uncertainties in order to slowly foster transitions. This process of knowledge support should be driven by the public sector. Offering participation processes through projects that encourage people to reflect and draw from their experiences. Equally, dynamically and flexibly reacting to risks is being enabled by proactive approaches.

The third capacity of transformation follows adaption abilities. Transformation regards both the radical change in terms of establishing for example legal documents on vulnerable space, and also the mobilisation of self-organisation abilities to transform.

Not only play social resilience capacities a crucial role. They further give the impetus for increasing amounts social capital by functioning as a driver of social cohesion. This bachelor thesis used Robert Putnam's definition who recognises social capital as a facilitator towards mutual advantages arising from social networks. His differentiation of the four characteristic pairs of formal/informal, low/high density and introverted/extroverted relationships as well as bonding/bridging social capital offers a way to approach social capital. Moreover, social capital is stated to be a driver of higher participation and trust levels in urban development processes.

These release endogenic resources and enabled social capital resources are recognised as lowering the damages of disasters.

Vulnerability is often referred to as the counter model of resilience. The term relies on both a system or a society exposed to risks of diverse kinds. Taking the extended pillar of social vulnerability into consideration, the Pressure and Release model describes the development of social vulnerability and risks as drivers of disasters: The relation between possible natural hazards and the increasing degree of vulnerability occurring from diverse features produces disasters. The concept sets certain shortages at its core. These lead to endangerments of societies.

The third chapter has dealt with urban development. Based on ecological, cultural, social and economic dimensions, urban development strategies are required to be interdisciplinary and future-sighted. Requirements of urban governance processes support inclusive spatial development which should be rooted in a broad range of stakeholders and actors' participation. Likewise, transparent decision-making bodies and process are identified to be central to successful urban governance practices. Taking all these considerations into regard, urban development is required set frameworks that moreover face the challenges of ongoing and future trends.

This is where urban resilience comes into discussion. Infrastructural, social, institutional and economic dimensions as well as redundant systems are believed to be crucial elements of urban resilience regarding cities' functionalities. Overall, urban resilience provides abilities to enhance systems' well-beings and developments in times of crisis. Yet, one exact definition of urban resilience cannot be pointed out as cities are hardly comparable due to their complexities.

Furthermore, urban development is closely linked to the issue of sustainability. Since publishing the Brundtland report, guiding lines have informed urban developments and found their ways in development agendas up to the level of sustainable urban development. All-inclusiveness and maintaining the future generations' needs are anchored as targets.

Greater Christchurch's location on the Eastern South Island in New Zealand portrays various exposures to hazards. Not only climate change has huge impacts of the region's future development. Similarly, seismic activities contribute to the area's vulnerability.

The case study of Greater Christchurch has revealed that social resilience is difficult to assess by a qualitative content analysis of the Resilient Greater Christchurch urban development strategy. Ultimately, the main hypothesis H_0 '*Social resilience is being established through the*

urban development strategy in Christchurch, New Zealand is believed to be mainly valid although further investigations need to be carried out for a clear proof.

Nevertheless, the importance of social resilient communities is not questionable. In response to Hurricane Katrina in New Orleans, people who were hit the most were equally the most vulnerable. Yet, their strong communal bounds arising from the church have been proven highly useful as they held the city's strongest capacities to quickly recover. The role of an urban development strategy is not recognised as a social resilience driver in this case study.

A critical assessment of the resilience gives the notion that the resilience is used in an uncertain process and framework. Yet, this is considered as an advantage to driving communication processes in order to achieve deeper understandings about future hazards and self-organisation capacities. Nevertheless, social resilience is also recognised as being a construct and therefore non-existing.

Considering the use of te reo Māori and English throughout the Resilient Greater Christchurch strategy it should be noted that a hierarchical use of language is obvious. A better approach might have been to develop and publish two separated versions: An English and a Maori language strategy.

Concluding all these arguments, this bachelor thesis provides evidence that the implementation of social resilience practices from an urban development strategy as a framework into peoples' societies requires a holistic, all-inclusive empowerment informed process. Urban development may serve as a driver of creating social resilience capacities by providing a certain foundation through the tool of projects. The specification of the social resilience thought for applicable methods is therefore rooted within social learning processes which ought to result from holistic development strategies. Nonetheless, lastly, individuals, Whānau or organisations on societal levels need to show intrinsically motivated processes to achieve sustainable long-term outcomes.

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Appendix

Partners	Sector
Antarctica NZ	Public
Canterbury International Education Industry Board	Public
Canterbury CDEM (Canterbury Civil Defence Emergency Management Group)	Public
Canterbury Development Corporation	Public
CDC (Canterbury Development Corporation)	Public
CDHB (Canterbury District Health Board)	Public
Christchurch City Council	Public
Council of National Antarctic Programmes (COMNAP)	Public
Councils	Public
CPTED (Crime Prevention Through Safer Environmental Design)	Public
Department of Conservation (DOC)	Public
Department of Internal Affairs	Public
ECAN	Public
EECA (Energy Efficiency and Conservation Authority)	Public
EnviroSchools	Public
ENZ (Education NZ)	Public
EQC (Earthquake Commission)	Public
Government	Public
Government agencies	Public
Housing providers	Public
Infrastructure providers	Public
Land Information New Zealand	Public
Mayoral Forum	Public
MBIE (Ministry of Business Innovation and Employment)	Public
Ministry of Social Development	Public
NZ Transport Agency	Public
Regional Council	Public
Research institutions	Public
SCIRT (Stronger Christchurch Infrastructure Rebuild Team)	Public
SDC (Selwyn District Council)	Public
Statistics NZ	Public
WDC (Waimakariri District Council)	Public
Business community	Private
Canterbury Lifelines Utilities Group (CLUG)	Private
CeCC (Canterbury Employers' Chamber of Commerce)	Private
Christchurch International Airport	Private
CIAL (Christchurch International Airport Ltd.)	Private
Development Christchurch	Private
House builders	Private
Individuals and entrepreneurs	Private
Industry groups	Private
Insurance Council New Zealand (ICNZ)	Private
Insurers	Private

Ministry of Awesome	Private
NZTE (New Zealand Trade and Enterprise)	Private
Otakaro	Private
Philanthropy New Zealand	Private
Private landlords	Private
Private landowners	Private
Technical advisors	Private
Tourism New Zealand	Private
UC (University of Canterbury)	Private
Universal Design	Private
Community boards	Community
Community organisations	Community
Community sector	Community
Ngāi Tahu	Community
The wider community	Community
Akina Foundation	NGO
Care organisations	NGO
Charitable organisations and volunteers	NGO
Rata Foundation	NGO
Red Cross	NGO
SEWN (Social Equity & Wellbeing Network)	NGO
Soil and Health Association	NGO
Tertiaries	NGO
Volunteers	NGO
MOA (explanation of abbreviation was not identified)	?!

Appendix 1: List of all project partners. Source: Own illustration based on 100RC 2016.

Statutory Declaration

I declare that I have authored this thesis independently, that I have not used other than the declared sources / resources, and that I have explicitly marked all material which has been quoted either literally or by content from the used sources.

Eidesstattliche Erklärung

Hiermit erkläre ich des Eides statt, dass ich die vorliegende Arbeit selbstständig und ohne Benutzung anderer als der angegebenen Hilfsmittel angefertigt habe. Alle Stellen, die wörtlich oder sinngemäß aus veröffentlichten und nicht veröffentlichten Schriften entnommen wurden, sind als solche kenntlich gemacht. Die Arbeit ist in gleicher oder ähnlicher Form im Rahmen einer anderen Prüfung noch nicht vorgelegt worden.

Hannover, den 02.07.2018

Ort, Datum

Unterschrift