Post-disaster recoveries, post-disaster complexities:
Social cohesion, immigration and memory
on the Caribbean island of Montserrat

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ABSTRACT

This thesis aims to better understand the long-term recovery processes after a catastrophe linked to a natural hazard, and the adaptation strategies implemented to reduce the risk of disaster and to "build-back-better". The study focuses on the sustainability of the recovery process. It underlines the complexity of managing short-term and long-term socio-economic needs without creating new forms of vulnerability and without affecting the resilience of the society.

The research focuses on the case of Montserrat, a small Caribbean island severely affected by a prolonged volcanic eruption from 1995 to 2010. Due to the destruction of its capital city, Plymouth, and most of its critical infrastructure, the island experienced mass emigration during the crisis. Demand for labour during the physical recovery and a need to re-establish a sustainable level of population has led to large-scale immigration from neighbouring Caribbean countries. Immigrants accounted for only 5-10% of the population in 1990 but now compose about half of the population.

The research adopted an ethnographic approach, employing semi-structured and informal interviews, observation and focus-group discussion. It involved three seasons of fieldwork between 2014 and 2017.

The changes induced by the demographic transformation of the country during an unstable period highlight a number of challenges and dilemmas for the long-term development of the island. Twenty years after the first eruption, physical and demographic recovery are seen as the main priorities, to the detriment of disaster risk reduction plans and immigration management. The research highlights how the will to restore stability conceived in terms of pre-disaster normalcy and cultural identity has tended to prevent the creation of bridging social cohesion in the newly diverse society, contributing to the marginalisation of immigrants and hence creating vulnerabilities to disaster.

Although reconstruction has reduced the remaining population's physical exposure to natural hazards, these efforts are constrained by a lack of resources and of time, and fail to consider post-disaster change in terms of social vulnerability to disaster. Moreover, memory of the previous disasters, familiarity with the volcanic hazards and the reliance on monitoring are mobilised to create a sense of safety, preventing the implementation of efficient risk communication and preparedness measures. The thesis argues that the will to

recover stability and promote economic, physical and demographic recovery encourages the creation of a collective imaginary where the risk of natural hazards, especially of volcanic hazards, is largely minimised. It claims that this prevents the country from adopting adaptive strategies based on learning, experience and memory.

The thesis makes a case for adopting a comprehensive view of post-disaster recovery, one that takes into consideration the interactions between different dimensions of the process, and the social system in which the redevelopment occurs and that existed before the disaster.

ACKNOWLEDGEMENTS

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LIST OF ACRONYMS[1]

BOT: British Overseas Territory

CARICOM: Caribbean Community and Common Market

CDEMA: Caribbean Disaster Emergency Management Agency

DfID: Department for International Development

DMCA: Disaster Management Coordination Agency

DR: Dominican Republic

DRR: Disaster Risk Reduction

FGD: Focus Group Discussion

GoM: Government of Montserrat

MVO: Montserrat Volcano Observatory

OECS: Organisation of Eastern Caribbean States

SAC: Scientific Advisory Committee

SIDS: Small Island Developing States

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[1] The definitions of technical and conceptual terms are given in the text

CHAPTER ONE

INTRODUCTION

"Where there is a ruin, there is hope for a treasure", Rumi

1.1.   Setting the scene: Recovery process, and post-disaster challenges

Disastrous events and emergency response have received a lot of attention from researchers. However, it is well known that the impacts of disaster can last long after the aid flow has dried up, whether they concern the physical environment, the economy of a country or the psychological well-being of the affected people. This long-term period, despite being critical for the redevelopment of the affected place, is largely neglected both by practitioners and researchers (Rubin, 2009).

Recovery is mainly discussed in terms of emergency and relief and the long-term implications are rarely considered. The decisions made during the post-disaster period are themselves, on the one hand, influenced by the disaster, in different extents dependent upon the context; while on the other hand, they highly determine the recovery trajectory of the affected communities. Research on disaster has recently started to focus more on the post-disaster recovery following decades of focusing mainly on reducing vulnerability. Research now recognizes the importance of this time as opportune for learning from past events in order to create a resilient society (Becker & Reusser, 2016; Jordan & Javernick-Will, 2012; Lindell, 2013; Oliver-Smith, 1990; Sword-Daniels, Twigg, & Loughlin, 2014). The Hyogo Framework for Action for 2005-2015 has institutionalized this in the principle of "build-back-better" (Becker & Reusser, 2016). This clearly distinguishes the recovery process from the idea of a "return to normal", to the conditions existing before the disaster, and emphasizes the need for change and improvement, in order to reduce the drivers of vulnerability to natural hazards. Hence, it recognizes the need to include preparedness measures within the recovery period, instead of considering them as separate stages of the disaster cycle.

Despite the ideal of building-back-better and learning from the past experience, the post-disaster recovery process remains very challenging to understand and to implement in a sustainable way. Defining when the relief period gives way to the long-term recovery

period, and when this one is finally achieved would require specific and measurable indicators. So far, attempts to determine them have failed due to the complexity of the process. Although studies often focus on physical rebuilding in order to examine and measure the recovery process, the latter is much more complex and multi-dimensional (Alesch, Arendt, & Holly, 2009; Johnson & Hayashi, 2012; Medd et al., 2015; Olshansky, Hopkins, & Johnson, 2012; Rubin, 2009; Smith & Wenger, 2007). For example, recovery encompasses psychological, social, demographic or environmental recovery. Each of these run at their own pace and interact with each other, impeding or encouraging them. Hence there are several recovery processes during the post-disaster period. We therefore need to understand each of these specific processes and their interactions in order to implement sustainable practices, reduce vulnerability and build resilience.

The question of normality is very significant in the process of recovery. Although the common attempt of policy-makers and affected people is to recreate the resources they lost during the disaster and the familiar environment they were familiar with, the relevance of such an approach is now largely criticized among academics working in the field (Birkmann et al., 2010; Khasalamwa, 2009). Indeed, the occurrence of the disaster is clear evidence that the affected society was vulnerable in several aspects. Reinstating a pre-disaster status-quo would correspond as reproducing the conditions for vulnerability (Handmer & Dovers, 1996; Klein, Nicholls, & Thomalla, 2003; Pelling & Dearing, 2008). Hence a sustainable recovery involves addressing and reducing the vulnerabilities that led to the initial disaster. This corresponds to the desire to move forward and create a resilient society. Resilience is increasingly considered as a major dimension of post-disaster recovery that could define the sustainability of the process (Manyena, 2006). However, the concept, although now widely used both among academics and practitioners working in the field of disaster risk reduction, remains unclear and subject to very different interpretations, making it difficult to operationalize. It is understood in this thesis as the "the intrinsic capacity of a system, community or society predisposed to a shock or stress to adapt and survive by changing its non-essential attributes and rebuilding itself" (Manyena, 2006, p. 443). It therefore supposes that affected communities have strong adaptive capacities and can learn from the previous event. The thesis is based on the idea that there are learnings taking place at different levels in the recovery processes, implemented through policy and practices, that contribute to determine how adaptive or maladaptive the society's transformation is, and hence the sustainability of the change

implemented (Djalante, Holley, Thomalla, & Carnegie, 2013; Lebel, Grothmann, & Siebenhüner, 2010; Pelling, 2011; Tosey, Visser, & Saunders, 2012; Wilkinson, 2013).

Learning from a disaster and building-back better presents a central challenge for the recovery process because it aims to improve the measures for disaster risk reduction (DRR). While disasters were formerly considered as an "act of God" or "act of Nature", which required only technical measures in order to mitigate the risk, it is now recognized that disasters are not natural, but result from the combined factors that produce or exacerbate vulnerability (Hewitt, 1983; O'Keefe, Westgate, & Wisner, 1976; Wisner, Blaikie, Cannon, & Davis, 2004). Disasters arise from social and political processes that prevent the most marginalized people from adjusting to and coping with natural hazards. Reducing the risk of disaster during the post-disaster recovery process implies therefore reducing the vulnerabilities which existed before the disaster and those emerging during and after the disaster (Djalante et al., 2013; Klinke & Renn, 2012; Manyena, 2006; Wisner et al., 2004). In turn, this involves raising people's awareness of the risk of disaster (Mercer, Kelman, Taranis, & Suchet-Pearson, 2010; Renn, 2004; Wachinger & Renn, 2010) and improving risk preparedness. Although there has been much research on the best approaches to increase preparedness and reduce the risk of disaster, there are relatively few studies of the challenges of implementing measures for DRR in a post-disaster period, a period of transition marked by multiple disruptions of the society.

The post-disaster period therefore is complex and multi-dimensional. It consists of several recovery processes, including economic, physical, psychological or social, each going at different pace and interacting with each other. Recovery processes build on pre-existing social structures, culture and values, in order to create a more resilient and a sustainable future. It can in turn reproduce existing social inequalities or create new factors of vulnerability to disaster. Analysis of the recovery processes is embedded in the discourse of vulnerability reduction and resilience building. Facing these complexities, Alesch (2005, p.494) highlights: "If the history of purposeful human intervention in complex systems should teach us anything, it should teach us that any intervention ought to be premised on a sound understanding of the system we are attempting to affect. Intervention based on an absence of understanding, no matter how well-intentioned, will have unexpected and unpredictable consequences. We are beginning to get good longitudinal information on what happens to communities and those people in them, but we do not have a theory of post-event recovery on which to base advice or to inform policy makers". In my thesis, I do not propose a fully worked out theory of post-disaster but aim to better understand the

process. Three aspects of particular significance are further explored within this thesis in order to better understand the challenges of the post-disaster recovery processes:

(1) reducing the risk of future disaster during the post-disaster period, as part of the learning process,

(2) adapting to post-disaster change, focusing here on demographic change and immigration, and

(3) strengthening social cohesion as a precondition for sustainable development.

Research on risk and DRR includes, in particular, work on risk mitigation, for instance the technical measures implemented for lessening or limiting the adverse impacts of natural hazards. It also includes work on prevention and preparedness measures to effectively anticipate, respond to, and recover from hazardous events. Research on preparedness has focused in particular on risk perception (Haynes, Barclay, & Pidgeon, 2008b; Renn, 1990, 2004; Slovic, 1987; Wachinger, Renn, Begg, & Kuhlicke, 2013), risk communication (Alaszewski, 2005; Bier, 2001; Breakwell, 2000; Haynes, Barclay, & Pidgeon, 2008a; Okada & Matsuda, 2005) and on trust between stakeholders (Alaszewski, 2005; Carothers, Moritz, & Zarger, 2014; Haynes et al., 2008a, 2008b; Siegrist & Cvetkovich, 2000; Wachinger et al., 2013). Indeed, research on DRR increasingly demonstrates the importance of social context in the adoption of DRR strategies, in particular the role of culture (Mercer et al., 2012). This emphasizes the importance of local knowledge and the need of considering culture as part of the measures of preparedness, along with scientific knowledge (Cadag & Gaillard, 2011; Harris, 2012; Mercer, Kelman, Suchet-Pearson, & Lloyd, 2009; Mercer et al., 2010; Wisner, 2009). The formation of local knowledge is intimately linked to the experience and memory of past events, and contributes to shape the way risks are perceived. Risk perception is not merely individual but draws on collective imaginaries of the affected society and its associated risks, which in turns is shaped by active processes of forgetting and remembering some events, or aspects of those events (Connerton, 2009, 2010; Gruev-Vintila & Rouquette, 2007; McEwen, Garde-Hansen, Holmes, Jones, & Krause, 2017; Muzaini, 2015). Memory and risk perception therefore play a critical role in the post-disaster recovery, a period that can be marked by trauma or important psychological disruptions. It may highly influence the preparedness to future disaster and hence affects the strategies of recovery.

Moreover, it is widely acknowledged that social capital plays an important role for reducing the risk of disaster (Aldrich, 2011; Aldrich & Meyer, 2014; Chamlee-Wright &

Storr, 2011; Mukherji, 2014). It supports amongst other things relations of trust that are essential for risk communication, access to information for building knowledge and accurate risk perception, or even access to a supportive social network (Aldrich, 2011, 2012; Nakagawa & Shaw, 2004). Despite the evidences, practitioners and academics largely neglect the role played by social capital during the post-disaster recovery process. Aldrich (2011, p.595) argues that social capital is "the strongest and most robust predicator of population recovery after catastrophe". Nakagawa & Shaw (2004, p.5) also explain that, "the community with social capital records the highest satisfaction rate for the new town planning and has the speediest recovery rate". More specifically, social cohesion is largely underestimated by practitioners despite the multiple examples where it has clearly been a major factor of recovery (Aldrich & Meyer, 2014; Chamlee-Wright, 2009; Chamlee-Wright & Storr, 2011; Leroy et al., 2016). However, a disaster is often a driver of demographic change that can significantly disrupt social networks and social cohesion long after the event itself.

Natural hazards frequently trigger population movements out of and into the affected area. An increasing number of studies explore emigration movements following a disaster, viewing them as a coping or an adaptation strategy. This is particularly discussed in the context of climate change, for instance as a consequence of sea-level rise affecting some coastal areas. However, very little research has explored immigration movements *into* places affected by a disaster, although it is a relatively common phenomenon. Existing studies are essentially limited to the case of the New Orleans after Hurricane Katrina, where immigrants came mainly to rebuild and take job opportunities. By providing support for the recovery process, immigration not only contributes to changing the demography and the socio-economic context of a place, it also creates new challenges in terms of vulnerability to disaster. Indeed, it is now widely recognized that when their specific needs are not addressed, immigrants can be disproportionally vulnerable during and after disaster (Guadagno, 2015; Guadagno, Fuhrer, & Twigg, 2017). It is therefore essential to understand the role and the challenges faced by immigrants during the post-disaster period in order to promote a sustainable recovery and prevent their further marginalization. Assessing the post-disaster recovery process of a society includes assessing its capacity to adapt to demographic change and to include immigrants in the process.

1.2.   Aims of the research

While many studies have focused on understanding the cascading impacts of a disaster, in this thesis I aim to understand the forces that shape the trajectory of the recovery in post-disaster period in order to better understand the challenges, obstacles and resources for making a society resilient and leading a sustainable development. I aim to better understand how post-disaster recovery is conducted in a context of demographic change and uncertainty. I do not intend to establish measurable criteria but rather to identify the factors that support or obstruct change toward that goal. For that, I aim to examine the recovery processes in terms of the risk of and vulnerability to disaster, analysing how the recovery process contributes to developing adaptive capacities or, on the contrary, to developing conditions of vulnerability.

To understand the complexities of the recovery processes, I focused this research on the case study of Montserrat, a small British Overseas Territory located in the Caribbean. The country was affected by fifteen years of volcanic eruptions between 1995 and 2010, starting only six years after Hurricane Hugo had destroyed about 90% of the infrastructure. Since 1997, the southern two-thirds of the country has been totally evacuated and remains an exclusion zone. The capital city, Plymouth, and most of the major infrastructure were destroyed by pyroclastic flows and lahars. In 1998, three years after the beginning of the crisis, 75% of the population of about 10,300 emigrated to the UK or to neighbouring Caribbean countries. The rest of the population, reduced at its lowest point to only 2,400 inhabitants, had to relocate to the underdeveloped North of the country. From 2002, the population started to increase again and reached about 4,500. Since then, it has stabilized between 4,000 and 5,000. This growth is largely due to intense immigration from poorer Caribbean countries, mainly Guyana, Jamaica and the Dominican Republic. That led to a major social and cultural change as the immigrants now constitute about half of the total population, while in 1990 they represented only 5-10% of the population.

Since 2010 the level of volcanic activity has been low and no eruptions have been recorded. However, the risk is still present. Moreover, the island is prone to several other natural hazards, including the hurricanes that occur in the Caribbean almost every year at different levels of intensity. Therefore the recovery process occurs in the context of continuing high levels of uncertainty and of major socio-economic and cultural change.

In this context, the specific objectives of this research are to:

- Understand the motives and the visions that shape post-disaster development measures,
- Examine the interactions between the different dimensions of recovery, in particular how physical rebuilding interacts with the social, economic, cultural and political recovery, including multi-scale interactions,
- Determine how the society adapts during the post-disaster period to additional change, in particular demographic change and immigration
- Evaluate the extent to which post-disaster development strategies have contributed to enhancing adaptive capacities or to creating conditions that increase vulnerability to disaster
- Examine how social cohesion is considered during the recovery process and how that affects the trajectory of the recovery
- Examine how the experience of past disaster shapes the vision of the future and consequently the measures for DRR and risk communication.

1.3.   Structure of the thesis

Following this introduction, Chapter Two provides a review of the research literature on disaster and post-disaster recovery, and outlines the analytical framework of this study. It presents a review of literature on disaster, vulnerability and recovery notably, and points out the main challenges in this understanding. Derived from this review, the analytical framework provides the basis for data analysis and discussion in the following chapters, and traces their links with the existing literature.

Chapter Three presents the research methods used for the study. The research is based on a combination of qualitative data collection methods, including interviews, observation and focus group discussion for data collection, and qualitative data analysis based on a coding-based approach. The chapter also provides a reflection on the appropriate ethical stance of the work, the anticipated and unanticipated challenges faced during the study, both during the fieldwork and during the analysis, and their practical implications for this study.

Chapter Four is an introduction to the case study, Montserrat. It introduces the major hazards the country is prone to and an historical timeline of its major disasters. It also presents the socio-economic setting of the country and their recent evolution. The chapter focuses particularly on the recent demographic change, and details who are the

recent immigrants, and their socio-economic conditions. It provides the context of the post-disaster change and enables to further analyse the challenges of this period and of the decisions to take for redeveloping the Island.

Chapters Five, Six and Seven present the data analysis and develop the research questions presented earlier. The three chapters examine the sustainability of the recovery process from the perspective of vulnerability to disaster. Chapter Five is a comparison of the development of four neighbourhoods. It explores, both at the scale of the neighbourhoods and at the national scale, how the rebuilding and the development initiatives, formal and informal, enable to build social cohesion and a better consideration of the risk of disaster. It analyses how the principles of building-back-better are implemented, the obstacles and the factors that support it.

Chapter Six focuses on the role of immigration in the recovery processes. After providing an analysis of the role of the immigrants as actors in the process, it discusses how the recovery process has responded to the demographic, cultural and social change linked to immigration. It provides a qualitative vulnerability assessment and analyses how the strategies of development marginalize the newcomers and create conditions likely to increase their vulnerability to disasters.

Chapter Seven explores more directly the questions of disaster risk reduction. It provides an analysis of how the recovery process takes into consideration the risk of disaster. It examines how past experience, memory of disaster and the collective imaginary shapes the way risk is communicated and DRR measures are implemented. The chapter provides an analysis of the evolution of risk perception during the post-disaster period and its impact on the way risk is communicated.

A synthesis and conclusions to the research are provided in Chapter 8. The main findings and their relevance for other contexts, other than Montserrat and other than those exposed to volcanic hazards, are discussed. Finally, it highlights the important implications for practitioners and for future research on post-disaster recovery.

CHAPTER TWO

UNDERSTANDING THE PROCESSES OF RECOVERY:

THE ANALYTICAL FRAMEWORK

Disasters have been largely studied in academic research, from social to physical sciences. This interest generated diverse and evolving perspectives over time and across different disciplines. This thesis attempts to look at the complexities of the post-disaster recovery processes, and so requires a complete understanding of the existing literature and current analytical framework.

This chapter explores the literature on disaster and post-disaster recovery. It starts with a setting of the philosophical paradigm that has led the reflection and the data analysis. It then examines the evolution of the academic understanding of disaster, with a greater focus on the process of creation of disaster and of vulnerability. It then explores the post-disaster recovery process, including its role as an opportunity for learning and change, and the concept of resilience. It also presents some of the major challenges for measuring recovery and for implementing a sustainable recovery process, in particular the issues of risk perception, risk communication and development of social capital.

2.1. Philosophical paradigm

Attempting to analyse and understand how society works and designing a research project to this end cannot be done without first identifying the researcher's worldview. Everybody has a different approach to the world based on specific ontological and epistemological assumptions (Guba & Lincoln, 1994). Hay (2002, p.6) argues that "ontology relates to the nature of the social and political world, epistemology to what we can know about it and methodology to how we might go about acquiring that knowledge". In other words ontology asks the question "is there a 'real' world 'out there' that is independent of our knowledge of it?" (Marsh & Furlong, 2002, p.18). It is important to distinguish two major positions. The first, foundationalism, underlines that a real world exists independently of our

knowledge and constitutes the foundations of life. The second, called constructivism, underlines that there is no "real" world, as the world is socially constructed and variable depending on time, place and culture.

Epistemology addresses the theory of knowledge, its nature and justification. It reflects the "view of what we can know about the world and how we can know it" (Marsh & Furlong, 2002, p.19). The first type of view above argues that objectivity is possible, and that it is for the researcher possible to know about the world without interfering on it. The second view argues that objectivity is impossible and that our view and knowledge of the world is a social construction of reality (Marsh & Furlong, 2002). The ontological and epistemological positions of the researcher have major methodological implications and contribute to shaping the conduct of the study and design of the methodology. According to Marsh & Furlong (2002, p.17), "[epistemology and ontology] shape the approach to theory and the methods", as they are deeply grounded in the researcher's beliefs about the world. It is difficult to ignore them, even though they do not appear explicitly throughout the research. Marsh & Furlong (2002, p.17) write that, "they are like a skin, not a sweater: they cannot be put on or taken off whenever the researcher sees fit". It is essential to address these two considerations to choose the best methodological design.

Different paradigms, in other words comprehensive belief systems, worldviews and frameworks, lie on a spectrum from positivism to relativism.

Positivism corresponds to the standard view of science. It entails the idea that the world exists independently of the observer, and that there is a constant relationship between events and variables. It considers that facts can be observed or experienced and that there are no invisible entities influencing the processes or facts observed. The observation of facts is totally independent from values and not influenced by them (Robson, 2013). Positivist social scientists consider that reality can be observed, measured and analysed by the same way as natural sciences traditionally do. In other words, positivists use theory to generate hypotheses that they then test through direct observation, implying that the latter is objective. The data collected are eventually used to generate rigorous models, general laws and causal relationships about social phenomena. Positivist research generally uses quantitative

methods, which it considers objective, generalizable and replicable, and looks for an explanation of behaviour rather than the meaning of it.

This approach has been highly criticized by relativists and others in social research. They argue that the same event can be seen differently depending on worldview and past experiences. In its extreme form, relativism argues that there is no reality separate from human consciousness (Robson, 2013), and hence no one true reality, as the world is socially constructed. This is an anti-foundationalist ontological position. Relativists argue that it is not possible to be objective and value-free while conducting observation, contrary to what positivists claim. This paradigm states that there are no strict and defined criteria to judge and analyse reality. Instead it claims that reality should be interpreted from the point of view of those observing that reality. It rejects the possibility of objectivity and argues that the researcher is a participant and "always presents a specific version of social reality, rather than one that can be regarded as specific" (Bryman, 2004, p.29). Unlike positivists, who use natural science methods, relativists usually mobilize qualitative research methods to understand social behaviour, rather than explaining it and focusing on its meaning.

Constructivists, heirs of the relativist school of thought, consider that reality is socially constructed and therefore multiple realities coexist together, and the task of the researcher is to identify and understand them. Interviews and observation are adequate tools for understanding this multiplicity.

These polarized paradigms are often criticized, as they are problematic for qualitative research. While positivism ignores the role of interpreting the findings in regards to values and context, relativism is criticized for making it hard to produce legitimate and credible research, since there can be different interpretations of the same event, and for preventing arrival at an accepted conclusion (Andrews, 2012; Hammersley & Atkinson, 2007; Robson, 2013)

More nuanced approaches are now adopted in social research. On one side of the spectrum, post-positivism is still committed to objectivity but recognizes that knowledge, values and background can influence what is observed. It considers that although there is only one reality, it cannot be perfectly known. Among relativists, many recognize that there can be some underlying realities (Robson, 2013).

Realism and pragmatism permit the conduct of social research without adopting a pure positivist or relativist approach. Realism considers that research is value-laden, enabling the integration of both subjective and objective approaches to understand social objects, depending on what fits the subject matter best. It explains the explored phenomenon in terms both of mechanisms in place that produce an action, and in specific contexts, mechanisms already in place impeding a change or particular outcome. Its objective is to describe the true story of a phenomenon, or of what the world is like (Cherryholmes, 1992).

Pragmatism shares a number of assumptions with realism and critical realism. It is also opposed to positivism (Cherryholmes, 1992; Robson, 2013). Contrary to many research traditions, pragmatism does not focus on antecedent phenomena and past experience. Dewey, a pragmatist, wrote in 1931 that pragmatism "does not insist upon antecedent phenomena but upon consequent phenomena; not upon the precedents but upon the possibilities of action. And this change in point of view is almost revolutionary in its consequences […]. When we take the point of view of a pragmatism we see that general ideas have a very different role to play than that of reporting and registering past experiences. They are the bases for organizing future observations and experiences" (1931 in Cherryholmes, 1992, p.13).

Cherryholmes (ibid, p.13) explains that, "pragmatic choices about what to research and how to go about it are conditioned by where we want to go in the broadest of senses". He argues that the data collected and their interpretation are largely embedded in the researcher's values, political and social preferences. Pragmatists are generally more sceptical than realists about the possibility of telling the true story of the world, doubting that we can know that our interpretation of the world corresponds to reality. Research is driven by the problem in hand and designed depending on the specific goal of the research question; this is more important than the paradigm or the methods (Cherryholmes, 1992).

Given the nature of this research on the long-term consequences of current decisions and actions, the aim of building change, and the worldview of the researcher, this research is largely based on a pragmatic epistemology which determines understanding of the issues tackled in the study and the methods adopted to conduct the research.

2.2.   Conceptual framework

2.2.1.   *What are disasters?*

The study of disaster is nothing new, with the earliest studies dating from 1920 (Oliver-Smith, 1999). However, since then several conceptual views and foci have emerged from competing paradigms, schools of thought and research traditions (Chipangura, Van Niekerk, & Van Der Waldt, 2016; Oliver-Smith, 1999). It has evolved from a very positivist approach, essentially based in the natural sciences, to a social constructivist approach. Such a shift not only affects the understanding and conceptualization of disasters but also the policies and decisions made to reduce the risks. Until now, no consensus has been reached on the definition of the term "disaster", and regular debates emerge among scholars to understand "what a disaster is".

In the efforts to define what a disaster is, different paradigms from positivism to social constructivism have influenced its understanding. From the 1940s to 1970s, studies of disaster essentially adopted an objectivist, or positivist, perspective. This view, largely shaped by the natural sciences, such as geology, seismology and meteorology, strongly emphasizes the importance of natural hazards in explaining the occurrence of a catastrophic event. Ontologically, the real is characterized by the risk itself and can be measured objectively, especially in terms of the probability of loss (Chipangura et al., 2016). Research has mainly centred on understanding the physical aspects of risk, in other words natural hazards. From this perspective, disasters are mainly characterized as acts of Nature, detached from social issues (Chipangura et al., 2016). This understanding of disaster is called the "hazard paradigm", and was spearheaded by Gilbert F. White (1945) and two of his students, Burton and Kates (1964). Burton and Kates (ibid, p.413) define natural hazards as "those elements in the physical environment, harmful to man and caused by forces extraneous to him", focusing on "the violent forces of nature": this is the environmental determinist view. Disasters are explained by geophysical processes, defined as "rare and extreme natural phenomena greatly exceeding human expectation in terms of [their] magnitude and frequency" (Chapman, 1994 in Gaillard, 2015, p.22). They are also justified by a lack of human rationality and lack of modernity and development. In the hazard paradigm, nature is thus considered the main triggering factor while the social dimension of disaster is largely neglected. Nature is presented as an element that should be controlled and fought against. The literature and media using the hazard paradigm overflow with adjectives such as,

"extraordinary", "uncontrollable", "unpredictable" and "unexpected" (Gaillard, 2010, p.221).

Until the 1970s, therefore, measures for reducing risks of disaster were very technocratic, focusing on controlling nature and mitigating hazards. They mainly focused on anticipating the occurrence and severity of the hazard and measuring the short-term impacts, the short-term mechanisms, and technical means. The declaration of the 1990s as the International Decade for Natural Disaster Reduction by the United Nations General Assembly stressed the importance of quantitative analysis and objective measurements for generalizable findings that are independent of the specific social context in which they are measured (Chipangura et al., 2016). Infrastructure for prediction and early warning alerts, as well as technocratic measures, are seen as a fundamental ways to reduce the risk of disaster.

In the 1970s this paradigm started to be strongly criticized by both practitioners and scholars working in the field of disasters, in part because the effects of disasters had not decreased despite the application of improved technical measures. Following the well-established tradition of deconstructive critique (Escobar, 1995) in geography and the development of political ecology, numerous scholars questioned the objectivist paradigm used to explain disasters and hazards. The "naturalness" of disaster was questioned (O'Keefe, Westgate, & Wisner, 1976) and its "exceptionalism" (Hewitt, 1983) criticized. Disasters are considered the result of social and political constructs which cannot be distinguished from daily life (Bankoff, Frerks, & Hilhorst, 2004; Wisner, Blaikie, Cannon, & Davis, 2004). Rather than being a "state", they are considered the result of a dynamic process leading to a collapsing situation that occurs when society or groups of individuals no longer adjusts to its environment (Wisner, 1998). Collins (2009) argues that disasters are intimately linked with insufficient development and insufficient adaptive capacities. Oliver-Smith (1999, p.20) defines disasters as "totalizing events" as they bring to light the interaction between environmental, cultural, political and technological processes and events. This approach claims that the principal cause of risks and disasters is not natural hazards themselves, but the social conditions they interact with (Alexander, 2000). Calling disasters "natural" is nonsensical as it denies the social dimension of the concept and society's capacity to reduce or eliminate the risk of disaster by acting not on the natural hazard itself, but on its vulnerability. The concept of vulnerability is fundamental to understanding and addressing risk (Hewitt, 2007; Kelman, 2003; Wisner et al., 2004). Wisner et al. (2004, p.11)

describe vulnerability as "the characteristics of a person or group and their situation that influence their capacity to anticipate, cope with, resist and recover from the impact of a natural hazard". Scholars that support this view argue that a better understanding of disasters sees them as non-routine social problems (Chipangura et al., 2016), rather than exceptional events disconnected from society.

The evolution of understanding disaster has strong implications for measures to reduce the risk of disaster. However, while the importance of considering the social dimension of disaster has been established in academic literature, there is still a major gap in the implementation of policies for risk reduction between theory and practices. Policies are still predominantly governed by an objectivist approach (Chipangura et al., 2016) where the natural hazard is the main focus for DRR. Chipangura et al. (2016) note that further research is needed to explore why governments remain reluctant to adopt a constructivist perspective in their implementation of DRR policy. Cannon (1994) argues that the hazard paradigm allows avoidance of questioning the social and economic issues in the region concerned. This thesis contributes some early answers to this fundamental question in the context of post-disaster recovery and the rebuilding of the "new normal".

2.2.2. *Vulnerability to natural hazards*
2.2.2.1. *Social dimension of disaster*

A major component of the risk of disaster is vulnerability. Despite about two decades of research on the concept, the definition of the word "vulnerability" is not straightforward. The World Development Report 2000/2001 (World Bank, 2001, p.139) states that "vulnerability measures resilience against a shock - the likelihood that a shock will result in a decline of well-being". Wisner et al. (2004, p.11) define it more precisely as, "the characteristics of a person or group and their situation that influence their capacity to anticipate, cope with, resist and recover from the impact of a natural hazard".

Like the concept of recovery, vulnerability encompasses several dimensions and can be understood in different ways. A question commonly asked is, "vulnerability to whom and to what?". A person can be vulnerable to one specific hazard at a specific moment but resilient to another type of hazard. While the scope of vulnerability often tends to be reduced

to the exposure of people to hazards or to their level of poverty (Wisner et al., 2004), it is essential to recognize that it is a more complex concept with a large set of indicators. Moreover Wisner et al. (2004) remind us that "vulnerability" is a predictive and hypothetical term. It can only be proved when an event occurs by analysing its impact on individuals and society.

To understand the link between the socio-political-economic context and actual disasters, vulnerability can be interpreted through the concept of livelihoods, defined as "the command an individual, family or other social group has over an income and/or bundles or resources that can be used or exchanged to satisfy its needs. This may involve information, cultural knowledge, social networks and legal rights as well as tools, lands or other physical resources" (Wisner et al., 2004, p.11).

Livelihoods may be categorized into five types of capitals that are used daily to face various hazards:

○ human capital (skills, knowledge, health);
○ social capital (networks, groups, institutions);
○ physical capital (infrastructure, technology, equipment);
○ financial capital (savings, credits);
○ natural capital (natural resources) (Wisner et al., 2004)

The sustainable livelihood approach closely corresponds to the Access model developed by Wisner et al. (2004). It explores how an individual or community manages the five types of capital to construct their livelihood system, with some types of capital sometimes compensating for the lack of others. The system becomes unsustainable when there is too much dependency on one specific type of capital with no possibility of adapting or compensating in situations of stress.

As discussed later, what determines the level of vulnerability of an individual or a group is not only the availability of livelihoods and capitals but the level of access to them. This approach argues that vulnerability is directly anchored in daily life. The reasons for disasters must be found in everyday life rather than in exceptional situations, as Wisner et al. (2004) demonstrates in Figure 2.1, which explains the processes leading to hazards from an initial situation of vulnerability.

In this diagram Wisner et al. highlight the different spatial and temporal, local and international, and past and present scales. Vulnerability is considered not only a present state but also a process rooted in history. The first step in the progression of vulnerability is identifying its root causes on the global level, including in the social and economic structures, the history and culture, and global and local ideologies; in other words, the context from which society is built and its functioning according to its norms and values. This is also called the "production system" (Klee, 1980; Parry and Carter, 1987 in Wisner, 1993). According to Watts & Bohle (1993), it is the political economic environment that makes individuals more or less vulnerable by organizing a particular system of power. Other authors explain the vulnerability of groups of people by the type of social organization and thus the power relationships between stakeholders (Lewis, 1987; Peter Timmerman, 1981; Pelanda, 1981 in Wisner, 1993). Timmerman (1981) argues for instance that some forms of societies are more prone to collapse because of the way they are structured. These root causes directly impact on the dynamic pressures of vulnerability at an intermediate level, namely the societal deficiencies such as lack of government measures for DRR, lack of research, or a deficit in dialogue between the population and the decision-makers. These pressures affect the safety of livelihoods. Watts and Bohle (1993) illustrate this, arguing that the structural causes of the food insecurity in Africa are the failure of policies and economic transition, instead of food shortage. O'Keefe, Westgate, & Wisner (1976) argue that the increasing vulnerability of the less-affluent countries is caused by how power and resources are shared in society, often to the benefit of a minority. These dynamic pressures also correspond to social, political, economic and environmental processes which make it difficult for society to function. For instance, strong population growth following increasing deforestation may make access to resources difficult.

The progression of vulnerability

Root causes

Social and economic structures
- Distribution of power
- Distribution of wealth
- Distribution of resources

Ideologies
- Nationalism
- Militarism
- Neoliberalism
- Consumerism

History and culture
- Colonial and post-colonial heritages
- War and post-war fragility
- Traditions and religions

Dynamic pressures

Societal deficiencies, thus lack of
- Local institutions
- Training and scientific knowledge
- Local investments
- Local markets
- Media freedom
- Ethical standards in public life

Macro-forces
- Rapid population change and displacement
- Rapid urbanisation
- Fluctuations of the world economic market
- On-going armed conflict
- Government debt repayment schedules
- Poor governance and corruption
- Land grabbing
- Deforestation, mining and overfishing
- Decline in soil productivity
- Decline of biodiversity

Fragile livelihoods and unsafe locations

Natural resources
- Lack of arable land and water
- Lack of biodiversity resources

Physical resources
- Dangerous locations
- Unprotected buildings and infrastructure

Human resources
- Fragile health
- Limited skills and formal education

Social resources
- Marginalised groups and individuals
- Limited social networks

Economic resources
- Poor access to the market
- Low income levels
- Limited access to formal credit

Political resources
- Lack of disaster preparedness
- Poor social protection

Disaster risk

Disaster risk = Hazard x Vulnerability

Hazards

Climatological
- Coastal storm
- Thunderstorm and tornado
- Flood
- Drought
- Extreme heat and cold
- Climate change

Geomorphological and geological
- Landslide
- Earthquake
- Tsunami
- Volcano
- Soil erosion and contamination

Biological and ecological
- Human epidemic
- Plant disease, pests, invasive species and erosion of biodiversity
- Livestock plague
- Wildfire

Astronomical
- Hazards from space

Accentuation of some (not all) hazards

Figure 2.1: The progression of vulnerability (Wisner et al., 2004)

The last step takes place on the scale of the people affected by lack of access to the resources that sustain their livelihoods. The importance of livelihood assets is based not just on their availability but more on the access to them and thus on the possibility of satisfying primary needs such as for food, accommodation or washing facilities A hospital may be available, but if health care is too expensive it is not accessible to everybody. Lack of access to resources is the main factor leading to vulnerability by marginalizing people, as Figure 2.2 shows below. Daily lack of access to resources may persist because of individual constraints, patronage politics or the uneven distribution of resources (Watts & Bohle, 1993). Bosher (2005) explains that the lack of access to public services (in the form of savings, employment, the health service, for instance), to political networks (in the form of lack of representation of some social groups due to tradition, corruption or nepotism), and to social networks contributes to vulnerability. This leads to social and structural constraints and to economic and political factors that reduce access to resources and thus increase the vulnerability of marginalized groups (Blaikie & Brookfield, 1987; Watts & Bohle, 1993).

This process is summarized as a "triangle of vulnerability" in Figure 2.2 (Wisner, Gaillard, & Kelman, 2011). It illustrates how poor access to resources can lead to marginalization. Vulnerability reflects the power relationships of people in society.

Not only the access to resources is vital for decreasing vulnerability, but livelihood also have to be sustainable. According to Chambers & Conway (1991, p.6), "a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long terms". Sustainable livelihoods are particularly important in preventing the vicious circle of vulnerability: vulnerable people are more affected by disaster, which destroys their livelihoods, making them more vulnerable to further hazards.
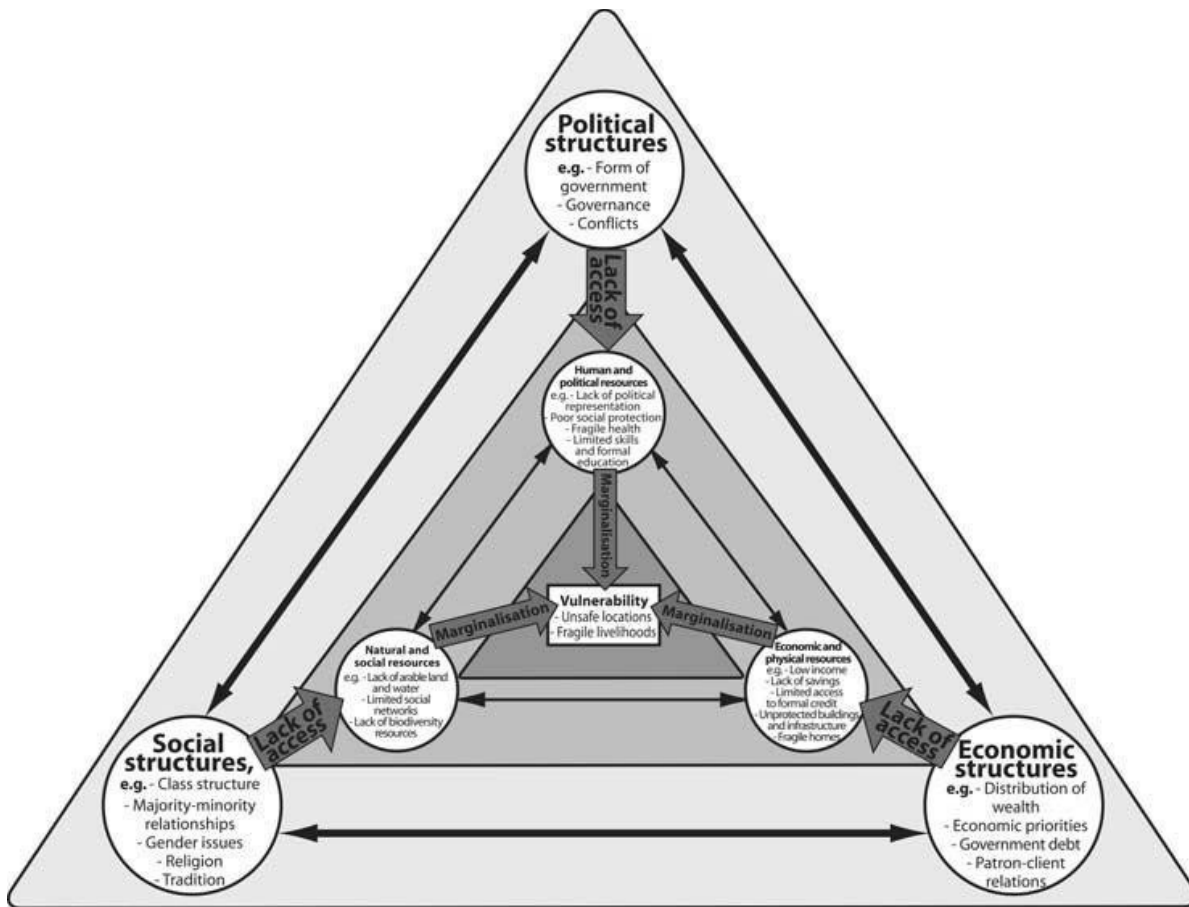
Figure 2.2: Triangle of vulnerability (Wisner et al., 2011)

2.2.2.2. Marginalization: immigrants in disasters

The question of access to resources is essential to understanding vulnerability. In extreme cases it is often characterized by the marginalization of individuals or groups. Social inequalities may limit the livelihood options of some groups, both leading them to expose themselves to hazardous environments and reducing their ability to cope with environmental change (Chambers, 1995; Collins, 2010; Susman, O'Keefe, & Wisner, 1983). Marginalization is often associated with minorities and less-powerful groups, but varies considerably depending on the specific context.

One commonly-marginalized group is migrants. Although migration is a key component of the globalized world, migrants have been identified as often marginalized, socially excluded, and especially vulnerable to natural hazards (Guadagno, Fuhrer, & Twigg, 2017). While the situation of immigrants in disasters remains relatively unexplored, an

increasing number of studies highlights immigrants' particular vulnerability to natural hazards and the necessity for including them more in the process of preparing for disaster, at the time of a disaster and in response and recovery measures (Collins, 2017; Donner & Rodriguez, 2008; Freeman, 2014; Guadagno, 2015; Guadagno et al., 2017; IOM, 2007; MICIC, 2016; Pauver, Twigg, & Sagramola, 2016; Tompkins, Hurlston, & Poortinga, 2009a). The majority of studies exploring the specific vulnerability of immigrants looks at their livelihood resources, which are often more limited than those of the rest of the population. The question of language is often mentioned as a major challenge to efficient risk communication among immigrant communities (Arlikatti, Taibah, & Andrew, 2014). Tompkins, Hurlston, & Poortinga (2009a), citing the case of the Cayman Islands, argue that immigrants are less likely to engage in the preparedness process than the national population is, due to their lack of local knowledge of hazards, their limited financial capacity and their specific social network. A few studies highlight how many immigrants face specific issues due to the very condition of migrants, such as a limited social network, reliance on other sources of communication, lack of trust in authorities, unsafe legal status, which remain neglected, especially at the time of a disaster (Blazer & Murphy, 2008; Duncan, 2013; Guadagno et al., 2017; IOM, 2007). The post-disaster period also highlights the differences between immigrants and natives' needs and responses: immigrants often have less access to assistance than natives, for instance (Blazer & Murphy, 2008; Duncan, 2013; IOM, 2007), and when a disaster happens immigrants are often left behind by local authorities and forced to leave the host country with strong implications for the whole of their lives (Duncan, 2013). Those who choose or are constrained to stay face a challenging period where resources become limited and prioritized and minorities' requirements and need for inclusion are neglected by governments (Blazer & Murphy, 2008; Duncan, 2013; Guadagno et al., 2017; Pauver et al., 2016).

Research is increasingly showing the importance of efforts to include immigrants in societies preparing for hazards or recovering from a disaster (Blazer & Murphy, 2008; Duncan, 2013; Freeman, 2014; Guadagno, 2015; Guadagno et al., 2017; Kammerbauer & Wamsler, 2017; MICIC, 2016; Pauver et al., 2016). However in practice, integration and social cohesion are rarely a priority for decision-makers and practitioners, and the needs of immigrants are often overlooked or even exploited (Blazer & Murphy, 2008; Duncan, 2013).

Most of the existing studies linking immigrants and disaster focus either, on the condition of immigrants already in the country at the time of the disaster or during the time of preparation for disaster (Duncan, 2013; Guadagno et al., 2017; MICIC, 2016), or on the displaced communities following a disaster (Ambrosetti & Petrillo, 2016; Curtis, Fussell, & DeWaard, 2013; Fussell & Lowe, 2014; Ghimire, Ferreira, & Dorfman, 2015; Gray, Frankenberg, Gillespie, Sumantri, & Thomas, 2014; King et al., 2014; McDowell & De Haan, 1997). There is very little research on the situation of immigrants arriving in a place already affected by disaster, in a period of recovery but also of preparedness. The existing research on the topic are mainly limited to the demographic recovery of the New Orleans after Hurricane Katrina (Fussell, 2015; Fussell, Curtis, & DeWaard, 2014). My research takes a complementary perspective by looking at immigrants coming into an affected and unstable area. Although they are not directly affected by the disaster, they become actors in the recovery process, and the instability of the post-disaster period affect their integration and their preparedness for disaster. The process of moving to a new place abroad or another region often leads to difficulties accessing resources, information, and services, for instance (Collins, 2017; Duncan, 2013; Guadagno et al., 2017). While their status is often neglected by governments, the condition of migrants is becoming a growing concern for scholars working on vulnerability to natural hazards, in terms of both preparedness for hazards and recovery.

2.2.3. Post-disaster recovery

The aftermath of a disaster is a very challenging time for affected communities and places. Medd et al. (2015, p.320) argue that the disaster itself is not the hardest part to deal with for the affected population: "it is the recovery process […] that seems to have the most impact on people and exacerbates, or even produces, vulnerabilities". Paradoxically the recovery period is the least understood phase of disaster management for both scholars and practitioners (Berke, Kartez, & Wenger, 1993; Chang, 2010; Davis, 2007; Olshansky, 2005; Rubin, 2009; Rubin, Saperstein, & Barbee, 1985). The first studies were conducted about four decades ago (Haas, Kates, & Bowden, 1977), and since then little progress has been made. Rubin (2009) deplores how there is not enough research to respond to current needs regarding long-term recovery. Lack of adequate knowledge and post-disaster recovery theory

is impeding capacity to give advice and to inform policymakers (Lawther, 2016; Rubin, 2009). Davis (2006) argues that it is the complexity and diversity of factors of success in the recovery process that explains why this phase is so often neglected by policymakers until they have to deal with it.

In recent years there has been an increase in research focusing on disaster recovery and progressive agreement on the definition of the recovery process. Quarantelli (1999, p.2) defines the objective of the recovery process as "bringing the post-disaster situation to some level of acceptability [which] may or may not be the same as the pre impact level". He emphasizes the frequent impossibility of returning to the situation that existed prior to the disaster. Disasters alter the functioning of the community and require adaptation to the, "new normal" (Lawther, 2016; Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum, 2008). The 1st International Conference on Urban Disaster Reduction, held in Kobe in 2005 and focusing largely on the development of a theory of disaster recovery, officially recognized that returning to the previous status quo after a disaster is neither always possible nor desirable (Johnson & Hayashi, 2012). An accepted definition of recovery summarizes it as, "the process of restoring, rebuilding, and reshaping the physical, social economic, and natural environment through pre-event planning and post-event actions" (Smith and Wenger, 2006 in Rubin, 2009, p.2). Sword-Daniels, Twigg, & Loughlin (2014, p.1) add to this, "[the] improvement, where appropriate, of facilities, livelihoods and living conditions of disaster-affected communities, including efforts to decrease disaster risk factors".

The process of recovery encompasses two major objectives: "restoration of pre-disaster functions" (Lindell, 2013, p.812) and improvement of the system to prevent the occurrence of another disaster or the likelihood of facing a similar disaster again. The idea of improvement is now widely accepted (Jordan & Javernick-Will, 2013; Lindell, 2013; Oliver-Smith, 1990; Sword-Daniels et al., 2014) and is often illustrated with the "build back better" concept, institutionalized in the Hyogo Framework for Action in 2005 (Becker & Reusser, 2016). The post-disaster period offers an opportunity to tackle previous vulnerabilities and triggers a transition from a pre-disaster society that was vulnerable and maladapted to natural hazards to an improved society (Becker & Reusser, 2016).

Different characteristics of the recovery process have been identified and are now broadly accepted. Firstly, it is not a linear process. Rubin et al. (1985, p.154) explain that

"long-term recovery begins at different times in different places for different activities". Haas, Kates, & Bowden (1977) first characterized the recovery period as a sequence of distinct stages, including the emergency period, lasting for some days or weeks; the restoration period, lasting for a few months; the replacement period of up to two years, and finally commemorative, betterment, and developmental reconstruction, lasting up to ten years. The recovery process which is assimilated within reconstruction, is described as "ordered, knowable, and predictable" (Haas et al., 1977, p. xxvi). These sequences have since been critiqued, and other studies have shown the non-linearity of the process, the overlapping of the sequences and the multiplicity of the dimensions of the recovery process, each processing at its own pace (Berke et al., 1993; Lindell, 2013; Rubin, 2009; Tierney & Oliver-Smith, 2012; Wisner et al., 2004). Moreover the post-disaster phase faces a unique temporality, conceptualized by Olshansky, Hopkins, & Johnson (2012), which they refer to as time compression. It is caused by several factors which are often explored in the literature on recovery, including pressure to restore normalcy, mismatch between the flow of resources and the pace of demands, tension between the need for quick action and the need for quality, and the necessity of taking quick decisions while the necessary knowledge- and information-gathering and planning require time. It also characterizes the differences in rates of recovery across institutions and urban settings (Alesch, Arendt, & Holly, 2009; Johnson & Hayashi, 2012; Olshansky et al., 2012; Rubin et al., 1985; Smith & Wenger, 2007).

The non-linearity of the process also means that it is difficult to clearly identify a beginning and an end to the recovery phase (Medd et al., 2015). Rubin (2009, p.2) does not give a specific beginning point, explaining that the recovery period is distinguished from the emergency when the first responders (for instance fire and police officials) are back to normal activity and local public officials become the main actors dealing with "debris, infrastructure, economic development, and housing". People try to get back to normal and "business as usual", beginning to make trade-offs between old and new methods. Paradoxically, Johnson & Hayashi (2012) use the same business-as-usual indicator to characterize the end of the recovery period, highlighting the difficulty of distinguishing between the different post-disaster phases. In the same way, the end of the recovery phase is difficult to identify due to the lack of clear indicators. Most definitions remains vague and quite subjective. As explained, it is now agreed that the end of the recovery process does not mean a return to the status quo ex ante, which is often not possible, and that the same

weakness and factors of vulnerability may be reproduced, highlighting failure to reach the objective of betterment. Quantitative indicators, such as the population recovery (DeWaard, Curtis, & Fussell, 2015; Fussell et al., 2014) are often used to measure the level of achievement of recovery, but frequently fail to take into consideration the holistic dimension of this process and the interaction between its different dimensions.

A second major characteristic of the recovery period is that it is multidimensional, involving not only one process but several. While a majority of studies focus on its physical aspects, and especially on reconstruction (Aldrich, 2012; Blong, 2003; Lindell, 2013; Oliver-Smith, 1990; Tierney & Oliver-Smith, 2012), the process also encompasses environmental, social, economic and institutional dimensions among others. So far efforts to understand the recovery process and to develop a theoretical framework for it have generally failed to contextualize recovery in its broader context (Tierney & Oliver-Smith, 2012) or to understand the interactions between different aspects of recovery. Some recent studies have attempted to show the strong interactions between the different aspects of recovery (Hayashi, 2007; Johnson & Hayashi, 2012). Tierney and Oliver-Smith (2012, p.124), for instance, explain that, "social recovery is […] inextricably linked to the recovery of structures and infrastructure elements, ecosystems, organizations and institutions, economic activity, and culture, making recovery a truly holistic process". There is a growing claim that the holistic or integrative approach is especially effective for assessing the process of recovery (Hayashi, 2007; Hettige & Haigh, 2016; Lawther, 2016; Wisner et al., 2004) and clarifying the interactions between the different sectors and scales of recovery. The distinction between social recovery and physical rebuilding is becoming sharper together with better recognition of the holistic dimension of recovery (Natural Hazards Center, 2001).

A major challenge of recovery processes, as part of human-environment system, is the difficulty to take into consideration the cross-scales and multilevel dynamics of social-ecological systems (Cash et al., 2006; Djalante, Holley, & Thomalla, 2011; Gibson, Ostrom, & Ahn, 2000; Termeer, Dewulf, & Lieshout, 2010). Research has well demonstrated the importance of recognizing these interactions for improving policies and sustainable development (Allen, Angeler, Garmestani, Gunderson, & Holling, 2014; Cash et al., 2006; Djalante et al., 2011; Termeer et al., 2010). It links in this sense to the panarchy framework (Allen et al., 2014; Gotts, 2007; Gunderson, 2010). The idea is that all system "exist and

functions at multiple scales of space, time and social organization, and the interactions across scales are fundamentally important in determining the dynamics of the system at any particular focal scale" (Resilience Alliance, n.d.). Although panarchy framework will not be used directly to conduct this research, it underlines the complexity of interactions between scales.

Cash et al. (2006, p.2) define scale as the "spatial, temporal, quantitative, or analytical dimensions used to measure and study any phenomenon". Although spatial, and more recently, temporal scales are the most studied, Cash et al. (2006) argue that policy studies should also consider jurisdictional, institutional, management, network and knowledge scales. Human-environment systems present substantial interactions, both within a scale, namely "cross-level" interactions, and between different scales, namely "cross-scale" interactions, for instance between spatial and temporal scales. Cash et al. (2006) argue that the resilience and sustainability of a system can be jeopardized by particular combinations of cross-scale and cross-level interactions. In the same way, Djalante et al. (2011, p.1) explain that a system of governance is adaptive (an essential characteristic of resilience) if it shares the following principles, "polycentric and multi-layered institutions, participation and collaboration, self-organization and network, and learning and innovation". However, governance and development strategies often fail to deal with scale issues. Termeer et al. (2010) identify how different types of governance, in other words, monocentric, multilevel and adaptive governance, handle this issue. According to Cash et al. (2006), a scale challenge can arise when there is:

- Ignorance of the cross-scale dynamics. That can lead to local actions or/and short-term solutions that become large-scale or/and long-term problems,
- mismatch between scales, in the case of trans-boundary phenomena or conflicts between the scale of analysis for scientific knowledge and the relevant scale for policy-making for instance,
- plurality of interactions but, "incorrect assumptions that there is a single, correct, or best characterization of the scale and level challenge that applies to the system as a whole or for all actors" (Cash et al., 2006, p.4).

I explore through this research the cross-scale and cross-level interactions during the recovery process and how the strategies of development deal with these issues.

2.2.3.1.   Recovery: a window of opportunity for change

A disaster may induce change in a system that was obviously weak as it was unable to cope with the natural hazard. Recent studies have emphasized the recovery period as an opportunity to make society more resilient, less vulnerable and more capable in the face of natural hazards (Becker & Reusser, 2016; Birkmann et al., 2010). The build-back-better concept, which encompasses more than just physical rebuilding, implies that during the post-disaster period the affected society transitions from a "pre-disaster state of vulnerability to an improved post-disaster state of vulnerability" (Becker & Reusser, 2016, p.75). Birkmann et al. (2010, p. 638) emphasize that "major disasters have the potential to change dominant ways of thinking and acting" and may offer more opportunities for developing adaptation capacity and learning lessons from the past. For Becker and Reusser (2016, p.76), "extreme events like disasters not only spark transition, but also accelerate them". In terms of a risk-governance system, Wilkinson (2015) shows that disasters create space for existing systems to be questioned and rethought. Dyer (2009) characterises the post-disaster change with two extremes, namely Punctuated Entropy or Phoenix Effect (Dyer, 2009). Punctuated Entropy is "a permanent decline in the adaptive flexibility of a human ecosystem" and is marked by repeated disaster events due to the lack of effective responses. It corresponds to a maladaptive system (Field et al., 2012, p.314). The other extreme of the spectrum, namely Phoenix Effect, corresponds to a "sustainable improvement in the social and economic resilience of a community or organization arising from the strategic investment of capital resources after a disaster event" (Dyer, 2009, p.313). It illustrates the capacity of a society to learn and adapt from the past in order to be more resilient and limit the factors of vulnerability.

The recovery period is particularly challenging in the sense that it combines the impacts of the disaster and implementation of changes for the future. It is a period of transition, with looking back to the past and forward to the future. In the analysis of the process of recovery it is necessary to distinguish impacts from changes. While both terms are often used without distinction, most research on recovery looks at the impacts of disaster and how society deals with them, that is through the restoration of pre-disaster facilities and capital (Birkmann et al., 2010). Few studies focus on the formal and informal changes

implemented to build the future or on lessons learned from the disaster. The impacts of a disaster are the result of the disaster and of pre-disaster vulnerability, and are dependent on the type and severity of the hazard, the exposure of the community and susceptibility to disaster. Change, on the other hand, is an active process. Change is not necessarily planned and can be spontaneous in response to an event, or reflective. It can be triggered by the impacts of the disaster, and can lead to secondary impacts. Changes that are implemented can be very diverse: formal or informal, slow or rapid, predictable or not, linear or not. They can also affect a system on different temporal and spatial scales. While some changes affect only a few individuals, others may have an international impact (Birkmann et al., 2010). In Figure 2.3, Birkmann et al. (2010) illustrate the difference between the impacts and the changes induced by a natural hazard and how, in adapting to natural hazards, change can take different shapes from a change in livelihood patterns to changed legislation.

The type of change implemented is crucial in determining the "new normal" and the new pathway of development, and for supporting the improvement of the system to reduce the risk of disaster. Gawronski & Olson (2013) qualify change as a "critical juncture", as it triggers new trajectories for development, action, policy and institutional regime. Critical junctures are defined by Mahoney (2002 in Gawronski & Olson, 2013, p.134) as "choice points when a particular option is adopted from among two or more alternatives. These junctures are "critical" because once an option is chosen, it becomes progressively more difficult to return to the initial point when multiple alternatives were still available". Facing the diverse opportunities of the post-disaster period, the choices being made by the different stakeholders are critical. Such choices can either allow sustainable development and system resilience, taking lessons from the disaster (Birkmann et al., 2010; Folke, 2006), or trigger additional negative impacts. According to Capoccia and Kelemen (2007, in Gawronski and Olson, 2013, p.134), they have "the potential to trigger a path-dependent process that constrains future choices". It is essential to consider the priorities being set and their impacts on long-term development when analysing the recovery processes.
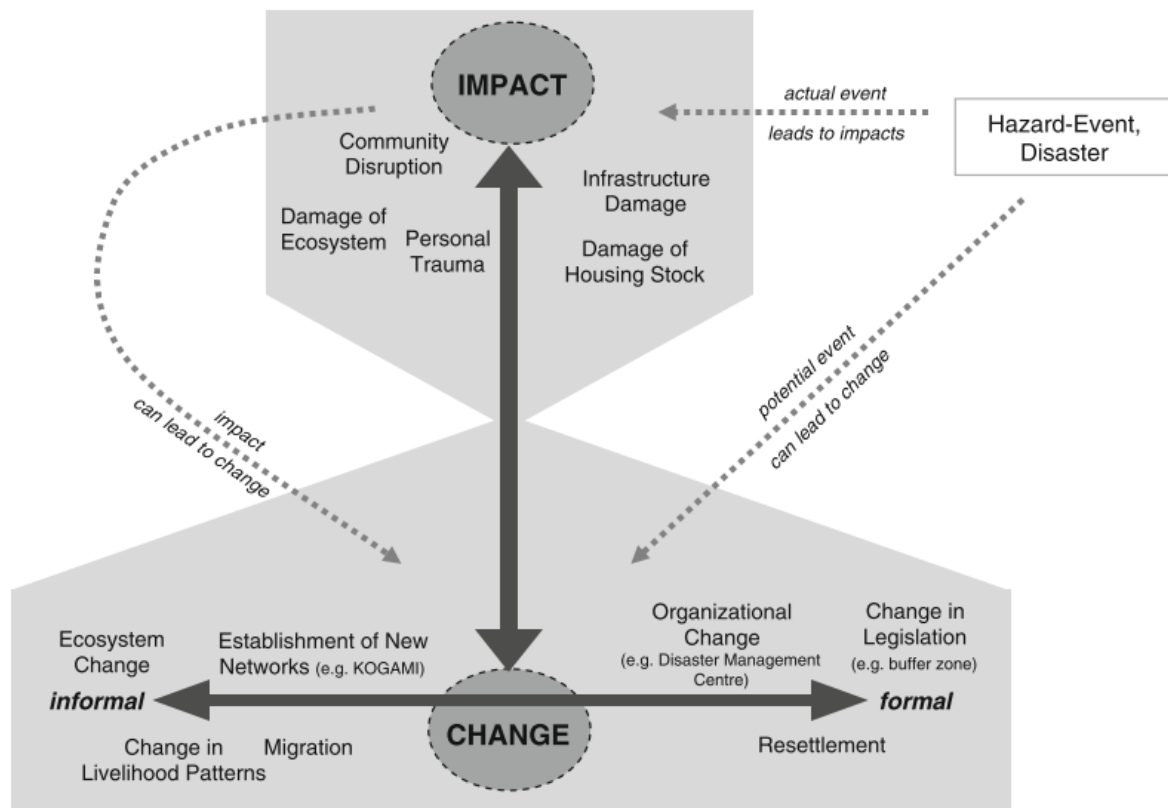
Figure 2.3: Differentiating impacts and change led by a natural hazard or a disaster (Birkmann et al., 2010)

The build-back-better concept has been adopted by the Sendai Framework of Action (UNISDR, 2015). Wisner (2017) summarizes the main recommendations under six major themes: government, the economy, ecology, human settlements, safety nets and essential services, and vulnerable groups. The role of the government should be to implement adequate national laws, regulations, codes and institutions, and uniform risk and vulnerability assessment procedures. The economy should contribute to recovery through its provision for economic measures such as insurance and other risk-sharing funding for essential infrastructure and business resilience, and the implementation of plans for the recovery of lost or interrupted livelihoods. In terms of ecology, there should be a focus on the conservation of the natural ecosystem and the restoration of degraded land. Concerning human settlements there should be efforts to protect those existing and the anticipation of hosting an influx of population displaced from somewhere else. There should be also some adjustment of land use and building codes to the new necessities. In terms of safety nets and essential services, major attention should be paid to health care, food security, nutrition and housing. Finally, the recovery period should pay particular attention to groups which have

been identified as vulnerable.

A few studies have shown how complex and challenging the process of building back better is. Wisner (2017) shows that it is complicated by various generally pre-existing factors such as conflict, weak governance, and dependence on external donors. It is essential to view the recovery and build-back-better processes from a wider perspective, not disconnected from reality by the disaster. Rather than looking at the disaster as the "narrow starting point for a [building-back-better] strategy" (Wisner, 2017, p.8), it is essential to look at the root causes of vulnerability to disasters and processes of risk accumulation (Wisner, 2017; Wisner et al., 2004) from a holistic viewpoint (Hayashi, 2007; Hettige & Haigh, 2016; Johnson & Hayashi, 2012; Lawther, 2016; Tierney & Oliver-Smith, 2012; Wisner et al., 2004).

2.2.3.2.   *Resilience and adaptation*

The term "resilience" has become a buzzword in the field of disaster studies over the past ten years in the vocabulary of both practitioners and scholars, as attention to recovery has grown and since the adoption of the Hyogo Declaration (Aldrich, 2012; Manyena, 2006). Not clear enough to be raised as a concept or paradigm, it complements however the concepts of vulnerability and risk (Manyena, 2006). Before being adopted by social sciences, and particularly by disaster studies, the term was mainly used in the hard sciences, especially physics, mathematics and ecology, and the disciplines of psychology and psychiatry (Manyena, 2006; Norris et al., 2008; Quenault, 2014). Etymologically, it comes from the Latin *resilio*, which means "to jump back" (Manyena, 2006). The term is now used in a variety of disciplines and encompasses multiple definitions. It is particularly used for analysis the prosperity and sustainability of social-ecological systems, considering that there are complex system facing rapid transformations (Folke et al., 2002). In the field of disaster studies it has gradually acquired greater importance. It affects how risk and disaster management are viewed, and is gradually replacing the concept of vulnerability (Quenault, 2014). It is however still subject to important debate and is evolving from a static perspective to a more multi-dimensional and dynamic vision (Manyena, 2006; Norris et al., 2008; Quenault, 2014). The multiplicity of the term's uses and definitions makes it unclear and often controversial, and it is impractical for supporting planning and policymaking (Klein,

Nicholls, & Thomalla, 2003).

One of the main lack of clarity around the notion of resilience is whether it is a process leading to a desired outcome or the desired outcome of the recovery period itself (Klein et al., 2003). While the earliest studies are more outcome-oriented, describing disaster resilience as a capacity or quality, it has gradually come to be viewed more as a process (Manyena, 2006). It should be noted that while the earliest studies tend to see resilience from a reactive perspective as a process to reach an outcome (Manyena, 2006; McEntire, Fuller, Johnston, & Weber, 2002), it is now mainly considered a deliberate process to reach a desired outcome, stressing the role of society in the disaster. Disaster resilience is henceforth often viewed as a system attribute (Klein et al., 2003) or "a quality, characteristic or result that is generated or developed by the processes that foster or promote it" (Manyena, 2006, p.438). As Djalante and Thonalls (2011 in Djalante, Holley, Thomalla, & Carnegie, 2013) note, the concept of resilience should be understood both as an outcome, and as a process which is conscious and anticipated (Manyena, 2006). Defining the resilience of social-ecological systems, Folke et al. (2002, p.438) emphasize three aspects : "(i) the magnitude of shock that the system can absorb and remain within a given state; (ii) the degree to which the system is capable of self-organization; and (iii) the degree to which the system can build capacity for learning and adaptation."

The distinction between reactive and proactive disaster resilience is of major importance, as it shapes disaster policy (Manyena, 2006; Dovers and Handmer (1992 in Klein, Nicholls, & Thomalla, 2003). Proactive resilience underlines the capacity for anticipation and learning (Dovers and Handmer, 1992, in Klein, Nicholls, & Thomalla, 2003), distancing itself from traditional DRR methods (Manyena, 2006) which are mainly technocratic and hazard-centred. Reactive resilience "approaches the future by strengthening the status quo and making the present system resistant to change" (Dovers and Handmer, 1992, in Klein, Nicholls, & Thomalla, 2003, p.39). Proactive resilience, as it is increasingly viewed in current research, is closely linked to the concept of adaptive capacity. Pelling (2003 in Klein, Nicholls, & Thomalla, 2003, p.40) qualifies resilience as the "product of a degree of planned preparation undertaken in the light of potential hazards", highlighting the ideas of anticipation, learning and adaptation.

The notion of resilience as a proactive process is closely linked to the concept of

adaptation, emphasizing the dynamic effect and the notion of the intended outcome. The concept is largely used in the literature on climate change (Bassett & Fogelman, 2013; Pelling, 2011; Shaw et al., 2010), but the call for increased adaptiveness in DRR literature and policies is much more recent and essentially theoretical (Djalante et al., 2013). Recent literature points out the need to encourage adaptiveness in DRR through pertinent decision-making in dynamic environments through a learning process, and flexible and resilient risk-governing institutions (Djalante et al., 2013; Klinke & Renn, 2012). Norris et al. (2008, p.131) make the link between these notions very clear by defining resilience as "a process linking a set of adaptive capacities to a positive trajectory of functioning and adaptation after a disturbance". Adaptive capacity corresponds to the resources implemented to reach the adaptation outcome. The latter refers to the "ability of a unit to transform its structure, functioning or organization in response to actual or expected level of risk, hazards and/or vulnerability thresholds" (Wilkinson, 2013, p.22). Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum (2008) suggest that resilience is generated by a set of "networked adaptive capacities", which enables taking into consideration both the resources themselves and their attributes such as robustness, redundancy and rapidity. In a review of the literature they summarize these resources as four primary sets: economic development, social capital, information and communication, and community competence, emphasizing the need for a holistic approach to adaptation and making a system resilient. Research on recovery and resilience generally focuses on some of these resources to analyse post-disaster development strategies as well as disaster-preparedness measures. An important aspect of adaptation is that it is generated strategically, emphasizing the role of humans and society in creating a resilient community, and more generally in leading the post-disaster process (Djalante et al., 2013).

Referring to the ecological perspective on resilience, Gunderson (2010) emphasizes the need to build adaptive capacity through anticipation and learning. The idea of learning is taken further by Pelling (2011, p.87), who defines social learning as "the capacity and processes through which new values, ideas and practices are disseminated, popularized and become dominant in society or a sub-set such as an organization or local community". It aims to lead to "new knowledge, shared understanding, trust and, ultimately, collective action" (Lebel et al., 2010, p.334). Pelling (2011), however, points out that if the learning process is not engaged with correctly, adaptation and adaptive action can preserve the

political and cultural roots of human vulnerability and prevent sustainable development. The process of learning is particularly important during the post-disaster period in order to stimulate critical reflection and hence enables the implementation of appropriate transformation of the system, from a disturbed one to a resilient one (Djalante et al., 2013).

The learning process is quite complex as it can take place at different levels, at different scales and among different groups of stakeholders (Lebel et al., 2010; Pelling, 2011; Tosey, Visser, & Saunders, 2012). The degree to which learning is implemented through policy and in practice determines the level of a society's transformation (Wilkinson, 2013). Argyris and Schön (1996 in Pelling, 2011) identified three levels of learning: first, double and triple loop learning. Single-loop learning corresponds to the implementation of incremental improvements, "whenever an error is detected and corrected without questioning or altering the underlying values of the system" (Argyris, 1999 in Tosey, Visser, & Saunders, 2012, p.292). Double-loop learning emphasizes that assumptions are revisited to improve a situation, "when mismatches are corrected by first examining and altering the governing variables and then the actions" (Argyris, 1999 in Tosey, Visser, & Saunders, 2012, p.292). Finally, a further level of organizational learning, called triple-loop learning, aims to emphasize "fundamental changes within management or governance processes" (Djalante et al., 2013, p.2118) and transformation of "underlying values and worldviews" (Lebel et al., 2010, p.334). However, this third type of learning faces lack of consensus among scholars in terms of conceptualization and measurement. It makes empirical research difficult (Tosey et al., 2012). Wilkinson (2013) adapted to the concept of learning look to volcanic risk management (Figure 2.4). A first level of learning after eruption is the improvement of communication systems and shelter management. Double-loop learning corresponds to a longer views of risk, with displacement of infrastructures to safer locations. Finally triple-loop learning means that development models are re-evaluated depending on the risk of disaster. It includes relocation of permanent infrastructures and economic opportunities in safer location, and further engagement and participation of all concerned stakeholders, including affected communities.
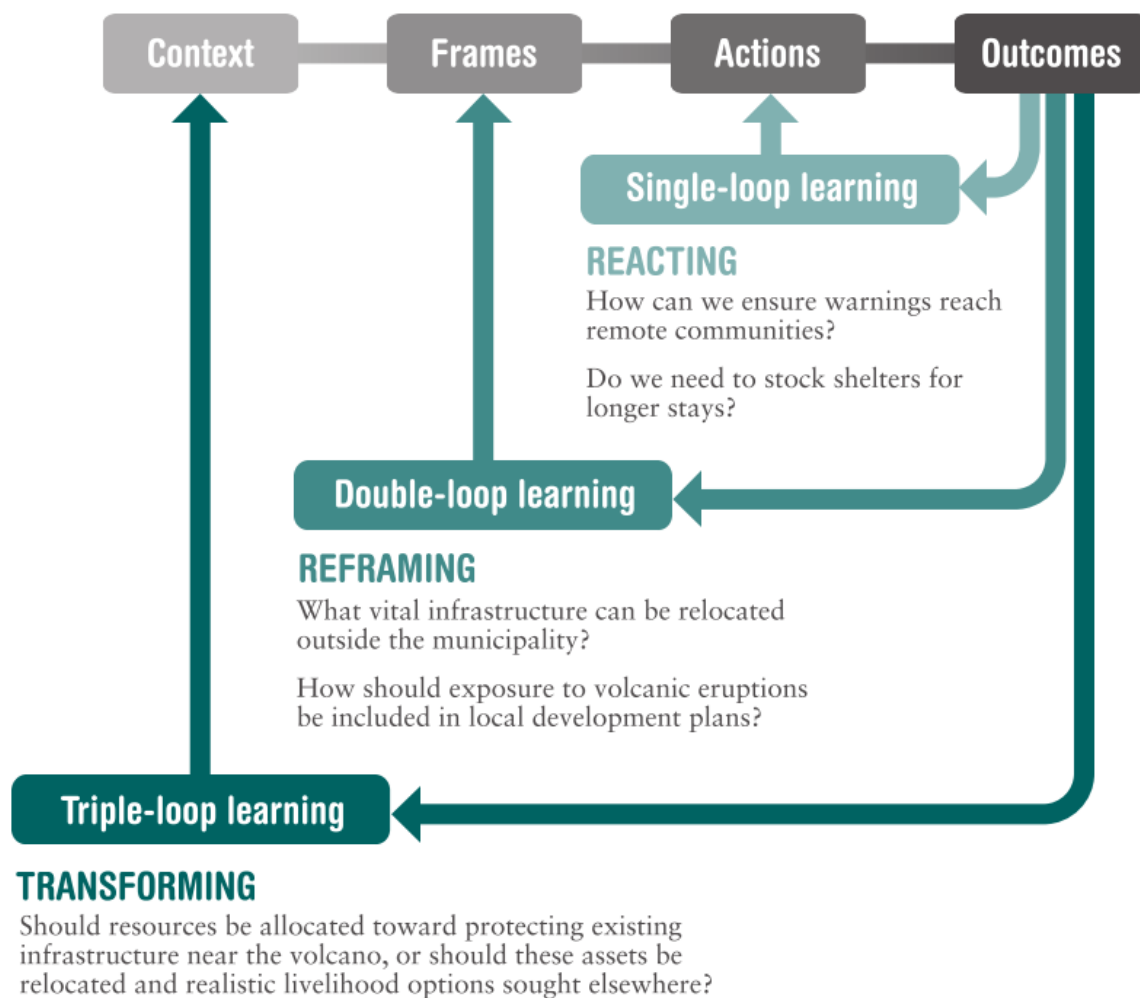
Figure 2.4: *Learning loops and their application to volcanic risk management (Wilkinson, 2013)*

Furthermore, scholars distinguish different forms of learning contributing to building adaptiveness (Figure 2.5). That refers to cognitive, normative or relational learning. Cognitive learning refers to factual knowledge. Normative learning includes changes in norms, beliefs and values system, and relational learning includes building trust and understanding each other worldviews (Lebel et al., 2010; Munaretto & Huitema, 2012; Shaw et al., 2010). The latter two types, namely normative and relational learning correspond to social learning, while cognitive learning may take place at the individual or group level (Shaw et al., 2010). Munaretto & Huitema (2012) argue that relational and normative learning are harder to achieve and much rarer than cognitive learning. They argue that it is mainly due to low levels of collaboration between agents of change, limited possibilities for stakeholders' participation and greater stability of the governmental system. They argue

further that some forms of learning are restricted to certain practices only and that values and beliefs hardly evolve. They argue that to support change and make this social-ecological system more adaptive, it is important to improve relational learning at all societal levels, by increasing participation and interactions between stakeholders.
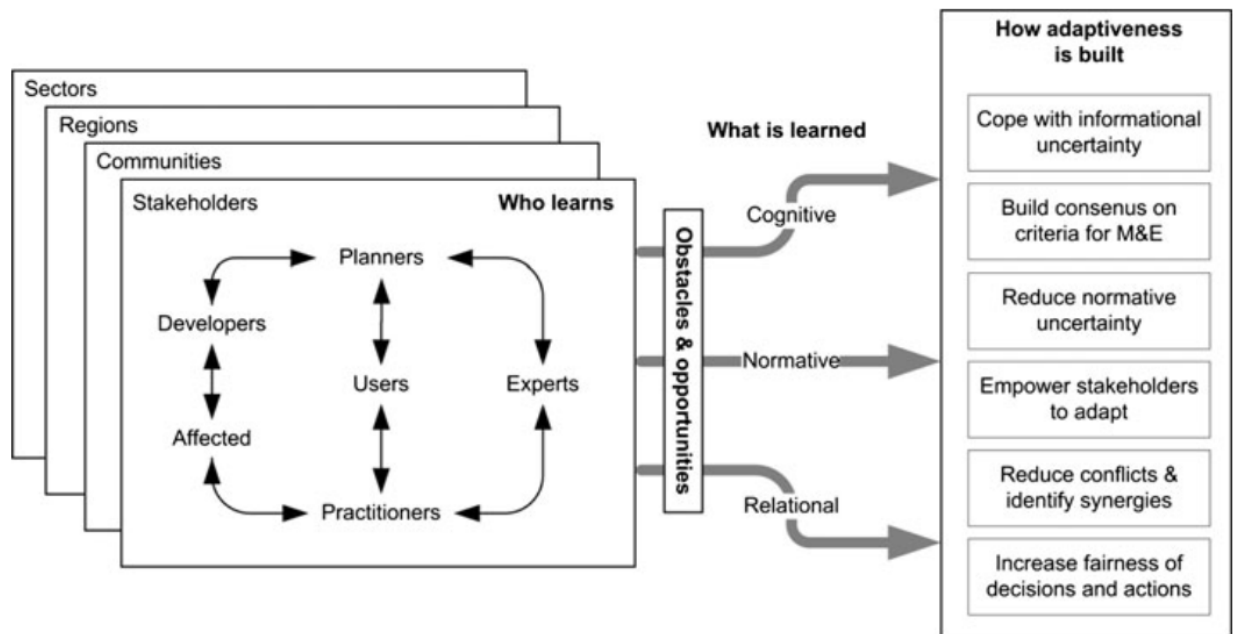
Figure 2.5: *Social learning processes among different groups and their role to build adaptiveness in several different ways* (Lebel et al., 2010)

A major ambiguity in the notion of disaster resilience is its strong link with vulnerability to disasters. While Timmerman (Timmerman, 1981; see also Klein et al., 2003) was one of the first to associate vulnerability and resilience with climate change in the 1980s, the differentiation between the two is still in debate. Manyena (2006) argues that two major views have emerged which depend on the definition given to vulnerability. The first approach views resilience as the reverse of vulnerability. It implies that resilience is a positive system property that risk management should reach (Quenault, 2014). However, this approach is highly criticized for its circular reasoning: lack of resilience leads to a vulnerable system, and the vulnerability of a system leads to lack of resilience. The second approach understands resilience as a component of vulnerability: in this case, reactive resilience and adaptive capacities, also understood as proactive resilience, characterize vulnerability (Adger, 2006; Manyena, 2006; Quenault, 2014). This approach considers vulnerability more

static than resilience, vulnerability corresponding to the inherent characteristics of a system and resilience to the dynamic evolution and adaptive capacity of that system (Adger, Brooks, Bentham, & Agnew, 2004; Pelling, 2011; Quenault, 2014). This approach implies that resilience and vulnerability are two separate concepts with several overlaps (Manyena, 2006; Quenault, 2014). It supports the idea that reducing vulnerability does not necessarily imply an increase in resilience, and holds that a system can be simultaneously resilient and vulnerable (Quenault, 2014; Vale & Campanella, 2005).

Although the notion of resilience needs clarification to make it more meaningful and useful for DRR measures (Klein et al., 2003; Quenault, 2014), it emphasizes the importance of sustainability and adaptation. Manyena (2006) argues that it allows focusing beyond vulnerability reduction. Quenault (2014) claims that the notion of resilience changes the risk management approach, especially in complex and uncertain contexts where the traditional approach to reducing vulnerability and mitigating risk have proved insufficient. It takes a more positive attitude toward DRR and recovery, incorporating the notion of well-being (through an emphasis on existing capacities and local knowledge) and focusing on people's strengths rather than only on their vulnerability and the objectives of coping with, reacting to and surviving disaster (Manyena, 2006; Norris et al., 2008; Quenault, 2014).

2.2.3.3.   *The difficulty of measuring recovery*

Although it is clear that post-disaster recovery is closely related to the notions of resilience, sustainability and adaptation, all of these concepts are challenging to implement and difficult to measure and assess. The difficulties in measuring recovery are similar to the those in assessing the sustainability of a development strategy (Ekins, Dresner, & Dahlstrom, 2008; Holling, 2001). For the Natural Hazards Center (2001, p.29), "a "good" recovery is a holistic recovery [which includes] principles of sustainability in every decision". Recovery and sustainability are strongly linked and presuppose the importance of reducing the risk of disaster and vulnerability to future natural hazards.

Sustainable development has been defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987, p.41). However, the

evaluation of the objectives of a development projects and its results is problematic, as some elements are neither quantifiable nor comparable and cannot be assessed using common units of measure (Ekins et al., 2008). The same difficulty arises when assessing the long-term sustainability of a recovery program. So far, while attempts have been made to find relevant indicators (Jordan & Javernick-Will, 2013) there is still a gap in the research in terms of defining standardized and quantifiable measures for recovery activities and progress, and of evaluating the long-term impacts of development strategies and the costs and benefits of delays in recovery (Johnson & Hayashi, 2012). McMichael, Butler, & Folke (2003) claim that there is a need for an interdisciplinary collaboration on understanding and achieving sustainability while understanding its complexity and dynamic evolution. So far many policymakers, institutions and studies have focused on specific aspects and measurable indicators of recovery from an objective perspective (Chipangura et al., 2016) to assess sustainability – for instance rebuilding or economic growth – without considering the interactions between the different aspects (McMichael et al., 2003).

2.2.4. Implementation of sustainable recovery

2.2.4.1. The challenge in implementation

The process of recovery is complex. While research is increasing understanding of recovery, implementation of post-disaster redevelopment strategies by policymakers continues to be an issue. By definition, a disaster means that the level of preparedness for hazards was insufficient. Lack of preparedness and anticipation of the risk of disaster includes lack of anticipation of post-disaster recovery, and this latter phase of disaster management requires a high level of coordination and planning (Davis, 2007). Apathy toward DRR measures is not unusual, especially when natural hazards occur infrequently (Berke et al., 1993). The theoretical and accepted goals of the recovery process, namely restoration and betterment, are challenging to implement at the local level (Olshansky, 2005). Indeed demand on government officials is very high during the post-disaster period and a multitude of difficulties impede the good implementation of recovery policies (Davis, 2007). The structure of the decision-making, with the government too centralized for instance, can prevent the flexibility and adaptability required for recovering. It was the case in Indonesia

after the 1992 tsunami (Davis, 2007). Other challenge include time pressures and the prioritization of short-term needs to the detriment of sustainability (Davis, 2007; Olshansky et al., 2012), and lack of resources or of the population's participation. Practitioners and researchers often fail to take into consideration the multiple dimensions of the process and their interactions, viewing its different aspects independently of one to another. Recovery is often reduced to the physical dimension with a special focus on reconstruction (Lindell, 2013; Oliver-Smith, 1990; Tierney & Oliver-Smith, 2012). The challenges of implementing local recovery are several and have still not been clearly identified, and researchers are still struggling to provide indicators and frameworks that are useful to policymakers.

The changes being implemented and the choices being made reflect the vision(s) of the population and policy-makers of the future development but also the existing constraints. There is frequently conflict between willingness to restore the past as it was before the disaster, development that addresses future needs, and a vision of what should become the affected place (Rubin, 2009). Moreover, post-disaster development is distinguished from development in normal times by time compression (Olshansky et al., 2012).

Olshansky et al. (2012) argue that in the post-disaster period the interactions between the different dimensions of recovery processes differ from what they are in non-crisis time. Development activities are compressed in time and space. There is a dramatic increase in the intensity of activity compared to normal times in the haste to recreate the capital destroyed or affected by the disaster. Different sectors and organizations may not have the same adjustment capacity, some recovering much faster than others. Bureaucracies, for instance, are often less able to recover quickly than private sector organizations because of their incompressible ways of functioning. Due to the urgency of the situation redevelopment processes are often accelerated without allowing time for deliberation and long-term thinking. Unsustainable practices may be accepted if they allow rapid economic development (Davis, 2006). Time compression is an important determinant of not only the choices being made in the post-disaster period and the trajectory of development, but also the issues faced during the recovery period (Olshansky et al., 2012).

Time compression and limited capital are the major limits to the implementation of sustainable post-disaster recovery. This study explores development strategies in Montserrat following the volcanic disaster, and how they determine the sustainability of recovery.

2.2.4.2.   Major factors of sustainable recovery: risk perception and disaster risk preparedness

As discussed, the recovery period offers opportunities to better prepare society and individuals for the occurrence of natural hazards and reduce the risk of disaster. Disaster preparedness implies a focus on not only the risk of disaster itself but more generally on well-being and sustainable development. There is no one model of disaster preparedness: it must be adapted to each specific context depending on need. I focus here on two specific aspects of disaster risk preparedness: the improvement of risk perception, of risk communication and the development of social capital.

○ **Risk perception**

Determining and implementing measures for DRR and risk communication cannot be done without an adequate understanding of risk perception, as there are often disparities among the views of scientists, decision-makers and the public regarding the level of concern about certain risks and an acceptable balance between risks and benefits (Renn, 1990; Slovic, 1987). It has been observed that scientific evidence on the risk of disaster and the expected number of losses and fatalities has had little influence the level of concern and preparedness adopted by the public (Renn, 1990), who rely on their own perceptions of risk when implementing preparedness measures.

"Risk perception" refers to people's intuitive mechanisms for collecting, selecting, assimilating, and interpreting information about uncertain impacts of events, activities or technologies (Renn, 1990; Wachinger, Renn, Begg, & Kuhlicke, 2013). It does not necessarily follow a logical rationale. For instance, Renn (1990) argues that risks with a low probability but potentially strong consequences are perceived as more threatening than those which are more probable but would have low and medium consequences. Wachinger et al.'s (2013) literature review demonstrates that the likelihood of a disaster and its perceived magnitude are of little importance in determining people's risk perception. Risk perception is influenced by a variety of factors that Renn (1990) calls the circumstances of risk. Wachinger et al. (2013) divide these factors into four categories: (i) risk factors, (ii) informational

factors, (iii) personal factors and (iv) context factors. Renn (1990, p.2) argues that "risk perception denotes a variety of concepts and mechanisms to process probabilistic information depending on the risk context and the individual", and that the collective understanding of risks and the actions taken to reduce it is multi-dimensional and cannot be reduced to probabilities. Depending on people's beliefs, the type of risk and the context where it happens, the mechanisms at stake can be attenuated or amplified differently.

Wachinger, Renn, Begg, & Kuhlicke (2013) find from a literature review on risk perception that two main factors affect the way people perceive risk: personal experience of a natural hazard, and the level of trust in institutions in charge of disaster management. Various studies demonstrate that direct experience can have a positive effect on risk perception by encouraging precautionary behaviour. However in some cases it has the opposite effect. Individuals who have not suffered damage personally are more likely to develop a false sense of security and to overestimate their capacity to cope. They may also perceive that there is a hazard cycle, and that since they have faced the hazard once they are protected for a certain amount of time (Wachinger et al., 2013). Although people can have experienced a disaster, their perception of it varies depending on the efforts for either remembering certain aspects of it or to actively forgetting them. That depends on how the risk of future disaster is perceived and how previous disaster has been managed (Connerton, 2010; McEwen, Garde-Hansen, Holmes, Jones, & Krause, 2017; Muzaini, 2015). The memory of the disaster and hence risk perception are therefore very variable and shaped by various societal needs, such as the need of psychologically recovering. This question is explored further in Chapter 7. Indirect experience through the media and education also affects risk perception. For instance, media reports of a natural hazard can play a significant role in recalling personal experience and raising risk awareness which has faded over time (Wachinger et al., 2013).

It is essential to understand each of the factors influencing risk perception and to adjust the DRR measures taken in response to them. Several studies reveal that accurate risk perception does not necessarily lead to more personal preparedness and risk mitigation behaviour. Haynes, Barclay, & Pidgeon (2008, p.260) argue that "it is now understood that there is not necessarily a direct link between awareness, perceived risk and desired (by risk managers) preparation or behavioural responses". Understanding this risk perception paradox is essential to adjusting risk governance and increasing willingness to prepare for risk

individually and collectively (Wachinger et al., 2013).

The literature finds three main reasons for the lack of personal DRR action despite an accurate risk perception. Wachinger, Renn, Begg, & Kuhlicke (2013) categorize these as reasons linked to experience and motivation, reasons linked to trust and responsibility, and reasons linked to personal ability (Figure 2.6).

Figure 2.6: Visualization of the "hazard to action-chain" (Wachinger et al., 2013)

The first reason refers to the risk-benefit balance. People choose to accept the risk, even if they understand it very well, because they perceive that exposing themselves to a natural hazard brings more benefits than negative impacts. They have to prioritize: securing the daily livelihood and coping with short-term socio-economic risk appears more significant than addressing the risk of natural hazards. Risk perception is therefore strongly determined by the risk-benefit balance. The risk is less accepted and judged greater when the exposure is seen as unfair and without counter-benefits (Frewer, Howard, & Shepherd, 1998; Renn, 1990; Siegrist & Cvetkovich, 2000). This balance is very important in determining "how safe is safe enough" (Fischhoff, Slovic, Lichtenstein, Read, & Combs, 1978, p.178). Beliefs and connotations associated with the causes of risk also contribute to determining the acceptability, or not, of the risk and how seriously it is perceived. The risks that contain negative connotations are perceived as more threatening and unacceptable, to avoid cognitive dissonance, than risks that are associated with positive image (Renn, 1990). For instance, a person who associate nuclear power with war or ecosystem destruction is more likely to fear the risk of nuclear explosion than a person who associate it with technological progress.

Moreover the uncertainty surrounding the occurrence of natural hazards can have a strong influence on how the risk-benefit balance is assessed.

The second reason for the risk paradox is related to trust. While risks appear complex and uncertain, Renn (1990) argues that the credibility of the institutions in charge of risk management can compensate for the lack of individual control of risk and contribute to making collective risk acceptable. Siegrist & Cvetkovich (2000) found that people particularly rely on social trust in the managing authorities when they have limited knowledge about a hazard, but that the level of trust in the authorities has less influence on risk perception when people are more knowledgeable. As knowledge about hazards and risks is difficult to acquire for some parts of the population for diverse reasons, social trust is an important factor in the implementation of disaster-risk reduction measures (Siegrist & Cvetkovich, 2000). The main function of trust is that it reduces the complexity and anxiety that people experience when facing a risk that they do not know or feel they have little control over (Siegrist & Cvetkovich, 2000; Wachinger et al., 2013). However, trust in authorities and structural protection may also have a contrasting effect, providing a false sense of safety and reducing residents' sense of responsibility for protecting themselves (Wachinger et al., 2013).

The final possible reason exposed by Wachinger et al. (2013) is confusion or ignorance about the appropriate action to take and lack of capacity and resources to prepare for natural hazards. It is essential to not only provide information about risks but also to transfer and share knowledge among all parts of society, namely policymakers, scientists and the population if the implementation of adapted measures is to be possible. It is primordial to consider physical, economic and social capacity to take action. Although people can be motivated to take action, they may face barriers such as lack of time, money or social support (Grothmann & Reusswig, 2006; Wachinger et al., 2013).

In context of recovery post-disaster, risk perception is directly linked both to the recent experience of the event and to the vision of development for the future. The personal memories of an event not only characterize the past of an individual or of a community, it also help them reflecting upon themselves and what they are and want to be (Connerton, 2009). It illustrates the shape of the recovery process by highlighting what dimensions of recovery are privileged over others and thereby what the adaptation capacity of the affected

population is. The fact of denying some risks, choosing to ignore them or forgetting their intensity despite of the previous experience strongly reveals what the society decides to be and how the past events shape the process of recovery. The memory of the disaster is therefore as important than the fact of forgetting some events in the way people perceive risks and thereby prepare to them (Connerton, 2009). The case of Montserrat illustrates the difficulties to implement actions of preparedness and more generally to communicate about risks. Risk perception gradually evolves with the recovery process and the emergence of new needs and desires. It is framed by the different objectives of development, including the willingness to move forward after the disaster both psychologically and economically.

○ **Risk communication**

Studies have demonstrated that the way risk of disaster is perceived influences the way risk is communicated and hence the type of measures for DRR implemented (Haynes et al., 2008a). Risk communication plays a major role in disaster preparedness. It aims to transfer knowledge and raise awareness about risks and practices to adopt to reduce people's vulnerability to natural hazards (Okada & Matsuda, 2005). However, there is still debate concerning the most effective way to communicate (Bier, 2001; Haynes et al., 2008a; Mayhorn & McLaughlin, 2014). Changing behaviours is a complex process and requires, amongst other things, effective communication techniques, adjusted to the audiences, the objective and the type of social relationships. Communication involves different actors and is strongly dependent on their different characteristics. The message, methods and process of risk communication strongly depend on the specific objectives and the context in which they are applied (Bier, 2001; Breakwell, 2000). Most studies now agree that the same message can be interpreted and implemented in different ways, even in the same community (Bier, 2001; Haynes et al., 2008a; Mayhorn & McLaughlin, 2014). Therefore it is vital to deliver the information in a style that is familiar and understandable by the audience (Bier, 2001). Alaszewski (2005) notes that individuals are not "passive recipients" of information: they actively decide to consider some aspects of it and ignore some others. Effectiveness in risk communication is strongly dependent on the social context, including the specific needs, beliefs, values and level of trust people give to the informants (Alaszewski, 2005; Carothers, Moritz, & Zarger, 2014; Haynes et al., 2008a; Haynes, Barclay, & Pidgeon, 2008b). Trust, in

both the provider of the information and the process and context of delivery, plays a major role in the way that information is received and interpreted (Alaszewski, 2005; Breakwell, 2000; Haynes et al., 2008a). The post-disaster context can be very challenging for DRR, as the power relationship between authorities and individuals may have been strongly affected, and with it, trust.

The issue of trust in experts and authorities involves the relationship between different stakeholders and the transfer of knowledge between them. While the technocratic and hazard-centred approaches favour scientific or 'expert' knowledge in reducing risk of disaster (Jessica Mercer, Kelman, Suchet-Pearson, & Lloyd, 2009), since the 1970s a growing body of literature has highlighted the importance of promoting local knowledge.

Local knowledge is defined as a "body of knowledge existing within or acquired by local people over a period of time through accumulation of experience, society-natural relationships, community practices and institutions, and by passing it down through generations" (Mercer, Kelman, Taranis, & Suchet-Pearson, 2010, p.158). Expert knowledge refers in particular, but not exclusively, to scientific knowledge. It is generally the outcome of tried and tested methods and tools developed outside the community, and is often seen as global knowledge, while indigenous knowledge is qualified as local knowledge (Mercer et al., 2009). Scientific or 'expert' knowledge is usually the one provided by scholars, local authorities and NGOs, verbally or in writing (Cadag & Gaillard, 2011; CADRI, 2011; Mercer et al., 2009, 2010).

Although this dualistic approach, that is local vs expert knowledge, is criticized for not taking into consideration the processes of co-production of knowledge and the hybridization of local knowledge under various influences (Audefroy & Sánchez, 2017; Haughton, Bankoff, & Coulthard, 2015; Wisner, 2009), it highlights the differences between different stakeholders' knowledge and understanding of risk, underlining the challenge inherent in communicating risk between different stakeholders (Cadag & Gaillard, 2011; Mercer et al., 2009, 2010). Knowledge is embedded in specific and "multiple systems of practice, beliefs, values and power across all scales" (Briggs, 2013; Carothers et al., 2014, p.1). The traditional top-down approach to DRR often fails to integrate scientific knowledge into this system of values and practices imbedded in local knowledge, and rather attempts to impose a different knowledge system (Chilisa, 2017; Mercer et al., 2012).

It is now well recognized that the integration of both types of knowledge is essential to a better understanding of the context, the forms of vulnerability, and capacity drivers. For instance, local knowledge is recognized as being very valuable for understanding historical hazard events, while scientific knowledge may help with dealing with unpredictable or exceptional events (Mercer, Kelman, Lloyd, & Suchet-Pearson, 2008). Recognition of the importance of integrating different sources of knowledge about hazards and risks has gradually led a growing number of scholars to value participatory approaches to risk communication and risk preparedness. Gaillard & Mercer (2012) suggest that DRR, including risk communication, should be more integrative, composed of bottom-up and top-down action. It should involve a large range of stakeholders including communities, policymakers, disaster managers and scientists, and should integrate different sources of knowledge. This becomes even more important as the risk of disaster evolves due to various factors such as demographic or environmental change. For this reason participatory approaches are particularly valued. They encompass a large range of tools and aim to build trust between stakeholders, and can be adapted to each context to best respond to the specific needs (Cadag & Gaillard, 2011; Gaillard & Cadag, 2013; Gaillard et al., 2013; Gaillard & Mercer, 2012).

This research explores how the knowledge of different stakeholders concerned with disaster risks is emphasized and taken into consideration in communicating about risks and adapting DRR methods. Chapter 7 and the following discussion explore how, in the post-disaster period, the evolution of risk perception influences the way risk is communicated, and vice-versa. I also analyse how risk communication strategies affect the sustainable recovery processes.

○ **Development of social capital**

One of the strategies for reducing the risk of disaster is developing people's capacity to face hazards. Capacity is defined as the "abilities, skills, understandings, attitudes, values, relationships, behaviours, motivations, resources and conditions that enable individuals, organizations, networks/sectors and broader social systems to carry out functions and achieve

their development objectives over time" (Bolger, 2000, p.2). Capacity development for DRR especially includes the development of community social capital, which enables communities to access resources for coping with natural hazards such as information, psychological and financial support, social networks to rely to (Aldrich & Meyer, 2014). The role of social capital in disaster preparedness and especially post-disaster recovery is largely under examined (Aldrich, 2012; Nakagawa & Shaw, 2004). Aldrich (2011, p.595) argues that social capital is "the strongest and most robust predicator of population recovery after catastrophe".

There is an important debate about what social capital is due to major epistemological differences between three main authors, Bourdieu, Coleman and Putnam (Pelling & High, 2005). Bourdieu (1984) understands it as part of social stratification and as a conscious way to maintain social division. Coleman (1990) analyses it rather as a unintentional outcome of social processes and interaction. In this research, I use the third approach, developed by Putnam, who defines social capital as "features of social life – networks, norms and trust – that enable participants to act together more effectively to pursue shared objectives" (Putnam, 1995 in Pelling & High, 2005, p.310). This approach, more positive, enables better to understand the role played by social capital in the recovery process.

Social capital is often distinguished into bridging and bonding social capital (Putnam, 2000). Bonding social capital corresponds to social ties that link people together with others who are primarily like them along some key dimension (for instance community, race, religion). Bridging social capital corresponds to social ties that link people together and which cross social divides or between social groups (Scott & Carrington, 2011). Although this distinction between these two types presents some limits and may simplify the reality (Leonard, 2004; Macnab, Thomas, & Grosvenor, n.d.), it is essential since both of them contribute differently to adaptation (Pelling & High, 2005), development and social cohesion (Macnab et al., n.d.). Putnam (2000, p.23) argues that bridging social capital is inclusive and enables "linkage to external assets [and] information diffusion". Bonding social network "is good for undergirding specific reciprocity and mobilizing solidarity" (Putnam, 2000, p.23). It reinforces conformity and solidarity but can be, as a consequence, exclusive to the others, those who do not share this conformity (Macnab et al., n.d.). In addition of bridging and bonding social capital, a third type is often presented: linking capital. It refers to ties with

people with access to power (Tompkins et al., 2009a). It induces a more hierarchical dimension. However in numerous cases it can largely overlap bridging network, making it difficult to use in the context of this research.

Social networks are a major component of social capital. In the literature, the terms "social network" and "social capital" are often inverted, making unclear their differences. I understand here social networks as "a set of socially relevant nodes connected by one or more relations" (Scott & Carrington, 2011, p.11) where nodes are specific actors, either individuals or organization. As part of the social capital, the notions of bonding and bridging are also relevant to characterize social network.

Several studies demonstrated that different forms of social network are used during throughout the different stage of the disaster (Islam & Walkerden, 2014). Aldrich & Meyer (2015) demonstrate that bonding network is used to support household during the whole recovery process. It is the most persistent support. Bridging network on the contrary is mainly used as a response during the relief period and early stages of the recovery period. Linking network can play a longer term role but is often unequally distributed (Islam & Walkerden, 2014).

However the concept of social capital can oversimplify the reality of the recovery process if it does not take into consideration the quality of the interaction within and between communities. It is therefore essential to examine the level of social cohesion throughout the development process. Like social capital in general, it has been largely neglected by practitioners in disaster planning and post-disaster recovery (Aldrich & Meyer, 2014) despite evidence of its importance for building a sustainable development (Aldrich, 2011; Aldrich & Meyer, 2014; Chamlee-Wright, 2009; Chamlee-Wright & Storr, 2011; Leroy et al., 2016). The definition of social cohesion remains unclear (Kearns & Forrest, 2000; Wang, Zhang, & Wu, 2016). Forrest and Kearns argue that social cohesion involves several domains, including:

- common values and civic culture;
- social order and social control;
- social solidarity and reductions in wealth disparities;
- social network and social capital;
- place attachment and identity (Forrest & Kearns, 2001).

For the purpose of this research, I understand social cohesion as a sense of trust between members of society (Cagney, Sterrett, Benz, & Tompson, 2016) and the capacity to hang together and adopt a common project (Kearns & Forrest, 2000). The measurement of social cohesion raises many questions for practitioners and researchers, however. The concept indeed is particularly challenging to operationalize and make tangible for use in DRR or urban planning (Forrest & Kearns, 2001). Despite the lack of specific indicators to measure it, this research seeks to identify the factors which promote or obstruct the building of social cohesion during the post-disaster period. Indeed, a disaster may provide an opportunity for building social cohesion. Rozdilsky (2003, p.15) notes that the creation of entire new towns or settlements following the evacuation of an area play a major role in creating social cohesion. He says "the new towns will be the site on which actions of social cohesiveness or actions of social conflict take place". Building social cohesion is of major importance when a society has been highly disrupted and faces large demographic change.

Past research has shown that social cohesion is a fundamental factor in economic and social development and in recovering after a disaster (Calo-Blanco, Kovarik, Mengel, & Romero, 2017). The literature demonstrates that it contributes to several aspects of local development. It is a factor in participation and engagement in collective activities, and prevents engaging in activities with negative outcomes for the community and local development (Calo-Blanco et al., 2017). In terms of reducing the risk of disaster, it is now widely accepted that disasters are socially constructed and determined by everyday social interactions and social structures (Wisner et al., 2004), and therefore enhancing social cohesion may be a way to reduce vulnerability to disasters. Past research has also underlined the major role of social cohesion in preparing for natural hazards. Some studies give evidence that mutual trust and feelings of dependence contribute to awareness of disaster management measures and stimulate volunteering in preparations for disaster (Hausman et al., 2007 in Aldrich & Meyer, 2015). Social cohesion programmes also aim to strengthen bonds between communities and prevent tension, one of the root causes of disasters (MICIC, 2016; UNDP, 2013) and a risk following the strong perturbation of society such as a disaster can cause (Stephan, Norf, & Fekete, 2017).

Several studies have demonstrated the strong role of social cohesion at different stages of the disaster recovery process. During the emergency response, social cohesion

seems to support self-organization and mutual assistance (Tierney & Oliver-Smith, 2012). Scholars have highlighted the role of social cohesion in the recovery of different New Orleans neighbourhoods after Hurricane Katrina. The tightly-knit Village de l'Est, inhabited by the cohesive Vietnamese community, was able to recover more quickly and efficiently than some less-damaged and richer city neighbourhoods (Aldrich & Meyer, 2015; Chamlee-Wright, 2009; Chamlee-Wright & Storr, 2011; Leroy et al., 2016). Nakagawa & Shaw (2004) reach similar conclusions on communities recovering from earthquakes in Kobe, Japan and Gujarat, India. They show that social capital and leadership are the most effective drivers of collective action and recovery. Cagney, Sterrett, Benz, & Tompson (2016) demonstrate that neighbourhoods with high social cohesion are more likely to believe that they are well-prepared for hazards and that they will be able to recover quickly. The authors argue that as perceptions shape action, social cohesion provides the basis for people's involvement in the recovery of their neighbourhood.

Importantly social cohesion can also jeopardize sustainable recovery when it involves mainly bonding social network and too few bridging network. In that case, social cohesion is primarily within a community instead of being between communities. It can therefore lead to exclusion and hence marginalization of the less powerful communities (Aldrich & Meyer, 2014; Beumer, 2010). Aldrich & Meyer (2015) explain that social cohesion can be obtained by the imposition of wills and values of a community to a minority, marginalizing and dominating de facto the minorities. To facilitate social cohesion between communities and hence sustainable recovery, bridging social capital plays a major role by enabling greater integration (Cheong, Edwards, Goulbourne, & Solomos, 2007; Djalante et al., 2011; Hawkins & Maurer, 2010, 2011; Leonard, 2004; Macnab et al., n.d.). Although it is primarily bonding social capital that is deployed as a response to disaster, as shown earlier, bridging social network enables better the development of social cohesion, a major factor of sustainable recovery in a diverse society.

Several studies suggest prioritizing investment in social infrastructure during the recovery period to better prepare for other hazards (Cagney et al., 2016; Islam & Walkerden, 2014; Lawther, 2016; Nakagawa & Shaw, 2004). Forrest & Kearns (2001, p.2138), among others scholars, emphasize the importance of developing neighbourhood social capital as a way of developing "self-help and mutuality" and hence addressing deprivation and social

exclusion. They recommend developing local policies on specific domains, namely empowerment, participation, associational activity and common purpose, supporting networks and reciprocity, collective norms and values, trust, and safety and belonging. Chapter 5 explores how the development of new neighbourhoods in the recovery period enables, or not, the development of a bridging social capital. It analyzes the potential difficulties and obstacles in the development of social cohesion in the changing society of Montserrat, and their broader, long-term impacts. Chapter 6 explores how rapid demographic change challenges the recovery process by requiring additional adaptation to build social cohesion.

2.3.   Summary

I presented in this chapter how the understanding of disaster has evolved over-time. I base my thesis on the view that disasters are the results of social and political environments that drives to the incapacity of individuals or groups to anticipate, cope or recover from the impacts of natural hazards, in other words that make them vulnerable to disaster (Wisner et al., 2004). This view on disasters enhances the issue of marginalization, as major factor of vulnerability. Marginalization corresponds to a relatively lower access to major livelihoods, hence exacerbating the difficulties to cope with natural hazards. This question takes a major importance in my thesis as I explore the post-disaster recovery process.

Despite significant progress in defining recovery, existing models presented in this chapter fail to reflect the complexity of the process. That prevents to understand the extent of challenges associated with this period, in particular the interactions between the different dimensions of recovery, and its long-term implications. In order to address this, this thesis draws on complementary concepts, namely vulnerability, resilience, changes and adaptation. Those place the post-disaster recovery process in a wider context and enable to understand its long-term dynamics and complexity, highlighting how the interactions between the different dimensions of the recovery processes can affect its sustainability and can hence prevent reducing the risk of disaster.

The literature on post-disaster recovery stresses its importance for learning from the event, introducing change and hence build-back-better. It therefore matters to reduce the

drivers of vulnerability and hence to prevent the marginalization of certain groups during this process. A special attention is given to immigrants given that their conditions makes them marginalized in the hosting community. In this thesis, I will examine how immigrants support the recovery process of a place largely affected by a series of volcanic eruptions and meanwhile what the impacts of the recovery process on the immigrant communities, and consequently, on the whole society, are. For that, the literature on social capital is very useful. I will examine how the recovery processes use and build social capital over time. Acknowledging the importance of social cohesion for a sustainable recovery, as demonstrated by the literature, I will examine the role played by bonding and bridging social capital throughout the process.

The existing literature on recovery emphasizes the challenge of implementing actions for sustainable development, and for measuring the progress made. In this thesis, I will argue that a major element for measuring this progress is based on the learning capacity from past disasters and hence on the increase capacity to prepare to future risks. It includes measures of risk communication and of awareness raising. Memory of the past disaster is a major mechanism for building risk perception and hence determining the risk preparedness measures to implement. I will examine how memory challenges the recovery process by influencing the objectives for post-disaster recovery, and hence the sustainability of the process.

CHAPTER THREE

RESEARCH METHODOLOGY

Through this research, I have questionned the post-disaster recovery processes and the strategies of redevelopment. After determining the analytical framework, I address here the methodological design of the research in the light of the specific needs of the study, the context and the practical challenges. As a real-world issue, disasters are typically addressed through problem-driven research. Such approaches start by identifying a particular phenomenon, thanks to a large literature review. The research design was chosen in order to analyse in detail the causalities and processes at work to explain the problem and anticipate the future consequences, in keeping with the pragmatic approach adopted in this research.

As explained in Chapter Two, adopting a pragmatist approach means that the choice of method is not guided by a specific paradigm on what makes good science. Instead it is guided by the necessities of the context, the researcher's values, political and social preferences. Therefore, I defined a set of methods depending on the research objectives, the specificities of the fieldwork, my positionality as a researcher (see section 3.4.2.), the sensitivity of the topics addressed through the research, and more generally by my epistemological commitments. These include in particular the will to involve the participants in the research process, and the respect of ethical matters. Adopting a pragmatic approach has resulted in a trial and error approach based on mixed-methods (largely qualitative) with gradual adjustments during the research process.

Considering the sensitivity of some of the major elements of this study, the methods are largely shaped according to ethical principles. In this chapter, I first analyse the major ethical concerns, before examining and justifying the research methodology in more detail. I explain the choice of the case study and the management of the three fieldwork seasons, with the use of interviews, focus group discussions and observations. I then outline the process of data analysis before finally giving an overview of the project through a reflexive exercise.

3.1. A qualitative research project for a complex study

3.1.1. Qualitative study

In the previous chapter, I explained why my research topic required an approach that was able to explore the different coexisting realities and perceptions. To understand the recovery process after a volcanic eruption and the induced spatial changes, it seemed necessary to adopt a broad perspective that takes into consideration the different systems at stake. Qualitative methods were adopted for this project as a way to capture all the realities associated with the studied question. Due to the multi-dimensional nature and subtle interactions between the different dimensions of post-disaster recovery, it would have been difficult to isolate specific topics for a quantitative survey. Thus a qualitative approach was taken to this study. Qualitative approaches are particularly valuable here as it is important not only to understand many diverging factors but also to be able to understand how differing questions are being perceived and understood by participants. I therefore used a set of ethnographic methods, described in more details below, considering the high complexity of the post-disaster recovery process and the lack of significant research on the topic and on the specific case study explored in this research. Ethnographic methods help to identify unexpected issues and to explory the differences in perceptions, knowledge and behaviour among the population (Bryman, 2004; Patton, 1999; Spoon, 2014).

A qualitative study results from a systematic research design. Berkowitz (1997, p.34) characterizes qualitative analysis as "a loop-like pattern of multiple rounds of revisiting the data as additional questions emerge, new connections are unearthed, and more complex formulations develop along with a deepening understanding of the material. Qualitative analysis is fundamentally an iterative set of processes". Rather than being a step-by-step process, it corresponds to an iterative process with constant re-clarification of the research question, research methods and collected data. The objective of this constant questioning is to adopt a reflexive approach and to adapt the focus and the objectives to the emerging insights.

The iterative process goes through three categories of reflexive questions to provide specific reference points to conduct the data analysis process. The first question, "what are the data telling me?" allows me to clarify the theoretical and conceptual framework through which we analyse the data. The second question, "What do I want to know?", allows me to regularly rethink the research objectives in the light of the conceptual framework. The third question, "What is the dialectical relationship between what the data are telling me and what I want to

know?", is used to refine insights and identify the gaps in understanding. The same process is reproduced several times in order to refine the focus of the research. This permanent going back and forth takes place during the definition of the research question but also during the selection, the collection and the analysis of the information and data.

3.1.2. *The importance of ethical considerations*

The sensitivity of the topics addressed in this research made it necessary to pay close attention to ethics during the whole process, including data collection, data analysis and the transmission of findings.

Conducting social science research can affect the research participants and their relations in positive and negative ways, that were unintended initially. The analysis of the post-disaster recovery processes tackles a multitude of very sensitive topics. This period corresponds to a period of quick transition and leads to major and sometimes difficult changes in the personal lives of the inhabitants of Montserrat. This included displacement, social and demographic change linked to migration, and considerable uncertainty concerning the future. It is vital to be aware that addressing, analysing and then communicating about these topics may raise strong disagreement and tension among the society. This possible tension requires constantly adapting the research methods depending on the emerging necessities and observations. Being constantly reflexive as a researcher (and as a human) facilitates an improved ethical stance, particularly in choices around frameworking, methodology and reporting of results. It is important to balance high quality research with being sensitive to those I am studying.

Different measures were adopted to respect ethical necessities. Before conducting the fieldwork, an ethic clearance form was submitted to the General Research Ethics Committee of the University of East Anglia, and accepted. Critical choices in seeking ethical approval and subsequent reflexive choices are summarised here:

(i)   Interview authorisation. I was not to ask the participants of the research to sign an authorisation form before each interview as it would have affected the flow of the discussion and made the interviews much more formal, therefore adversely affecting the quality of the interviews. However, each time that I recorded an

interview, I orally asked permission from the person. A few times I was planning to record but as the discussion started very rapidly and in a very passionate way, I did not get the opportunity to ask and therefore decided not to record in order not to interrupt the discussion. I never asked for authorization or informed the people when I conducted observation for several reasons, mainly practical. Living in Montserrat during the whole fieldwork, I was continuously observing my environment. I did not hide the purpose of my presence in Montserrat, letting people know that I was doing research when they asked me. However, it was impossible to inform people systematically. This was also so that I would not intervene in what I was observing, or as little as possible, and therefore prevent biases in the observations.

(ii)   <u>Focus-group discussion: location and privacy</u>. Dealing with sensitive topics also required regularly adapting the methods used for data collection. For instance, it appeared quite rapidly that interviewing immigrants in a face-to-face situation and without knowing them more personally was not efficient as it was very difficult to get meaningful answers. It was therefore necessary to create a trusting environment in order to give voice to these marginalized groups (Marra & McCullagh, 2018; Winke, 2017). It had to be an environment that corresponded to the wishes and requirements of the participants. For instance, I decided to conduct focus group discussions (FGDs) as I estimated that it would be more efficient than face-to-face interviews, but I had to adapt the organization of each FGD to each group. While the group of Montserratians had no objection to do this in a public place as long as it was easily accessible to all, the non-nationals wanted to do it in a private place where they could talk without being heard. The organization of each FGD was therefore very individualized to respect ethics and requirements of confidentiality at the expense of a systematic method and possibilities of comparisons.

(iii)   <u>Anonymity</u>. The question of anonymity is crucial, especially as the research tackles sensitive issues. As explained previously, I decided to anonymise the interviewees by specifying only their job or their role in the society, rather than mentioning their names. In some cases however, due to the small size of the Island, people remain

very recognizable even if they are identified them only by their job or status. Hence, despite the lack of scientific accuracy, I decided sometimes to remain vague about their identification in order to prevent them being recognized. Indeed, the small size of the population and the transitional period that Montserrat is experiencing encourages intense and emotional reactions. A quote may therefore have very important consequences and raise national debates if it is related to a sensitive or personal matter.

(iv)   <u>Approach to reporting findings locally</u>. Considering the small size of the country and the challenging period it is dealing with, it rapidly appeared important to share the findings to both policy-makers and the population. While social research aims to "add to the stock of knowledge about the social world" (Bryman, 2004, p.5), I feel that this study has a role to play at the local level in a more practical way. Many participants showed a strong interest in my research and asked me to provide recommendations or to communicate the main findings. I therefore decided to organize some presentations and discussions with the different stakeholders involved in the recovery process. Two were organized at the end of the third fieldwork, one that was open to the public, and one that was addressed more specifically to the policy-makers and the agencies in charge of different sectors of development, including schools, Red Cross, Disaster Management Coordination Agencies. The two presentations were separated assuming that it would facilitate discussion and avoid some groups of people feeling uncomfortable talking in front of policy-makers. Both meetings led to interesting discussions and encouraged reflections, but the attendance was quite limited. Therefore another presentation was organized with the support of the Governor's office in September 2017, with the objective of having a wider attendance. The presentation was recorded, broadcasted on the national radio and on Facebook live for those who could not attend it physically. Another presentation was organized in London in June 2017 and addressed to the community of Montserratians living in the UK. Organizing these presentations raised several ethical issues and questions about what should be presented and how, as a number of issues raised were sensitive ones. To address these, I worked beforehand with three people, a Montserratian living in Montserrat,

a Montserratian living in the UK and a Jamaican living in Montserrat, to adjust the presentations. The objective was to be able to present my main findings and generate discussion without being insensitive, and hence preventing emotional rejection and blockage reactions. It was also necessary to specify my role as a researcher and to mention my research autonomy with respect to the British government. Contrary to what was required by some of the participants, I did not give recommendations but rather large guidelines derived from my findings. Indeed from an ethical point of view, I believe that the researcher can inform thanks to their expertise. They are not mandated to say what should or should not be done and he has to leave the people concerned in charge of deciding.

Being clear about the specific objectives of the research, the complexity of the situation and the ethical necessities allowed me to design the research accordingly. It has in particular determined the choice of conducting research based on a specific case study, and the use of interviews, focus group discussion and observation as the main methods for data collection.

3.2. Designing the research

3.2.1. Case study research

The structure of the research is organized around the use of a specific case study in order to understand complex issues, especially how disaster, post-disaster recovery and associated processes are socially constructed in a particular context. According to Hartley (2004 in Kohlbacher, 2006, p.6), a case study research corresponds to "a detailed investigation, often with data collected over a period of time, of phenomena, within their context" in order "to provide an analysis of the context and processes which illuminate the theoretical issues being studied". It corresponds to an intensive research approach, which aims to focus on a particular instance, within its specific context, its history, in order to get a great amount of details and to understand its evolution and its specificities (Swamborn, 2010). In this instance, focusing on a specific case study appears as a broad, multidisciplinary and comprehensive manner to understand disasters and their recovery process (Burton, 2010). The case study is used through an iterative process, which allows the researcher to gradually clarify the research questions as the different processes and their interaction become better understood. For the

understanding of the general process of recovery, the use of case studies allows us to adopt a comprehensive perspective and to test the validity of previous research, mostly focusing on specific aspects of the process of post-disaster recovery.

The use of case studies is now commonly used in social sciences and is associated with a systematic and rigorous research design. It presents a large number of advantages, especially in the case where little is already known and where there are few or no quantitative data. It is also often used as a complementary method of quantitative research in order to validate hypothesis and/or to determine and orient the trajectory of the research according to the actual observed issues. According to Yin (2003a in Kohlbacher, 2006, p.5), "the case study method allows investigators to retain the holistic and meaningful characteristics of real-life events". A major concern about case studies is the difficulty to provide scientific generalization. However Yin (2003a, in Kohlbacher, 2006, p.6) argues that "case studies […] are generalizable to theoretical propositions and not to populations or universes. In this sense, the case study […] does not represent a 'sample', and in doing a case study, your goal will be to generalize theories (analytical generalization) and not to enumerate frequencies (statistical generalization)". The use of the case study does not therefore aim to make general truth but rather to test theories in particular context for, eventually, reinforcing and creating new theories. The use of case studies is thus well adapted to test hypothesis and to bring more insight to a theoretical question.

The selection of the case study depends on various criteria, specific to each research project and depending both on scientific and practical purposes. Due to the relatively low number of places significantly affected by volcanic eruptions in the last 10-20 years, the choice has been limited to a few number of possible cases. Moreover, practical matters have largely contributed to the selection, such as the language spoken, the cost of access and the level of safety. It was therefore decided to conduct the research based on the case of Montserrat, a Caribbean island. The general context of this country and its interest for the research are outlined in more details in the Chapter Four.

3.2.2. *Three seasons of fieldwork*

Considering the lack of scientific valid grey literature and previous social research conducted in Montserrat which could have informed my research, it was decided that three fieldwork seasons in Montserrat needed to be conducted. This enabled a deeper immersion in the society, necessary to tackle sensitive questions in a less aggressive way, and to better understand the different perspectives.

Exploratory fieldwork was conducted in March and April 2015 in St Vincent and the Grenadines and in Montserrat. It aimed to settle the basis of the research, both in practical terms and in terms of research focus. The second fieldwork, conducted from January to May 2016, was dedicated to the main data collection, completed the following year during the third fieldwork between January and March 2017. The latter was also the opportunity to disseminate the main findings of the research through various meetings with communities, decision-makers and disaster managers.

The first fieldwork, conducted after six months of literature review, aimed essentially to settle the basis of the research, namely 1/ determine the methodology to be used for the data collection mainly according to the specificities of the context, 2/ determine the location of the case study, and 3/ clarify the research questions. This fieldwork was composed of three weeks in St Vincent and the Grenadines, followed by five weeks in Montserrat. In both countries, semi-structured interviews were conducted with key stakeholders in charge of disaster management and planning for socio-economic development following the volcanic crisis. Informal discussions and observation also played a large role. The initial objective was to conduct a comparative study between the two islands, which were both strongly affected by volcanic eruptions, the last one being in 1979 in St Vincent, and between 1995 and 2010 in Montserrat. However, this first fieldwork led to the decision to conduct a study on the unique case of Montserrat. The major differences of context, included the time-scale of the disasters and the extent of the population affected,revealed that a comparison would be inadequate or would require a deeper understanding of each context to be relevant. Practical considerations, such as the limited time available for fieldwork in each place and the high cost of conducting research in two places, also contributed to the focus on a single case study. It was therefore decided to focus on the case of Montserrat. Indeed the first series of interviews revealed that the socio-economic development of Montserrat was still largely influenced by the volcanic

disaster, more explicitly than in St Vincent, where the volcanic eruption occurred longer ago.

The exploratory fieldwork in Montserrat also enabled me to clarify the research focus, by reorienting it slightly according to the specificities of the context and making it more relevant to the local considerations. Informal discussions and semi-structured interviews revealed the importance of demographic changes in the recovery process of Montserrat. The importance of immigration, in a positive and negative way, was almost systematically and very spontaneously mentioned during the discussions with a range of actors. Although I did not anticipate to tackle this topic when designing my research, it appeared to be an important one during the recovery process. I therefore decided to focus more on the role of demographic changes, especially immigration, in the process of recovery. Moreover a quick literature review highlighted that there was a major gap in research concerning the impact of demographic change on post-disaster recovery (see Chapter 2), despite being a universal and critical issue. The fieldwork also revealed that the risk of eruption was less determining in the in the recovery process than what was initially expected. While I expected it to be a major concern considering that the last eruption had occurred less than five years ago at the time of the fieldwork, interviews contradicted that hypothesis. It appeared very clearly that talking about the risk of future eruption triggered annoyance or even anger. On the contrary, people happily discussed the past eruptions. Therefore it was decided to adapt the methodology for addressing questions about the role of the risk of disaster in the recovery process in a less direct way and to explore the reasons for such negative reactions when it comes to risks in the future.

Most of the data collection was conducted during the second fieldwork, between January and May 2016. I specified the research questions thanks to the initial findings following the exploratory fieldwork, seven months earlier, and thanks to an extensive literature review. I used a similar methodology as for the exploratory fieldwork. However, instead of getting a general overview of the local context, the second fieldwork directly aimed to explore and test the hypothesis determined during the previous months of work. The methodology followed during these five months was therefore designed specifically to respond to these objectives.

Mixed qualitative methods were used to conduct the data collection, including semi-structured and informal interviews (see Appendix), observation and focus group discussions. I gradually adapted the methods during the fieldwork with the emergence of some difficulties,

related to the high sensitivity of some topics and the difficulty to meet people especially from immigrant communities. That includes a more indirect way to address risk perception and the necessity to build trust and provide a very safe and anonymous environment to address the questions of social cohesion and discrimination. For that, I needed preliminary work to identify adequate gatekeepers, people who had a good knowledge of the community, who were trusted by its members and who were able to introduce me to the rest of the community. The selection of gatekeepers for starting the data collection was very important in this research due to the sensitivity of the topic tackled. Gatekeepers helped to gain credibility and to build trust with the participants, two conditions for conducting qualitative research (Petts, 2007; Reeves, 2010). The interviewees and the sample groups for conducting the research were composed of:

- The main communities including:
  - the three main immigrant communities, namely Jamaican, Guyanese and Dominican (DR),
  - The native-community, namely Montserratians
- Authorities/ Policy-makers including members of the GoM, of the British government and DfID
- Disaster managers and monitoring, including staff of the Red Cross, of the Montserrat Volcano Observatory and of the Disaster Management Coordination Agency
- Workers in the social sector, including school teachers, social services, church representatives, psychologist, medical doctor

During the third field season, conducted between January and March 2017, I completed data collection. Before that, I had conducted a first session of data analysis, which aimed to tackle the contradictions and the grey areas, and therefore allowed me to tackle more specific questions rather than looking at the general context. I used the same methods as during the previous fieldwork for data collection. In addition to completing the data collection, I aimed to communicate some of the initial findings of the research to the residents of Montserrat, including people from different communities, to policy-makers, social workers (including teachers, counsellor, social services), and agencies in charge of disaster management and

hazard monitoring. For that purpose, two meetings were successively organized during the last week of February 2017. An additional presentation wasconducted later with the support of the Governor's office at the Government's Residence in September 2017.

Figure 3.1 below illustrates the main steps of the research.
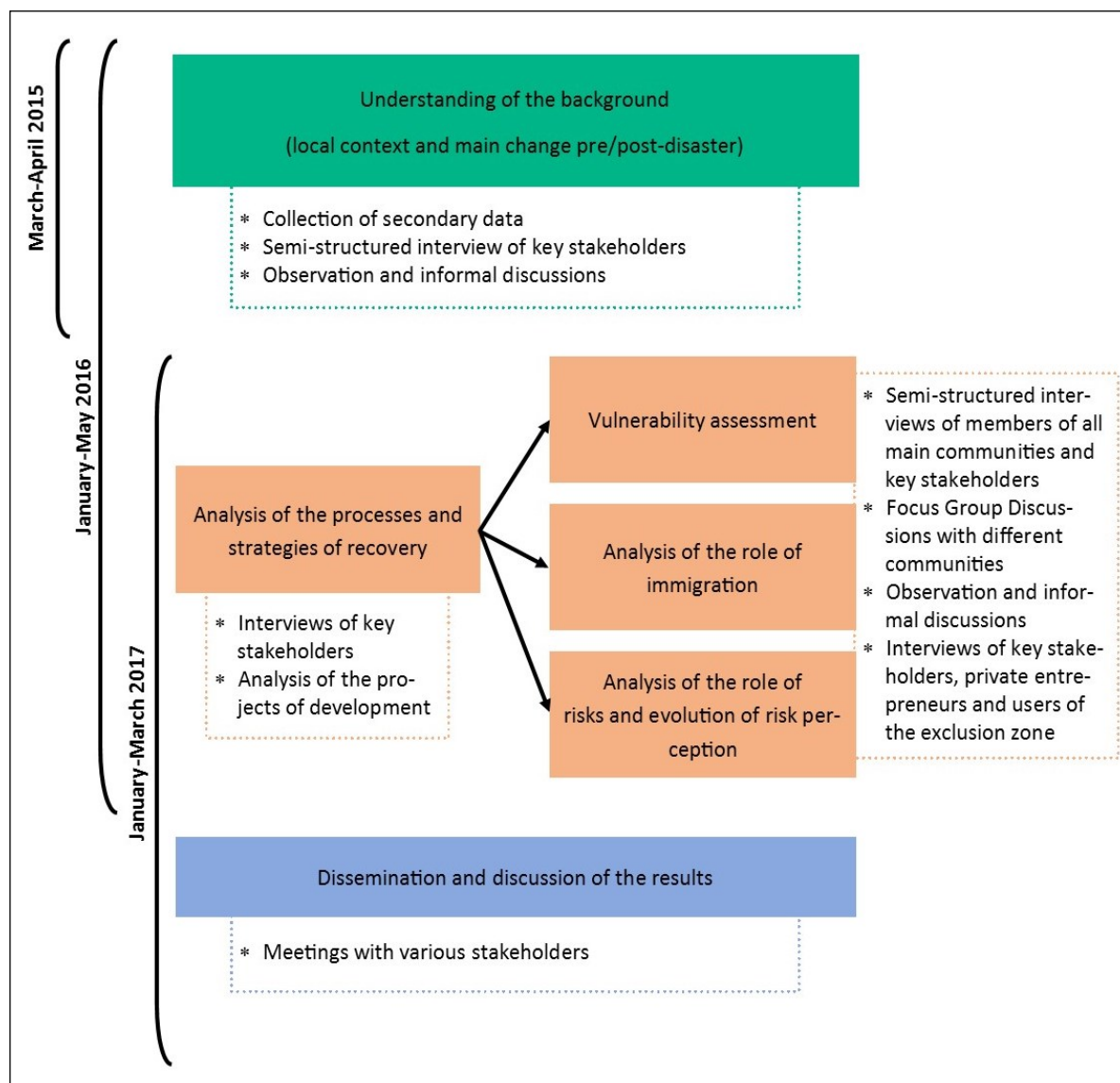
Figure *3.1: Data collection process and main objectives*

3.3. Research methods

3.3.1. Building trust and conducting interviews

As explained previously, the sensitivity of the topics addressed during the research

required spending time working on building trust with the participants, including national and immigrant communities. I therefore first identified and met some key people identified as gate keepers within the larger communities. These people had to be trusted by the community and to have a good knowledge of it. They were generally identified as gatekeepers because of their social positions, generally as a person of reference or influence. By snowballing, I was then referred to other people who the gatekeeper thought would accept to talk to me.

To build trust and to have access to more personal information, I also spent time participating in the life of the community and let people get to know me more personally, not just as a researcher. They were then more inclined to talk freely to me and to develop their answers. It was perceived more as a mutual exchange, where I was also informing them about aspects of my life, than purely a data collection exercise. To meet the Dominican (DR) community for instance, a gate keeper invited me to join a service at the Dominican (DR) Church where he could introduce me to a part of the community and therefore make further meetings easier. However, it did not enable me to meet the rest of the community, less involved at the Church. It was more difficult to find a way to access them as they tended to mix less with the rest of the society. The main place where I could have met and started to discuss with them in an informal way would have been the bars where they often gather. This was much more difficult for me for various reasons. My level of Spanish is not high enough to conduct a spontaneous discussion in a noisy and agitated environment such as a bar. Moreover, as a young foreign woman, I felt very uncomfortable going to bars, alone, as it is mainly a masculine place. This prevented me from building a closer relationship with this community. I therefore had less access to this group of people and had to find an alternative way to collect data. Instead I could collect some information and get an overview of the situation of this community by talking to intermediate people such as teachers, medical doctors or Red Cross staff.

It was also difficult to get access to the Guyanese and Jamaican communities as they are not such cohesive communities. They mix more with the rest of the society than the Dominicans (DR) generally do. Even though they face some specific issues relating to their origin, there are no specific places or events where I could meet them. The role of the gate keeper was therefore primarily to access people by snowballing. In several cases, I met members of the Guyanese and Jamaican communities in a very informal way, which was not anticipated. I was able to get data through informal and spontaneous discussions.

A large number of interviews (see Appendice) were conducted in quite an informal and spontaneous way, often in bars or when people approached me by themselves, often out of curiosity. Such situations were ideal to talk with people in a friendly and informal atmosphere. Although I could not anticipated these discussions, regular work on my data and on the topics I wanted to tackle helped me to better anticipate these spontaneous discussions and therefore to make them evolve from a short and superficial discussion, generally often focused on me as an outsider, to a deeperdiscussion on people's experiences and perceptions. In a few cases, it led to a more formal interview later on. Informal discussions and spontaneous semi-structured interviews were much more improvised than the formal and planned structured and semi-structured interviews. Objectives and questions to ask were not pre-defined. I had to constantly adjusted to follow the flow of the discussion and the interests of the person. When some of the research topics were not addressed spontaneously and if they seemed relevant during the discussion, I tried to bring them up in a natural way, which did not affect the flow of thoughts of the interviewee. I could not take notes during these spontaneous discussions, nor record them. However I tried most of the time to take notes as soon as possible, in the most complete way by remembering the discussion chronologically and thematically.

Apart from these informal interviews, which were conducted essentially with community members, the interviews with the authorities, disaster managers or key people of the social sectors were more organized and anticipated. Each interview was prepared in advance with a list of topics to tackle, specific to each interviewee depending on their field of expertise. The interviews were recorded only when I knew the interviewees would feel comfortable enough with this, and after asking for their agreement. In several cases, especially when sensitive topics were going to be addressed, I decided not to ask to record as I felt it may have made the person uncomfortable. In such cases, I took only brief notes of the key points during the interview and I tried as much as possible to complete the notes after the interview. It was necessary to constantly adapt the interview process and design. For instance, the politicians, more used to such exercises, were often expecting a succession of clear and well-focused questions and were giving quick and pre-thought answers. It was therefore more difficult to reach their actual opinion, to raise a deeper reflection and to go beyond the politically correct. Apart from them, most of the interviewees seemed to feel more comfortable with a less structured interview, more akin to a normal discussion. The difficulty in this case

was to keep the discussion focused on topics relevant to my research without over-forcing the direction.

In total, 130 interviews were conducted during the three fieldworks and distributed as following (Table 3.1):

	Institutions/groups	Total number of interviews	Formal interviews (number)	Informal interviews (number)	Wo-men	Men	Age range (estima-tion)
1	Government officers (British and Montserratian government)	21	21		9	12	30-60
2	Risk management/ monitoring institutions (DMCA, MVO, Red Cross)	10	10		5	5	30-60
3	Social/Health/Educational institutions (like social services, schools, churches)	16	16		12	4	30-65
4	Business people	5	5		2	3	25-55
5	Montserratians	20	8	12	7	13	20-75
6	Guyanese	14	8	6	8	6	15-65
7	Jamaicans	14	6	8	6	8	20-65
8	Dominicans (DR)	12	7	5	5	7	45-70
9	Other nationalities	18	3	15	4	14	30-60
	Total	130	84	46	58	72	

Table 3.1: Interviews conducted between 2014 and 2018 in Montserrat -
(The members of risk management, social/health institutions and business people (categories 2, 3, 4) were both Montserratians and non-Montserratians. Their nationality was not specifically asked for the interview as these individuals were interviewed because of their particular task and job. The interviewees in categories 5, 6, 7, 8, 9 were specifically chosen because of the national group they identify with)

3.3.2. Focus-Group Discussions (FGDs)

Towards the end of the second fieldwork, four focus-group discussions, lasting between two and three hours, were also conducted with members of three main communities, namely Montserratian, Guyanese and Jamaican communities. FGDs can be in-depth semi-structured or unstructured interviews conducted as a group (Bryman, 2004). They are commonly used in order to comprehend complex behaviours and processes (Carey & Smith, 1994). Two FGDs were conducted with Montserratians, the second one having been organized on the request of the participants themselves. One was organized with a group of Jamaicans, and one with a group of Guyanese. One was planned with the Dominicans (DR) as well but it could not be organized for practical purposes. Indeed it was too difficult to gather enough people at the same time as they were often very busy with family and working life.

Organizing FGDs with each major community, separated from each other, has various objectives: (i) to compare the expectations for the future of Montserrat depending on the characteristics of each group, (ii) to assess the level of unity or cohesion in each community, (iii) to point out the major difficulties or factors of vulnerability in each community and to understand their causes according to the concerned people. Separating the groups depending on the country of origin of the participants was necessary to allow the comparison, but also to prevent discomfort and shyness due to the existing racism within society. FGDs are a quick way to reach a group of people from the same community, between 5 and 12 people depending on the groups and to complete the individual interviews. In some contexts, the group dynamics enable the raising of new ideas and stimulate the discussion by decreasing inhibition caused by a one-to-one interview, especially when it concerns sensitive issues such as integration, discriminations and expectations for the future (Bryman, 2004; Carey & Smith, 1994; Kitzinger, 1994; Munday, 2006). Through the discussions, participants could validate, complete and extend the experiences, memories and one another's ideas. It allowed me to have a better understanding of the data collected during previous interviews and to validate or question them. The group discussion also facilitates a kind of cascading effect (Tracy, 2013) where topics and thoughts can flow from one to another. Moreover, the FGD allows the observation of the form of interactions between participants and therefore plays the role of a mini-interactions laboratory (Tracy, 2013). It was particularly useful to understand the level of integration and cohesion of the immigrant communities in Montserrat, as well as the type of community-feeling within each group. Indeed, while the interviews and the previous observation highlighted the strong cohesion within the Dominican (DR) community, the situation was less clear for the Jamaican and Guyanese communities. FGDs therefore highlight how these two groups felt separated from the Montserratians and felt like outsiders even after one or two decades of residency on the Island.

The organization of the FGDs raised the issue of confidentiality and anonymity at various degrees depending on the communities. It was not presented as an issue by the Montserratians, who accepted meeting in public and opened places, that is a bar-restaurant easily accessible to all. They then did not show any difficulty about talking loudly in public, even when they were addressing sensitive matters. The non-nationals, however, asked for the

meeting to be organised in a private and closed place where nobody could hear them and hence know what they were talking about. They asked me several times to confirm that it was safe for them to talk and that nobody would know about what they said. I therefore decided to take only notes during the discussions and to not record anything. For the same reason, only the group of Montserratians was photographied during the meeting (Figure 3.2).
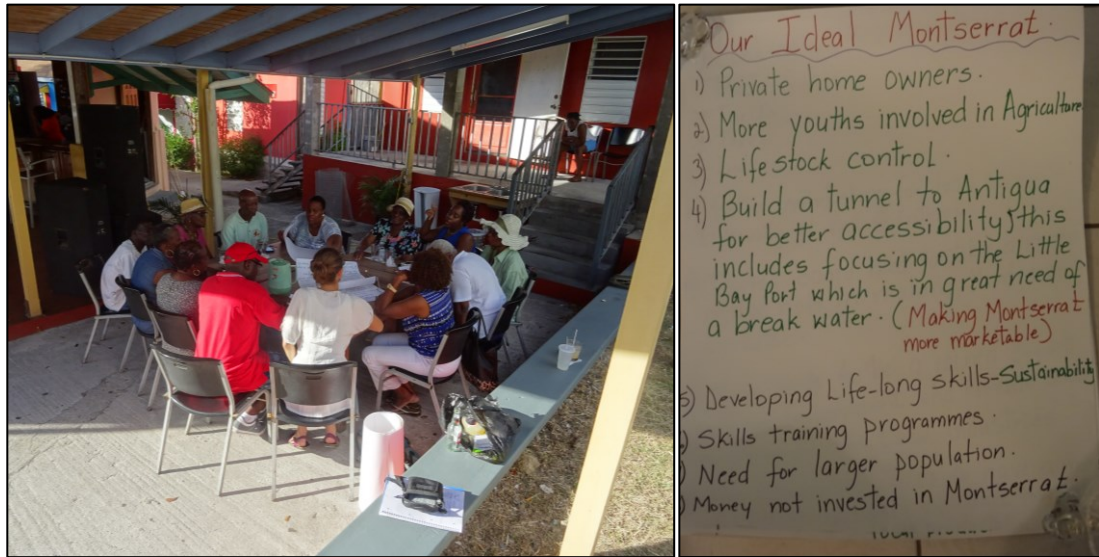
Figure 3.2: *FGD with the Montserratian group (on the left) (©David Bates, 2016) and note-taking by a participant during the activity (on the right)*

For all groups, it was also necessary to invite the participants through an intermediary, a person of trust and influence in the community. While for the Montserratians it was mainly to convince the participants of the interest of the activity, for the non-nationals it was more a matter of trust, anonymity and safety. Unfortunately, I did not find such a gate keeper for the Guyanese community, as those who could have done it refused, arguing it was not a good idea to organize such an activity. Therefore I had to make contact with the Guyanese that I met previously either during one-to-one interviews or informally in the street to convince them to come. A first attempt failed when only two people showed up out of ten that had confirmed they would come. The second attempt, one week later, was more successful, with four adults, including one male and a teenager, present. Considering the difficulty in organization, it was not possible to be selective in terms of gender, time of residence in Montserrat or socio-economic background. The organization of the FGD with the Jamaicans was easier as an

influential person helped me and contacted several people, paying attention to have a mixed group. Six people attended, including two women and people from different socio-economic backgrounds. Similarly, the Montserratian participants were contacted by an influential person, which allowed me to have a very diverse group of twelve people during the first meeting, and seven came back the second time.

The four FGDs were conducted quite differently each time, especially depending on the way they were organized. The downside of having an intermediary person to organize the FGD with the Jamaicans especially was that it made the discussion too formal and prevented the participants from being as disinhibited as they were in the other groups. The discussion actually started to become freer and more engaged after the official end when four of the participants and I were heading back home in the car of one of the participants. The more informal and relaxed atmosphere in the car encouraged people to pursue the discussion more freely. For all the FGDs, large A3 sheets of papers were offered to the participants so they could take notes of the major key points. The objective was to help the participants to keep focus, to go further on each point and provide a tangible outcome to the discussion. I let the participants decide who would write down the ideas. This process worked very well with the group of Montserratians as they were more familiar with this way of doing things. A teacher spontaneously took the initiative to note the ideas and it seemed helpful to encourage the participants to clarify and discuss each point as much as possible. In the Jamaican group, noting the ideas was a useful way to focus the discussion as well and to tackle different subjects. As the participants naturally tended to discuss the negative aspects of their experience in Montserrat and the problem encountered, they could visualize on paper that they were not looking at any of the positive. Once they became aware of this, by themselves, they started to discuss the positive aspects, their own assets or what had helped them in their lives on the island. The use of paper, however, seemed less natural for them and the notes were much briefer, irregular, than with the Montserratian group. Finally, the group of Guyanese did not use the paper at all. As with the two previous groups, as a facilitator, I did not force the participants to use it but just quickly suggested it. Unlike the two other groups who positively responded to the suggestion, the group of Guyanese hardly paid attention to it. Regarding the fact that the discussion was very emotional, the paper would have certainly been too constraining for them. It required me to ask regular questions to avoid the discussion going too

off topic, things that I almost did not have to do with the two other groups.

The four FGDs, especially the two with the Montserratians and the one with the Guyanese group, seemed to have a kind of therapeutic effect. At the end of the first FGD with the Montserratians, the participants asked of their own accord to organize a similar activity every week. They explained that they generally did not take the time to talk about the societal issues of Montserrat although they felt very concerned and felt they had to discuss them to improve the social situation of the country. The Guyanese participants expressed gratitude to me for having organized this opportunity to discuss. Among this last group, the therapeutic effect was particularly visible through the evolution of the activity. Although the participants tended to be shy at the beginning, rapidly when they became more confident, the discussion became much more active and frank. Their attitude and way of speaking made their actual feelings and emotions gradually more and more explicit. I had to end the discussion myself after more than two hours because it was starting to get very late and one of the participants had to go to work. The participants eventually thanked me for the organization of the FGD. Among the Jamaican groups, such therapeutic effect was not really visible. That may be due to the participants themselves, perhaps being less in need to express themselves or less confident speaking freely; or due to the more formal format of the FGD itself. The therapeutic effect is important to enable deeper discussion, in a more ethical way as the research benefits the participants themselves (Kitzinger, 1994; Munday, 2006).

While only brief notes were taken during the meetings, I had to spend several hours after each meeting to transcribe the main elements of the discussion, with as many details as possible. However, due to this late process and some unavoidable biases in the reinterpretation, some information may have been forgotten or slightly modified. Unless I mentioned it in the notes taken during the FGDs, it was difficult to remember who said what. Therefore the notes transcribe mainly the major ideas and the atmosphere of the discussion, the interactions between people and the evolution of the process as the discussion went on.

A major bias of the FGDs concerns the important group effect, especially when the discussion addresses sensitive topics. This may lead to potential exaggerations and lack of objectivity from the participants. The interaction as a group can lead to psychosocial factors affecting the eventual quality of the data (Carey & Smith, 1994). It has been found that those who have a different perception tend to repress and conform to the rest of the group (Asch,

1951 in Carey & Smith, 1994). Such effect perhaps happened during the FGDs conducted with the Montserratian group as there was a larger number of participants. In the other groups, the participants did not seem to hesitate to intervene and mark their disagreement.

3.3.3. *Ethnographic observation*

A large part of the fieldwork involved ethnographic observation, conducted in everyday life as I was living in Montserrat. Ethnographic observations were used during each fieldwork, for collecting data, and as a way to confirm the data collected through the other methods and to raise new questions. It enables the understanding of a process in its natural settings and therefore the nature of the interactions between different aspects of the phenomenon and their mutual influence. It also completes interviews and FGDs by enabling the comparison between what people say and what they do in actual life. Interviews for their part may help the understanding of observed processes in the light of specific explanations or additional elements given by the participants.

Ethnographic observation can be either structured, involving systematic observation using a specific list of pre-determined variables, or be unstructured, in other words done in a more open manner without pre-determined variables or goals. In both cases, it involves expended note taking during the time on the field. For this study, observation was conducted in an unstructured way during all acts of daily life on the field. Notes were taken regularly as soon as something was noticed. This involved direct notes or notes taken afterwards. It included notes of observation of events, attitudes and type of relationships.

The small size of the island and of its population was favourable to ethnographic observation, allowing me to take part rapidly in a large range of activities and therefore be able to observe and analyze. The question of access is essential to be able to conduct observation and determine what will be observed and how. Bryman (2004) distinguished overt and covert observation, covert being the fact of not disclosing the fact of being a researcher. Considering the small size of the population, it would not have been possible to hide this while conducting also interviews and focus group discussion. However while I did not hide my role, I also did not systematically reveal it. For instance a lot of observations were conducted in public places with a large number of people. While some may have been aware of the nature of my presence in Montserrat, most people may not have been fully aware of what I was doing. I also tended

to take notes after observing something and only rarely during the event itself and in front of people, keeping hidden the fact that I was observing. This was essentially in order not to make people uncomfortable and to perpetuate good relationships with people.

To be able to conduct extensive observation, I quickly tried to get involved in different activities. I became a volunteer at the Red Cross, taking part in regular meetings and activities conducted with the communities. Thanks to the help of the residents of Montserrat, I got involved in various social activities, such as various church services, barbecues, anniversaries and festivals. This raises some ethical questions however, as taking notes and observing confuse the roles of researcher and friend for many people, as I could not always make it clear that I was observing. Living on the field of my research meant that every single event in my daily life could become subject to reflection and observation. A friend once asked me whether I was analysing what he was saying after I explained to him the nature of the job of a researcher. He seemed to feel very uncomfortable with that. Therefore I decided not make it obvious, especially by not taking notes in the presence of other people, and by not asking authorization. Instead I made sure to keep the anonymity of people in order not to jeopardize them.

Observation, especially when conducted in an unstructured way, largely depends on the informants and the key people met, as well as on the researcher himself. For instance, among the Dominican (DR) community, as explained earlier, it was easier to meet the people attending Church thanks to an initial introduction by the community pastor. It was therefore not representative of the actual population. Proportionally, the Dominicans (DR) who did not go to Church weekly were more numerous than those involved at Church. My presence and who I am, or who I was perceived to be, also played an important role in my capacity to take part in different activities and hence to observe. I explained this later in my reflexive account, in part 4.2.

Moreover, observations include significant observer bias as the same event may be interpreted in very different ways depending on the observer, his culture, language, or objectives. Moreover, it may be difficult to assess what is worth being noted and analysed more carefully. For instance, an event can become noticeable and meaningful only if it is repeated and if this happens at particular moments or places. Therefore it may be possible to miss it if not enough time is spent in the field to be able to notice the repetition. A risk often highlighted by research is going native as a result of prolonged immersion, in other words, losing the ability to analyse events and social situations with social scientific lenses (Bryman,

2004). It is therefore necessary to keep the necessary distance, even while immersing yourself. Being in contact with different groups of people and therefore different perspectives has helped me to keep an analytical perspective. Daily or weekly synthesis of the latest observations and reflexions have also helped to keep a critical perspective and avoid going native (Delamont & Atkinson, 1995; Rossing & Scott, 2016). Overall, it is necessary to consider observations as a complement to other methods and to analyse and reinterpret them in the light of additional findings.

3.3.4. Data analysis

A total of 130 formal and informal interviews, four focus group discussions and several notebooks of observations generated a large amount of qualitative data. Unlike with the quantitative data, there were no straightforward and well-established rules for qualitative data analysis. I therefore decided to use a qualitative data analysis on a coding-based approach, similar to the approach used for grounded theory (Charmaz, 2015)

Coding qualitative data is a major step for conducting qualitative data. During and after the end of the second fieldwork, all interviews and notes were first transcribed into the qualitative analysis program NVivo, in order to enable a systematic identification of common themes and concepts. The process of coding constantly evolved throughout the analysis, corresponding overall to the three stages defined by Charmaz (2006) as the initial coding, the focused coding and the theoretical coding.

The first stage splits the data in a very detailed way and hence enables a first overview of the collected information. It is essentially a descriptive stage, used to name words and segments of data. I used very descriptive codes, such as "Guyanese", "child", "reason for immigration", "work". Sentences or parts of the interviews generally corresponded to several codes at the same time. A second, more focused stage, enabled the re-exploration of the most common codes and to categorize them into bigger groups, namely actors, local development/recovery, migration, relationship inter-communities, resources, risks/hazards, research methods. Each of these groups contains sub-categories with more specific codes explaining the data. For instance, within the category risks/hazards, we can find sub-codes such as DRR, exclusion zone, exposure, natural hazards, uncertainty, volcano impacts, vulnerability. Some of these groups are themselves divided into other sub-groups. I have also

sometimes added some comments in the properties of the nodes to specify what they include exactly since the name used was simple and quite generic.

This categorization fluctuated throughout the analysis. Most of it was conducted between the second season of fieldwork in 2016, dedicated mostly to the first data collection, and the third season of fieldwork in 2017. The stage of analysis enabled the identification of the types of data missing and that needed to be collected during the third season of fieldwork. Finally, the last stage of coding corresponds to the theoretical coding, as a way to make sense of the data and to bring theoretical coherence. It includes some codes such as social cohesion, lack of awareness, or risk perception.

During the whole process of coding, the elaboration of analytical memos supported the analysis by assessing the potential connections between the multiple categories and their properties (Saldaña, 2016). Moreover, some reports and documents other than the interview transcripts were coded in the same way to make the analysis easier. This was not possible for all the grey literature however as it would have taken too much time. All the documents, interviews and notes were also classified in different types of sources or "cases". The interviews for instance were divided into five cases, namely DRR agency, "expat", immigrants (with sub-groups specifying the nationality), Montserratians, policy-makers. The elaboration of summaries, reports and analysis was facilitated by the use of the functions of query on NVivo and the combination of different codes depending on the topics explored.

3.4. Verification of the results

3.4.1. Reliability and validity of results

Part of the ethical consideration during a research project is to ensure the trustworthiness of the results. Qualitative data has been highly criticized for a long time as it was not perceived as valid as quantitative data. In the 1950s-1960s, quantitative research was prioritized over qualitative research. According to Charmaz (2015, p.403) "quantitative researchers often viewed the inability of their qualitative colleagues to generate verifiable facts and replicable studies as evidence of lack of rigor". Guba & Lincoln (1994) insist therefore on the need to establish four points:

- the credibility of the research, that is the confidence in the "truth" of the findings,
- the transferability, or in other words the degree to which the results can be generalized

to a more universal population,

- The dependability. Contrary to the assumption of replicability tied to the traditional view of reliability of data, dependability emphasizes the need to take into consideration the specificities and the continuous change of the context where the study is conducted,

- The confirmability, that is the degree to which the results could be confirmed by others studies.

Lincoln & Guba (1985, p.213) present the credibility "in the eyes of the information sources" of the research as a major trustworthiness criterion. It was especially tested through the four presentations organized in Montserrat and London to the different stakeholders contributing to the post-disaster recovery of Montserrat. Each presentation was the opportunity to get approval, correction, disagreements and specifications. Considering the sensitivity of some topics tackled during the presentations, it was expected to at least observe reactions, if not verbal opposition, in the case of a disagreement. It was also important to have a diversified range of participants to prevent biases. Moreover, the time spent in the field, a total of nine months, gave the opportunity to discuss, informally or formally during an interview, with a large number of stakeholders, and hence has allowed me to regularly specify, correct and complete the previous assumptions. For that it was important to gather a representative sample of the population, with people from different communities and different sectors of the society, to confront the experiences and opinions, while confronting the information with other sources. Triangulation of data was particularly important as few statistical data exist on the country concerning the topic tackled by the research. Understanding the actual state of the post-disaster situation is essentially based on what people say and think, and is therefore very subject to opinion and prejudices. In addition to the triangulation of sources, triangulation has been conducted by combining research methods. Observation has completed interviews and vice-versa, enabling the clarification of potential misunderstandings. Governmental reports and statistical data have also enabled the cross-checking of the qualitative data.

The analysis of the data also can affect the credibility of the research. Denzin (1978) and Patton (1999) therefore recommend an analyst triangulation and theory triangulation in order to avoid bias of interpretations. The use of multiple framework of analysis and the

understanding of the data in the light of previous research has enabled the confrontation of different interpretations.

The transferability and the dependability of the results are recurrent questions when research is conducted through a specific case study. It matters therefore to identify what findings are specific to the particular case of Montserrat and what can be generalized. This is why a complete understanding of the post-disaster recovery and of the different interactions and influences has been necessary. The small size of Montserrat and of its population enables easier identification of which factors are at stake and influence specific phenomena, and therefore what is particular to Montserrat and what is a more general process. By analysing the case study in the light of more general theories and previous work done in other places, it becomes possible to theorize the study and draw conclusions from the specific case of Montserrat. Chapter 8 comes back in more details on the question of the relevance of this specific case for a broader understanding of the recovery processes.

Finally the confirmability of the study is ensured by using a research design, explained and justified by the specific needs of the study and of the context. Discussion with other researchers and comparison with previous studies enables the verification of the reliability of the methods. Conducting the reflexivity effort presented below is essential to raise awareness and inform about the potential biases in conducting research and what can influence the process and outcomes of the study. By being aware of the pitfalls, it has been possible to combine methods for triangulating data accordingly. It is important to consider these pitfalls if the study is to be reproducible. The methods have then to be adapted to the characteristics of the researcher. The work of data collection has been considered as achieved when the new interviews and observations stopped bringing new information or contradicting the initial conclusions, but seemed instead to confirm the outcomes of the study. However, it may be possible for a researcher very different from me, for instance an older black male researcher, to reach the same findings faster or using another combination of methods as he would face different challenges than the ones I faced as a young white female. This is what the reflexivity effort aims to highlight.

3.4.2. *Reflexive account*

It is essential to realize that the researcher cannot be neutral while he/she is conducting the study. The researcher, as an individual with his own background, experiences, standpoint, knowledge and assumptions, collects, interprets the data and constructs the knowledge in a specific way (Bishop & Shepherd, 2011; Bryman, 2004; Charmaz, 2015; Engward & Davis, 2015). It is therefore necessary to find strategies to step back from our own perceptions and prejudices. For this, as a researcher I have to understand what is susceptible to bias my analysis. Moreover, the researcher can affect the environment he/she is studying in several ways, by taking part in it. In order to understand how the researcher may have influenced the type of data, the researcher is committed to reflexivity. This means to identify, pay attention and document the role the researcher may have played during the different stages of the research. However, it is clear that a number of factors that may have influenced the interviews and observations can escape our awareness. We can also overestimate the role of our personality in the proceeding of an interview for instance. Indeed, we are not necessarily aware of everything that shapes our identity and participants' thoughts (Bishop & Shepherd, 2011). It is also impossible to establish an exhaustive list of all the factors at play, considering the fact that they may also be very different from one interview to another and at the different stages of the fieldwork and the data analysis.

Bishop and Shepherd (2011) recommend using narrative reconstruction in reflexivity to ensure honest and ethical research and to better understand the data collected and analysed. It is not possible to write here a reflexive account for each stage of the data collection and of the data analysis. However, it is possible to identify a number of factors that may have influenced my research to some degree.

While conducting my fieldwork on an Island of only 5,000 people, mainly black people, my presence in Montserrat could not be ignored. Being a young white woman immediately contributed to putting me in some specific categories. My role as a researcher became more widely known only later, although I was regularly confused with either a British volunteer working with youth groups or an ocean conservation group, or with Jehovah witnesses. This may have strongly, at least among certain parts of the population, influenced the way I was perceived and the type of attitude I was supposed to have. In both cases, it may have affected my credibility when interviewing certain people, especially people working in

the government. The fact that I was dressed in shorts and tee-shirts, in a pretty relaxed way, may have also contributed to a certain lack of credibility. Indeed traditionally in Montserrat titles and high levels of education are perceived as quite prestigious and are often associated with an adequate dress code and attitude, which I do not naturally have and could not adopt due to the hot temperature and the need to move a lot by foot in the sun. It was therefore difficult to make my research credible and to show the impacts it could have for Montserrat. It may have affected what people told me during the interviews, either making them less suspicious and perhaps more frank, or either by preventing them from going into more detail. To counterbalance this, I made sure not to use the word "student" when introducing myself but rather to say that I was a researcher. I tried during each interview to assess how the perception people had of me was altering the way the discussion was flowing and to adapt the way I was behaving or asking questions. The lack of credibility became less of an issue as people got to know me and my work, especially after half of the second fieldwork. Several participations on a national radio program helped make me better known. Indeed, the fact of having been invited by the person in charge of the program, a well respected and influential woman on the island, enabled me, I think, to be more credible and to introduce my research as important for Montserrat.

My skin colour, white, may also have played important role. Indeed I was often considered a British person, raising some suspicions regarding my links with the Department for International Development (DfID) and the British Government. I therefore had to make it very explicit that I had no link with the British government. My strong French accent could have helped to counterbalance my skin colour and hence decrease the level of suspicion that some may have had. However, it happened twice that I was reminded of the responsibility of the UK and France for slavery during interviews which were not focused on this topic. In these cases, it is clear that my origin and my skin colour contributed to categorize me as part of the "enemy", which made it difficult to build trust with the interviewees. However, despite making me feel uncomfortable, it is difficult to assess how the fact of seeing me as an adversary had an effect on the interview and whether it also affected other interviews where the topic was not mentioned as explicitly.

My gender associated to my age (mid-20s at the time of the interviews) on also clearly affected my relations with people, the type of relationships I was able to build and therefore

the groups I had access to for interview or observation. The relationship between women and men being much more sexualized in Montserrat, the ambiguity of relationships with men many times made it difficult to conduct interviews without putting myself in an uncomfortable situation. For instance, although I could perhaps had access to the Dominican (DR) community by going to the bars where they tend to gather during their free time, I did not feel safe, or at least comfortable, to do it as a young woman. It also made it difficult to maintain a trusting relationship with some men from each community as our intentions clearly differed. At the same time, my gender also made the relations with many females in the 20s-30s difficult. Building trust with them was often difficult and cold. I interpreted this as due to a relation of competition. Therefore, my contacts with women were much more formal and interviews had to be planned in advance. It was more difficult to conduct informal and repeated conversations with them than with men and to meet them in a friendlier place to discuss freely.

With the Dominican (DR) community, being a woman may have been an advantage. After a first meeting at their Church, where I was introduced by the Dominican (DR) pastor, I could quickly meet a few Dominican (DR) women again, directly at their house. Each time, the meetings were very friendly, rapidly looking more like a meeting with a friend than an interview. The type of relationship enabled me to meet these women several times and to access more private information, especially on some sensitive topics such as sex work and relations with employers. The fact of being a young woman, a non native-English speaker like them and speaking a bit of Spanish, enabled me to create an informal and friendly relationship that I would certainly not have been able to have if I had been a man or an older woman with a more formal look. However, this raises some ethical questions. Although it had been made clear that I was a researcher and meeting them initially for research purposes, I often felt that they forgot about that, or did not really understand the purpose of my work in Montserrat, and were rather talking to me in full confidence like a friend. Using what they told me as data and using our meetings essentially for collecting information, while they were seeing it as a meeting between friends appeared to me several times to be a breach of trust. I never took notes or recorded during these meetings in order to maintain a friendly and free atmosphere, but this also contributed to making them forget what I was there for. Once the relationship had settled in a very friendly and trusting way, it would have been rude and indelicate to remind them that I was actually there for research purposes. However, I made sure to keep all the information they gave me anonymous, especially as some information was very personal and

intimate.

While it may have been an asset with the Dominican (DR) community in the sense that it made me more equal to the people, the fact that I am not a native-English speaker made more difficult not onlysome of the interactions with the participants but also the data analysis. The exploratory fieldwork in 2015 in St Vincent and in Montserrat was the hardest as my pronunciation of English was not always clear enough and understanding the Caribbean accent was often challenging. While I could understand most of what people were saying, I could not necessarily assess the importance of the use of specific words and the specific meanings behind these choices. When the interviews where not recorded, it was difficult to remember exactly how quotations had been phrased. Moreover, it is clear that my questions, or at least some specific words, were not directly understood, especially during the first fieldwork. It sometimes forced me to reformulate the questions in a more direct way which may have led to specific answers despite this being exactly what I was trying to prevent. When it obviously happened and I was able to notice it immediately, I generally tried to check whether what had been said was confirmed by the rest of the interview or if it was clearly influenced by the way my question was either asked or understood and in contradiction with the rest of the interview. The difficulties in phrasing my questions and understanding the shades of meaning of the answers was exacerbated during the interviews of the Dominican (DR) community, where most people were speaking only in Spanish. Indeed while I was able to understand pretty easily, I had more difficulties speaking fluently and therefore in conducting an actual discussion. Therefore I encouraged them to speak and I picked up on some specific words to mark my interest rather than ask unclear questions which could have been easily misinterpreted. While it may have prevented me from exploring more deeply into some topics, the language issue may have allowed more agency to the interviewees to go in the directions which mattered most for them and to compensate for the potential biases I could have had.

Besides the role played by my appearance and my way of speaking, the way I conducted data collection and data analysis may have been influenced by my own sensitivity and assumptions. I am highly sensitive towards questions of discrimination, marginalization and segregation which may have been perceived during the interviews and in the way I interpreted the data, even though I have tried to be as neutral as possible. To compensate for my own subjectivity, I have focused a lot on trying to better understand the views and

perceptions of those who clearly did not share the same political and social views as me. I had to adjust my way of collecting and analysing data (Blee, 1998). I have forced myself to focus even more on the views I was not spontaneously sharing in order to better understand them and what motivated them. I also paid great attention to the way I was speaking with those with whom I clearly disagreed in order that my own sensitivity and opinions did not become explicit and hinder the interviews. I anticipated hearing some racist views and therefore I was mentally prepared to answer in a non-emotional way. However, the same sensitivity and the fact that I have a personal experience of being a foreigner where I lived helped me to become more familiar with the immigrant communities in Montserrat and perhaps to ask more sensitive or relevant questions.

Overall, the sensitivity of the subjects tackled forced me to be very careful about the way I addressed them and the way I introduced myself. I was initially introducing myself as working on the volcanic risk and noticed that it led to some negative reactions. Several people openly expressed boredom and irritation toward researchers interviewing them for many years always about the volcanic crisis. It was therefore necessary to find a way to make clear that I did not want to annoy them anymore with questions that they had been asked several times. However, making clear that I was working on the risks of natural hazards on the future in Montserrat did not make the discussion easier as it is clearly a subject that most people do not want to discuss or think about. During the first fieldwork and the beginning of the second one, a lack of sensitivity about these issues affected the interviews by raising irritation. I therefore had to adapt my way of speaking and gradually avoided speaking directly and first of all about the volcano. I had to find very indirect ways to tackle the topic and only if I felt talking about it would not affect the interview and cause the person to closeup. In such circumstances, it was very necessary to distinguish myself from the British government as the management of volcanic risk by the UK was often criticized. However, observing and analysing the type of reactions that people had when I asked naively about the volcano was very valuable in understanding how people deal with risks of disaster.

I demonstrated carelessness on a specific occasion, when I published an article online on the blog of the Migrants in Countries in Crisis, at the organization's request, on the 13th October 2017 (see Monteil, 2017). The article transcribed the story of a Jamaican woman, who migrated to Montserrat after the beginning of the volcanic eruption and contributed actively to the recovery process by working with the Red Cross. The blog post was mainly addressed to

an international public, not specifically to the Montserratians, in order to show the experiences of immigrants in a country recovering from a crisis, for the International Day of disaster risk reduction. It was published after I had finished all my fieldwork, while I was back in England. The publication faced some strong disapproval from several Montserratians who argued that the article was harmful and negative for their country. They also argued that it was not representative of the reality since it presented the story and point of view of only one person. A large part of the disapproval was also linked to the person presented in the article and reflected very personal issues. Some criticisms were related to my credibility of writing about Montserrat as an outsider. The reactions were sometimes very violent and emotional, for instance aggressive emails and discussions on social media and public meeting against the woman presented in the article. It also received some very positive reactions, especially from immigrants, albeit much more discreetly. Although the reactions confirmed some of the points addressed by the article and in my thesis, they also emphasized the necessity to be very careful in the way of presenting my research. This article could have affected the rapport of trust built up with at least a part of the Montserratian community. On the contrary, it could have also contributed to building trust with a part of the immigrants who could recognize themselves in the article. Because my fieldwork was already finished at the time of the publication, it did not affect my research. It will probably not affect other scientific research as it was seen as a very personal issue. However, it could have aggravated some tensions between immigrants and Montserratians if the subject had been talked about in the main media. It was decided not to talk about the article on the radio, as is often the case, in order to let the reactions calm down and prevent more long-term negative impacts.

3.5.   Conclusion

The aim of this chapter was to present and justify the methodology used during the study. It presents the use of interviews, focus-group discussions and ethnographic observation, through three field seasons, for collecting data on the recovery processes following a volcanic eruption, using the country of Montserrat as a case study. It particularly highlights the ethical needs that have shaped the data collection process. Indeed this research tackles several very sensitive topics, such as the risk of volcanic hazard in a crucial period of development and the issues linked to social cohesion and management of immigration. It was therefore necessary to constantly adapt the methods to address these topics without raising tensions and making

people closeup. Finally, a reflexive effort enabled me to understand the challenges that emerged especially during the data collection process but also for the reinterpretation of the data. It contribute to justifying the methodological choices throughout the research project. A more detailed presentation of the case study, Montserrat, in the next chapter, will also contribute to the set up of the context of this study.

CHAPTER 4

PRESENTATION OF MONTSERRAT

The research was conducted in Montserrat, a British Overseas Territory located in the Caribbean (Figure 4.1). The Island was affected by a series of natural hazards, including the hurricane Hugo in 1989 and fifteen years of eruption between 1995 and 2010. I outline here some major aspects of the context to understand better how changes are arising and what justified the decisions made for post-disaster recovery.

First of all I introduce the physical characteristics of Montserrat and point out the main natural hazards it is exposed to. I briefly present the two most recent disasters that have occurred in Montserrat, namely the hurricane Hugo in 1989 and the volcanic eruption from 1995 to 2010. I will then introduce the political, economic and social context of Montserrat, and for each sector, the major evolutions in the last 20 years. I finally show the evolution of the migration patterns in Montserrat and the socio-economic conditions of the immigrants.
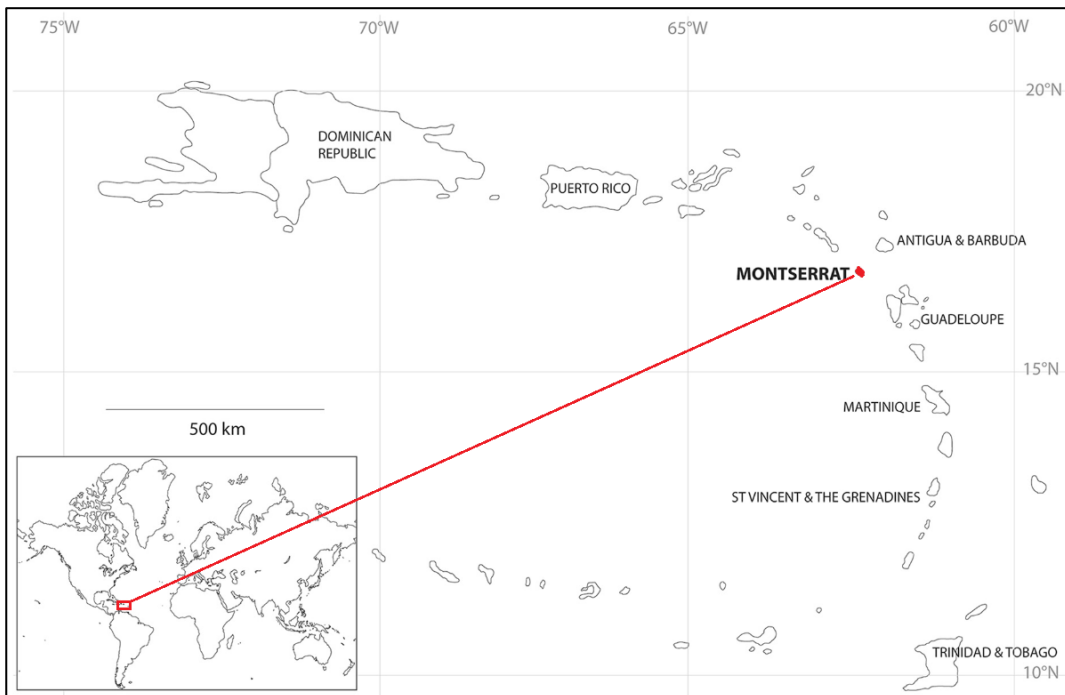
Figure 4.1: *Map of the Lesser Antilles, West Indies and location of Montserrat (adapted from Hicks & Few, 2015)*

4.1.   Physical context of Montserrat

The Island of Montserrat is located in the Leeward Islands in the eastern Caribbean. It covers an area of 102km², approximately 16kms long by 11kms wide. It is a volcanic island, geologically young, formed less than 50 million years ago, resulting from the subduction of the Atlantic plate plunging under the Caribbean plate. The mountainous island is composed of primary and reworked volcanic deposits. The island is composed of three main mountain massifs, which are related to three volcanic centres: the Soufrière Hills in the south, which also corresponds to the currently active volcano, the Centre Hills and the Silver Hills in the north. The Silver Hills were active between 2.6 and 1.2 million years ago, while the Centre Hills, more recent, were active between 950 and 550 thousand years ago. They are now extinct, eroded and covered by highly dense vegetation.

In terms of vegetation, about 71% of the island is secondary forest, including rain and moist forest, dry woodlands and cactus scrub (Possekel, 1999). There are major differences of vegetation between the different areas of the Island. Forest areas are mostly located on the Centre Hills, Soufrière Hills and on the western part of the islands, around Garibaldi Hill. The north of the island, including Silver Hills and the north-west coast, is much dryer, dominated by scrubs and dry vegetation woodland.

The distribution of the population is largely determined by the relief and type of vegetation all over the country. Moreover, the volcanic activity and the destruction of almost two-thirds of the island by lahars in the southern part has forced the population to limit its occupation to the drier north of the country only (Figure 4.2).

Volcanic hazard zones and distribution of population on Montserrat, 2011

- Pre-eruption settlements - abandoned or destroyed
- Existing settlements
- Soufriere Hills volcano
- Central Hills Forest Reserve

Population total
- 0
- 1 - 100
- 101 - 200
- 201 - 300
- 301 - 400
- 401 - 500
- 501 - 600
- 601 - 670

Hazard level	1	2	3	4	5
Typical activity	More than one year with no measured activity	No activity that threatens the north or west; Low measured activity	Mild activity that threatens the west; Significant change of measured activity; High measured activity	Lava extrusion that threatens the north or west; Large unstable dome to the north or west	Threat of large pyroclastic flows to the north and northwest; Threat of lateral blast or sector collapse
Zones A	Unrestricted	Unrestricted	Unrestricted	Unrestricted	Controlled access
B	Unrestricted	Unrestricted	Unrestricted	Controlled access	Controlled access
C	Unrestricted	Daytime access	Controlled access	Controlled access	Essential workers
F	Unrestricted	Daytime access	Daytime access	Controlled access	Controlled access
V	Daytime access	Essential workers	Essential workers	Essential workers	Essential workers
Maritime exclusion zones W	Unrestricted	Daytime access	Daytime access	Essential workers	Essential workers
E	Unrestricted	Essential workers	Essential workers	Essential workers	Essential workers

Access Restrictions

Unrestricted – Ashfall and lahars can be significant hazards in all areas and require appropriate cautions

Daytime access – Access is permitted from 8:00 am until 4:00 pm. Access gates will be locked at all other times

Daytime access to some areas – Areas will be defined depending on the state and location of the volcanic activity

Daytime transit – Boats permitted to travel through the MEZ without stopping from 6:30 am to 5:30 pm

Controlled access – No access without approval from NDPRAC. Approval considered on a case-by-case basis. Gates will be locked at all times

Essential workers – No access apart from MVO and associated staff. Access for essential maintenance work only with approval from NDPRAC. Gates will be locked at all times

(Severe weather – Hazard level or access restrictions may be changed for severe weather such as unusually high rainfall, storms or hurricanes)

Map labels: Davy Hill, Gerald's, Brades, St. John's, St. Peter's, Salem, Olde Town, Cork Hill, Richmond, Gages, Plymouth, Kinsale, St. Patrick's, Morris, Trant's, Bethel, Harris, Tuitt's, Long Ground, A, B, C, F, V, W, E

0 1 2 3 4 5 km

Figure 4.2: *map of Montserrat showing the distribution of the population and the volcanic hazard zones (Wilkinson, 2013)*

4.1.1. An island highly exposed to natural hazards

The location and geophysical context of Montserrat make it highly prone to a large range of hazards, including volcanic hazards, hurricanes, tsunamis, tropical storms, landslides, flooding and droughts mainly. Although a dependency of the UK, Montserrat is classified as a Small Island Developing State (SIDS) as it has limited resources and is very vulnerable to environmental hazards. A series of climatic and geological events have been a constraint for the development of the Island and its efforts for economic independence and autonomy (Clay et al., 1999; Mitchell, 2006; Possekel, 1999; Smith Warner International, 2003; Wilson, 2010). The table summarizes the main hazards and disasters that have been recorded in Montserrat in the last centuries.

Type of hazard	Date	Extend of damages and casualties
Hurricane	1667	
Flood	24/12/1672	Marginal damage
Earthquake	1672	Marginal damage
Hurricane	1737	Severe damage due to associated flooding
Hurricane	1740	Harvest destroyed
Hurricane	1744	Harvest destroyed
Hurricane	1766	Many deaths and injuries, hundreds of housing damage and half of Plymouth destroyed
Flood	1767	Some deaths, bridges and street damage and some houses flooded
Hurricane	1772	Harvest and houses destroyed
Hurricane	1792	Minor damage to the harvest
Hurricane	16/09/1816	Harvest completely destroyed
Earthquake	08/02/1843	6 deaths with complete devastation of all infrastructures
Hurricane	07/08/1899	100 deaths, 1.000 people injured, 9.000 people homeless, severe devastation all over the island
Hurricane	28/08/1924	36 deaths, many injuries, 5.000 people homeless. Damage to houses, infrastructures and harvest estimated at £100,000
Hurricane	12/09/1928	42 deaths, 100 injuries, 1,000 people homeless. Severe damage on houses and infrastructures, estimated at more than £150,000, especially in Plymouth. 600 houses totally destroyed
Hurricane	1933	Minor damage
Hurricane	1966	Minor damage
Earthquake	16/03/1985	6.6 on Richter scale, damage to houses
Hurricane	17/09/1989	10 deaths, extensive damage to infrastructures and houses (90% damage) (Markham & Fergus, 1989; NEMA, 1989; Possekel, 1999)
Volcanic eruptions	1995-cont	Extensive damage and complete destruction of Plymouth. 19 deaths (Hicks & Few, 2015; Meade, 2006; Pattullo, 2000; Possekel, 1999; Sword-Daniels et al., 2014; Sword-Daniels, Twigg, Rossetto, & Johnston, 2016)
Hurricane	09/2017	Minor damage

Table 4.1: *Timeline of the main hazards and disasters recorded in Montserrat from 1667 to 2017 (adapted from Possekel, 1999)*

After more than 300 years of dormancy, the Soufrière Hills volcano first erupted on the 18th July 1995. Series of eruptions the occurred between 1995 and 2010. In 2017, the volcano was still considered active but there has been no magmatic extrusion since 2010 (Stinton et al., 2016). The Soufrière Hills volcano is a typical strato-volcano of subduction zone, erupting highly viscous crystal-rich andesitic magma. This high viscosity magma has the capacity to erupt both passively as a lava dome and also to generate overpressures significant enough to generate explosions. Typically, as the magma reaches the surface, it creates a dome. Pyroclastic density currents are generated either when this dome collapses or during explosive eruption. Such flows are composed of fragments of magma, including ash and pumice. They move at high speed, between 100 and 700km/h, following valleys typically. In Montserrat, they have been recorded at temperatures ranging from 130 to 650ºC (Calder et al., 1999). Several pyroclastic flows were recorded in Montserrat between 1995 and 2010. In 1999, some flows were recorded to have travelled up to 6kms (Calder et al., 1999). On the 26 December 1997, a pyroclastic flow produced by the collapse of the dome and of the south-western flank of the volcano, devastated 10km², with its accompanying surge, (Calder et al., 1999). This was limited to the southern part of the Island (Figure 4.3), now identified as zone V and potentially C of the Hazard Level System (MVO, DMCA, & GoM, 2011) (Figure 4.2).
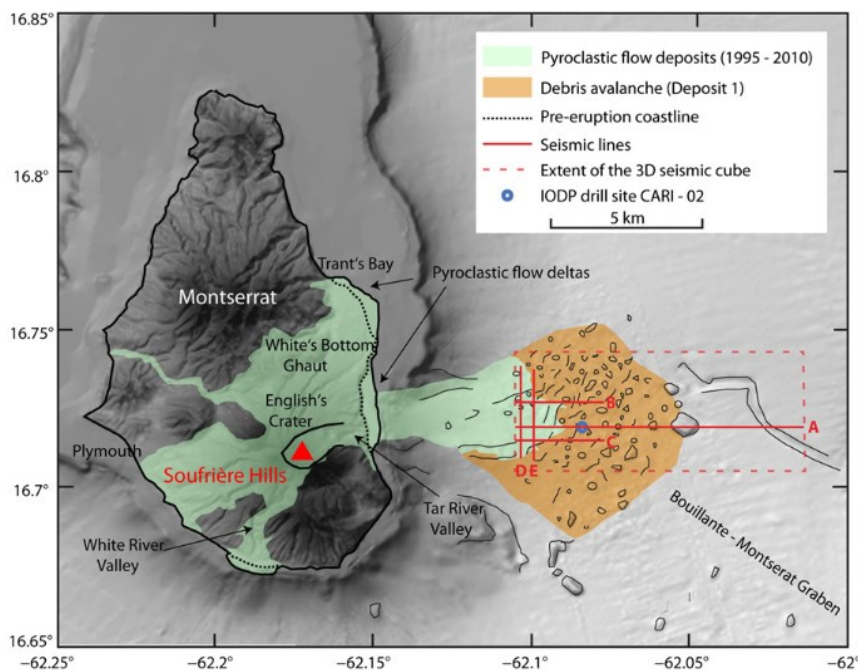
Figure 4.3: *Map of Montserrat showing: submarine and subaerial (based on NASA satellite photography) pyroclastic flow distribution and debris avalanche Deposit 1 (Karstens et al., 2013)*

These also produced ash falls between 1995 and 2010. They were produced mainly during the phases of dome building and collapse, and during the explosions themselves. They are also generated by pyroclastic flows (Horwell & Baxter, 2006). Ash is made of fine particles of volcanic rock, less than 4millimetres in diameter and is produced during phreatic eruptions, pyroclastic flows and explosions. Respirable ashes are particles of less than 10 microns in diameter (SAC, 2013). Some studies showed their toxicity for human health, with a significant risk of developing chronic and acute diseases for the most exposed populations, in particular children and outdoor workers (Horwell & Baxter, 2006). The map below (Figure 4.4) shows the thickness of ash deposited on different parts of the island during the eruption cumulated between 1995 and 1999 (Searl, Nicholl, & Baxter, 2002). In the western part of the country, up to 15cms of ash were deposited (Searl et al., 2002; Wilson, 2010). The prevailing winds generally force ash to fall to the west and north-west of the volcano.
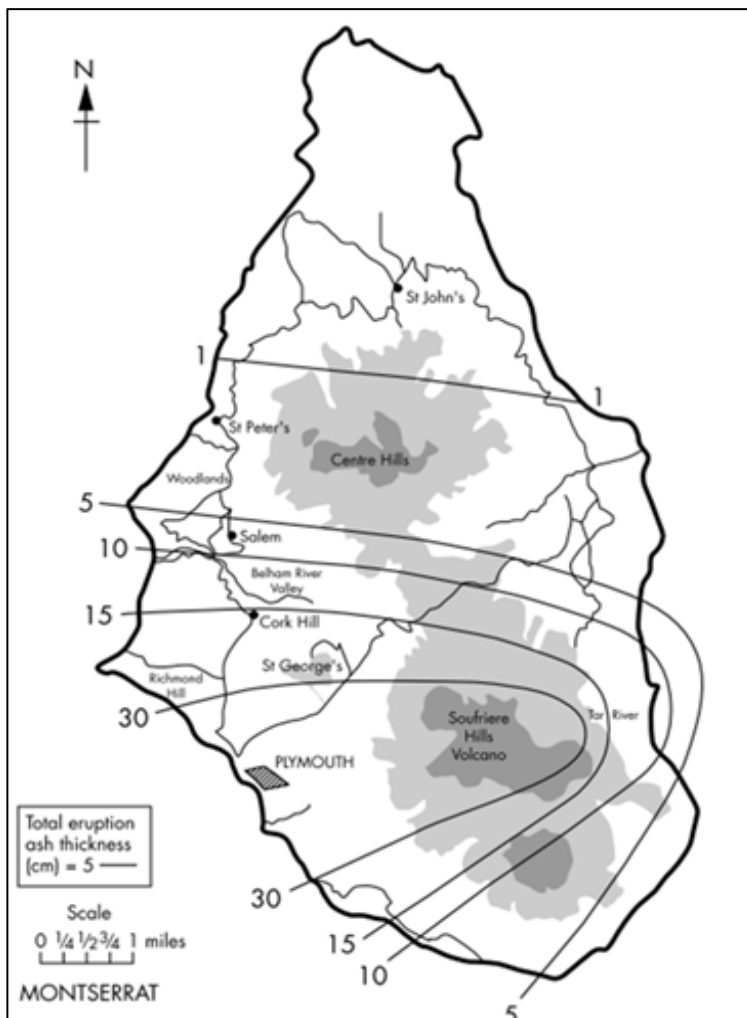
Figure 4.4: Map of Montserrat showing the thickness of ash deposited over the island between 1995 and 1999 (Searl et al., 2002)

In addition to pyroclastic flows and ash falls, lahars constitute a major hazard in Montserrat. The Indonesian term "lahar" describes flows composed of a mixture of loose

volcanic debris and water (Barclay, Alexander, & Susnik, 2007). They can therefore occur for months to years after an eruption as long as volcanic debris remains when heavy rainfalls occur. They encompass a range of sediment-laden flow, highly concentrated flows and dilute stream flows. They can be very hazardous and can destabilize or destroy infrastructures, or even bury them. In Montserrat, they are solely the consequence of rainfalls on loose volcanic material deposited in the Belham catchment and ash over the island. The main lahars occur in the Belham River Valley, in the western part of the volcano and continue to pose a significant hazard even if the volcanic activity has remained quiet since 2010 (Figure 4.5). By burying the Belham River Valley, the lahars make the crossing more complicated between the safe zone in the north of the valley and the south, for a long time a "Daytime Entry Zone" only. It can be hazardous for those who regularly need to cross it, including farmers, workers, the residents of Garibaldi Hill in the south of Zone B and tourists (Barclay et al, 2007).
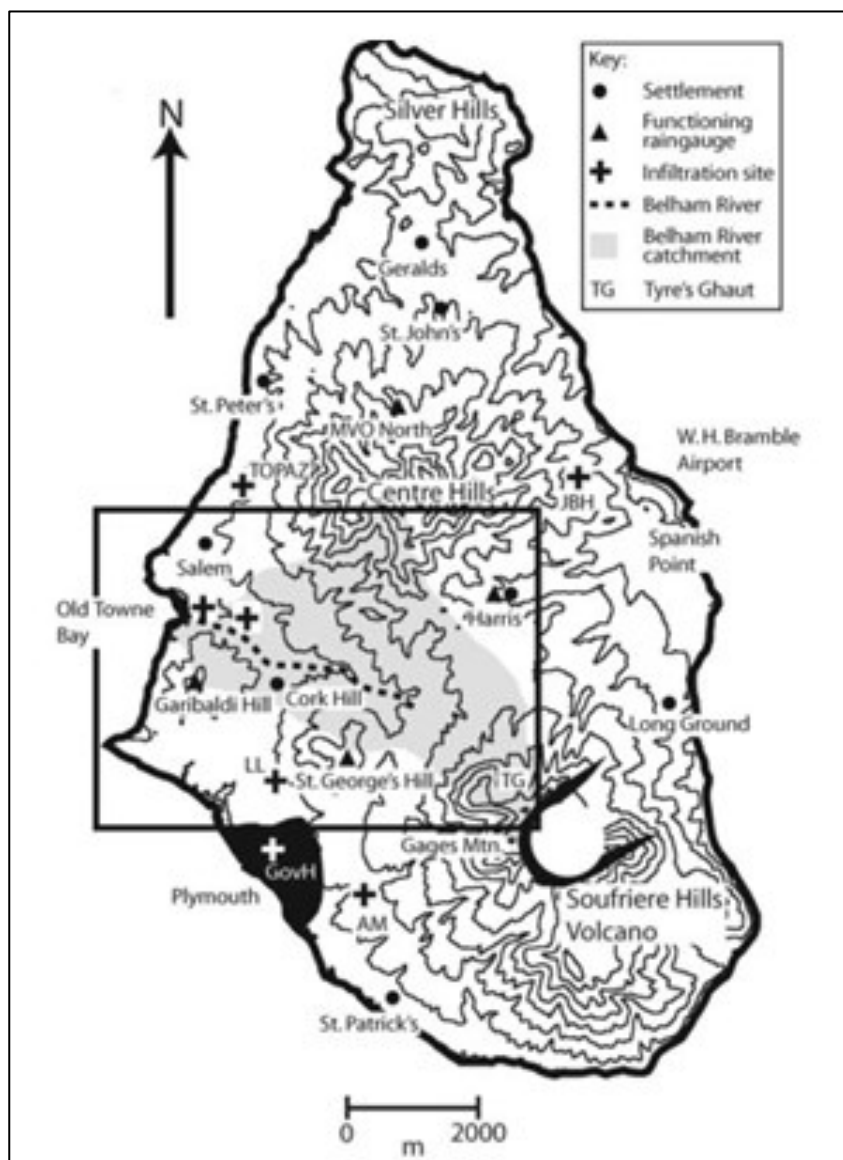
Figure 4.5: Location of the rain gauges in the Belham Valley in Montserrat (Barclay et al., 2007)

4.1.1.2.   Climatic hazards

Like the other Leeward Islands, Montserrat is exposed to the Trade Winds, which flow mainly from the east to south-east, creating a predominant wind direction. Intense storms may generate storm surge and then severe flooding of coastal areas. The north-western part of Montserrat is the most vulnerable to those winds. Yellow Hole, to the north-east of Montserrat, Isles Bay to the west and to a lesser extent Little Bay and Carr's Bay, to the north-west, are particularly vulnerable to storm surges (Smith Warner International, 2003). In addition to these events, hurricanes often affect the island sometimes with very serious damage. In the recorded history, 41 hurricanes have been noted, with eighteen "great storms" that caused major damage and deaths. In 1899, the whole island was devastated, with about a hundred people killed, 1000 people injured and 9000 people homeless. The last major hurricane, Hugo, occurred in 1989. It was one of the strongest hurricanes that occurred in the Caribbean during the 20th century. 90% of houses were destroyed, eleven people killed, 40 injured and more than 3,000 were left homeless. Later, several hurricanes, like Luis and Marilyn in August and September 1995, occurred while the volcano was erupting. They did not cause major damage however, except for the destruction of the tents erected for the evacuated Montserratians (Possekel, 1999).

Other climatic hazards besides hurricanes are less well documented but regularly affect the island, inducing minor damage but creating regular costs. Some of them, like hurricanes, flooding and drought, are directly linked to extreme weather events and therefore susceptible to increase with climate change (Caribbean Development Bank, 2012; Food and Agriculture Organization of the United Nations, 2016). A change in rainfall seasonality is expected as a consequence of climate change (Caribbean Development Bank, 2012). Heavy rainfalls can lead to various risks of disaster, including flooding and landslides. Inland flooding occurs mainly in the flat areas, especially the coastal reclamations or natural ponds, in times of heavy rain. They may be enhanced by natural or artificial drains such as natural embankments or roads (Smith Warner International, 2003). The risk remains limited, however, due to the mountainous topography of the Island. Landslides correspond to gravitational movements of rocks or soil down slopes. They are either natural, mostly generated by heavy rain, or as a consequence of deforestation or construction of roads in particular. Even though Montserrat is very prone to landslides due to its physical characteristics, no major damage due to landslides was recorded (Smith Warner International, 2003). However, the increasing number of

constructions on steep slopes due to the limited availability of land reinforces the risk of damage due to landslides. Parts of the population also express a concern for the vulnerability of the inhabitants living on such slopes, especially when they are immigrants, and therefore do not necessarily have the adequate knowledge and awareness of the risk of landslide.

Extreme weather events can also be responsible for the generation of droughts in the Caribbean, and hence dramatically affect agriculture. Climate change is a major concern for the whole Caribbean region. The IPCC in its Fourth Assessment Report projects that there is a 90% chance that temperatures will increase up to 2 to 2.5°C in the Caribbean region and a decrease of annual precipitation of 5 to 15%, particularly marked during the dry season from June to August (Food and Agriculture Organization of the United Nations, 2016). Recent major droughts have been recorded in the Caribbean, especially in years with El Nino events, in 1957, 1968, 1976-77, 1986-1987, 1991, 1994, 1997-1998, and 2009-2010 (Food and Agriculture Organization of the United Nations, 2016). In 2015, Montserrat also reported having suffered from an important drought. Although the availability of drinkable water is not seen as a concern for Montserrat, droughts may strongly affect agriculture either in Montserrat itself or in the neighbouring Islands that are in charge of providing food to Montserrat.

4.1.1.3. *Geological hazards*

The location of the Caribbean region on a subduction zone also leads to risk of geological hazards. The whole Caribbean region recorded frequent earthquakes during the last century, with events during the 1890s, 1930s and 1960s. Most events were minor and did not cause any damage. However, in 1843 in Montserrat, six deaths and much damage was recorded and in 1985, some houses were damaged by a 6.6 earthquake. Most of the recorded earthquakes have been assimilated to failed eruptions (Smith Warner International, 2003; Wilson, 2010).

Even if there were no major tsunamis recorded in Montserrat, it has been assessed that the risk is also present (GoM, 2011b). Tsunamis are generally due to tectonic displacements, landslides or underwater explosions. Montserrat experienced two minor tsunamis, in 1867 and in 1997. The latter was due to the collapse of a flank of a volcano, during the so called "Boxing Day collapse", but did not cause major damage. However, the risk remains limited as only few infrastructures and dwellings are located on coastal areas. After the relocation of the population into the north of the Island, only Little Bay is assessed as exposed to the risk of tsunami (GoM,

2011b).

4.1.2. Recent history of disasters in Montserrat

In recent history, two major disasters have affected the development of Montserrat in the long-term. Hurricane Hugo hit the island on the 16th September 1989 and caused major damage, with 98% of houses affected, including 20% completely destroyed. The main infrastructures were also impaired and eleven people were killed. A few years later, while the island was recovering and rebuilding, the Soufriere Hill Volcano erupted after about three hundred years of dormancy. A scientific report dated in 1987 warned that the volcano was still active. It says, "Soufriere Hills Volcano, although only moderately active in the geological past, poses a considerable potential threat to the inhabitants of southern Montserrat. With no previous experience to rely on, the Montserrat government authorities need to have a full assessment of possible hazards from the next eruption" (Wadge & Isaacs, 1988, p.545). However, this report was largely ignored by the policy-makers and all major infrastructures were rebuilt in the south of the country, the most exposed area. The volcano became active in 1995 and has gone through five major phases in its activity between 1995 and 2010, leading to the need of re-assessing the risk constantly.

It has caused major damage in the very long-term. Large-scale evacuations from the inhabited areas surrounding the volcano were processed. The capital city, Plymouth, and the whole of the south and east were permanently evacuated in April 1996 after several short-term evacuations. One year after, on the 25 June 1997, the exclusion zone was extended and the village of Cork Hill was permanently evacuated. On the same day, 19 people were killed by pyroclastic flows while they were working in the exclusion zone. Salem, located in the north of Belham Valley, was also evacuated in August and September 1997 as the volcanic activity was consistently high. The photos below show what Plymouth was like before its total destruction by pyroclastic flows in 1997 and now (Figure 4.6).

The most productive arable lands in the eastern and southern part of the island have been covered by ashes and pyroclastic flows and most of the major infrastructures, including the airport, have been destroyed. The majority of the population and most of the infrastructures have been permanently relocated into the north part of the country, safer but more rural and under-developed. By early 1998, almost 75% of the total population had emigrated mainly to

the UK or other Caribbean islands. The economy has been massively affected, with a 44% decline in the real GDP between 1994 and 1997 (Pattullo, 2000; Possekel, 1999; Searl et al., 2002; Sword-Daniels et al., 2014). The British Government now supports the economy by providing about 60% of the national budget through the Department for International Development (DfID), and more than £350 million between 1995 and 2012 (Sword-Daniels et al., 2014).

From 1999, the rules regarding the exclusion zone were relaxed, enabling a day-time entry into the Western part of the Island, including Isles Bay, Fox's Bay, Cork Hill and Richmond Hill. Since 2011, the area is open any time, under some conditions related to volcanic activity (Figure 4.7). Although some residents, in particular expatriates, have reoccupied villas on Isles Bay and Garibaldi Hills, utilities have not been restored there and banks and insurance still do not cover the residents.

Figure 4.6: *Aerial photos of Plymouth before and after its destruction. Above: Plymouth in 1997, before its destruction by pyroclastic flows (©Barry Lewis in Schuessler, 2016). Below: in 2017 (©Charlotte Monteil, 2016)*
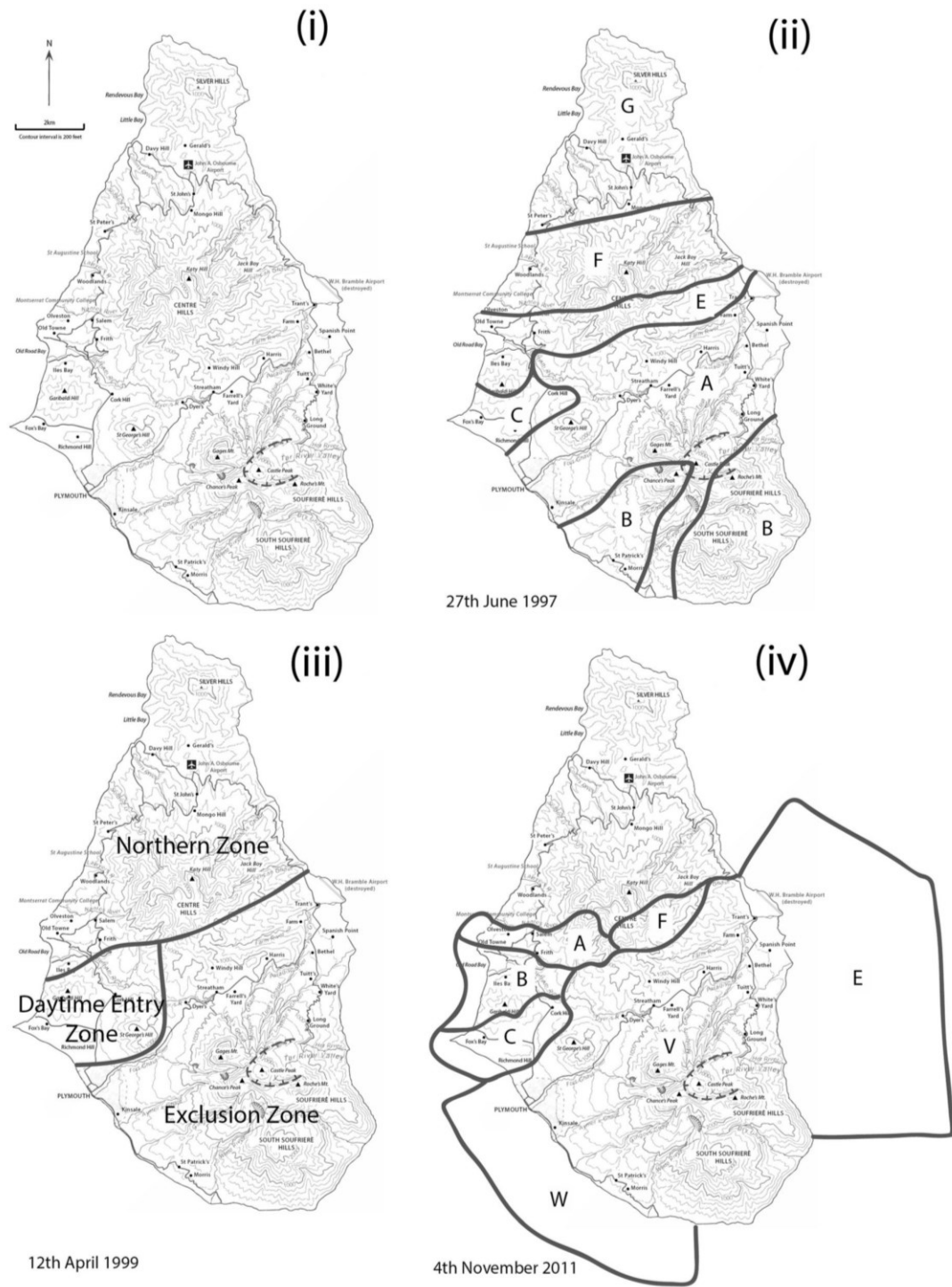
Figure 4.7: *Maps of Montserrat showing major revisions of the Volcanic Hazard Map over time. Map (ii) is one of several revised maps showing the microzonation of Montserrat into seven hazard zones (A-G) in 1997, with access depending on the hazard level. Access to some of these zones, particularly A and B, depended on the alert. Map (iii) shows the three broad zones which replaced microzonation. Map (iv) was implemented in August 2008 in response to the new hazard level system established by the MVO. All maps have been redrawn from the original Montserrat Volcano Observatory maps (Hicks & Few, 2015).*

The timeline and overall impacts of these two disasters have largely been discussed in literature (Possekel, 1999; Rozdilsky, 2001; Sword-Daniels et al., 2014). The objective of this study is to go further in the analysis of the direct impacts of the disaster, in order to analyse and understand the decisions made for long-term post-disaster recovery and the implications for sustainable development and resilience.

4.1.3. *Stakeholders of risk management*

Different actors are in charge of disaster management in Montserrat. The Disaster Management Coordination Agency (DMCA) is a major Government agency in charge of organising preparedness, emergency planning and response, contingency and recovery after disasters. It is also in charge of establishing a comprehensive disaster management plan and of ensuring that all departments and actors of DRR carry out the tasks they are assigned. It coordinates the different actions during all stages of the disaster management and hence works closely with the different government bodies, with the Premier, the Governor and the Deputy Governor. It also cooperates with the Red Cross. At the local level, disaster committees are organized to represent the population of each neighbourhood and village and transfer the information from the population to the DMCA and vice-versa. The Royal Montserrat Defense Force, the Montserrat Fire Service and the Royal Montserrat Police Service are in charge of the Emergency Response.

The DMCA is supported by the Caribbean Disaster Emergency Management Agency (CDEMA), a regional intergovernmental agency for disaster management in the CARICOM. The agency, initially established in 1991, had focused essentially on emergency response and relief. It has now expanded its tasks to include a more comprehensive disaster management, including preparedness, hazards mitigation, and vulnerability assessment. It provides assistance to its member countries after major hazards and disasters.

The Montserrat branch of the British Red Cross Society also plays an important role in disaster management by supporting local projects of preparedness, capacity development and vulnerability reduction. Although its activities are more diversified, it has a special focus on disaster risk reduction. It employs a small team dedicated to DRR activities. It is supported by a disaster committee composed mainly of volunteers. Some play a role of mediator by representing specific areas of the country and communicating about the specific needs of these

zones. Volunteers are consigned to different tasks including vulnerability assessment, emergency response and relief to disaster.

In terms of monitoring volcanic hazards, the Montserrat Volcano Observatory plays the major role. It is a statutory body of the Government of Montserrat and managed, under contract, by the Seismic Research Unit of the University of the West Indies. It is in charge of scientific advice and works closely with the Government to decide on the preparedness measures which should be adopted in case of volcanic hazards and on the control of the exclusion zones. In addition to the permanent staff, the Scientific Advisory Committee, composed of a team of international scientists, reports every six months on the evolution of the volcano. It informs the government about the volcanic activity and provides educational outreach programs to the students and residents of Montserrat.

Hurricane Hugo in 1986 and the volcanic crisis since 1995 have induced a lot of social and political changes in the country. The recovery process following the disasters is not only linked to the physical impacts of these two events but also to the socio-economic and political situation of Montserrat.

4.2.   Political context of Montserrat

The political context of Montserrat is relatively atypical as a consequence of being one of the five British Overseas Territories. Formerly a Crown Colony, it became self-governing in 1967 after receiving the status of a dependent territory with a double system of governance. The British Monarch is the Head of State of Montserrat according to the constitution of 1898, and is locally represented by the Governor. The status of British Overseas Territory induces the "self-determination for the territories", "mutual obligations and responsibilities", "freedom for territories to run their own affaires to the greatest degree possible", and "Britain's firm commitment to promote economic development in the Territories and to help them in emergencies" (Skinner, 2002, p.303). In addition, the British government has the obligation of promoting self-government in its dependency, as it signed the UN Charter (United Nations, 1980, pp.37-38 in Skinner, 2002).

The local government is democratically elected and organized on the Westminster Parliamentary model. It is autonomous regarding the regular decision-making and planning,

related to social and economic policy. It comprises a Legislative Council, the highest legislative body of the country, composed of nine members elected for five years, and an executive council. The latter is presided over by the Governor, the Chief Minister, himself designed by the Governor, three ministers, two ex-officio members, seven elected members and two nominated members. It receives budget support from the UK to conduct its policies (Wilkinson, 2015) and take charge of inner affairs including internal security and defence.

The Governor is in charge of external affairs, defence and inner security, judiciary, administration of the public sector and control of offshore financial sector (Possekel, 1999). The central government is also in charge of the emergency management functions if it is beyond the capacities of the local government. In pre and post-disaster period, most decisions and actions are expected to be taken by the local government. The UK has also a strong influence on the law in Montserrat, closely linked to British Common Law. The status of British Overseas Territory makes Montserrat strongly influenced and dependent on British decisions and political context. Major political and economic change in the UK therefore may have major impacts on Montserrat. Brexit, for instance, is expected to limit the source of funding and the economic opportunities of the Caribbean region (Humphrey, 2016).

Montserrat is also strongly linked to the other Caribbean countries through its membership of the Organisation of the Eastern Caribbean States (OECS) and the Caribbean Economic Community (CARICOM). It joined the OECS as a founding member in 1981. The OECS is an international inter-governmental organization, which comprises ten members including Antigua and Barbuda, St. Kitts and Nevis, Montserrat, Anguilla, the British Virgin Islands, Dominica, St. Lucia, St. Vincent and the Grenadines and Grenada and Martinique. It aims to create economic partnerships and exchanges, to protect human and legal rights and to support good governance among the independent and non-independent countries in the eastern Caribbean. It recognizes the challenges of the SIDS to face the rapidly changing international economic environment, and aims to support them through a joint or coordinated effort both in terms of economic and social advancement. For instance, a building code has been developed by the OECS, with the support of the UNDP, in order to support its member countries to respond and adapt to the natural hazards (GoM, 2015). The Eastern Caribbean Central Bank is a major institution of the OECS, that helps to regulate and control the EC$, the common currency of its full member states (Possekel, 1999).

The country has been a member of the CARICOM since the 1st May 1974. It enables functional cooperation between its members, with a focus on four main aspects, namely the economic integration, foreign policy coordination, human and social development, and security. Part of the actions of the CARICOM are, for instance, the creation of a single market and economy between its members to support their economic growth and development. It also facilitates the migration between the citizens of its States members. For instance, it is not necessary to get a work permit when migrating to another CARICOM member for employment. Citizens of CARICOM countries are also allowed to vote after 3 years of residency in Montserrat. Montserrat also benefits from other sources of funding, including the European Union, the Pan American Health Organization and the UNDP.

The political context of Montserrat at the time of this research was marked by two main parties, namely the People's Democratic Movement, led by Donaldson Romeo, the current Prime Minister, and the Movement for Change and Prosperity, led until 2016 by Reuben Meade. The Alliance of Independent Candidates also participated in the elections of 2014. The political context of Montserrat is characteristic of the micro-States by generating a close proximity between the politicians and the population. The role played by individuals is often of greater importance in the votes for elections than the political orientations of the different parties. The close family and friendship ties strongly shape the formation of opinion and the result of elections. In 2016-2017, the government started to face important public disapprobation because of the perceived lack of progress in the country and the perceived growing dependency of Montserrat on British decisions. The instability of the Government was marked, for instance, by the firing from the Government of Minister Claude Hogan in September 2017 by the Premier.

4.3. Economic context of Montserrat

The economy of Montserrat has slowly expanded over the last century. While during the 20th century, the economy was dominated by the agricultural sector, especially cotton production, it has shifted from the 1960s to a service-oriented economy, based mainly on tourism, light industry and construction. This transformation contributed to a noticeable economic growth during the 1970s and 1980s (Berleant-Schiller & Pulsipher, 1986; Possekel,

1999). In 1981, British budgetary aid ended and development aid became limited to capital projects and technical assistance. The country showed a good level of development in the 1980s and a vibrant economy. In 1989, GDP per capita was US$ 4,000, and standards of health, education and housing were relatively high compared to the rest of the Caribbean (Clay et al., 1999).

However, the economy, demography and social context were highly disturbed by a series of natural hazards, especially the hurricane Hugo in 1989 and the volcanic eruption between 1995 and 2010. The economy recovered rapidly after the hurricane Hugo, thanks to the support of Great Britain, with an average yearly growth of 4.8% in (Sword-Daniels et al., 2014) and 5.26% in 1995 (Greenaway, 2003). However, the economy considerably suffered following the volcanic eruption. Between 1994 and 1997, the real GDP dropped by 44% (Sword-Daniels et al., 2014) (Figure 4.8). Most of the island's physical infrastructures and facilities, namely administrative, commercial and industrial, were affected by the eruption. In June 1997, the airport was closed then destroyed by pyroclastic flows. A new airport was built in the Safe zone, in the northern part of the island, in 2005. A new calm water harbour was built in Little Bay and a new capital city is still in project in that same area (Riley, 2009). In addition, most of the most arable lands, located in the south and east of the island, were destroyed, affecting considerably the agricultural production. While the Island exported food before 1995, it is now largely dependent on imports from neighbouring Caribbean countries. It may therefore be strongly affected by any decrease in the production abroad.
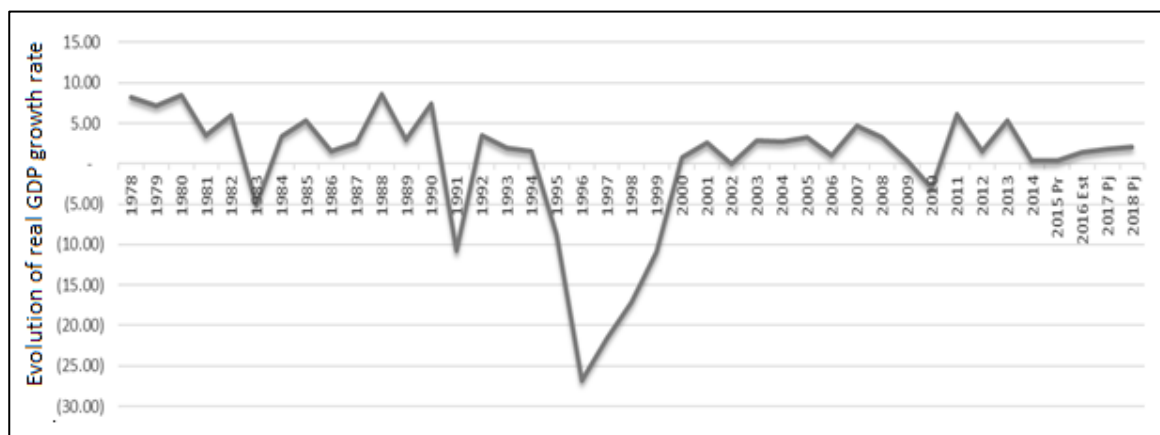
Figure 4.8: *Evolution of the real GDP growth rate of Montserrat from 1978 to 2018 (source: Eastern Caribbean Central Bank, 2017)*

The real estate market collapsed while the insurance industry could not cope and let businesses and landowners cope by themselves. The economy became increasingly dependent on government spending, on private investments (Cassell-Sealy, 2003) and on British aids (Greenaway, 2003). The public sector now largely dominates the economy, being the main employer of the country. The situation is similar to what is observed in many small economies and generally in the Caribbean countries (The Economist Intelligence Unit, 2015). It remains very challenging to reinforce the private sector despite this being a major objective of the Sustainable Development Plan 2008-2020 (GoM, 2010). In the early stage of the post-disaster periods, the construction sector largely contributed to the economic revival of the national GDP (Figure 4.9), in addition to the private sector, due to the need to rapidly rebuild infrastructures and housing for the displaced people.
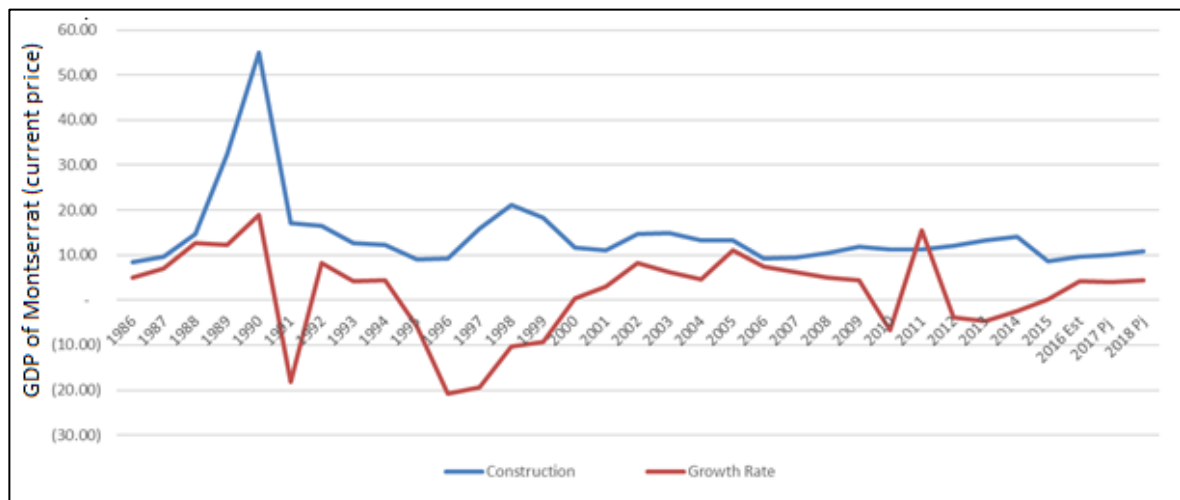
Figure 4.9: *Evolution of the Gross Domestic Product and part of the construction sector in the GDP of Montserrat (current price) (source: Eastern Caribbean Central Bank, 2017))*

Several major economic projects have started to be developed in the south of the country, within the exclusion zone, since the volcanic activity has slowed down. Since 2012, DfID funds the development of geothermal wells, which aim to be finished by 2020. While now the Island relies on high-speed gas powered generators, geothermal energy production should enable Montserrat to considerably reduce the cost of electricity and to provide a safe and sustainable energy. Sand mining is also a growing economic activity since the volcanic activity has decreased, although it has never represented 2.7% of the GDP (Eastern Caribbean Central Bank, 2017). It employs a variable number of employees, up to about fifty. Tourism has also developed in the south as there is a great demand to see the destroyed capital city. The

access for tourists has started to be more open since 2015 when tourists gained access to the exclusion zone. It is, however, still very controlled, with strict rules to respect in order to enter the area. Tourism plays an important role in the national economy. Unlike many other Caribbean countries which have opted for mass tourism, Montserrat largely focused on "villa tourism" and small-scale day tours. It has been strongly affected by the volcanic crisis. Whilst in 1995, tourism contributed to 30% of the GDP, it corresponded only to 10% in 2001 (Greenaway, 2003). The part of the activity of hotels and restaurants in the national GDP has largely deteriorated because of the volcanic crisis, dropping from 12.8% in 1995 to 2.8% in 1996. Since then, it has increased only by 1% in twenty years (Eastern Caribbean Central Bank, 2017) (Figure 4.10). Some projects are expected to be developed in order to increase tourism inside the exclusion zone, but also all over the island. Tourism indeed is a major focus for the economic development of the country.

Figure 4.10: *Part of the activity of hotels and restaurants in the national GDP (Eastern Caribbean Central Bank, 2017)*

At the beginning of the 2000s, the development of the island was criticized for not being sustainable (Cassell-Sealy, 2003; Greenaway, 2003). The major investments were subjects of long debates and were sometimes criticized for not being appropriate for long-term development (Riley, 2009). In 2003, it was claimed that the economy was on the path to collapse as the decisions taken were not sustainable (Cassell-Sealy, 2003). The development plans face a number of challenges that hinder their sustainability. Agriculture is not well developed and the country strongly depends on fruit and vegetable imports for daily life. The development also faces a lack of major utilities such as transport infrastructures, ports or hospitals, as most have been destroyed by the volcanic eruption. The small population, even lower since 1997, also constrains the development plans (Greenaway, 2003), as we see more

in detail in Chapter Six. Finally, the limited financial resources of Montserrat and its strong dependency on external donors and on the United Kingdom contributes to external decision-making, not always appropriate for local development. Most plans were mainly focused on economic growth and not on human interests (Cassell-Sealy, 2003). However, the high uncertainty concerning the volcanic activity has restricted private investments and has led to a lack of long-term meaningful investments in the first year of the crisis (Greenaway, 2003; Young, 2004). Since 2010, the situation has seemed to evolve slowly with a larger number of major economic projects and an increased consideration of social issues.

4.4. Social context of Montserrat

4.4.1. Brief overview of the social situation

The last twenty years have strongly affected the social context and the demographic structure of Montserrat. The size of the population considerably dropped after 1997, because of the forced displacement of a large part of the population. Over most of the recorded history of the Island, the population was stable around 10.000-12.000 people, with a peak of 14,000 during the post-war period in 1946. The population dropped to 2,726 people in 1997 according to the mid-year estimations of the Department of Statistic in Montserrat. The population then rapidly grew from 1998 to 2002 to reach about 4,500 inhabitants in 2002. Since then, the population has stabilized around 5,000 inhabitants, mainly thanks to a large immigration that constitutes now about half of the total population (Figure 4.11).

The structure of the population was largely affected by the volcanic crisis, with the departure after 1997 of 75% of the total population. The population of all age groups declined but not in the same way (Figure 4.12). After the beginning of the volcanic eruption in 1995, the main change corresponded to the decline of the population under the age of 15 and the increased part of the population in the working age groups, be 25-44 and 45-65 years old. The youngest sector of the population, under 15, declined from being more than a quarter of the total population to less than 20%. Their number increased again in 2008 but seems to remain unstable. The increase in the number of children is certainly related to a stabilization of the population and to an increasing number of immigrants bringing their children. However, we can wonder if the drop in the youth sector over the total population in 2011 reveals the instability of the population and especially of the immigrant population.
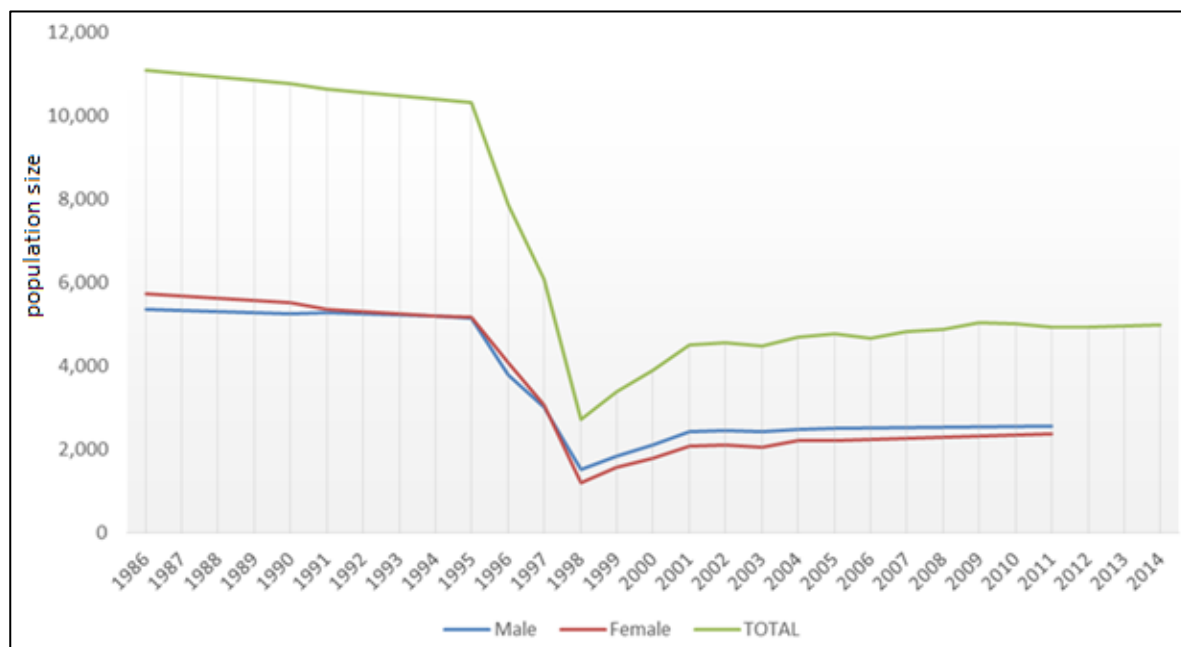
Figure 4.11: Evolution of the population of Montserrat between 1881 and 2011 (according to the data provided by the Department of Statistics of the GoM in 2016)

The low proportion of 15-24 years olds corresponds mainly to the important "brain-drain" on the island and the need to leave the country to find jobs or pursue studies. It seems to have become more important since the beginning of the volcanic crisis as the proportion of this age group dropped from 17% in 1991 to 10-11% after 2001. The proportion of elderly people has slightly changed since 1991, decreasing from 2001 to 2008 because of the increase in the number of under 15 year olds. This remains high compared to the other Caribbean countries (Halcrow Group Limited, 2012a).

With the volcanic crisis and the emigration of 70-75% of the population, the sex ratio has strongly evolved during the last years. While the Island has had traditionally a larger proportion of females due to male emigration, the trend changed during the crisis. In 2001, the number of males became greater than the number of females. This was directly linked to a larger number of women emigrating with their children to enable them to pursue their studies during the volcanic crisis, and the larger immigration of single male immigrants initially coming to participate in the reconstruction (Pattullo, 2000). From 2006, the census shows that the balance between males and females in the 25-44 age bracket had started to become equal. This may be due either to the increased immigration of adult women or/and to the emigration of young adult men (GoM, 2012; Halcrow Group Limited, 2012a). As shown in the graphic

below (Figure 4.13), the sex ratio of the 50-69 years olds remained unbalanced in 2011 with a majority of males (GoM, 2012).
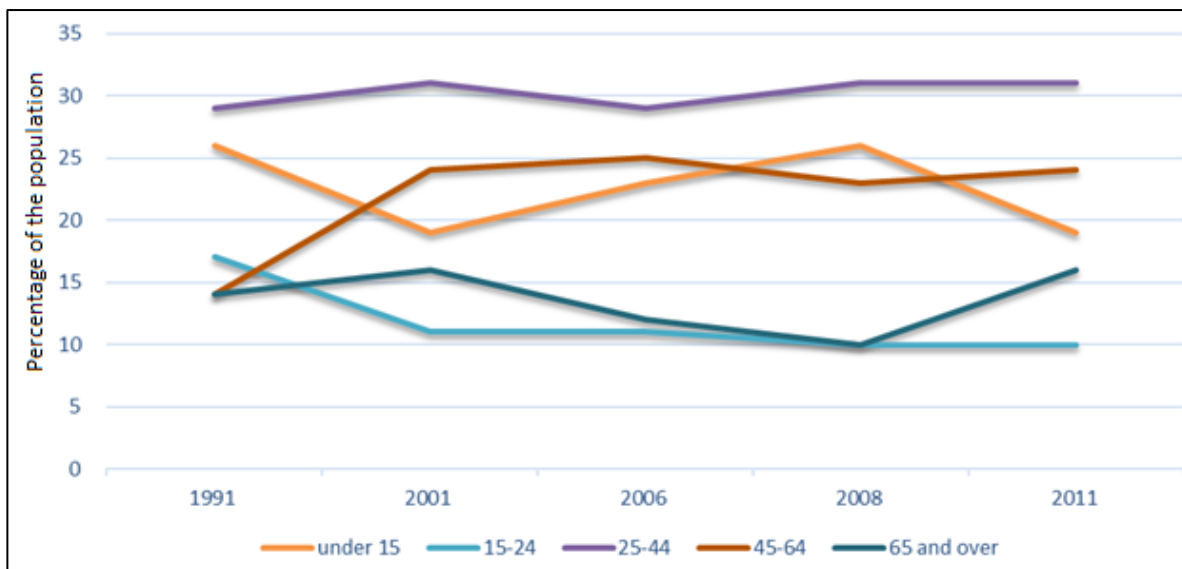
Figure 4.12: Evolution of the age structure of the population in Montserrat (Halcrow Group Limited, 2012a)
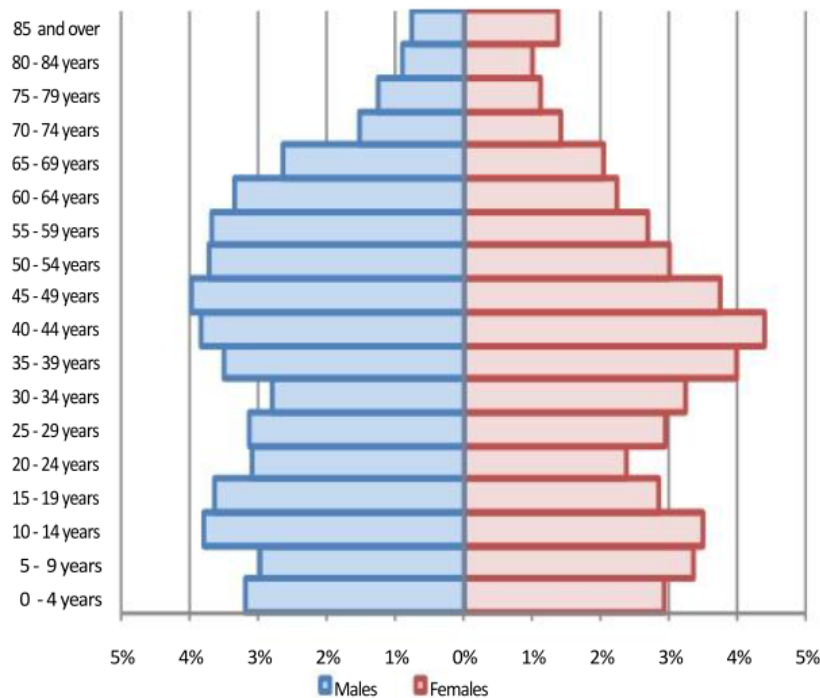
Figure 4.13: Age distribution for males and females in Montserrat in 2011 (GoM, 2012)

Despite a fragile economy, Montserrat has relatively high standards of living compared to neighbouring islands and the majority of developing countries. Health, educational and

housing sectors have remained at a high level even though they were strongly affected by the volcanic eruption of 1995 (Clay et al., 1999; Halcrow Group Limited, 2012a; Possekel, 1999; Rozdilsky, 2011). Thanks to remittances, loans and support from the United Kingdom and CARICOM, Montserratians have maintained a relatively high material lifestyle in comparison to the rest of CARICOM members. In 2006 the GDP per capita was 50% higher than the Eastern Caribbean Central Bank average and was the 3rd highest among the eight members. The level of crime remains constant and relatively low. Domestic violence constitutes the most serious offence (Halcrow Group Limited, 2012a).

The Survey of living conditions carried out in 2012 (Halcrow Group Limited, 2012a, p.81) mentioned that one of the major social changes in the last decade was the migrant issues. The report mentioned new issues compared to 2000 with an increasing "sense of disquiet amongst many Montserratians about the potential loss of jobs to non-nationals". It also mentions that immigrant often report a sense of injustice compared to Montserratian nationals. They perceive an unequal access mainly to health services and social welfare services, and difficulties for obtaining work permits. Other new social issues concerned access to health care, often very costly especially for low income families who were not eligible for social welfare services.

A major social change concerns the loss of labour and skilled workers, in all sectors, due to the widespread emigration, that is about 75% of the population, in the first years of the volcanic crisis. This largely affected the functioning of the Territory. The head teacher of a school explained that during the first years, it was necessary to adjust with no buildings and less staff. A nurse from the public hospital explained a similar thing. Although no accurate data exist on the exact loss of skills, it is often said that a lot of the highly qualified and most experienced people were also constrained to leave. The island was therefore forced to resort to immigrants to enable its good functioning, by replacing the emigrants for essential jobs and adjusting to the new needs. The displacement of the whole population to the north of the Island which was underdeveloped until then, and the destruction of all major utilities and infrastructures indeed created a great demand for labour for construction (see Chapter Six). The major need for workers during the post-disaster period therefore made immigration become a central part of the recovery process.

4.4.2. Immigration in Montserrat during the post-disaster period

4.4.2.1. Evolution of the structure of the population during the post-disaster period

The multiple evacuations from the south and east of the island to the undeveloped north, the uncertainty of the situation and the lack of accommodation in the safe north led to a massive emigration to the United Kingdom and neighbouring Caribbean countries. Women left the island in greater numbers than men, generally in order to accompany their children and enable the latter to pursue their education. Most people from the last evacuated villages also had no choice but to leave Montserrat as the shelters were already too crowded. From 10,324 people in 1995[1], the population of Montserrat dropped to 2,726 people in 1998[1]. In the face of this rapid and massive decline, the government took the decision to open the borders of Montserrat and attract immigrants, removing the need of visas and allowing anyone to work in Montserrat. In 2002, the population had almost doubled compared to 1998, reaching about 4,563 people, half of them being recent immigrants. Up to 2017, the population stabilized between 4,000 and 5,000 people[2]. In 2017, it was estimated that 50% of the population was immigrant while it was only 19% in 1991. That was two years after the hurricane Hugo, while there was a first increase in immigration due to the reconstruction activity (50% of the immigrants in 1991 had arrived less than 3 years before). In 1980, estimations differed depending on the sources between 5% of the total population (Possekel, 1999) and 13% (Halcrow Group Limited, 2012a). Such massive change in the ratio has had multiple consequences on the society with especially questions on the distribution of power and socio-cultural impacts on Montserrat.

4.4.2.2. Who are the immigrants?

- **Origin of the immigrants**

At the time of the study in 2017, it is estimated that the immigrants living in Montserrat mainly come from Guyana and Jamaica and to a lesser extent from the Dominican Republic and Haiti. The origin of the immigrants changed massively between the pre-disaster and post-

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[1] The figure is a mid-year population estimate and was provided by the Department of Statistics of GoM in 2016

[2] Data provided by the Department of Statistics of GoM in 2016

disaster periods. While Guyanese immigrants had already started to immigrate massively to the island at the beginning of the 1990s after the hurricane Hugo which destroyed 90% of the infrastructures (Possekel, 1999), the number of Jamaicans strongly increased after 1995, reaching and perhaps soon outreaching the number of Guyanese whose population is now more stable. The immigration of Dominicans (DR) is also a post-disaster phenomenon. Many of them actually lived in Antigua before and decided to move to Montserrat gradually after 1995.

While there is no census, the data collected during the interviews done for this study allow to estimate that the population in 2016 was composed of:

- About 1,000-1,500 Guyanese, being about 5-60% of the immigrants,
- 900-1,000 Jamaicans (a population certainly bigger in 2017 according to the estimations), that is about 20-30% of the immigrants,
- 200-250 Dominicans (DR), or about 10% of the immigrants,
- members of OECS countries, that is less than 10% of the immigrants.

In 2001, 40% of immigrants were from Guyana, 15% from Dominica and Antigua, 14% from the UK and the US and 10% from Jamaica.

Before the volcanic crisis, these countries counted to less than 20% of the countries of origin of the immigrants. According to the director of the labour office, most immigrants in 1980 came from the OECS countries, especially Antigua, St Kitts and Nevis, Dominica and St Vincent and the Grenadines. During the FDGs with the Guyanese, the participants explained that there were Guyanese living in Montserrat since the 1960s when people started to migrate out of Guyana, but it became a really popular destination after the hurricane Hugo due to the needs for labour for reconstruction. According the Physical Planning Unit (1995b in Possekel, 1999), only four Guyanese were enumerated before 1980. Their number increased strongly during the period of 1980-1989, up to 78, and almost tripled in 1990 after the hurricane Hugo, going up to 210 immigrants. Today they are more than 1,000 (Figure 4.14).
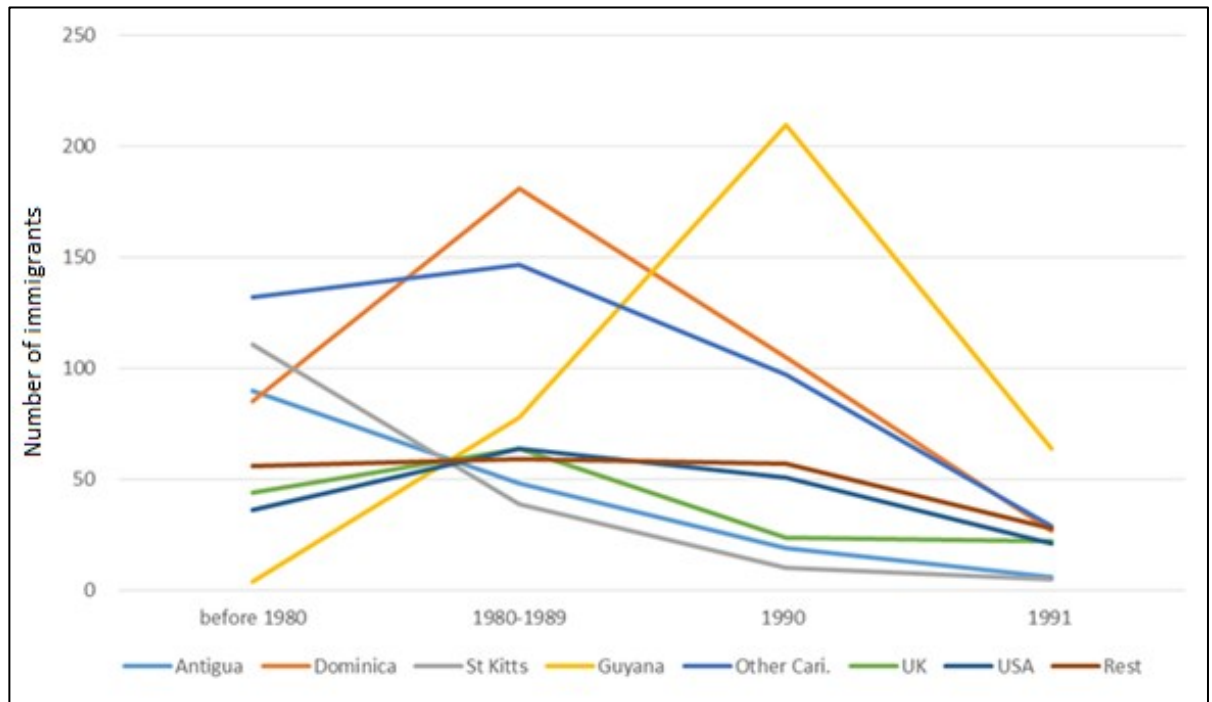
Figure 4.14: *Evolution of the immigrant population by country of origin and year of immigration before the volcanic crisis (Physical Planning Unit, 1995b in Possekel, 1999)*

Since the main factor of immigration is economic, being to find a job, and familial, to reunite families, it is possible to have an estimation of the evolution of the arrival of new immigrants thanks to the applications for work permits. The following graph shows that while the Guyanese accounted for more than 50% of the applications for work permits between 2001 and 2006, their ratio has decreased to less than 25% now. This does not mean that there are less Guyanese but rather that the presence of Guyanese is more ancient and more stable. On the contrary, the application of Jamaicans for work permits has increased from about 20% to more than 50% of the total of applications. The part of Dominican applications has also outreached the part of Guyanese applications, increasing from about 10% of the demands between 2001 and 2006, to about 25% in 2014 (Figure 4.15).
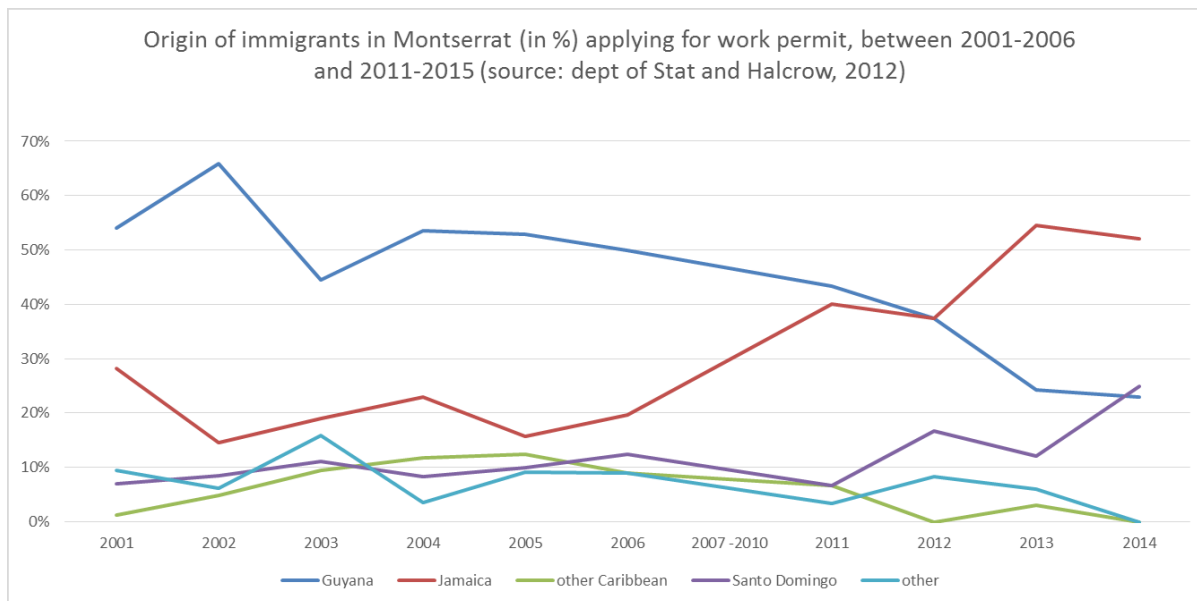
Figure 4.15: *Origin of immigrants in Montserrat (in %) applying for work permits between 2001 and 2014 (according to the data provided by the Department of Statistics of the GoM in 2016 and Halcrow Group Limited, 2012a)*

An important characteristic of the immigration in Montserrat is the rapid turn-over of the immigrant people. This is confirmed by the stagnating size of the population since 2002 despite the increase in immigration. The fact that the demands for work permits have increased among the Dominican (DR) population may also be justified by a rapid turn-over, confirmed by the Dominican themselves. According to the interviews conducted for this study, the turn-over of the immigrants is frequently the subject of complaints among Montserratians as it prevents the total population from increasing and reaching the official objective of 10,000 inhabitants. Some people argue that certainly 10,000 people came, but not as many stayed.

- **Socio-economic characteristics of the immigrants**

The census of 1991 and 2001 shows an important change in the age distribution of immigrants, with an important shift in the proportion of the under 15s. Their proportion increased from 17% to 29% while the proportion of the over 65 year olds decreased from 9% to 1%. It shows a progressive establishment of families bringing their children with them (Halcrow Group Limited, 2012a). The age distribution below (Figure 4.16) shows that in 2001, the immigrants were mainly young adults, more males than females on average, between 20 and 39 years old, with young children. It is noticeable that more than half of the very young children, between 0 and 4 and more than 75% of the 20-24 year olds were immigrants. It shows

that immigration concerns mainly young people moving for job opportunity and bringing their children with them. In 2012, about 30% of the households were headed by immigrants (Halcrow Group Limited, 2012a). My observation during my fieldwork between 2015 and 2017 also goes in that direction. There are many men alone on the Island, working in the construction sector especially, but immigrants with families and young children are very frequent. The 2008/09 Survey of Living Conditions also shows that the majority of new arrivals were children under 15. In 2015 and 2016, the school teachers affirmed that the number of Dominican (DR) students rapidly increased, leading to more diverse classes. The need for teaching Spanish was increasingly felt as the classes became more bilingual.
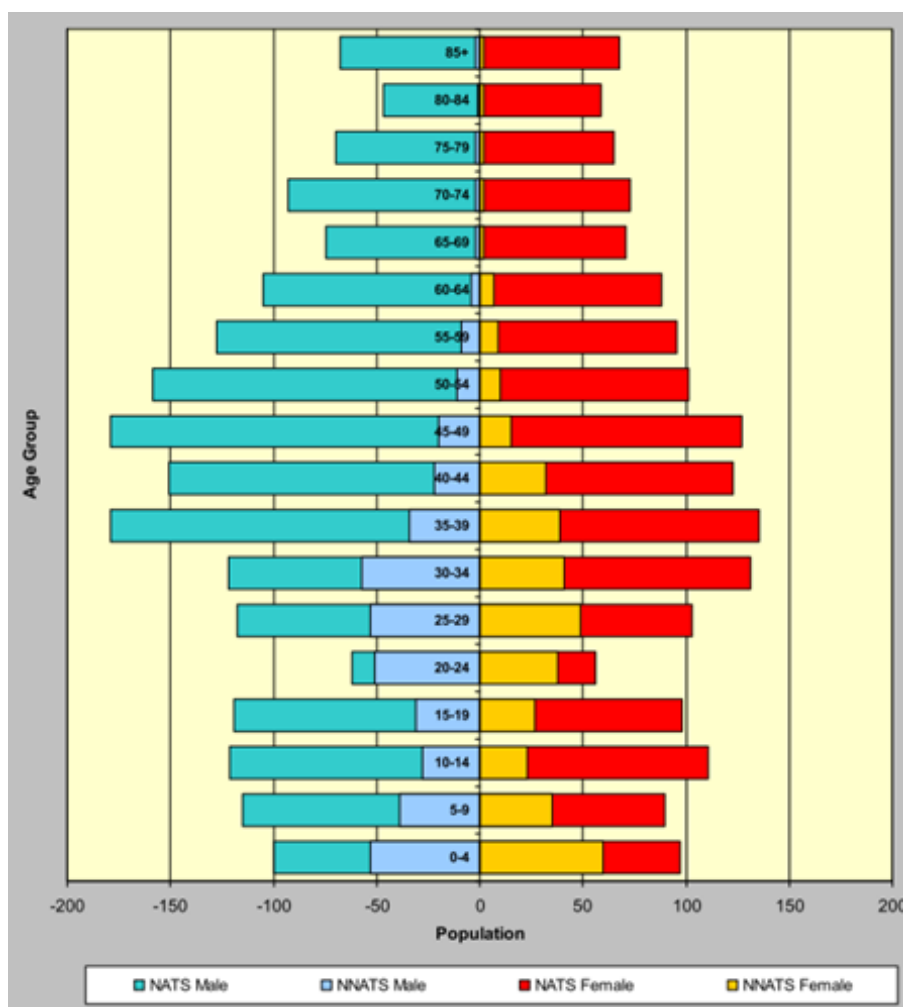
Figure 4.16: *Age structure of the population by nationality (in green: national males; in blue: immigrant males; in red: national females; in yellow: immigrant females) (Halcrow Group Limited, 2012a)*

However, the lack of data and more recent census by nationality does not allow us to know whether the immigrant population is aging and therefore to know whether it has settled for life or just for a few years. It is also probable that as they age and stay longer on the island,

the immigrants become naturalized and are therefore not counted anymore as immigrants. In terms of gender, it is noticeable that the number of adult females was inferior to the number of males of the same age. This is mainly justified by the mainly female emigration during the crisis, creating an unbalanced population. As the graph shows, the composition of the population changed after the beginning of the volcanic crisis (Figure 4.12). Indeed traditionally the island had a surplus of women due to the male emigration, mainly for work opportunities abroad. However, mainly due to the lack of accommodation and schools, the emigration pattern has changed since 1995, leading to a population composed mostly of men. A Montserratian woman explained why she had left the island with her mother:

> *"Because we were living with the volcano for about two and half years but it was because school went pretty bad because of the volcano, a lot of people were living randomly so I could go to school and teachers weren't there because they had left with their family so eventually that was what convinced my mother for us to leave. Things went better eventually but she didn't want to take a chance because we didn't know what would happen with school so that's why we left. And I cried, I cried, and she said oh you can stay with your father but I went."*
> *(*Interview in January 2016)

A consequence of this has been to look for female immigrants to compensate the imbalance, since many married or unmarried men had remained alone. Although the information was difficult to verify formally due to the lack of data and the sensitivity of the topic, it was commonly explained by Montserratians and Dominicans (DR) that the immigration of Dominicans started while some Montserratians were bringing on the island Dominican female sex workers, initially working in Antigua. The transfer of women was visible and well-known for several years until it started to appear as a problem. It has continued but in a more hidden way. The settlement of these women allowed a more traditional immigration to start, with the arrival of Dominican males and children.

4.4.2.3.   *Main factors of immigration and long-term residence*

Traditionally the research on migration distinguishes different types of migration,

characterized mainly by push and pull factors (Asad, 2014). The decision to move is often a combination of both negative factors in the place of origin that encourage the migrants to leave, and some attractive factors in the place of reception. However, several studies have demonstrated the complexity to analyse the migration according to such specific criteria. There is now a consensus that the process of migration is often over-rationalized, based on economic interest. The family context also plays a major role, despite not always being economically positive (Asad, 2014; McDowell & De Haan, 1997). Hunter (2005, p.279) argues that the decision to migrate is rather "shaped by the ways in which these values/goals interact with individual and household characteristics, societal and cultural norms, personal traits, and variation in opportunity structures between areas".

In Montserrat, two main types of immigrants can be distinguished: the highly skilled immigrants coming because of some specific skills and competencies, and the others. The majority of immigrants have a low educational background. The census of 2001 reveals that 23% of the immigrants had attained at the most Primary level, and 45% secondary level (Thomas-Hope, 2009). The majority of work-permits delivered between 2010 and 2014 were also for low-skilled jobs according to the department of statistics.

- **Low qualified and qualified immigrants**

The interviews and focus group discussions conducted with the three main immigrant communities in Montserrat suggested that the decisions to move to the island were often resulting from a combination of factors. Among the non-qualified or low-qualified immigrants, three main attractive factors were identified: job opportunities, an easier access to British overseas citizenship and therefore a greater flexibility in terms of jobs and movement, and family reunification. In addition to this, push factors exist in the countries of origin. High levels of crime in the country of origin, too severe competition in accessing jobs and qualifications, lack of job opportunities were commonly mentioned during the interviews conducted for this study to justify either why people decided to move out or why people did not want to go back to their country. Among the very qualified immigrants, or those with specific and unique skills in Montserrat, the decision to move to the Territory is generally more based on job opportunities, while the decision to stay or not depends on more diverse, and often less economically rational factors. The quietness and peacefulness of Montserrat play a

contradictory role, attractive or repelling depending on people. Personal life is also often presented as a factor of decision to stay or leave the Island.

According to the interviews, except among the highly qualified immigrants, the decision to move to Montserrat was generally triggered by a family member already on the island for some years, word of mouth playing a major role to attract people. The stories told by the immigrants during this study are all very similar: a brother/cousin/husband had encouraged them to come and they themselves had encouraged some other people to move. For instance, a Guyanese civil servant explained during an informal discussion in 2016 that while he had a stable job in Antigua for more than two years, his sister encouraged him to immigrate to Montserrat, arguing that there were a lot of job opportunities "after the volcano". She had been living in Montserrat since the beginning of the 1990s as her husband came for rebuilding the island after the hurricane Hugo. During the FGD organized with the Guyanese community, the participants explained that Montserrat had become a popular destination after the hurricane Hugo because of the need for labour for reconstructing the damaged infrastructure and dwellings. It had been the starting point for calling friends and relatives. The group of Jamaicans confirmed this process during their FGD. They all explained that while they came for employment, they all had a friend or relative on the island to encourage them to come. They said that it was the main reason for moving to Montserrat.

Moreover, several young immigrants, in their 20s, explained during informal and structured interviews that they did not choose by themselves to immigrate but that they had followed their parents and finished their school in Montserrat. They either came at the same time as their parents or a few months or years after. The government, now aware of this, tries to facilitate family reunification especially when young children are involved, according to a government senior officer.

In addition to having family members or friends encourage them to come, several immigrants explained during interviews and FGDs that they were looking for a better life. They were expecting better in Montserrat than in their own country because of what they had heard. Indeed a Jamaican man explained that whatever the level of disappointment or the issues they faced on the island, they continued to say to their family and friends back in their home country that *"all is good in Montserrat"*. However, the experience was often described in a

much more nuanced way. A Guyanese said that like everybody else, he had come to Montserrat 12 years before thinking that the grass was always greener abroad but *"there was grass but it dries up after one and a half years"*. Some Guyanese participating in the FGD explained that they were also disappointed and had rapidly discovered that life was in many aspects better in Guyana. But despite this, they affirmed that they would continue to encourage Guyanese to come and try a new life in Montserrat, arguing that some succeed well and that life in Montserrat also has some advantages. Most of them ended up finally *"earning good money and children doing very well at school"*. There is therefore a perpetuation of the myth of a better life in Montserrat, disseminated through families and friends.

The needs for jobs and for earning greater incomes are central for many of them. Among the Dominican (DR) community, it seems that it is mainly the people belonging to the poorest families who come in. A Dominican woman argued during an interview in 2016 that the others had higher education and did not need to leave their country. Similar arguments were given among the Guyanese community. It seems that a majority of immigrants are originally from the countryside of Guyana, where they benefited from fewer job opportunities. The participants of the FGD explained that Guyana was a nice country but the problems are political and there is a high crime rate. One of them said *"Guyana done, boy"* and all other participants agreed and explained that since the election of 1992, there had been no hope in their country and still lots of fighting there, compelling them to go and see abroad. For them, the free access to education was also underlined as an argument: the education system has become very expensive, although free in the past. It encourages the poorest household to go and educate their children abroad, where it is free, like in Montserrat, or at least cheaper than in Guyana. Jamaicans often raised the issue of high competition in their country, arguing that only those who were highly educated or belonged to the richest families could find a satisfying job. For others, moving abroad seemed to be a better option. Eventually, although the job opportunities have decreased compared to the beginning of the volcanic crisis and the period of massive rebuilding, immigrants generally argued that there will always be some jobs that the Montserratians do not want to do and that the money currency is still stronger in Montserrat than in their own country. Therefore there will always be new immigrants coming to try to have a better life.

The decision to stay longer is depending on very diverse factors. The quality of jobs or

the level of incomes does not necessarily always come into consideration. Among the Dominican (DR) community especially, several women I interviewed explained that they had a better job back in their country, a more stable situation and that their certificates were recognized. While most of them are domestic workers now, one said with pride she had been a fire fighter in the Dominican Republic. Another said that she was a secretary and would like to be able to do the same thing again. But because of their poor level in English, they had very few job options in Montserrat outside the domestic sector. However, both of them said that they did not want to leave because they could not adjust anymore to the violence and the agitation in their own country. A Guyanese explained that a lot of Guyanese were attracted partly by the low crime rate, because they wanted a break with violence. The peacefulness of Montserrat was therefore often put forward as an important factor of decision to stay on the Island, or on the contrary a repelling factor, especially for the youth. A leader of the Dominican community explained the paradox between the lack of job opportunities in Montserrat for the Dominicans and their desire to immigrate anyway:

> Interviewer (I): *"Regarding the other [Dominican] people, what is their main occupation? What are they here for?*
>
> Community Leader (CL): *Yes, the main one is construction. And also some are keeping house, they clean the houses also.*
>
> I: *Ok, so people come for that?*
>
> CL: *Well the majority of them, they come and they get what they can find here. Then, we have one Spanish girl who works in the Bank of Montserrat. And then… the possibilities are not much… for the people from Santo Domingo, you know because…*
>
> I: *But why did they leave Dominican Republic?*
>
> CL: *Well… let me tell you. The reality… Santo Domingo is a big place you know, nice place and… it's a beautiful place… but the problem is the mentality of people, the majority of people, they think they can get a better job elsewhere. And then, except that, the major problem we have in Santo Domingo is crime, you know, crime. Too much killing and rebelling. And that, you have people who are, shooting everywhere. And some people want to come out from that situation"*

During the FGD with the Jamaicans, all the participants under 30s expressed their willingness to leave Montserrat, arguing that they felt bored here. The feeling of boredom is observable at all levels of the society, in all communities. For many, it is pointed out as a major reason to leave the island as soon as possible, when they have found a better opportunity somewhere else.

For some others, it was the sense of achievement that was motivating them to stay. A Guyanese woman participating in the FGD explained that they had all made important sacrifices to come and therefore they were not going to leave again, even though they were facing a lot of difficulties. During the FGD, the participants often repeated *"we are achievers"*, highlighting the fact that they had an objective, getting a better life, and that they were going to do everything to reach that objective. For instance, a Guyanese teacher explained that she had come to Montserrat as a default choice as she wanted to leave her country and go to the US but could not get the visa. She told how her first months on the island had been hard and how she had been crying almost every day. I asked her why she had not decided to go back, to which she answered that it would have been weird to leave so quickly, she *"did not see it possible to go back"* so she had stayed and had eventually got used to it. Similar stories were told in all communities. A Guyanese man explained that the quietness of Montserrat was a big issue for him but because he could earn more money by staying in Montserrat than if he had stayed in Guyana. He had decided to stay and he *"accepted [his] situation"*. He had been on the island for 14 years. But his own brother had decided to leave and go to the UK because he was not achieving well and therefore could not face all the problems he encountered on the island. The lack of achievement and of opportunity seems therefore to be an important factor for leaving the island and according to some Montserrat is used as a stepping zone to the UK.

The possibility of getting British Overseas citizenship was often presented by Montserratian people and decision-makers as the main factor of immigration. This topic seems quite controversial and is presented in two different ways depending on whether it is discussed by Montserratians or immigrants. The former tend to think that the main reason for immigrating to Montserrat is that it is a stepping zone for moving to the UK, and therefore that the immigrants do not intend to stay on the island. A minister summarizes the issue by saying

"So you know that they come specifically for the opportunity to move to the UK.

Here becomes like a gateway to get to the UK."

The same idea is repeated at all levels of the society. Among the immigrants, the discourse is a bit different. Naturalization is generally presented as an opportunity that people try to take if they do not achieve their life well enough in Montserrat. However, it is not mentioned as an initial factor for migrating to Montserrat. Immigrants explained during interviews and FGDs that the opportunities were limited in Montserrat and therefore those who do not success well enough leave the island as soon as they get a better opportunity in the UK. A Dominican woman argued that she would ask the naturalization for her son only in order to allow him to go and study in England. She does not does not want to leave Montserrat. Several immigrants also highlighted that they could have asked to be naturalized but never did because they never felt the need. The possibility to be naturalized is never presented as the main factor of immigration in Montserrat, but rather as an opportunity if they stay long enough and feel the need to move on. During the FGD with the Jamaicans, the topic was not tackled spontaneously while discussing the reasons of immigrating. When I finally asked a question about it, the participants explained that the procedure to get the British Overseas Territories passport was too long (eight years) and too complicated (several criteria have to be filled). Hence, according the participants, lots of people do not have the patience to stay that long or do not have the resources to go through the process. Several immigrants of different nationalities indeed explain that even though they are on the island for more than 8 years, they still do not have enough financial resources to apply.

The extent of the role of potential access to BOT citizenship on the level of immigration and turn-over remains unclear because of the lack of data. It seems that the extension of length of time of residency in Montserrat necessary to get citizenship (from three, to five and then eight years now) may have contribute to decrease the turn-over but the lack of data prevents us to know if it has contributed to reduce the level of immigration or not.

- **Highly qualified immigrants**

The factors of immigration of the highly qualified immigrants or those with special skills are different than those of low-skilled immigrant. Highly skilled immigrants correspond to a lower proportion of immigrants in Montserrat, but they are now more demanded for the

development of the island. Their decision to move to Montserrat is mainly determined by choice of a professional career instead of the search for a better life. It is triggered by a specific job opportunity rather than by familial and friends networks. Among all the immigrants that I met during my fieldwork, the consultants and highly educated workers were the only ones who came initially without knowing anyone on the island. For instance a consultant from Trinidad working in the health sector explained in January 2016 during an interview:

> *"It is an opportunity […] I was trained in England but I've never practiced, in management. So when I saw that opportunity, I knew it's a British Overseas Territory, I thought it was best to come here because I was trained in UK. So I've never worked before in the UK system. [Trinidad is] a Republic so the system is… somewhat British but not totally British. […] and when the post was advertised, they said that I will work with the NHS, National Health Service, which was at the time contracted to support Montserrat redevelopment health sector, so that's why I wanted that experience. But I was employed in Trinidad and everything was nice."*

The job opportunities that bring them in Montserrat are often linked to the redevelopment of the island post-disaster and to compensate the lack of skilled people resulting from brain-drain and evacuation during the volcanic crisis. The same Trinidadian man explained:

> *"I came because it is an opportunity to work in a resource constraint in post-disaster for redevelopment. That's a good experience, right? So that's why I am here."*

The same situation concerns teachers, nurses and various other trades.

As they do not have any specific attraction in Montserrat despite the opportunities for career development, highly skilled immigrants are also more flexible, and hence more demanding in terms of life and work conditions. They also can leave Montserrat more easily and easily make another life somewhere else. Some of them explained during interviews that if they want to progress in their career, they need to move again. The British DfID representative summarized the reasons for immigration of the highly skilled people in a public letter to inform his departure from Montserrat in 2017:

> *"I am very pleased to have been offered this opportunity by DFID [to move to another job]. I have thoroughly enjoyed working and living in Montserrat and the experience I have gained over the last three years."*

A Montserratian policy-maker explained:

> *"You will find that those who're coming at that higher level does not necessarily stay, they come for short-term period. Very little of them, maybe 0.5%, 0.05% stay. "*

A few of them decided to settle for longer period as they have built a family and enjoy their life in Montserrat. A Jamaican teacher explained during an interview in 2016 that initially she came for one year, taking an unpaid leave in her country, in order to have a new experience abroad. She was still on the island eight years after as she has finally made her life in Montserrat. However those cases are less frequent. Turn-over remains source of complaints from both policy-makers and citizens who feel that it impedes the development of the island.

4.5.   Conclusion

The small Caribbean BOT of Montserrat has strongly been affected by two major natural hazards, namely Hurricane Hugo in 1986 and a succession of volcanic eruptions since 1995. Since 2010, the volcanic activity is low but the situation remains uncertain. The volcanic crisis has led to major change among the society, including in particular the displacement of the whole population to the underdeveloped north of Montserrat, the emigration of 75% of the total population and a rapid and large immigration since then. The demographic structure of the Island therefore has largely changed, with about 50% of the 5,000 inhabitants, being immigrants, against only 5 to 10% before the disaster (Possekel, 1999).

In the next chapters, I will analyse how the long-term recovery processes in Montserrat following the volcanic crisis, and explore how the BOT adjusts to the local constraints and resources in order to become resilient.

CHAPTER FIVE

DEVELOPMENT OF THE NORTH OF MONTSERRAT:

DIFFERENT FORMS OF RECOVERY TO DEAL WITH SHORT AND LONG-TERM POST-DISASTER RECOVERY

The successive eruptions of the Soufrière Hills and the pyroclastic flows that accompanied them forced the displacement of about 75% of the population from the southern part of Montserrat (the most populated area) to the north, which was undeveloped at that time. On the 21st August 1995, known as 'Ash Monday', the first large phreatic eruption led for the first time to three weeks of evacuation of 5000 people living in Plymouth and the south of the island. The third evacuation on 3 April 1996 was the last and final one. Between 1997 and 1999, the delimitation of the exclusion zone evolved several times, sometimes including and excluding the central part of Montserrat in the unsafe zone (Possekel, 1999). Today, in 2017, about two-thirds of the island is still in the unsafe zone (see Chapter Four). The redevelopment of the island is therefore concentrated in the northern part of Montserrat, considered as safe but highly underdeveloped in 1996.

The redistribution of infrastructure and the population in the northern part of the Island is a major determinant of the trajectory of post-disaster recovery in the sense that it can facilitate the development of capacity to cope with disasters or create conditions of vulnerability. The latter process therefore is strongly determined both by the type of hazard occurring and the need to relocation or not.

Some studies demonstrate that relocation leads to prolonged economic and emotional losses, affecting all sources of capital. Studies exploring the impacts of a mandatory relocation of communities after the eruption of the Mount Tungurahua in 1999 in Ecuador showed that the relocation led to an economic and political crisis, due in particular to the lack of livelihood alternatives in the place of relocation (Lane, Tobin, & Whiteford, 2003; Whiteford & Tobin,

2009; Whiteford, Tobin, Laspina, & Yepes, 2002). Using the Cascade of Effects model, Whiteford & Tobin (2009) show that the relocation affected in particular, (i) the social capital of the communities, with the disruption of social relations and networks, and hence community cohesion; (ii) the health of the communities, with a greater sedentary lifestyle, less access to agricultural products and instead a greater access to processed foods (Whiteford & Tobin, 2009); (iii) the financial capacities of the evacuated communities, as livelihood opportunities were extremely limited in the place of relocation and inflation high; and (iv) the political stability as the evacuees were fighting for access to livelihoods and government attention (Lane et al., 2003). Ambrosetti & Petrillo (2016, p.87) make similar observations concerning the relocation of the communities affected by the earthquake in L'Aquila (Italy) in 2009. They summarize,

"Most of the [relocation] sites are located in remote neighborhoods with poor or insufficient access to transit and other essential services. This displacement has strongly affected the daily life of people that used to live in the city center and they are now facing the true risk of social isolation and economic marginalization. This social fragmentation, has been exacerbated both by the slowness of the resettlement patterns, and by the perceived lack of reconstruction and re-development progress".

Relocation and building of new neighborhoods for resettlement corresponds to an additional disruption of the state of normality and of the Montserratian milieu, which is "the relatively stable configuration of action and meaning in which the individual maintains a distinctive degree of familiarity, competence, and normalcy based on the continuity and consistency of personal disposition" (Rozdilsky, 2003, p.14). One of the key issues of the recovery process and of the rebuilding of new towns is to create a new sense of normality and stability.

I argue here that forced displacement has not only contributed to the loss of some critical resources, such as crops and major infrastructure, but also that the way the redevelopment is conducted largely influences the short-term and long-term trajectories of recovery, at the scale of the neighborhoods and consequently at the scale of the Island. It creates the conditions for the creation of a "new normal" in the post-disaster period and for specific social dynamics, including new social networks and types of connectivity and a new hierarchical structure. The new neighborhoods built are the place where actions of social

cohesiveness or social conflict take place (Rozdilsky, 2003). It is also part of the "window of opportunity" created by the disaster, to learn from the disaster experience, implement structural change, build-back-better, and hence reduce the risk of disaster (Becker & Reusser, 2016).

The relocation of the population and the rebuilding in the north of the island has been developed in different ways depending on the neighborhoods. Some were totally nonexistent and have rapidly been developed, funded by the British Government, the GoM or external donors, including CARICOM and the Caribbean Development Bank. Other were existing and have gradually evolved due to private initiatives and as a consequence of the demographic change. Observation and interviews demonstrate that the way the new settlements have been initially developed affects how they are considered by the residents of Montserrat almost 20 years later. The Physical Development Plan for North Montserrat (GoM, 2012b) underlines eight major elements essential for forming the, "foundations of successful communities and sustainable socio-economic development", namely:

1. The need of a mix of land use, comprising residential, commercial, retail and recreational areas;
2. The presence of community facilities, with venues and facilities for recreation, learning, socialization, recommending the creation of community centers;
3. The preservation of a healthy and safe population, particularly through development of recreational places;
4. The possibility of easy movement and access, including a good road network, safe pedestrian access and access to bus transport;
5. Good access to agriculture and back yard gardening as it is an important source of livelihood but also part of the cultural heritage of Montserrat;
6. A good environment management and preservation of the livelihoods;
7. The possibility to celebrate the cultural heritage of Montserrat;
8. The reduction of risk of disaster (GoM, 2012b).

Two main criteria, namely the need to create social cohesion and to decrease the level of vulnerability to natural hazards, are highlighted among these eight elements. The same criteria are highlighted by the residents and policy-makers when they examine the development of the different neighborhoods.

In this chapter, I compare the development or redevelopment of four different neighborhoods and explore how they enable:

- Social cohesion through (re)building of communities,
- Incorporation of the principles of DRR and "building back better".

I first examine how social cohesion is developed through the rebuilding of the northern part of the Island. I look at its specific role in the recovery process and how the different strategies of development allow it to be strengthened or not. In the second part, I examine how the concept of "building back better" is implemented in these four neighborhoods and hence how sustainable the recovery process is. I demonstrate here how the very initial stage of rebuilding determines the long-term recovery of the neighborhoods and, as a consequence, of the whole territory. I attempt to identify the factors that prevent or enable sustainable recovery and adaptive development.

I examine the development during and after the volcanic crisis of four major neighborhoods (Figure 5.1 and 5.2):

- Davy Hill was a new development built in 1997 to relocate in an emergency the population displaced from the south and temporarily living in shelters or tents. This development was financed mainly by the British Government.
- Lookout was built soon after for the same purpose, also with external funding, including funding from CARICOM and the British Government, but with more planning.
- Cudjoe Head, underdeveloped before 1995, has rapidly grown through private initiatives.
- Salem, an old village located at the border of the evacuated zone, existed long before 1995 and has gradually been transformed following the emigration of the original population and the arrival of new immigrants. In this research, it includes the neighborhoods of Friths, Flemmings, Happy Hill, Hope, Salem East and West.
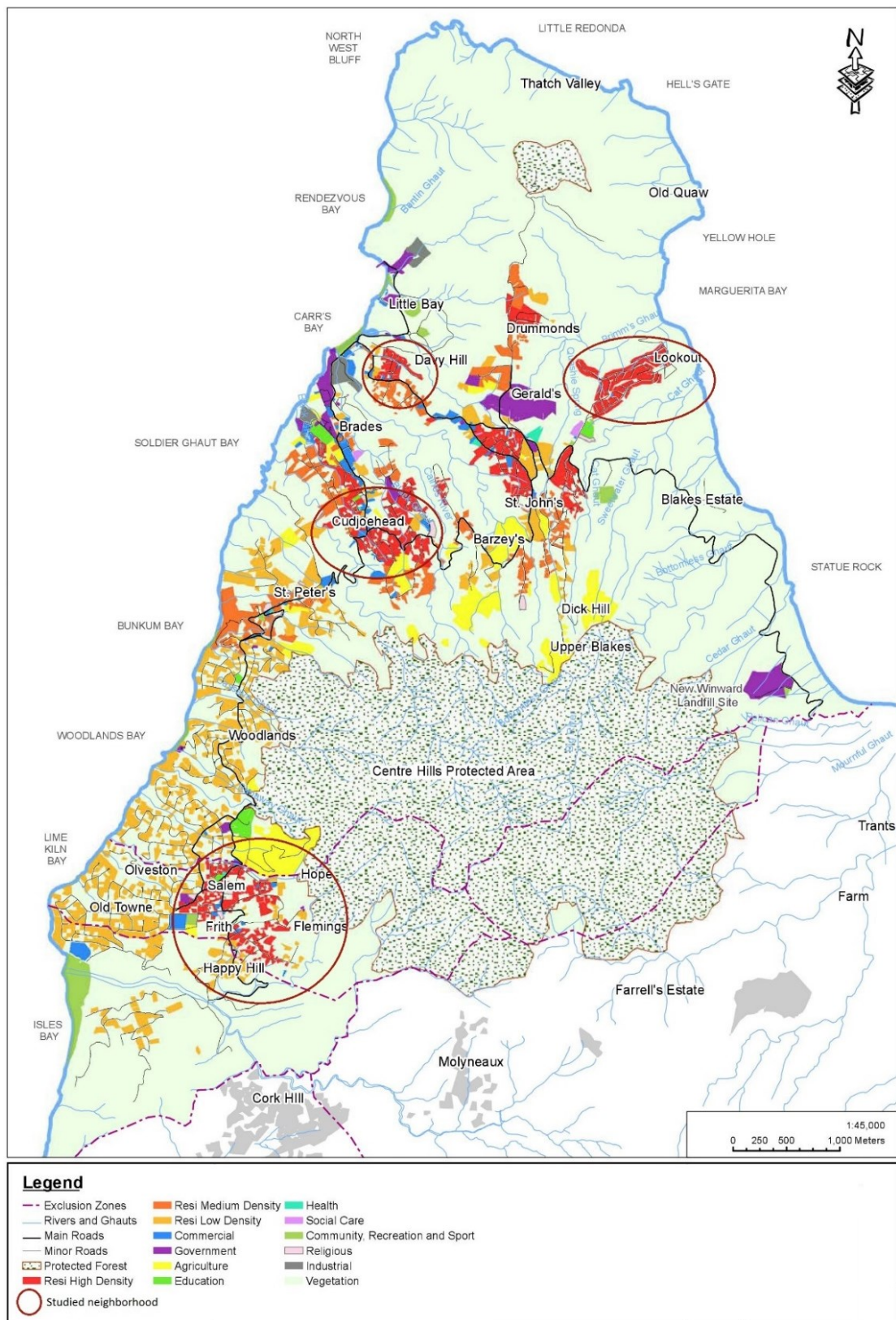
Figure 5.1*: Administrative map of Montserrat, showing the density of population and the main amenities. The four studied sites are encircled in red (adapted from* (GoM, 2011)

The table below summarizes the differences between the neighborhoods (Table 5.1):

Village	Davy Hill	Lookout	Cudjoe Head	Salem
Year of creation	1997	1997	Some houses existing before 1995. Developed essentially after 1996.	Existing prior to 1995, evacuated several times between 1995 and 1998. Re-inhabited since 1998
Funding	External funds	External funds	Private and governmental support	Private
Population in 1990 (estimation)	0	0	A few households (no data available)	Between 300 and 400
Population in 2011[1]	765	474	112	668
Population in 2011[1]	738	670	137	521
Part of immigrant population in 2011[1]	25%	10%	28%	41%
Local amenities and services	Small numbers of commercial services (supermarkets and bars), one community centre, churches. Lack of recreational facilities	Lack of recreation space and community facilities Presence of businesses, churches, school and care home created	Small concentration of shops and bars. No recreational and community facilities. One small private school.	Small concentration of shops and bars. Some recreational facilities. Police station.
Access	Network of narrow and steep roads	Good network of roads but isolated from the rest of the island.	Good access on the main roads, and some side roads very steep and in poor state of repair	Road network in poor state of repair and limited access to some side areas
Type of land use	High and medium density of population. Highest concentration of government owned social housing (11 family units)	Mainly owned by the government, with limited privately owned areas. Relatively high density of population	Majority of lands privately owned, highly fragmented	Majority of lands privately owned and subdivided into smaller lots. 21 government owned social housing

Table 5.1: *Main characteristics of four of the villages created, developed or redeveloped after 1995, namely Davy Hill, Lookout, Cudjoe Head and Salem*

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[1] Data provided by the Department of Statistics in 2016
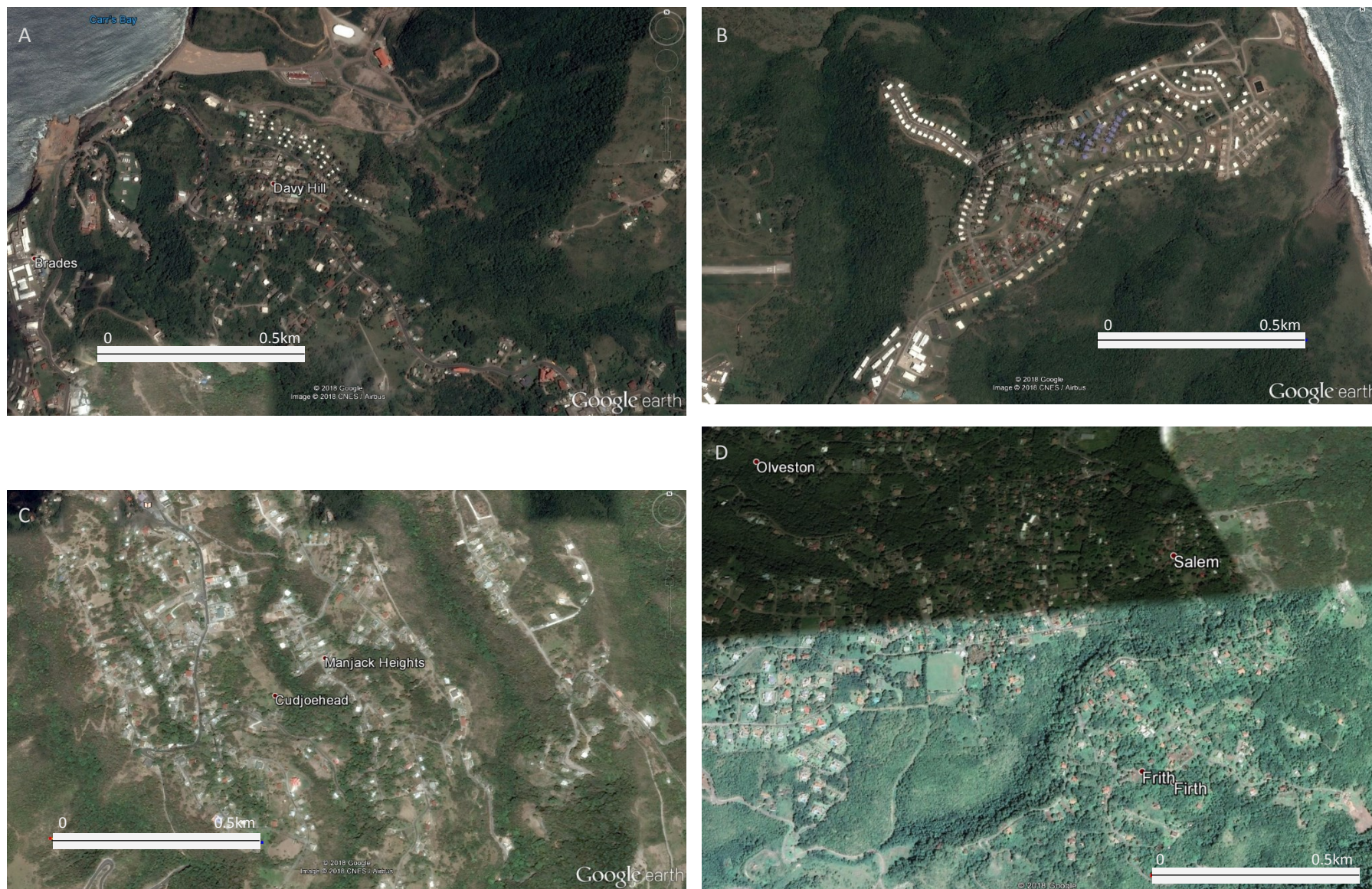
Figure 5.2: *Aerial photographs of (A) Davy Hill, (B) Lookout, (C) Cudjoe Head, (D) Salem (source: Google Earth, 2018)*

I chose to compare these four neighborhoods because of the major differences both in their modes of development and in their current demographic, physical and social situations. Lookout and Davy Hill are interesting to examine because both of them have emerged as a direct consequence of the population displacement and destruction of the south of the island. As Rozdilsky (2003) demonstrated, the creation of new towns indeed plays a major role in the first years of recovery process. However, the development of Montserrat is not based only on new settlement, but also on the redevelopment of villages that pre-existed before the volcanic crisis. That is why I analyze the impacts of the redevelopment Cudjoe Head and Salem; two villages that have been less subject to strategic and planned development after 1995. At the time of the study, the four places present a very diverse identity and very diverse socio-economic and physical issues. The contrast between these four villages highlights some processes of development and their impact on long-term recovery.

For the purposes of this study, I conducted semi-structured interviews with the residents of the four villages, social workers and policy-makers. I also interviewed formally and informally people living outside these villages in order to assess the external perception of these places. By living in Montserrat, in particular six months in Cudjoe Head and five months in Lookout, I could conduct extensive observation.

The different patterns of development of these four neighborhoods highlight different obstacles to social cohesion at the local and national scale that can affect the whole process of recovery, over the long-term, by maintaining or increasing social fragmentation. These four forms of development allow us to understand how the principle of 'build back better' is implemented and what may interfere with it. I demonstrate how the experience of disaster encourages physical preparedness while rebuilding but also how other priorities affect that ideal. While rebuilding from scratch could facilitate the construction of more resistant infrastructure, several factors, such as needs that are more urgent, limited resources, and low level of risk awareness, can interfere. I also analyze how different speeds of social and physical recovery interfere with each other in each village and affect the overall development or redevelopment both of the villages themselves but also of the whole territory.

5.1. How different forms of physical development induce different levels of social cohesion

The volcanic disaster did not only manifest itself in terms of destruction of the infrastructure. It also strongly contributed to the disaggregation of the social relations. The displacement to the north and the emigration of 75% of the total population has led to the separation of families and communities and has jeopardized social networks and social cohesion. The rapid and relatively massive immigration has also largely contributed to social transformation. Twenty years after the beginning of the crisis, the rebuilding of the north of the island and the creation of new neighborhoods seems to have generated new types of connectivity between and within the different communities (Halcrow Group Limited, 2012b). As seen in chapter 2, social cohesion plays a major role for reducing vulnerability to natural hazards and support different stages of recovery, by maintaining or building trust in the different stakeholders, preventing conflicts and encouraging participation to the community life (Cheong, Edwards, Goulbourne, & Solomos, 2007; Djalante, Holley, & Thomalla, 2011; Forrest & Kearns, 2001; Guadagno, Fuhrer, & Twigg, 2017). The variable degree of social cohesion in the different neighborhoods therefore has major implications on their recovery. However as we have seen previously, there are different kinds of connections, between and within communities, and all do not necessarily bring social cohesion in the whole society (Cheong et al., 2007; Macnab, Thomas, & Grosvenor, n.d.). It is therefore essential to analyze how the social capital, in particular social networks, are shaped and used within the communities and neighborhoods.

The rebuilding process may be the opportunity to provide the necessary infrastructure essential to develop networks, facilitate social cohesion and to shift from a disaggregated society to one with higher bridging network (Cheong et al., 2007; Macnab et al., n.d.). As a period of opportunity for change, the recovery period may be seen as an opportunity to enhance capacities and rebuild by avoiding past mistakes and improve societal functionality, from a multi-scale and holistic point of view (Natural Hazards Center, 2001). The way that neighborhoods are rebuilt is therefore critical to determine the development strategies and the type of connectivity between and within communities. Montserratians and social workers report major changes in the relationship between people following the volcanic crisis. During an interview in 2017, a social worker explained that the sense of community had been lost due

to the displacement to the north and the separation of families, and could be reestablished again but only thanks to major efforts. She referred here particularly to the bonding network within the Montserratian community. She added that before there were representatives of the different villages, while now there are only leaders for the whole island, contributing therefore to the loss of sense of community at local scale and the loss of identification to a specific neighborhood. A man living in Montserrat for about 40 years explained to me during an informal discussion in January 2017 that the new communities are artificial ones and have not been able to reproduce the solidarity existing before 1995. He illustrated that by the example of the new need for childcare while before people used to look after each other. Now there is a new need of organizing specific structures to compensate for the lack of solidarity.

I analyze here how the new settlements and the efforts for rebuilding cope with the multiple demographic and cultural change in order to recreate a sense of community and social cohesion, necessary for a sustainable recovery. I examine the differences of success and social cohesion between the different neighborhoods and I inspect the main obstacles or the main strategies (or lack of strategies) which have contributed to such differences.

Three main factors obstructing the creation of social cohesion and bridging social network emerge from the comparison of the four villages, namely:

- the lack of appropriate infrastructure;
- the social mix and stereotypes associated with some groups;
- the lack of identification with the new neighborhoods by the displaced population.

5.1.1. Davy Hill: new development during an emergency

The development of Davy Hill reflects a typical way of recovering where the emergency takes over planning for the long-term. Post-disaster recovery creates a tension between the need for rapid reconstruction and rapid decisions, and the necessity to take time to think through decisions and gather resources for a sustainable development project (Olshansky, Hopkins, & Johnson, 2012; Rubin, Saperstein, & Barbee, 1985). The neighborhood of Davy Hill was the first to be built after the evacuations of the southern part

of the Island. It aimed to provide a rapid, but temporary, solution to accommodate the displaced people, as the life in shelters and under tents was raising tensions and discomfort as the situation prolonged itself. In her account of the first five years of the volcanic crisis, the journalist Polly Pattullo explains that in 1997, being two years after the first eruption, "the building program was extremely needed" in order both to encourage emigrants to come back but also "to cope with the needs of those who had remained on the island". Therefore in July 1997, the UK government allocated £6.5 million to build 250 houses, and 50 prefabricated two-bedroom houses were quickly made ready by the following November. They were provided primarily for the people who had been in shelters longest. However, despite providing a rapid answer to the need for rehousing, it has been rapidly criticized, especially for not respecting the local standards and the Caribbean housing-style. Gradually other social, sanitary and economic issues have emerged.

The 2012-2022 Physical Development Plan (GoM, 2012b) mentions the lack of recreational facilities in Davy Hill and the need to deal with the high unemployment in the neighborhood. Indeed it was estimated that unemployment was around 60% in 2012 and that many households were in the low income bracket (GoM, 2012b). The neighborhood is also perceived by some of being a "ghetto" because of a perceived higher level of petty crimes. In their report on living conditions of Montserrat in 2009, Halcrow Group Limited (2012a) stated that, "Davy Hill and parts of Salem were mentioned by some respondents as being prone to disorderliness and some crime". The fact that it is a "ghetto" is denied by the inhabitants and community action group of Davy Hill. They argue that the multiple petty crimes that were perpetrated in the neighborhood were the act of outsiders, in particular drug dealers who used to meet in the neighborhood for a short period of time. Whoever are responsible, it illustrates nonetheless the image emerging from the structure and the life in Davy Hill.

The appearance of the neighborhood, often qualified as poor looking, and the lack of recreational infrastructure affect not only its image at the national scale, but also the capacity of people to create social cohesion. Being a neighborhood mixing different communities, namely displaced Montserratians and a growing number of immigrants, especially Dominicans (DR), there is naturally no strong connection between the inhabitants. During an informal talk in February 2017, an old Montserratian woman told me that she moved to Davy Hill after the evacuation of Plymouth, where her former house was located. In trying to understand where

her new house was located, I ask her if it is in the down part of the main road. She strongly reacted by saying that those were not houses for her, implying a spatial segregation by social class or ethnic group. It is indeed on the main road that the first houses for resettlement have been built and where social issues are arising the most. A leader of the community action group explained that because there is no social area, people do not get much opportunity to socialize. She said:

> *"It's rather a 'good afternoon', 'good bye' area when people go from work to home."* (Informal discussion in February 2017)

There is a perception that Davy Hill is a neighborhood with a higher level of petty crimes, a fact that is refuted by the community action group and some inhabitants of the area. They argue that the tensions and fights which have been more common at some period were not linked to the inhabitants but were rather the fact of external people involved in some drug trafficking. The major disruptions have decreased now according to the inhabitants and social workers.

Moreover, although the children of Davy Hill are all supposed to go to Lookout school, the Dominican (DR) children tend to rather go to another school where most of them were initially before the move to Davy Hill with their family. While there was no comment about that, it may contribute to divide the children between those newly arrived and those from more 'established' families, acknowledging that school is an important place for socialization and integration. It contributes however to reinforce the bonding social capital within the Dominican (DR) community, which tends to share more activities all together and share spaces for socialization within the community, especially bars and church. Overall, at the scale of the neighborhood, the level of social cohesion and sense of community remains low as the bridging and bonding social networks have not been developed, except in some extent within the Dominican (DR) community.

Gradually, some informal and formal measures are implemented in Davy Hill by different actors, including the government, the Red Cross and the inhabitants, as the need for tackling social issues becomes more acute. A community centre, part of the Physical Development Plan of 2012-2022, has been built in 2017 (Figure 5.3). It was designed to be a multi-purpose centre, for recreational and training activities. In an article of the Montserrat

Reporter, the national newspaper, officials insisted on the role of the centre for socialization and for "bringing people together" (Roach, 2017).

Figure 5.3: Opening ceremony of the Davy Hill Community Centre on March 26, 2017 (Roach, 2017)

Additionally, the Red Cross has conducted different projects to improve the image of the area, its safety and sanitation. The government also plans to improve the housing and gradually replace the temporary houses raised for resettling the displaced people. The community action group, established with the creation of Davy Hill but actually only active since 2012, also aims to stimulate social activities and to advocate as a big group for the development of the neighborhood. The efforts for social recovery in Davy Hill are therefore belated compared to the efforts for physical recovery. While they can be sufficient to compensate the initial gaps, they reveal the incapacity of the society and policy-makers to benefit fully of the "window of opportunity" offered by a disaster, because of the compression of time, or the emergency response to specific needs. Moreover, the lack of consideration of the long-term needs and more specifically of the social issues, can be detrimental in the long-term, even after some measures are taken. The negative image of Davy Hill persists even after the tensions and illegal activities have stopped. Moreover the temporary housing proves to be difficult to replace as they are already built. Several prefabricated houses are still in place 20 years after having been built. While the government encourages people to fix their houses or to build stronger ones, it is more difficult to retrofit existing ones than to create from scratch because of the additional costs and the lower emergency of the situation. Interestingly the risk of a difficult transition

from temporary to permanent infrastructure was already a problem mentioned at the beginning of the crisis as it could lead to a lower quality of life (Rozdilsky, 2003), and hence to various drivers of vulnerability to natural hazards. Fifteen years after Rozdilsky's observation, the problem seems indeed to now be rooted and to impede the sustainability of the recovery process. As Gawronski & Olson (2013) explain, the first stages of development are a "critical juncture", where the choices made becomes a determinant for the future and difficult to correct.

5.1.2. *Lookout: new development during an emergency, with anticipation of the long-term needs*

The development of Lookout can be compared with the development of Davy Hill, as it was also created as a new neighborhood to relocate displaced people. Lookout has been subject of longer reflection and more long-term planning, and faces today a very different situation than Davy Hill, despite having been built under the same conditions. Built also in order to relocate those who were staying in shelters, it is described by some Montserratians as a "social experiment". While the construction company was the same than for Davy Hill, local architects, contractors and suppliers were involved in the decision-making process in order to better adapt the housing to local standards and regulations (Pattullo, 2000). The willingness to adopt a more planned way of building led to multiple delays during the construction process due to the difficulties of the local contractors to complete on time, and therefore there were lots of complaints. However in the long-term less social and physical issues have emerged from the development of Lookout and overall the neighborhood is seen to be more successful than Davy Hill. Lookout has been thought to [re]create a sense of community and to be more multi-functional, with the integration of several small supermarkets at different levels of the neighborhood, of a primary school (Figure 5.4), a nursery, a care home and a church. It is hence not only a place of residence but also a place where people commute to go to school, work or church.

Figure 5.4: Lookout Primary School, built with the neighbourhood (©Charlotte Monteil, 2017)

Unlike the development of Davy Hill, the development of Lookout has taken more into consideration of the different dimensions of recovery, including physical, social and economic recovery. The fact that it is not only a residential area encourages 'village life' within the area by providing a diversity of services and activities. It enables the neighborhood to build a specific identity in Montserrat and to actively contribute to the development of the Island. Lookout is not only a place where people have their house, it is also a place where children go to school, even if they do not live there, and where many people have their church. Importantly, more attention has been given to the appearance of the neighborhood and to the appearance of the houses. It benefits therefore from a better image, being attractive for a number of households thanks to its structure, to the way it looks and to its identity. Fewer social issues are reported in Lookout than in Davy Hill twenty years after its creation. Some issues, like a few temporary houses which need to be rebuilt and a lack of recreational activities, are mentioned but do not seem as critical as in Davy Hill. Most constraints for further development of Lookout are due to a lack of available lands and to the topography, but are not directly linked to the initial development plans.

Noticeably, Lookout is one of the neighborhoods with the highest Montserratian population, comprising about 90% of its residents (GoM, 2012a, 2012b). That appears as a factor likely to facilitate the creation of bonding social network as it gathers a more homogeneous population. The low number of immigrants is due especially to the fact that most

houses were initially provided to the displaced Montserratians and only a few plots are available for autonomous construction by non-displaced households due to limited space. It makes therefore the access to land more difficult for immigrants who often have less stable incomes and less capacity to own their own lands.

The development of these two new neighborhoods, Davy Hill and Lookout, and their differences at the time of the study brings to light the long-term impacts of two different strategies of rapid building. While the building of Lookout has been done in order to anticipate some long-term needs, the development of Davy Hill is primarily associated with the physical rebuilding, and tends to ignore the more comprehensive nature of the process, mainly as a symptom of time compression (Olshansky et al, 2012). The immediate emergency to relocate people living in harsh conditions prevented the anticipation of the long-term needs of the neighborhood. Apart from the need for accommodation, the multiple consequences of displacing and relocating people was ignored and therefore does the possible emergence of socio-economic issues was unanticipated, unlike the development of Lookout. However, only fifteen years later, social issues are a concern both at the scale of the Davy Hill and at the national scale. While Lookout benefits from a rather positive image, Davy Hill faces more critiques concerning various socio-economic issues.

Importantly, the way these two villages have been developed has implications also at the national scale, notably the distribution of the population at the national scale and the reputation of the residents and their integration nationally. The fact that both neighborhoods were initially set up for displaced people and that Lookout did not allow for much extension determines the spatial distribution of the population by nationality and level of wealth in Montserrat. It automatically makes the access to residence in Lookout more difficult for the immigrants and tends to prevent the creation of bridging social networks. On the contrary, Davy Hill, because of housing being on average cheaper than the rest of the Island, tends to attract some of the immigrant population, while several Montserratians express reluctance to the idea to settle there. The rapid development of Lookout and Davy Hill, their reputation and their current situation therefore affects the relationship between communities at the national scale. It seems to gradually lead to favorable conditions for spatial segregation depending on the country of origin, and hence to potentially unfavorable conditions for developing bridging social network and hence social cohesion between communities at the national scale.

5.1.3.   *Cudjoe Head: a spontaneous development based on private initiatives*

The development of Cudjoe Head is similar to the development of several other villages of Montserrat built on private lands, such as St John's and St Peters. It does not depend on formal governmental plans. Instead the construction is more spontaneous, gradually led by the house owners. While a few houses were existing prior to 1995, most have been built later when displaced people could get some lands in the area. Interviews reveal that there were different scenarios. A woman who was living in the now exclusion zone explained that she moved on to land belonging to a relative, who let her build a house on it. Some instead bought land after their displacement in the north and after one or several movements from a temporary settlement to another. Another woman explained that she could obtain land at cheaper price because she knew the owner and made an agreement with him. The GoM then provided some financial support to rebuild homes for the displaced people. The amount of support depended on the size of the household in order to adapt the size of the house. This system of support has allowed more flexibility on the general structure of the neighborhood than in Davy Hill or Lookout even if it is subject to some criticism. The development of the neighborhood therefore has been more progressive than in Davy Hill and Lookout and is still in process. It depends mainly on the acquisition of land and on private initiatives rather than on the decisions of external donors and national plans. However, a number of houses are rented while the landowners live abroad. The Physical Development Plan for North of Montserrat 2012-2022 (GoM, 2012b, p.126) presents the fragmentation of lands and their access as a major issue for further development. It says, "the unwillingness of many land owners to sell property to buyers who are not family and friends is placing a major strain on the developable land. Often, people wish to hold land for future use rather than develop it so that it can contribute to the housing and buildings stock". Private initiatives therefore determine the pace and the form of development of the area with little possibility of coordination or intervention by the government.

Moreover, although the center of Cudjoe Head, alongside the main road, is dedicated to commercial area and a few places of socialization (including bars and small take-away food outlets), there is no recreational place nearby. The area remains very residential and observation reveals that most of the social life happens outside, considerably limiting the

opportunity for exchanges within the village and potentially the level of social cohesion and development of a sense of place.

The private and spontaneous development of Cudjoe Head also has implications at the national scale, in the same way than Lookout and Davy Hill. The conditions of access to land strongly determines the nationality and social class of the population living in Cudjoe Head. It is facilitated for the Montserratians, displaced or not. Indeed they are more likely to have members of their close social network, including family and friends, owning land in the area and willing to either give them or sell them at low cost some lands to build a house. As a consequence, only 28% of the inhabitants are immigrants according to the data provided by the Department of Statistics in 2016. The statistics however, do not specify whether they are owners or tenants. The form of development of Cudjoe Head following 1995 therefore also affects the distribution of the population at the scale of the island and hence the form of relation between national and immigrant communities. Similarly as Lookout and Davy Hill, the development of Cudjoe Head tends to prevent bridging social network as little is done to encourage exchange and socialization between communities.

5.1.4. *Salem: development of an existing settlement affected by major demographic change*

Salem represents a fourth form of development, or redevelopment, following 1995. Unlike Lookout and Davy Hill, it existed long before 1995. Although Cudjoe Head only accounted for a few houses, Salem was already a major village on the island. It highly evolved after having been evacuated several times between 1996 and 1998 (GoM, 2012b; Pattullo, 2000). The structure of the village and some of the facilities existing today are inherited from the pre-volcanic crisis period, giving a paradoxical image to the village. It is often considered as one of the few remnants of the "real" Montserrat and it is the object of a lot of pride from the "Salemites", a name identifying the people who grew up in Salem before 1995. It is used every year as a main hub for major festivities like St Patrick's festival (Figure 5.5). The village has been chosen to host these events due to its physical features that enables the accommodation of a large number of people, and due to its identity as the most ancient village of Montserrat out of devastated area. However, the village has also faced some major changes

and does not always benefit from a positive image. According to Physical Planning Unit & GoM (2012) and Montserratian interviewees, Salem was a major commercial center on the island but has now lost much of this activity. Although the center of Salem still has a concentration of a number of shops, bars and restaurants, several amenities, like a school and some churches, have closed down (Figure 5.6).

Figure 5.5: *St Patrick's Festival in the streets of Salem (©Charlotte Monteil, 2016)*

Figure 5.6: *an abandoned restaurant in Salem (©Charlotte Monteil, 2017)*

Although Salem existed before the first eruption, its identity and image at the national scale seems to have strongly change since then. Its location plays a major role. Its proximity with the volcano and the devastated area appears as a factor of fear for a number of Montserratians and for those who left the village during the volcanic crisis. A disaster manager

at the Red Cross explained in January 2017 during a semi-structured interview, that the situation in Salem still looks "volatile and uncertain" because of the risk of ash falls. The high level of uncertainty tends to discourage investments and maintenance of the area, including roads and public facilities, by fear of wasted money in case of another eruption. During an interview, a physical planner explained in February 2017:

> "[Montserratians] think it is too close from the volcano so they don't want to go. [...] The government provides some incentives to rehabilitate some houses there but they don't want to invest in roads or things like that. They don't have much interest in that area."

Moreover because of the repeated evacuations, many houses lay empty, either available to rent or abandoned. That contributes to decrease the value of the land and housing in Salem. Its relative remoteness from the new main core of the Island, Brades, considered as the commercial capital, also contributes now to decrease its attractiveness. It has therefore now become one of the cheapest areas of Montserrat.

The rapid evolution of Salem and the decrease of its value have led to a demographic transformation, composed of a poorer population, mainly immigrant communities looking for cheaper place to stay and to gather. Consequently, Salem has become the first place of settlement in Montserrat of the poorest immigrants and of those who do not intend to settle down in Montserrat for long. Among the Dominican (DR) community, the willingness to stay gathered in a local area has contributed to raise numbers of the community living in Salem. To justify where the Dominican (DR) choose to live, a Dominican (DR) man argued in January 2016 during an interview:

> "In Salem, we have a lot of Spanish because where we live… that is the Spanish culture, the Spanish culture they like to live closer. So the majority of them live in Salem and then we have some there and there, we have a few of them. But they live in about you know, in the area. They do not live far, you know. Like let's say here, in Davy Hill, we have a group of them. That is our culture, try to live in the same area at least."

The Department of Statistics indicates that 41% of its residents in 2016 are immigrants, which places it as the village with the most immigrants, if we exclude the particular situation of the areas mainly occupied by the "expatriate" community, being the European and North American immigrants, in Olveston, Old Towne and Isles Bay. In Hope, one of the neighborhoods of Salem, a Montserratian resident who was living there before 1995 revealed that only three households have remained after the multiple evacuations. All other residents, about 60 households, have left Montserrat. The houses of the neighborhood are therefore only composed of newcomers.

The rapid demographic change in Salem due to the decrease of the cost of housing contributes even more to reduce the value of the area, creating a spiral of decline. It gradually leads to a negative transformation of the socio-economic characteristics and identity of the area of Salem. It seems to self-maintain a negative image of the village. Indeed, a number of Montserratians explain that the large presence of immigrants, among the poorest ones, is seen as quite negative and encourage them not to settle there. For instance, a Canadian woman looking to buy a house explained that she had been discouraged by Montserratians who were describing the village as "the little Dominican Republic", as the "Spanish neighborhood". Salem is regularly qualified as a "ghetto" and suffers from the same negative stereotypes affecting the immigrants.

While the village has dramatically changed, in particular demographically and socially post 1995, some efforts have been made to preserve its past identity. The St Patrick's festival, major annual event for the island, in addition of a number of national events, parades and celebrations are conducted in the center of Salem. That contributes to improve the social life of the village and to give a positive image to it by making Salem being the active place of Montserrat during some weeks or days.

However, despite hosting these important events for the Island and the presence of several bars, social cohesion between communities seems to remain relatively poor within Salem. A lot of people going to the bars are actually not living in Salem. For a number of immigrants, national events like St Patrick's Festival or local events like Salem's day are considered as "too Montserratian" for them to be able to fully take part to them. Similarly to what is found in Davy Hill, several bars in Salem are owned and used by the Dominican (DR) community, constituting important places of socialization for this community but not allowing

strong exchanges with the non-Spanish-speaking people. Moreover several immigrant inhabitants, living in below average socio-economic conditions, explained during informal discussions that they cannot afford to go socializing much. A Dominican (DR) woman living there argued that she had to combine several jobs to earn her life and send money to her family back in Dominican Republic, and therefore does not have time or money to go out. During a personal conversation, another Dominican (DR) explained that because she used to help her neighbor, an old and sick Montserratian man, she was subject of gossip as people thought she was may be a prostitute. She explained that these kind of remarks discouraged some Dominicans (DR) to mix with the other communities. During a meeting organized by the Red Cross in Hope, a neighborhood of Salem, the participants regretted that none of the Montserratian inhabitants had turned up to the meeting, an issue commonly reported by the Red Cross during community activities. According to a staff of the Red Cross, that reflects the type of relationships in the neighborhoods and the differences of behavior between the different communities.

Although the old structure of Salem allows it to maintain a more village 'feel' than the newer settlements, the movements of the population to and from Salem have strongly affected the type of connectivity between communities. The social issues affecting immigrant communities and the high diversity of communities living in Salem challenge the development of social cohesion and bridging social network. On the contrary, more is done to reinforce bonding networks within the Montserratian community. That tends to exclude the immigrants that do not share the same identity. It prevents the development of a bridging social network and hence social cohesion between communities.

Unlike the other settlements presented previously, the development of Salem and the relations between people within the neighborhood are not mainly dependent on the strategies of development post-disaster but rather the consequence of successive changes during and after the disaster and lack of measures to counterbalance these changes.

5.1.5. *Recovery processes, different paces, different scales.*

The post-disaster recovery process takes place at different spatial scales, namely individual, community, village and national scale, at different temporal scales, and under different dimensions, such as physical, economic or social (Cash et al., 2006; Djalante et al., 2011; Gibson, Ostrom, & Ahn, 2000). The analysis of the growth, or evolution, of four villages in the post-disaster period, namely Davy Hill, Lookout, Cudjoe Head and Salem, highlights some major constraints towards leading a sustainable recovery process. It also illustrates the factors that affect the pace and trajectory of recovery in different places, and ultimately at the national scale.

5.1.5.1. *Recovery constrained by the availability of resources and the pre-disaster system*

While the post-disaster period is often presented as a "window of opportunity" to build-back-better and to take into consideration the lessons of the disaster, there are also a variety of challenges associated with this stage. The development of these four areas of Montserrat highlights how some major constraints prevent the creation of social cohesion between communities at the local and national scale, and thereby the sustainability of the recovery process. It also highlights that post-disaster recovery is not independent from the pre-disaster period. The dynamics already in place, such as the relationships between and within communities or the political situation of the territory, and the resources remaining available following the disaster strongly determine the shape and pathway of the post-disaster recovery.

The history and political condition of Montserrat, as a British Overseas Territory, a Small Island Developing State and a land of slavery in the past, affect in multiple ways the strategies of recovery of Montserrat and of its different neighborhoods. As explained previously, Davy Hill and Lookout have been developed due to support from external funding, and a lack of resources internally. Although rapid external support has enabled physical rebuilding, frequent complaints from residents have concerned the fact that the new settlements were not culturally adapted to the practices and habits in Montserrat (GoM, 2012b; Pattullo, 2000). The strong situation of dependency of Montserrat therefore contributes to

determine the type of recovery process, notably the strong focus on the physical dimension of recovery and the relative negligence of its social aspects.

In the same vein, the traditional system of land division, in place for several generations and resulting essentially from its slavery history, also determines the recovery pathway. As we have seen previously, it constrains the growth of Lookout from private investments and limits the access to land in Cudjoe Head. The history and traditions of Montserrat, with large families and frequent emigration of some of their members, makes it difficult to sell land or use it for rapid investment, as land cannot be sold without the agreement of all members of the family. That affects, by repercussion, the distribution of the population at the national scale, with areas comprising less than 10% of immigrants and some with almost half of their residents being immigrants, altering hence the possibilities of building social cohesion in a diversifying society.

That not only demonstrates the high interactions between different dimensions of the recovery process, but also that it is part of a long-term process, very connected to the pre-disaster situation.

5.1.5.2. *Different paces and processes of recovery for different neighborhoods.*

The analysis of the four neighborhoods highlights that the pace of recovery can differ highly from one place to another. It therefore prevents an examination of the post-disaster recovery at a specific time as an outcome, and requires instead to analyze the whole process. In each village analyzed previously, one notes the emergence of various needs and socio-economic or physical conditions.

By comparing the situation of Davy Hill with Lookout or Cudjoe Head, one notices that it suffers from a relatively negative reputation. At the time of the study, it faces the adverse effects of unplanned and rapid development. However, this observation, by the inhabitants themselves, the social services and the Red Cross, leads to various initiatives at the local scale to counterbalance the situation. That includes for instance the construction of a community center, various works for an aesthetic improvement of the area, and since 2018 the increasing mobilization of the community action group. In the long-term, these efforts may therefore

improve the social situation of the neighborhood and favor social cohesion between communities. In Davy Hill, we observe therefore a succession of reactions potentially counterbalancing the cascading effects of the disaster and the lack of long-term planning.

A very different process is observed in Cudjoe Head and Salem, where the post-disaster development or redevelopment has been much more spontaneous. Although on the one hand, it appears to be smoother form of development; less artificial and culturally more adequate, there was no formal planning and multi-scale coordination of the needs and plans. This type of redevelopment tends to respond mainly to the short-term individual's needs, especially physical and economic recovery at individual levels, depending on various constraints such as the availability of lands and their cost, and the time-compression (Olshansky et al., 2012). It makes coordination and consideration of the rapid demographic, economic and social change more difficult and fails to take into consideration the needs for long-term at national scale, including social recovery and inter-communities relationships.

Only Lookout benefited from the "window of opportunity" opened by the disaster as investments were rapidly made in order specifically to tackle the different dimensions of the recovery altogether, including building social cohesion, creating a sense of community, relocating people and rebuilding major infrastructures mainly. Although there is still place for improvement in terms of social cohesion between the inhabitants for instance, it demonstrates a faster pace of recovery at the local scale. That is essentially due to rapid investments, a more comprehensive approach of what recovery is, and a possibility of more coordination and planning as almost the whole neighborhood was built from the same funding and at the same time. It remains to see how this form of development affects the recovery process of the whole Island as it has so far contributed to a segregation of the population depending on whether they are Montserratian or not.

The development of the four neighborhoods therefore points out conflicts of spatial and time scales in the recovery process. It demonstrates how the physical aspect of the recovery takes priority over its social and human dimensions. The lack of coordination linked to the pressure for rapid solutions during the post-disaster period and due to the lack of resources can create favorable conditions to a downward spiral instead of an adaptive cycle (Bunce, Mee, Rodwell, & Gibb, 2009) which would enable resilience and reduction of the vulnerability to disaster. The development of each neighborhood demonstrates a willingness to reinforce

bonding social network among the Montserratian community especially instead of a bridging social network between the different groups. It demonstrates the willingness to "return to normal" and recreate the identity and the connectivity that existed in Montserrat before the crisis, while the society was more homogenous. That way, the recovery process of Montserrat fails to adapt to the new characteristics of the society and hence to build proactive resilience, characterized essentially by the adaptive capacities of a society (Djalante et al., 2011; Djalante, Holley, Thomalla, & Carnegie, 2013; Klein, Nicholls, & Thomalla, 2003; Manyena, 2006). The consequences of the development of bonding social network within the Montserratian community, being the majority community, may affect the sustainability of the development as the society becomes more diverse. Diverse studies have indeed shown the major importance of bridging social network for long-term recovery (Hawkins & Maurer, 2010, 2011) in order to support neighborhood and community revitalization. It has also been shown that strong internal bonds can compromise social cohesion, by excluding minority communities (Cheong et al., 2007; Leonard, 2004; Macnab et al., n.d.), contributing to marginalize them and hence to create conditions of vulnerability to disaster. In consequent, the development of Lookout, mainly based on the creation of a strong bonding social capital may compromise the opportunity to bridge the networks and build social cohesion.

5.2.   Building-back-better: how that principle is implemented in the north of Montserrat

While rebuilding in new areas theoretically offers the possibility to create a strong social environment, with favorable conditions for social cohesion, sense of place and building of a new identity, it is also creates the opportunity to "build-back-better", referring here to the reduction of physical vulnerability. This idea has become important in the concept of recovery, highlighting the need of learning from the past and not reproducing the factors of vulnerability that could lead to disaster. It is what differentiates the concept of recovering with the idea of a return to normal or to pre-disaster conditions (Johnson & Hayashi, 2012).

In terms of rebuilding, the idea of build-back-better emphasizes the need to create stronger and less vulnerable infrastructure and neighborhoods. It has been institutionalized for the first time under the 2007-2013 Hyogo Framework for Action which underlines the

"responsibility to protect" (Becker & Reusser, 2016, p.82) and the "need for quality in the recovery efforts" (Khasalamwa, 2009, p.73). UNISDR defines the principle of Build Back Better as "the use of the recovery, rehabilitation and reconstruction phases after a disaster to increase the resilience of nations and communities through integrating disaster risk reduction measures into the restoration of physical infrastructure and societal systems, and into the revitalization of livelihoods, economies, and the environment" (United Nations General Assembly, 2016 in UNISDR, 2015, p.6). It comes with a holistic understanding of the process of recovery, where response, mitigation, preparedness and sustainable development are inseparable (UNISDR, 2007, 2015).

5.2.1. *Moving to the north and build-back-better*

In Montserrat, the displacement of the population to an underdeveloped area, with very little existing infrastructure, in addition of two recent experiences of disasters, namely hurricane Hugo in 1989 and the volcanic eruptions from 1995, appear as favorable conditions for applying the principle of build back better. Through the development of the four neighborhoods presented earlier, Cudjoe Head, Lookout, Davy Hill and Salem, I examine how the idea of "building-back-better" is implemented and its main obstacles. The redevelopment and recovery process in Montserrat must not only take into consideration the risk of volcanic hazards but also the other hazards that the island is prone to, like hurricane, landslides, flood, earthquake and tsunami to name only the major ones. The redevelopment of Montserrat also shows how some hazards, like droughts, earthquake or tsunami, are more neglected than others. It can be because of a lower risk of damage or of occurrence of the hazards. However several other factors are at play, such as the perception of the risk and the differential level of awareness for different risks, the trauma from the previous hazard, the conflict with other priorities and the lack of resources to deal with them all.

5.2.1.1. *Displacement as a way to reduce the exposure to volcanic hazards*

The displacement of people to the north of the island, out of the exclusion zone, has consequently reduced the exposure of the population and dwellings to volcanic hazards. The

volcanic hazards map indicates that, with the exception of Salem, Isles Bay and Old Towne which are located in zone A and B, all other inhabited areas are no longer exposed to volcanic hazards (MVO, DMCA, & GoM, 2011). One exception to this is that the inhabited areas could still be affected by ash falls and acid rain, as they can both cover the whole Island if the wind direction redirects gas and ash plumes over to the north. This can affect crops, backyard gardens, and the infrastructure that is sensitive to acid rain. That requires some adjustments, such as green houses for farmers (Halcrow Group Limited, 2012a, 2012b). Additionally, secondary lahars occasionally flow down the Belham Valley; a dry river channel that has to be crossed to reach Isles Bay and Garibaldi Hill, where there are a number of houses (Figure 5.7). Although there is no direct risk to the population of these areas (if of course they are not in the valley itself) it can restrict access to the south of the valley.

A policy-maker explained that moving to the north and implementing an exclusion zone was a strategy to mitigate the risk. She said:

"We're all in the north now, you know, we don't, we're not in the south, that's one of the way of managing, we manage […] if you can go in, if you can't, you know, all that kind of stuffs. […] any place that people can live and rent have been scientifically allocated that they can live there. There is very clear demarcation based on very scientific research and the experience of the last volcano about where it's safe

to live and where it's not. And nobody can live legally in any unsafe zone. There is some activities carried on, some are in the unsafe zone, people go on and do that like in Cork hill car races and stuffs like that, but you cannot live, you are not allowed to live and it is monitored anyway, so you know... but has been scientifically designated a safe zone." (Interview in May 2016)

Figure 5.7: Lahars formed in April 2016 in the Belham Valley that destroyed the road and cut the access to the southern side of the Valley (©Charlotte Monteil)

However, the area that is the most exposed to volcanic risks, known now as the exclusion zone, is still used for various economic activities for instance. Therefore several people and families remain at risk. The economy of Montserrat is therefore still partly dependent on volcanic hazards, including pyroclastic flows and lahars. I will explore more deeply evolution of the risk perception over the Island in the Chapter 7 in order to examine how it affects the recovery process of Montserrat.

5.2.1.2. *Rebuilding and taking into account the past experiences of disasters*

The risk of hurricane is of major concern in Montserrat. The Island had been strongly affected by hurricane Hugo in 1989, with 85% of dwellings either totally destroyed or seriously damaged (Berke & Wenger, 1991), only six years before the first eruption. As we will see in Chapter 7, the direct memory of hurricane Hugo and the opportunity to build back new houses has enabled to build stronger concrete houses and supposed to be hurricane-proof. Considering the lack of data and lack of building control, it is difficult to know the exact proportion of hurricane-proof building. However, according to the policy-makers and the inhabitants who have seen the evolution before and after the displacement to the north, the reconstruction in the north has been a good opportunity to build hurricane-proof houses and infrastructure. Most houses now have a flat roof and are made of concrete, contrary to before 1995. The OECS building code (GoM, 2015), used for Montserrat, pays particular attention to the risk of hurricane, before all other hazards. It refers to the previous hurricanes and mentions:

> *"The reviews of damage by the recent hurricanes have shown the need to be specific about the design and installation of exterior doors and windows and other non-structural items. The Code requires that such doors and windows be designed by experienced structural engineers or architects to resist hurricane winds in accordance with Section 12 of the Code".*

Despite the fact that there is no obligation and no systematic control of its implementation, one observes a general compliance when building new houses to make sure that their houses are resistant to hurricanes. In September 2017, when hurricane Maria passed 50 miles south of Montserrat, it was mainly the bars that lost their roofs or were damaged in

some other way (Figure 5.8), while all the houses withstood the impact fairly well, facing minor damages at the worse. Despite the lack of published and shared assessment of the physical vulnerability of housing, it is clearly observable that some areas are physically more vulnerable than others. Cudjoe Head, built by individuals but with governmental aid for buying the material, is essentially composed of concrete houses with flat roofs, generally resistant to the impacts of hurricanes. The development of Lookout has also paid attention to such consideration. On the contrary, Davy Hill, because it has been developed very rapidly and in a temporary way for coping only with the emergency, is composed of a larger number of 'fragile' houses. In the same way, Salem, which does not benefit from good maintenance following the emigration of the majority of its inhabitants, is qualified as a zone of concern according to the Red Cross.

Figure 5.8: Bar-Restaurant destroyed by the Hurricane Maria in September 2017 (©Charlotte Monteil)

In addition to building better in the areas built after the disaster, the displacement to the North has been the opportunity to build hurricane shelters and reuse the shelters initially set up during the volcanic crisis for the displaced people as a refuge in case of hurricane (Figure 5.9). For instance, when he was supervising the construction of the Dominican (DR) Adventist Church in 2015-2016, the pastor insisted on the need to have a shelter for the Dominican (DR) community inside of the Church. During an interview in April 2015, he explained:

"That's why [talking about the risk of disaster] I tried my best to build a building who can be a good shelter for people. So that building we have right now is strong enough if anything happens so we can shelter the people in it. So we have downstairs

facilities, we have a bathroom, a kitchen and accommodation for people if anything happens. So Spanish people can be sheltered there. That's okay, that's for everybody, but especially for the Spanish because like I told you before, the language and the culture and somethings like that. So they can feel somebody is care for them."

In general, the risk of hurricane is better taken into consideration than in the past and compared to other natural hazards. It is also mentioned by all stakeholders. There is indeed a general agreement among policy-makers and DRR managers about the need of preparing for hurricanes.

Figure 5.9: Church in Salem, also serving as hurricane shelter (blue logo above the door) (©Charlotte Monteil, 2016)

The interviews with policy-makers and actors in charge of disaster risk reduction reveal the different factors that explain why the risk of hurricane is better taken into consideration than other hazards. That includes the regularity of the hurricane and their seasonality. They can occur every year, generally between June and September, and are therefore generally expected. The past experience of hurricane Hugo and the regular reminders in neighboring islands like the impacts of hurricane Erika in Dominica in 2015, Maria and Irma in 2017 in Barbados, St Martin, Puerto Rico, Dominica etc., also contribute largely to the awareness of the need to be well prepared. According to a disaster manager, the volcanic crisis and more recently the discovery of sinkholes in an uninhabited area have acted to remind people that natural hazards could happen suddenly, and have therefore encouraged the implementation of preparedness measures to hazards. A government officer highlighted that:

"The volcano has shown that an event can be sudden, that safety and quietness are not granted."

He shows that the volcanic eruption has emphasized the need to take the uncertain into consideration in the development plans, and that includes several type of natural hazards.

It seems therefore that there is an evolution in mentality regarding the need to consider uncertain hazards, compared to the first few years following hurricane Hugo. At that time, Possekel (1999) conducted a study to analyze the recovery process of Montserrat after hurricane Hugo and during the beginning of the volcanic crisis, and she found out that despite of a better awareness of the risk of hurricane, there was a general perception that it could not happen at such intensity again. She writes that a hurricane was "perceived as a rare and extreme event that will not repeat itself for a long time". The perception that it could not occur again prevented consideration of the risk in the reconstruction process. That corresponds to the belief that certain hazards occur as a cycle and not as random events (Wachinger & Renn, 2010; Wachinger, Renn, Begg, & Kuhlicke, 2013). It seems at contrary that the displacement to the North, the intensity of damage since 1995 and the threat on Montserrat linked to the volcanic eruptions have better raised awareness, at least in the short-term, about the need to anticipate and prepare for natural hazards. As we will see in chapter 7, several reminders are however necessary as time passes.

5.2.2.   *Obstacles to build-back-better*

While the risk of hurricane seems better taken into consideration during the recovery process, it is not the case of all types of natural hazards. As shown earlier, the measures taken for reducing the risk of disaster linked to hurricane have increased because of a better awareness of the risk and because of its high frequency of occurrence. The other hazards being more uncertain in terms of timing and intensity, they are put in conflict with other priorities and are less taken into consideration. The development of the four neighborhoods illustrates some of the tensions and obstacles for sustainable development and disaster risk reduction.

As said previously, the relocation in the north helps reducing the risk of disaster linked to volcanic hazards. However some neighborhoods, including Salem, are located in zones A

and B of the exclusion zone, which means that they are could be exposed to heavy ash fall in the event of another phase of eruption (MVO et al., 2011). Salem has been highly affected by ash falls several times between 1996 and 1998, with some fragile roofs collapsing under the weight. Between five and ten centimeters of ash fell on the village in 1995 (Searl, Nicholl, & Baxter, 2002). Although one can presuppose that the proximity of Salem with the volcano and the recent experience of ash falls could encourage households to be better prepared to volcanic hazards, the development of Salem since 1995 does not reflect a perception of high risk. It faces multiple conflicts of interests, where risk of disaster is not seen as a priority.

5.2.2.1. Risk perception in zone A

On the one hand, policy-makers and residents of Salem often argue that the area is safe. They justify this by highlighting the fact that the volcano is closely monitored by the MVO, by the fact that the village is out of zone V (the area totally excluded from occupation) and by the lack of volcanic activity since 2010.

Moreover the low frequency of volcanic activity and the quietness since 2010 may appear to justify a decrease in concern. A disaster manager explained in January 2016:

> "[the volcano] doesn't impact every day and that is the main reason [why we are not worried], but the impact is great, but the risk presently… […] before the volcano erupted in 1995, there was three measurements that were used, and all three went off. Now two, one is red and one is green, so there is a possibility that it might [erupt again] but presently there has no official word… so the risk associated with it remains low […] so you have a low priority [for preparing to volcanic hazards]."

The inhabitants use similar arguments to justify the fact that they do not take any specific measures to prepare in case of eruption, even if they seem to be aware of their proximity with the volcano and of their higher exposure than the rest of Montserrat. A Dominican (DR) man living in Salem for several years explained in April 2015 during an interview:

"We have to accustom to live with that reality. So, I don't think we need to worry too much about that. Because we live in here and we depend on that you know. We think that God is in control and whenever happens, everybody is in the same situation." (Interview in April 2015)

The development of Salem without greater consideration of the risk of ash falls than in the other areas of Montserrat illustrates the paradoxes in the risk perception and obstacles for "building-back-better". I develop this further in the Chapter 7 in order to analyze the impacts it has on the recovery processes.

5.2.2.2.   *Lack of investments and maintenance in a vulnerable area*

While the Physical Development Plan reports: "Where areas are at perceived risk from volcanic activity, such as Salem and its immediate vicinity, it is important to support social and economic development, making these areas vibrant and attractive places to live and to do business" (GoM, 2012b, p.78), Salem suffers from a clear lack of maintenance and investments. Currently, that is illustrated by the lack of infrastructures such as roads in good condition, lack of public lights, and lack of connection of several dwellings to water supply. The area faces also a relatively higher level of social problems, linked as shown previously, to a lack of consideration.

The lack of physical investments and maintenance of Salem has important consequences on the vulnerability of residents, mainly to volcanic hazards, but also to the other hazards that can affect the area, including earthquakes, hurricane and landslides. In 2015, by establishing a Vulnerability and Capacities Analysis, the Red Cross identifies a major problem of access to houses, due to the lack of roads and the bad conditions of those existing. Public buses are also not regular in that area and go there only if they are asked to do so, despite of the fact that it is an area where many residents do not own their private vehicle. A manager of the Red Cross underlined this during an interview in January 2016:

"The population there, most of them work as [house] cleaners and construction workers, they don't drive. [They are] non-nationals, Spanish, Haitians and Dominicans. So they didn't drive and they used that passage [talking about a

narrow path] to go to and from work. Sometimes late at night, it was dark without light, the road was very bad. Surfaces were very very bad."

Through advocacy of Red Cross on behalf of inhabitants of a neighborhood of Salem, a road has been opened in 2016 to facilitate the evacuation of the population in case of emergency and to allow for safer daily commuting between work and home.

A lack of maintenance of the abandoned houses has also been reported, leading to hygiene issues (Figure 5.10). It is closely linked to the rapid evacuation of the inhabitants during the volcanic crisis. Most house owners are now living abroad, and the tenants often do not have the financial capacities and the willingness to maintain the houses. Moreover, a small number of temporary shelters built for displaced people after the first evacuations were not planned to be maintained for about 20 years and are not considered as suitable in such an environmental context, despite remaining inhabited today (Figure 5.11). The lack of management and maintenance of Salem not only contributes to stigmatize its residents and prevent their integration at the national scale, as we have seen earlier, it also prevents their adequate physical preparedness to hazards.

Figure 5.10*: Abandoned house in Salem, causing sanitary problems (©Charlotte Monteil, 2016)*

Figure 5.11: *Social houses in Salem, built as temporary initially but that have become permanent. There is a plan to destroy them and move the tenants to stronger and more comfortable apartments in Davy Hill by 2020 (©Charlotte Monteil, 2016)*

While the objective of building-back-better and decreasing the vulnerability to disaster is clearly mentioned in the Sustainable Development Plan developed by the GoM (GoM, 2002, 2010), these objectives are in tension with the post-disaster change and short-term needs. As shown previously, the demographic transformation of the territory has gradually led to a greater occupation of Salem by immigrant communities. It is estimated that in 2016, about half of the population of Salem was immigrants, making Salem the area with proportionally the least number of Montserratians. For this reason, Salem is often qualified as a less attractive village than Cudjoe Head or Lookout for instance. It is difficult to assess how the demographic change of the area and its gradual association with immigrant communities, that is to say people who are perceived to stay only for short-term, discourage investments.

Despite of the high level vulnerability of the residents of Salem, the fact that they are immigrants and therefore, supposedly only passing by Montserrat for a few years, is expressed by the policy-makers as a limit for investment, especially for the maintenance of the road network and for public infrastructure. A common discourse is that investments for immigrant communities are lost investments for Montserrat, as immigrants are not expected to stay more than a few years. However, no statistical data is available to support this idea. Although it is true that a number of them rapidly leave Montserrat, in order either to go back to their place of origin or to go to the UK once they are naturalized British citizens, a large number of immigrants remain in Montserrat for long periods, up to almost two decades for some of them. There is a conflict here between the willingness to make valuable long-term investments, to

promote first the Montserratian population and to decrease the level of vulnerability to natural hazards of the residents of the Island.

The lack of investment in Salem also reveals that despite the common discourses arguing that it is safe, policy-makers still fear the uncertainty related to the volcanic hazard. The proximity of the village with the volcano is often mentioned as a major factor for limiting investments. They are considered as too risky, being potentially useless if the volcano was to erupt again, and considering the disinterestedness of Montserratians for these lands.

The Physical Development Plan highlighted in 2012 this issue: "A significant constraint is the reduced access to finance and insurance as banks and insurance companies provide very limited services at the expense of significant collateral in other locations north of Nantes River. Furthermore, the reluctance of GOM and DFID to fund infrastructure in this area is constraining development and discouraging people from investing in the area […] Road condition and capacity also hinder access to many local areas, particularly in Hope and Flemings [two neighborhoods of Salem (Editor's note)]" (GoM, 2011, p.159). While financial resources are rather invested in areas perceived as safer, that contributes at the same time to maintain a low level of attractiveness to the area and a high level of vulnerability to natural hazards.

The uncertainty and the demographic transformation of the area therefore tend to prevent investment in the area, while its occupation, increasing in the meantime the vulnerability of its inhabitants, already relatively more disadvantaged than the other communities.

5.2.2.3.   Emergency response: conflict between short and long-term needs

The whole Island is prone to diverse natural hazards including hurricanes, earthquake and landslides (see Chapter Four). We have seen previously that the redevelopment of the north has been the opportunity to pay more attention to the housing in order to improve the resistance to hurricanes. However all neighborhoods and all houses do not benefit from the same consideration. Despite a relatively high level of awareness about hurricane risks, different priorities, for instance reducing the risk of disaster and providing a house for

everyone, compete with each other. In 1997 while rehousing the displaced people was urgent, about 50 pre-fabricated houses were built in Davy Hill and a few in other neighborhoods such Salem. Supposed to be temporary, these shelters did not aim to be hurricane-proof or earthquake-proof but just to respond to the emergency of rehousing. In a compressed-time, the rapidity of the response is often privileged over the quality of the response (Olshansky et al., 2012). Twenty years after, a large number of these houses are still present in several areas.

In Davy Hill, the temporary houses (Figure 5.12) are an important concern both for the residents and for the government, as explained by a leader of the Davy Hill Community Action Group. It is difficult to replace these houses as the financial capacities of the government are limited and other measures becomes more urgent. An officer of the housing department explains that although housing is a priority, rehabilitating the temporary shelters of Davy Hill is complicated as it requires sufficient funding and a transition period when people would have to be relocated in another house or apartments. That is made difficult by the general shortage of houses on the island. Inhabitants of Davy Hill explain that the government sold the houses for a low price to the people living there, transferring the responsibility of maintaining or replacing the house to the individuals. In 2013, the Premier Ruben Meade explained to the journalist of The Montserrat Reporter:

> *"Government does not have the money to fix the houses, neither can we continue the maintenance cost, the maintenance costs are high, which is why we want to work with the people to provide for them the concessionary financing so they can do the necessary improvements."*

Figure 5.12: Social and temporary houses in Davy Hill, built for the evacuated people and not hurricane or earthquake-proof (©Charlotte Monteil, 2016)

A group of houses in Lookout face similar issues (Figure 5.13). In 2013, Donaldson Romeo - then leader of the opposition and now Premier - pointed out, "serious concerns on the state of the houses and their vulnerability to hurricane and earthquakes. These houses have long since proved to be quite unsuitable to climatic conditions" (Roach, 2013, 2014). While external donations were supporting the emergency needs during the disaster, the lack of long-term planning and anticipation reveals to be a major issue as the additional expenses need to be done. The rapid answer to the need of rehousing people therefore hampers the capacity to build back better and to reduce the risk of disasters despite of the risk awareness. The case of Davy Hill also demonstrates the importance of the immediate response to disaster on the long-term recovery, as it shapes and determines what will be done afterwards. It appears more difficult, possibly more costly, to upgrade the emergency investments than to make long-term investments immediately.

Figure 5.13: *Houses in Lookout, built for displaced people, and causing concerns related to their vulnerability to earthquake and hurricane* (Roach, 2014)

5.2.2.4. *Lack of resources to adapt to rapid change*

Although the risk of hurricane is usually considered when rebuilding, other risks perceived as less probable, such as the risk of earthquake, are often not considered due to cultural habits, from a lack of resources and a lack of measures for adapting to the new context.

In Lookout, Cudjoe Head and Davy Hill, all recently built, the risk of earthquake is neglected, both at the private and at the public level. For instance, the pre-fabricated houses, used for relocating people after the evacuation of the south and now used as social housing, do

not respect the basic rules of engineering to face earthquakes (Figure 5.13). At the private level, the same issue is noticed. One disaster manager said in January 2017 that:

> *"People don't apply the building code. They are not interested in it. They prefer to have a bigger house than a stronger one. Most of the houses don't respect the building code at least for earthquake."*

He took the example of a new building, used as a shop, in Cudjoe Head (Figure 5.14), that is built on a steep slope, on irregular and unstable pillars, similarly as several houses all over Montserrat. A large number of new houses are multi-story, with the top floor used first and no infills between the columns of the ground floor, making them very unstable in case of earthquake.

Figure 5.14: A new building in Cudjoe Head which is not earthquake-proof (© Charlotte Monteil, 2016)

Different reasons are presented to explain the lack of consideration of this risk in rebuilding. They include cultural and practical reasons. Multi-story houses are an expression of wealth. But when the household does not have the financial capacity to build directly several floors, they prefer building first the first floor and fill the ground floor later, as it is considered easier and less expensive than building above the existing house. The consequence is that houses often remain on pillars, without infills between the columns, making them unstable and vulnerable to earthquakes.

Moreover, the topography and the availability of land often limits the options of construction. The location of the new houses mainly depends on the lands that are made available by their owners. During the interviews, residents and policy-makers explain that the

lands sold are frequently the ones that the owners do not want because they are impractical. They are often located at the parcel boundaries, on steep slopes. It makes building more complicated and it requires more financial and technical capacities for building earthquake-proof and landslide resistant dwellings on a slope. A lot of Montserratian households explain that because they invested a lot of money, if not all their money, in the house they built in the south before 1995 and they are still paying the mortgage for it, even though they do not have access to it, they cannot spend as much for the new one. The quality and the resistance to earthquake are therefore currently sacrificed.

The likelihood of being prepared also differs depending on households and depending on their origin and previous experience of hazards, as we will see more in details in Chapter Seven. The rapid demographic change seems to affect the capacity to build back better. If those who have experienced previous hazards are overall more aware of the need for being well prepared, a large part of the population does not have similar experience and may not pay the same attention to preparedness while building their house. In the Cayman Islands, Tompkins, Hurlston, & Poortinga (2009a, 2009b) found that new migrants are the group most vulnerable to cyclones as they are the least likely to prepare, they tend to live in more exposed places and interact mostly with other immigrants with no previous experience of such hazard. The research, which focuses on the agency of individuals to prepare to tropical storms, discovered that the main factors preventing adaptive behavior were the place of residence, that is close or adjacent to the coast, the recent immigration and the fact of renting accommodation. On the contrary, previous experience of major storms, strong social network, residency status and the fact of having a child under the age of 15 in the home tends to encourage individuals to prepare. In Montserrat, informal discussions reveal differences of building methods depending on the origin of the households and their knowledge of the local hazards. In an informal conversation, a Montserratian woman highlighted the differences of practices between the communities. In September 2017, she said that

> *"Montserratians pay attention to the lay of land and will do the preparation work necessary as part of their building practices while certain non-nationals are assumed to take less into consideration that risk when building their house due to their lower experience of landslides."*

She gave the example of a house built by a Guyanese household and damaged by landslides during heavy rain. The owners had to reinforce the front of the house and build a retaining wall following that. She explains that because they used to live in a flat area back in Guyana, they do not think of the risk of landslide when building their house in the steep slopes of Montserrat. Talking about Salem, exposed to several hazards, a disaster manager explained in 2017:

> *"So you'll find a lot of persons living in Salem area, Guyanese, Jamaican, etc. They're living there because one, the cost of houses is maybe much lower, but they are more vulnerable, one because they have less money for preparedness and response, they have less exposed mind on preparedness and response but they are also... closer to the hazards as well. So they're exposed to more risks."*

Unfortunately, the lack of a systematic survey on the nationality or origin of the house owners means we cannot confirm that houses built by immigrants are less adapted to landslides. Hence it prevents the adoption of awareness raising measures adjusted to the specific needs of each community. Despite the fact that decision-makers are aware that immigrants may be less prepared for the hazards that they have less experience of in their place of origin, there is no tangible measure to encourage them to build better.

Most of the measures for raising awareness concern hurricane and volcanic hazards. Those targeting other types of hazards like landslide and floods are much more limited. A disaster manager said in January 2016:

> *"Let me admit that, I don't think we've done properly or done enough. But we do preparedness activities. Unfortunately it is centered so much around hurricanes. We still do some information around volcano, so pamphlet... or the observatory... observatory [MVO] does a better job but they collaborate with us to do it."*

In 2015, the building code was still at the state of draft and not compulsory. Now the building code is referred to in the Physical Planning Act and is a guideline that should be followed by persons building any structure in Montserrat. A person must submit a plan to the Physical Planning Unit for approval before building any type of structure. After the plan is passed by

the unit and people start building, an inspector is expected to visit the building site during the construction of the building. However its application is criticized by disaster managers who affirm that houses are not controlled correctly. The respect of the building code was a major concern for the residents, right before the arrival of hurricane Maria in September 2017 as people were wondering whether their house was actually safe or not and whether they should trust their promotor or not. During the same month, hurricane Maria and the damages that have been observed in the neighboring islands, including the total destruction and evacuation of Barbados, have also raised questions about the quality of the building code, as it does not plan for winds as high as a hurricane of Category 5. One disaster manager argued in January 2016:

> *"Some persons put up somethings and it's not really under any code per see, but as for government, they look it at those. The architect and others persons are looking to make sure that their home are put up in that [...]. But for personal homes, you know, there is no guarantee. Yes they're supposed to put up certain things but you know… on occasion, a person can pass through, from the government, to make sure that things are followed but, the guarantee… how accurate is that… unless it is a government-funded project and government would make that then they would make sure that… for that capacities. But as for hurricane, is it earthquake proof? Because you are also prone to earthquake, so… and then down by Little Bay, it is prone to tsunamis."*

The type of building therefore essentially depends on the individual level of awareness for each type of disaster. The lack of effective incentive measures prevents to compensate the potential lower risk awareness among the new immigrants. The rapid demographic change and the lack of resources and adaptation measures compromise therefore the ability to build-back-better and to take into consideration the hazards that are perceived as less probable. In Chapter 7, I will analyze further the evolution of the risk perception and the reasons that explain the lack of adaptive measures, far more complex than just a lack of resources or a lack of awareness.

5.3. Conclusion: Recovery processes, as multi-time and scale processes.

If in theory the recovery process aims to build a resilient society and prevent the creation of factors of vulnerability to disaster, the post-disaster period spotlights a number of challenges to the learning process. The (re)development of the north of Montserrat during and after the crisis plays a major role in determining the trajectory of the recovery process and its sustainability. New town development presupposes a conscious policy development and strategical plan (Rozdilsky, 2003). Gawronski & Olson (2013) qualifies the change being made during this period as a "critical juncture" as they trigger specific trajectories for development. Once decisions are made, a trajectory is defined making more difficult to return to the stage of "window of opportunity" (Birkmann et al., 2010) where several different trajectories for learning and improving were still available.

The redevelopment of the four neighborhoods illustrates the complexity of the recovery process. The first difficulty results from the emergency of rebuilding to relocate the displaced population, qualified as "time-compression" of the decision-making for recovery (Olshansky et al., 2012). This period is marked by the necessity to decide and act quickly to respond to the emergency. However if the rebuilding can go fast, some other dimensions of the recovery process such as the regeneration of social capital and cultural identity takes more time. Yet the emergency of the situation and the limited resources have prevented the adoption of an approach that considers all the dimensions of the recovery process and their interactions, both in the short and long-term (McEntire, Fuller, Johnston, & Weber, 2002; Natural Hazards Center, 2001; Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum, 2008). The physical and social differences between Lookout and Davy Hill, two neighborhoods developed in similar conditions but in different ways, highlight the long-term issues arising from a lack of early planning. While Lookout benefited from longer-term planning, the other neighborhoods studied here lacked a planned strategy for recovery, being rather the outcome of a succession of reactive decisions and changes. This contributes to make them more dependent on the financial, human and social resources becoming gradually available, or not, and to postpone the consideration of long-term issues such as social cohesion and disaster risk reduction. It refers to the notion of "reactive resilience", that "approaches the future by strengthening the status quo and making the present system resistant to change" (Dovers and Handmer, 1992, in Klein, Nicholls, & Thomalla, 2003, p.39).

The resistance to change is not only due to the emergency of the decision-making but also to a conscious decision linked to the influence of the representation of what Montserrat used to be. Among decision-makers and Montserratian citizens, there is a strong willingness to restore what is seen as the past identity of the Island. It generates efforts for bonding the social networks among Montserratians, highly disrupted during the crisis. In that sense, it corresponds to a vision where recovery is considered as the rehabilitation of the pre-disaster "normalcy", or more exactly of the collective representation of what was the normalcy. The post-disaster change, including the demographic change and the new drivers of vulnerability to disaster, are not seen as part of the new identity of the Island, nor part of the characteristics to consider for adaptation. The role of social networks and social reorganization is often seen as a coping mechanism after a disaster instead as a major factor to build resilience on long-term (Djalante et al., 2011). In the meantime the rebuilding is also seen mainly as a way to cope with the lack of infrastructure rather than a way to determine the recovery strategies (Rozdilsky, 2003). In Montserrat, it seems that the decisions made to determine further development are essentially reactive to cope to the destruction, and shaped on the collective representation of what the past was and aimed to create this ideal. Not only has it prevented proactive decision-making for recovery, it also appears to deliberately ignore the post-disaster change that does not fit this this past identity.

It demonstrates a gap between the recommendations of the recent research on recovery and the implementation of the post-disaster measures by policy-makers and affected people. Research has shown the importance of adopting pro-active measures taking into account the post-disaster change (Bassett & Fogelman, 2013; Djalante et al., 2013; Klein et al., 2003; Manyena, 2006; Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum, 2008), and the importance of adopting a comprehensive approach that does not focus only on the physical reconstruction (Hayashi, 2007; Hettige & Haigh, 2016; Lawther, 2016; Tierney & Oliver-Smith, 2012). Yet in Montserrat, the recovery management fails to understand the complexity of the interactions between spatial scales, in other words between the development of neighbourhood and the recovery process at the national scale, between different network levels, and between temporal scales, in the sense that it focuses mainly on short-term (Cash & Moser, 2000).

The reactive measures implemented in Montserrat threaten the sustainability of the recovery process and the resilience of the society. A system is considered resilient when it has the capacity to "self-organize, learn and adapt" (Djalante et al., 2011, p.3). Self-organization implies the "ability to maintain and recreate its identity and to buffer itself from outside impacts", while the ability to learn and adapt corresponds to the ability "to achieve its management objectives better over time and adjust those control measures should the context change" (Djalante et al., 2011, p.3). Montserrat on the contrary expresses a resistance to the context change and a focus only on the recreation of its identity. I have demonstrated in this chapter that little is done to encourage bridging social networks, at the scale of the neighbourhood or at the national scale. That prevents the building of social cohesion between communities. Yet other research, particularly based on Putnam's work, have emphasized the greater importance of bridging social networks on the long-term recovery rather than the bonding social network (Cheong et al., 2007; Djalante et al., 2011; Hawkins & Maurer, 2010, 2011; Leonard, 2004; Macnab et al., n.d.). It enables better relationships, coordination of the activities and broader scope of actions. As bonding social networks among the Montserratian community tends to be exclusive (Macnab et al., n.d.) towards the non-Montserratian, it contributes to marginalize the latter, already in a vulnerable situation due to their immigrant status (Guadagno, 2015; Guadagno et al., 2017). The recovery pathway of Montserrat therefore tends to create new drivers of vulnerability, failing to learn from the past disaster and to build-back-better.

In Chapter Six, I will further explore the process of marginalization of the immigrant communities, in spite of their major role in the recovery process. In Chapter Seven, I will examine the role of the memory and collective representation in the risk management and risk communication strategies.

CHAPTER SIX

IMMIGRATION AND RECOVERY: HOW DOES THE MANAGEMENT OF IMMIGRATION REFLECT THE RECOVERY PROCESS?

The post-disaster period in Montserrat is marked by a significant demographic change with the rapid arrival of large numbers of immigrants following the departure of about 75% of the population after 1996. It is now estimated that immigrants constitute about half of the total population. Immigration has taken an essential role in determining the pathway of recovery in Montserrat. On the one hand, it plays a major role in supporting post-disaster needs. It has been important for supporting the economic, physical and demographic needs for recovering after the disaster, particularly in order to maintain the political self-determination of the Island. However, the lack of long-term planning and the instrumentalization of immigration has led to major unanticipated change in all sectors of the society. It has generated new conditions of vulnerability to disaster among the immigrant communities and led to reactions of rejection and exclusion of immigrants among the society.

6.1. Immigration as a support for development and recovery

The benefits of immigration for the development of hosting countries have largely been demonstrated in the literature (see Chapter Two). It plays a critical role in supporting economic development particularly (Clark et al., 2015; Friedberg & Hunt, 1995; Sanderson, 2013). However, there is a lack of research into the long-term impacts of immigration on living-standards (Sanderson, 2013). There is also a lack of understanding of the short-term and long-term impacts of immigration in a post-disaster context, in a condition of stress. This includes the impacts for the hosting country and for its recovery, and the impacts for the immigrants themselves.

Very soon after the departure of more than 70% of the population of Montserrat, the former government decided they had to resort to immigration to cope with the post-disaster needs for emergency (for instance rebuilding of critical infrastructure and dwelling) and long-term recovery (for instance replacing qualified workers, enabling the functioning of schools and hospitals). The first step to increase the size of the population was taken in 1998 when David Brandt, Chief Minister at that time, facilitated the immigration process in the country, by initially abolishing the need for work permit and facilitating the access to visa.

That has had far-reaching implications in the process of recovery on Montserrat. As seen in the Chapter Two, the post-disaster period is a critical time, when important decisions are taken for future development. The management and perception of immigration reflects the progression of the recovery processes and the evolution of the perceived needs of the society for recovering. Immigration both shapes and is shaped by the recovery process and by the determined priorities. This chapter aims to explore the impacts of immigration in the recovery process and the role played by immigrants as agents of change during a critical time. It also brings to light the complexity of managing such rapid change while Montserrat was already dealing with continued uncertainty and extreme transformation. Immigration appears both as a tool for supporting the redevelopment of the island and as an additional impact of the disaster that the Island has to deal with. It demonstrates that the Government focuses especially on economic and political needs, without consideration of the cross-scale dynamics and interactions between the different dimensions of recovery. It highlights some of the barriers to sustainable recovery and some of the factors influencing the pace of the process.

6.1.1. *Immigration as a tool to maintain the political self-determination of Montserrat*

As a British Overseas Territory, the system of governance in Montserrat is very particular and strongly influenced by the colonial history of the island. A system of co-governance is in place, comprising the local government, autonomous over day-to-day decision-making and over social and economic policy, and the British Government, which is in charge of decisions concerning internal security and defence, including emergency management. Between the 1960s, a period of decolonization of the Caribbean, and 1995, the

date of the first volcanic eruption, Montserrat benefited from a very high level of autonomy and was self-governing (Wilkinson, 2015). Hurricane Hugo in 1989 marked the first alteration in the decision-making autonomy of the Government of Montserrat due to its limited management capacities, its lack of planning and its strong dependence on foreign assistance (Berke & Wenger, 1991; Wilkinson, 2015). A state of emergency was declared and the control of the Island gradually shifted from the local government to the British government (Skinner, 2006). The situation was made worse with the first volcanic eruption, as the capacities of the local government were totally exceeded. In the face of the extent of the disaster, the British Government drew up a plan for complete evacuation of the island should the situation become completely unmanageable. It was known as 'Operation Exodus' and was made public in May 1998 after the evacuation of 75% of the population (Clay et al., 1999; Wilkinson, 2015).

The tensions in the balance of decision-making power between the British and Montserratian governments are illustrated by the management of the Island and of its population. Former Chief Minister David Brandt explained during an interview:

> *"Because of the volcanic crisis, several Montserratians left the island and went to several countries including the United Kingdom. The population decreased severely. And while I was Chief Minister, the British Government informed me that if the population went below 1500 that they were going to take everybody off the island and send them to England. […] And then, I disapproved. They said from an economic point of view that they would not want to support Montserrat if the population was reaching less than 1500."*

Faced with the threat of the Island being closed if the population continued to decrease, Brandt turned to immigration as a strategy to counter that threat:

> *"I went to a Heads of Government meeting at CARICOM [in 1998] and explained my situation to the other Prime Ministers in their own countries; they encouraged CARICOM nationals to come to Montserrat. It was necessary because a lot of the workers from Montserrat had left so we needed workers and they came. [CARICOM nationals] didn't have to have work permits, and when I told the British that I would like them to send their... their [own] people to do the counting of the [population of Montserrat after*

immigration of CARICOM workers]. They went, their own people did the checking. The population was 2,500. So the British abandoned their idea [to close the Island], it could not be possible what they intended. And so, it is why that so many CARICOM nationals are in Montserrat. [...] many times Montserratian call them foreigners but it is because of them why we are here.

The Government of Montserrat (GoM) then changed its immigration policies in order to facilitate entry to the island, which rapidly began to increase the size of the population: in 1998 the island lost 3,327 people; the following year 691 new people arrived.[1] Although the UK Government was ultimately responsible for the life and safety of the residents of Montserrat (Clay et al., 1999), the GoM's response to a decision considered to be "Too pro-British and too colonial" (Pattullo, 2000, p.113) ensured that it maintained control and the relative autonomy of Montserrat. Pattullo (ibid, p.111) explains that, "The Government of Montserrat had resisted British plans to offer help to Montserratians with, for example, free air fares to Britain. It was anxious to keep society together and perceived the British proposals as offering unequal choices".

Not only was the decision to call for immigration perceived to be a way to retain the GoM's power to decide not only the future of the Island, rather than have it decided by the British government, but also the future of the identity and culture of Montserrat. David Brandt explained during an interview in March 2016 that 'closing Montserrat' would have destroyed the culture of Montserrat as people would have been dispersed over the UK and would have lost the connections between the members of the community.

The same argument was given by Julian Romeo, one of the organizers of the Concerned Group of Citizens, a group leading the protests against the UK strategy: "We were concerned about the total evacuation and what would become of our country and our lives. What would happen to our culture?" (Pattullo, 2000, p.112). The fear of losing the island and its culture led to a resurgence of patriotism and activism to defend those who decided to remain, while a lot of those who left were seen as betrayers, and are still often viewed as such today. The current Premier, Donaldson Romeo, explained in an interview that he entered into politics during the crisis, while before 1995, "*You could have paid me a lot; I wouldn't talk politics*". He was an

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[1] according to the data provided by the Department of Statistics of the GoM in 2016

artist but became an activist "to defend the people in shelters" and out of concern for the cultural identity of Montserrat.

The will to maintain the political self-determination of Montserrat persists, with the constant objective of increasing the size of the population in order ultimately to be self-sufficient and not dependent upon the British Government. The Sustainable Development Plan for 2008-2020 (GoM, 2010) mentions for this purpose the need to increase the size of the population by encouraging immigration and retaining the people currently living on the island, in order to reach a sustainable population.

6.1.2. *Immigration as a support for physical and economic recovery*

Relying on immigration has rapidly become an economic necessity to keep the island viable. As mentioned by David Brandt, a population that was too small could have been prejudicial to Montserrat as the UK was threatening to cut its support. While the level of economic support from the UK Government was very low before the volcanic crisis, it accounted for 60% of national GDP after the crisis, becoming an essential resource that Montserrat had to assure in order to recover. Encouraging immigration therefore was initially aimed to assure the economic support of the UK in time of crisis (GoM, 2010, 2014). The second objective has been to provide labour in order to support the rebuilding of the North of the Island, to which the population has been displaced, and therefore initiate the recovery process (GoM, 2010). The regulations for employment have been adapted to attract CARICOM nationals without the obstacle of work permits or visas (Figure 6.1).

REGULATIONS FOR EMPLOYMENT IN MONTSERRAT

📁 Posted in: Press Releases | ⊘ 15 September 1998 | Release Ref #: 98/1998 | 👁 280

The Government of Montserrat is taking steps to regularise employment opportunities for CARICOM nationals in that country. The following outlines the procedures to be followed by suitably qualified CARICOM nationals seeking employment in Montserrat.

In recent times, nationals of several overseas countries arriving in Montserrat to access employment opportunities, have been refused entry because they do not fulfil entry requirements.

The Government of Montserrat welcomes individuals from its CARICOM neighbours who would like to contribute to the island's development process.

The Government of Montserrat has waived all work permit fees for CARICOM nationals until the end of this year. However, it must be noted that there is a processing fee at this stage.

However, the acute housing shortage mitigates against the free flow of persons at this time and the following immigration and work permit regulations must be adhered to:

- They must have proof of a suitable place to live in Montserrat

- They must have a police certificate of character from their country of origin (i.e. country of passport origin) issued within the last six months.

- A medical certificate issued within the last three months before arrival.

- Sufficient money to meet financial obligations to include board and lodging for a period of at least two weeks, if there is no proof of employment.

If you require further information please contact:

The Labour Department
St. John's
c/o Box 103

Figure 6.1: Regulations for employment in Montserrat in 1998, made to attract workers from CARICOM countries (CARICOM, 1998)

With the destruction of over 70% of the buildings and over 60% of the island now considered as unsafe for habitation (Clay et al., 1999), the necessity of maintaining the Montserratian population on the island has required massive rebuilding in the North. Although this area was less exposed to volcanic hazards, it was also underdeveloped at that time. The need for labour therefore has rapidly become a priority to allow the functioning of the Island, including the functioning of governmental institutions, businesses, health centres. The contribution of the construction sector to the national GDP strongly increased after Hurricane Hugo in 1989, when 98% of the houses were damaged (Possekel, 1999), going from about 10% of the GDP in 1988 to more than 30% in 1990. While the sector had contracted again to just 7% of the GDP some years after the hurricane and before the first eruption in 1995, it

expanded again when reconstruction activities started in 1997, two years after the beginning of the crisis, when it had become clear that the South could not be occupied anymore (Figure 6.2).
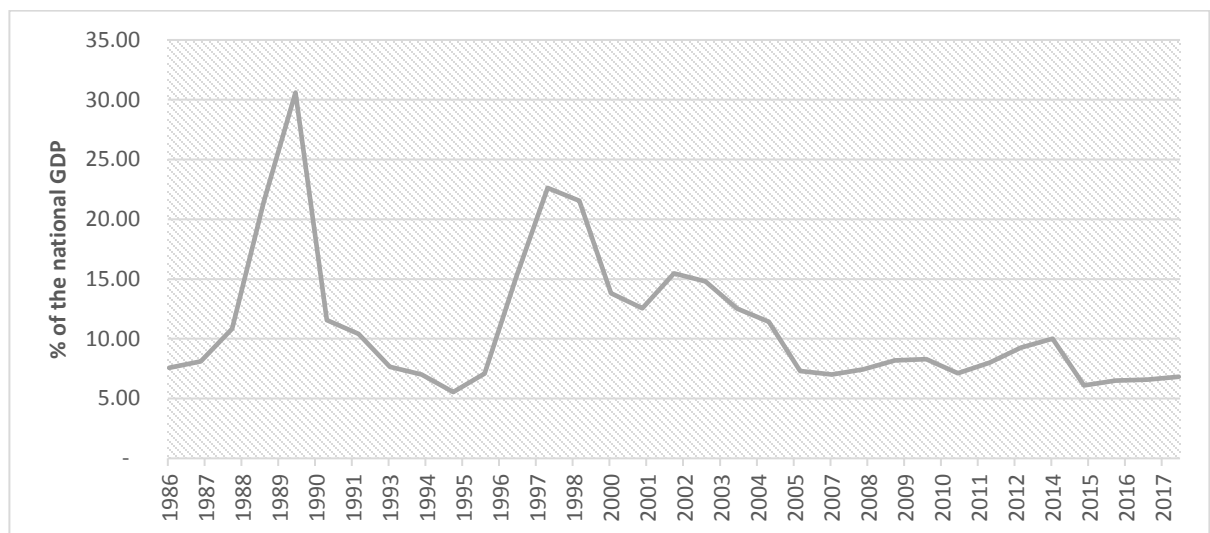
Figure 6.2: *Evolution of the construction sector contribution to the GDP of Montserrat (current price - %) (Source: CSO, Montserrat and Eastern Caribbean Central Bank in Eastern Caribbean Central Bank (2017)*

During a focus group discussion in April 2016 with the Guyanese community, the participants explained that it was the need for reconstruction, both after the Hurricane Hugo and the destruction of the South by the volcanic hazards, which have made Montserrat a popular destination for workers. The part of the construction sector in the economy however has gradually decreased while the main infrastructure has been built. Since 2006, construction represents between 6 and 10% of the GDP only, coming back to its initial level before the volcanic crisis and before the hurricane Hugo. The decrease of the reconstruction activity is also perceptible within the testimonies of the immigrants. While it was attractive in the past years, the construction sector is now considered as instable and frustrating, with lots of months of unemployment when the economic activity goes down. Immigrant men involved in this sector argue that they need to have an additional job or to move to another sector of activity in order to save money to send back to their family.

However, the decrease of construction sector does not mean the island has physically recovered. A large number of infrastructure have not been achieved in 2017 and some critical amenities, such as hospital, some parts of schools and of governmental services were still located in temporary buildings in 2017. For instance, the current hospital, which had had a

proper building before 1995, is now relocated in what was a school before. It aimed to be moved into a permanent structure, but nothing has yet been decided. The development of a new capital city is also still at the state of project. Only few infrastructures have been built so far and additional funding and plans are required before pursuing its development. According the Ministry of Economic Development and Trade & GoM (2010), the decline of rebuilding activity from 2002 is mainly due to the limited private sector activity and the delays in the start of several public infrastructure projects. While funding was rapidly available for emergency projects such as the rebuilding of housings in the new settlements of Lookout and Davy Hill, longer-term projects are now required but take longer to be planned and implemented, hence slowing down the economic growth and therefore the needs for immigrants. The need of immigrants for the rebuilding of the North of island persists and may persist as long as major infrastructure are needed but it is mainly dependent on availability of private funding and on the development of the private sector. The end of the emergency period and hence the slowdown of the rebuilding process is observable through the decline of employment of immigrants in the rebuilding. It does not however signify the achievement of the physical recovery process but rather the shift on stages of recovery and the slower process of implementing long-term projects. Moreover, the difficulties to obtain funding and to make long-term decisions directly affects the demographic recovery of the Island by slowing down the recruitment process.

By enabling the physical recovery of Montserrat, immigration also directly contributes to its economic redevelopment. The need for immigration is mainly justified by the need of growing the overall size of the population in order to increase the size of the market and hence to enable an economy of scale. An objective often repeated is that the Montserrat population should reach 10,000 again in order to have to vibrant economy. The former Chief Minister David Brandt explained in March 2016:

> *"Except if you have population, the economy can't improve. [...] there is a need [of increasing the population]. How is commerce? and commerce would be the engine of the economy, of the private sector. To have private sector you need to have population."*

There is a common understanding at all levels of the society that economic growth will stimulate demographic growth and vice-versa. A minister of the GoM summarized in May 2016 the need of increasing the population growth:

> *"As population growth is one of our objectives and recognizing the economy*
> *of scale when you have a bigger population and in terms of how you're able*
> *to move [...] the economy forwards as a result."*

A government official argued during an interview in January 2016 that by increasing the size of the population, it should make investors confident and therefore it should boost the economic recovery. He imagined a situation where the population would be higher and increasing:

> *"Only factors of economic improvement are in place. It means I could maybe*
> *take a chance and come back in the country. The market is improving because*
> *we have 7,000 people now, imagine in 5 years we have 10,000 people. If I start*
> *a business now, in 5 years, I may have a bigger market."*

While most stakeholders show that demographic growth is a mean for the achieving economic growth, he argued that the contrary is true also:

> *"I think the population will keep growing with a lot of persons from outside.*
> *If conditions stabilized, and as I said, safety and security, volcano stabilizes,*
> *and the economic activity at least remains stable or is growing, so people can*
> *actually make a living and I think you would have actually more people*
> *coming."*

There is indeed a close link between demographic, economic and physical recovery, among others, as they interact and determine one another. A poor economic recovery directly affects the necessary demographic growth of the Island. The population of Montserrat has stabilized around 5,000 people since 2002, simultaneously with the stabilization of the economic growth and the slowdown of the rebuilding of the North of the Island.

Despite the necessity to increase the size of the population in order to relaunch the economy, the management of immigration has changed, becoming gradually more selective in terms of skills and competencies brought on the Island. A minister explained:

> *"While you would want immigrants to come, you're also trying to be that not having the wrong type of persons coming who would be a burden on our social system, who would also be a burden in terms of our crime rate. [...] So you still have to protect who you allow to come into your gates at that time and that when they come they're coming meaningfully contribute to the development of Montserrat."* (Interview in April 2016)

A policy analyst also declared:

> *"Who they want are skilled labour because you are on risk that being in situation where you have people who come and then government has to support them on some ways. And there isn't enough money to support so."* (interview in January 2016)

The discussions about low skilled workers are often very contradictory, with on the one hand the recognition that the immigrants do the jobs that the Montserratians do not want to do, in the construction and domestic sector mainly, and on the other hand, the fact that these immigrants may be a burden for the island and are not valuable. On the contrary, highly skilled immigrants are much more accepted as their skills are recognized as needed for the development of the island. The management of immigration has therefore evolved, with an increasing selectivity of the skills and competencies of the immigrants. Not only it is perceived that economic recovery is restrained by the considerable numbers of low skilled immigrants, but also it is perceived that the lack of skilled and competent people on the island explains the incapacity of Montserrat to develop new projects. A DfID official said:

> *"If the [skills] capacity is limited and we're asking more and more and more [development projects], then things slow down."* (interview in February 2016)

A policy analyst explained:

"One of the issues [...] in Montserrat is that, is having access to the necessary skills in order to deliver it and because it's such a small country, it's an acute problem." (Interview in January 2016)

For instance, according to a senior manager of the DMCA, efforts of preparedness to natural hazards remains insufficient during the post-disaster period because of the lack of qualified staff able to make accurate hazard maps, and lack of budget to pay them. During an interview in January 2016, he explained:

"We don't have a hazard officer to prepare these specific maps etc. so there is nothing to feed from [for implementing preparedness measures]. But also, we don't have a preparedness specialist who goes to the communities to do that work."

As it concerns a position of responsibility, the lack of qualified staffs impedes the whole preparedness activity in addition. The labour commissioner explained that the government continues to face difficulties to fill these positions as not enough of the Montserratians who have remained on the Island have the necessary qualifications. All sectors of the society are facing the same issues. The Director of Education and the Principal of the Secondary School both explain that schools still suffer from the departure of a large number of Montserratian after the first eruption. It has therefore been necessary to resort to immigrants to fill these positions. The Secondary school now has a large diversity of teachers from Jamaica, Dominica, Guyana, St Vincent in particular at the secondary school. If this compensates for the lack of skilled professionals, it continues to be a challenge as it does not guarantee that these teachers stay for long period of time.

The lack of skilled workers is closely linked to the lack of attractiveness of Montserrat, being a small Island with very limited resources. As seen before, the skilled immigrants, who benefit of a larger range of options as place where to work compared to unskilled people, tend to be more demanding in terms of working and living conditions, leaving otherwise the Island after short period of time when they get a better opportunity. Consultants working for DfID and highly skilled civil servants tend to stay only for a few years. Therefore, despite the fact that their skills are needed and demanded, the use of immigrants to fill skill gaps is highly criticized among the whole society. The cost of attracting skilled professionals and the rapid

succession of these experts are the object of lots of critiques, especially when it comes to assess the progress of development projects, perceived as very slow. A Trinidadian consultant explained during an interview in January 2016:

> *"Another thing in the resistance I see is in the disparities in salaries. [...] Because foreign consultants are paid international rates. And the locals [Montserratians] are paid the local salary. And there is a big gap. And that is expected. So a technical person will get 5,000$, and DfiD, funded by the DfID to do the same work he will get 20,000$. And that is actually parallel public services that you have, and that is [...] animosity and resistance from the public service."*

A Montserratian senior official confirmed:

> *"And you see a lot among, I guess if you were listening to the radio over the periods and the [...] Technical Cooperation discussions. The persons that would come under that cooperation, [...] they receive four or five times the salary a Montserratian would get. You'll find that you'll have a lot of resistance to that. And I think resistance is not about the skills of individuals or others, in some cases, some of the persons who have come in the past, have not demonstrated the competencies and the discipline. [...] they need to be adjusted and need to be comparative. It is not so significant that someone who come in this program would been paid 5 times or 8 times what I knew but you still have to work a lot with them surely, your knowledge to help them to get better, so you get that kind of resistance."* (Interview in April 2016)

Among the society, resorting to immigrants for filling the skills gaps is therefore highly criticized and rather seen as an excessive cost than as an investment for Montserrat.

Immigration brings therefore strong paradoxes and conflicts of interest in the development of the Island. On the one hand, there is a recognition that there is a need for immigrants to increase the size of the population, boost the economy and fills the skill gaps or the jobs that Montserratians do not want to do. On the other hand, immigrants are perceived either as a burden for the economy and the social welfare system or as unfair competitors with

the Montserratians. There are therefore conflicts of priorities between the different dimensions of recovery and on the means to achieve each of them.

6.2. Immigration as factor of unanticipated post-disaster change

The rapid increase in immigration has enabled some of the needs for economic, physical and demographic recovery to be met. However, at the same time, it has led to major socio-cultural and economic changes that were not anticipated and hence have not been managed in a timely way. It generates a new division and hierarchical distribution of the society depending on the origin and socio-economic conditions of the immigrants, leading to marginalization and conditions of vulnerability to disaster for some communities.

6.2.1. The unanticipated impacts of immigration on the economic recovery
6.2.1.1. A new economic division of the society

Immigration has been seen since the beginning of the volcanic crisis as a tool to promote physical and economic recovery and enable Montserrat to keep its decision-making power and self-determination. In addition, immigration contributes to significant social change which have not been all anticipated throughout the recovery process. It has mainly led to a change in the distribution of the population in the society depending on the economic sector.

Although the post-disaster period is often a favourable period for entrepreneurs to mobilize their resources in order to rebuild and redevelop their lives and communities (Chamlee-Wright & Storr eds., 2010), in Montserrat the economic investments in private sector tend to be led mainly by immigrants. A number of studies have shown that immigrants are generally more willing to take risks than the native-born population especially in the professional sector (Mavletova & Witte, 2016). The decision of migrating is itself strongly tied up to a risk-taking behaviour considering the inevitable uncertainty when arriving and settling down in a new place. In Montserrat, such behaviour is observed in the sense that immigrants are said to be more proactive in their search of a source of incomes and more willing to get involved in an activity which is supposed to be less prestigious, less profitable and less stable than what the native-born people would generally accept. The labour commissioner affirms

that immigrants are more pro-active in their search of jobs, actively looking for a job and soliciting the potential employers, while the native-born would rather tend to wait to be called to be offered a new job. Montserratians are often blamed for having become used to be assisted due to the extended support of UK following their displacement, and therefore they would not be ready to make as much efforts, both in terms of work and sacrifice than the immigrants. For instance, a private employer explained that she prefers to employ immigrants as they are more dedicated to their work and more serious. An expat woman living in Montserrat explained in an email exchange in May 2017:

> *"It is interesting how people can be quite schizophrenic. For example, my car has died so I had the misfortune to spend a day at a garage. Two things: I saw [rare] Montserratians bringing their cars to be fixed. The Spanish mechanic offered me a chair to sit down whilst I waited. For that alone I will go there again! So it seems that price and service will be key factors driving economic integration at least. [...] Their biggest fear is that the immigrants might just be better at some things than them. Immigration (and trade) policy is needed to protect against fair and open competition (like for jobs resources) since in a fair and open competition they would lose. This is the only reason why the government is listening to the minimum wage argument - they know that the immigrants can compete on price (and take market share) and their businesses will lose if they do not put in place measures to prevent the immigrants from offering (better quality) services more cheaply."*

A specific story often repeated relates to youths involved in a program for facilitating professional integration, where the Montserratians youths would have stopped work arguing that the sun was too strong, while immigrant youths would have continued. In the same way, a Montserratian woman explained that she offered work to several young Montserratian women who were unemployed as a cleaner in her house. All refused or did not answer, preferring to stay unemployed, while immigrant women did not hesitate to do the job, even for a lower salary than what she offered to Montserratians. Similar stories are regularly narrated by Montserratians and immigrants themselves to illustrate the difference of attitude between both groups.

The literature suggests that the difference in the willingness to take risks may be partially due to the difference between perceived risks and perceived benefits (Chamlee-Wright & Storr eds., 2010; Mavletova & Witte, 2016). Interviews reveal indeed major differences between immigrants and Montserratians in their perception of risk and benefit of being involved in the private sector. In Montserrat, immigrants are generally less demanding in terms of living and working conditions and therefore more readily take the decision to become private entrepreneurs. Among Montserratians, the perceived risk is essentially that of losing their prestige in a society where white-collar employment is highly valued and where social hierarchy plays an important role. The perceived benefit, namely the potential financial income, is often not perceived as sufficient to warrant the effort. Several Montserratians affirm that they cannot accept salaries as low as immigrants accept because culturally and traditionally they cannot live the same way as some immigrants do, often several people in small, cheap houses. A Montserratian woman explained that immigrants team-up to reduce their expenses, for instance sharing their accommodation and food costs, and therefore can accept lower salaries. She says that Montserratians could in theory do the same, but they were not exposed to such a situation before and had always been accustomed to having large houses and their own rooms. According to her, Montserratians are not ready to adapt and reduce their living standards, especially considering that many of them have already lost a lot after their evacuation from the South of the Island. That explains why they are generally less likely than immigrants to be risk-takers.

The immigrants are not in the same position as Montserratians as they benefit from less flexibility. As demonstrated earlier, one of the main reasons for immigrating is income. During a FGD in April 2016, a Guyanese says that they came to Montserrat to achieve a goal, namely working and earning money, and therefore they are ready to do everything necessary to reach that goal. For them, the benefits of getting involved in any jobs, whatever the sacrifices they have to make, are much more important than the risks. Even if the job is low-paid as it is often the case in the domestic and construction sector, the value of the East Caribbean Dollar used in Montserrat is much higher than the local money used in most of their native countries, and therefore, even a low salary allows to make significant remittances. Any source of income is welcomed whatever the prestige of the activity as it is specifically the purpose of the immigration. Even the poorer immigrants living in Montserrat tend to argue that despite of the multiple difficulties they face, they succeed better in that new country. A Dominican (DR)

woman for instance explained that even if she "only" can be a cleaner in Montserrat, while she was a secretary in Dominican Republic, she has now been able to finish building the house started about ten years before, thanks to the money she makes on the island and the extra financial support she gets from her employer. A self-employed Guyanese explained that it is worth sacrificing somethings to earn his income and that it will be only when he will have earned enough that he will go back to Guyana, where he considers that his real life should be. He expected to have reached his goal in about ten years while he has already spent fourteen years on the island. Moreover, having a job is a condition for living in Montserrat as it is required to have a work permit. Considering that the options are also more limited for the immigrants, with the public sector reserved in practice (even if not legal) to Montserratians, it is more beneficial for them to accept any job than to be too demanding and take the risk of being unemployed.

The difference of attitude toward risk gradually leads to a segregation of society in terms of economic and professional activities. The various communities carry on different professions. Montserratians mainly look for employment in the governmental sector, more stable and secure, while the immigrant groups rather go into the private where the job opportunities are greater and more flexible. The most obvious example concerns the supermarkets. They are almost exclusively owned by the Indian community. On the other hand, bars tend to be owned by Dominicans (DR) or, especially, Guyanese. Various private businesses have also been set up either by immigrants or returnees Montserratians. Employment in the governmental sector, on the other hand, is essentially reserved for the Montserratians who have remained on the island. Despite the lack of legal provision stating that, it is generally admitted and hence, much more difficult for an immigrant or a returnee Montserratian to access a governmental job. The lack of quantitative data prevents however to know the actual ratio between Montserratians and immigrants owning private businesses.

Not only such segregation of the activities contributes to divide the society in terms of access to employment and access to stability, but it also contributes to stigmatize the role played by the two groups for the development of the Island, and hence impede the creation of social cohesion between the different communities. Observation, informal discussions and the FGD conducted with the Jamaican and Guyanese groups reveal that immigrants often justify the discriminations they face by the fear of the Montserratians of not being able to face the

competition. A woman for instance says that Montserratians are often blamed for their complacency but many of them have been fighting for so many years for finding back a sort of stability, for cleaning the island repeatedly after each ash fall that they now want to rest and stop to think of the future. Montserratians are often considered as less dynamic, less willing to take risks and hence less active for the recovery of the Island. Indeed it is largely admitted in the society that the development of private sector is necessary for the recovery of the island, an idea which is also confirmed by the scientific literature (Chamlee-Wright, 2017; Storr, Haeffele-Balch, & Grube, 2015). A returnee Montserratian, entrepreneur, argued:

> *"[Montserratians] want to be nationalist [but] nationalism is measured by the amount of efforts done for a country. Some Montserratians don't do much for the country. They have the title but they don't do the efforts which go with the title. So the non-nationals [immigrants] who do lots of efforts for Montserrat [...], they deserve more the title of Montserratians."* (Interview in January 2017)

The segregation of the professional activities also contributes to change the power relationships between communities. By being constrained to the private sector, immigrants play a significant role for the economic recovery and may gain a quite influential position as the private sector is determining for the strategies of development. It is its dynamism which can determine the evolution and the pace of the recovery process. Although the private sector is more unstable, it is essential for boosting the economy. Its reinforcement is part of the Sustainable Development Plan established by the GoM for the period 2008-2020 (GoM, 2010). That is a source of fear often mentioned as the Montserratians are generally willing to keep
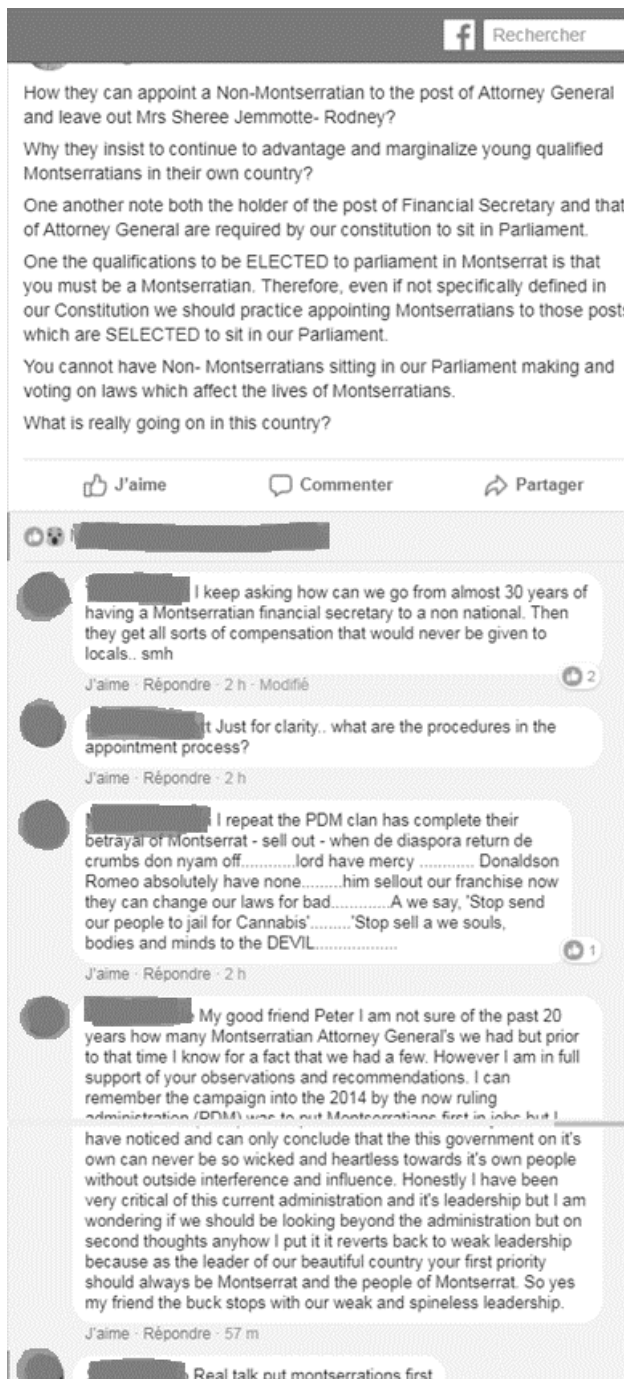
the most influential position. The demographic change therefore affects not only the economic distribution of the population, but also the power relationships and the capacity of building social cohesion into the post-disaster society. For instance, an exchange on Facebook (Figure 6.3) reveals the fear of Montserratians to be marginalized in favour of immigrants, in particular at the most influential and qualified positions. It leads to a strong argumentation of segregating measures favouring Montserratians, despite the contradiction with the Constitution.

How they can appoint a Non-Montserratian to the post of Attorney General and leave out Mrs Sheree Jemmotte- Rodney?

Why they insist to continue to advantage and marginalize young qualified Montserratians in their own country?

One another note both the holder of the post of Financial Secretary and that of Attorney General are required by our constitution to sit in Parliament.

One the qualifications to be ELECTED to parliament in Montserrat is that you must be a Montserratian. Therefore, even if not specifically defined in our Constitution we should practice appointing Montserratians to those posts which are SELECTED to sit in our Parliament.

You cannot have Non- Montserratians sitting in our Parliament making and voting on laws which affect the lives of Montserratians.

What is really going on in this country?

I keep asking how can we go from almost 30 years of having a Montserratian financial secretary to a non national. Then they get all sorts of compensation that would never be given to locals.. smh

t Just for clarity.. what are the procedures in the appointment process?

I repeat the PDM clan has complete their betrayal of Montserrat - sell out - when de diaspora return de crumbs don nyam off...........lord have mercy .... Donaldson Romeo absolutely have none.........him sellout our franchise now they can change our laws for bad.............A we say, 'Stop send our people to jail for Cannabis'.........'Stop sell a we souls, bodies and minds to the DEVIL.................

My good friend Peter I am not sure of the past 20 years how many Montserratian Attorney General's we had but prior to that time I know for a fact that we had a few. However I am in full support of your observations and recommendations. I can remember the campaign into the 2014 by the now ruling administration (PDM) was to put Montserratians first in jobs but I have noticed and can only conclude that the this government on it's own can never be so wicked and heartless towards it's own people without outside interference and influence. Honestly I have been very critical of this current administration and it's leadership but I am wondering if we should be looking beyond the administration but on second thoughts anyhow I put it it reverts back to weak leadership because as the leader of our beautiful country your first priority should always be Montserrat and the people of Montserrat. So yes my friend the buck stops with our weak and spineless leadership.

Real talk put montserrations first

Figure 6.3: Facebook exchange, dated of the 15 February 2018, between Montserratians to protest against the nomination of an immigrant at a high-level position

Mavletova & Witte (2016) suggest that the risk-taking behaviour in terms of investment and employment is contagious to the natives. We can question whether it would be the case in Montserrat. As argued, the difference of behaviours is also explained by a difference of access to some sectors of activity between the Montserratians and the immigrants, a difference of social network and a limited job offer outside the public sector. As long as these differences persist, the conditions do not seem sufficient for the Montserratians to engage more

in the private sector and take the risk of losing their stability. However, the governmental sector is gradually destabilized due to its lack of efficiency, widely blamed by the whole population, by the decreasing financial support from UK (suspected to decrease even more because of Brexit) and by the lack of wage rise despite of the increase of the cost of life. Informal discussions have shown that there is an important paradox between the fact that governmental sector is still very attractive but also strongly criticized. Two Montserratian private entrepreneurs explain that they decided to leave the public sector because they have found out that launching their own activity was more stimulating. The stability they benefited from was not enough compared to the disadvantages of working as civil servant. One argues that because the salary has not been increased since 2004 despite of a high increase of the cost of life, it is less advantageous to work with the government now. The economic recovery of Montserrat is therefore still strongly evolving following the disaster, in a non-linear way. There is however no evidence that the risk-taking behaviour of immigrants is yet contagious to the Montserratian. The Montserratians do not yet recognize the benefits of such attitude for the individuals as they perceive immigrants as poorer and struggling more. Although the fear of a change of balance of power between Montserratians and immigrants is widespread, at the moment it rather reinforces the requests from the Montserratians to be better protected and privileged instead of stimulating more risk-taking behaviour.

6.2.1.2. *Immigrants: a cost for the society?*

While the new division of the society and the economic competition between Montserratians and immigrants has raised during the post-disaster period, immigration is also criticized for the cost it is perceived to bring to Montserrat as the receiving country.

The contribution of immigrants on the Island is generally perceived by the Montserratian community as low or even inexistent. A common idea among the Montserratian community is that because immigrants are working in low-paid sectors, they pay a little only or no taxes and therefore do not contribute to the economy. The Dominican (DR) community is particularly concerned by this statement as they are the ones having on average the most low-paid jobs. An official of the tax department explained that taxes are collected only when the incomes are over EC$ 15,000. The lack of statistical data prevents knowing the average

salary of immigrants and depending on the different communities, however testimonies show that it is not uncommon for monthly incomes to not reach EC\$ 15,000. A lot of work is also done without contract and may provide a very variable income depending on the negotiations with the employers, on the month and on the nature of the work. While that is valid both for Montserratians and immigrants, the second category is more concerned as they work more in the private sector, with monthly salary. Moreover, the fact of being an immigrant, non-English speaker particularly, is commonly reported as being an opportunity for mistreatment. A Dominican (DR) cleaner, speaking only very basic English, living without a partner and depending on a work permit to stay in Montserrat, reports that her employer did not pay her for about six months while she was continuing to do the work she had been employed for. She said she had talked to her employer several times but had to wait as she could not afford to lose this job.

The widely-held belief that immigrants do not pay taxes has added to the idea that a lot of money is circulating without being declared, and quite often is sent abroad, as remittances, without benefiting the local economy. There are no existing data on the amount of remittances and, by definition, the amount of non-declared income is also not known. It is therefore difficult to estimate the actual amounts of money which do not directly benefit the Island. Those complaints are strongly associated with the stigma attached to each community. For instance, the Dominican (DR) women are known and stigmatized among the other communities for sex work. While it is difficult to estimate how many women are concerned, and how different it is from the other communities, the fact that some women prostitute themselves or start a relationship with men in exchange for financial support sustains the idea that Dominican women receive much more money than what they declare. Informal discussions with women having such ongoing relationship with their older men or their own employer reveals that the financial support they receive is generally used to support their family, sometimes their own children who are still in Dominican Republic. A woman explained that thanks to her employer and the extra support he provided to her she could finish to build a house in her country of origin while the first year I met her, she was about to sell the lands as she could not pay the bills and was getting more and more in debt.

In addition to be perceived as having a limited contribution to the economy, immigration is commonly judged as costly for Montserrat, both by Montserratian citizens but

also by decision-makers of the GOM. The discourses on immigration are often contradictory, highlighting both the necessity of having immigrants for the development of the country but also the high cost of it. The access to free services, especially education and in some cases health care, and the cost required to adapt to the changes led by immigration are often assumed very important for the whole society. The arrival of communities who do not speak English and with children in need of an extra support, of communities on average facing more socio-economic issues (see part 3.2.), forces gradual adaptation, including implementation of specific programs for integration (such as. English class for Spanish-speaking students, multi-cultural celebrations at school, translation of administrative documents in Spanish and Haitian Creole). In the short-term these adaptations appear as an extra cost to the post-disaster existing cost. The economic advantages of immigration are less direct and seems therefore difficult to assess.

6.2.2. Demographic change and social divisions

The rapid demographic change led by immigration adds to the direct impacts of the volcanic crisis. It contributes to changing the socio-economic structure of the society. The diversification of the population induces need of adaptation strategies to build up social cohesion and stability in a society affected by crisis. Interviews and observations report important differences in access to resources depending on the communities linked to the lack of management of immigration and the lack of measures for supporting the integration of immigrants. These contribute to extensive inequalities and marginalization of some groups. Ultimately, it can make these groups more vulnerable to disaster by hindering their capacities of preparedness and limiting their access to essential resources (Wisner, Blaikie, Cannon, & Davis, 2004).

Table 6.1 summarizes the main drivers of vulnerability depending on the social groups and visualizes the cumulative factors leading to vulnerability. It is based on the qualitative data collected from members of each social group and presents a collective picture of the situation for all of them at the time of the study. Although the differences between social groups are separated in distinct types of resources, all of these categories interact and influence each other. The matrix does not show an exhaustive list of differences, but instead highlights those that

could have the most impacts on long-term recovery. It draws a collective picture, and circumstances can therefore differ considerably at an individual level. The colours express the potential impacts of each aspect presented on the vulnerability of the communities to disaster. Dark green means that the group is not made vulnerable or marginalized by the factor presented in each row. Light green means that although the whole group is not made vulnerable by this factor, it varies more at the individual scale. Light red means that the factor presented in the row makes most members of that group more vulnerable to a disaster. Dark red means that the factor is a major issue for whole groups and makes its members more vulnerable to a disaster.

	Vulnerability factor	Montserratians	Guyanese	Jamaican	Dominican (DR)
Financial resources	**Stability of incomes**	Facilitated access to governmental jobs that are more stable than the private sector	Variable depending on the time spent in Montserrat, level of education…	Variable depending on the time spent in Montserrat, level of education…	Mainly access to unstable and low-paid jobs (like domestic jobs, construction…)
	Level of incomes	Variable depending on the job – tend to refuse more low-paid jobs	Variable depending on the job – little flexibility due to the status of immigrant	Variable depending on the job – little flexibility due to the status of immigrant	Generally low-paid jobs, due mainly to the language barrier and the low level of education of the immigrants
	Access to loans	Do not express difficulties of access	Do not express difficulties of access	Express difficulties due to their status of immigrant and the stigma they face	Express difficulties due to their status of immigrant and the stigma they face
Social resources	**Bonding social network**	Strong bonding network within the community, amplified by the familial linkages. Affected by the displacement of 75% of the population, but strong efforts for developing it	Explain that there is no real community feeling. The Guyanese association is not very active	Explain that there is no real community feeling. The Jamaican association is not very active	Strong bonding network within the community, amplified with the increase in size of the community, but affected by the turn-over of the Dominican (DR) population
	Bridging social network	Low level of connections with other communities – efforts to develop the Montserratian bonding social network	Low level of connections with other communities. Little representation at policy-level	Low level of connections with other communities. Little representation at policy-level	Very weak connections with other communities. Little representation at policy-level
Human resources	**Language**	Language considered as the "normal" English – the returnees Montserratian children who grew in England are however said to speak and write less well	Common reflections regarding the accent and the colloquial language	Common reflections regarding the accent and the colloquial language	Few people only speak English. The language is a major barrier for integration and employment
	Level of education	The level of education is said to have decreased since 1995 as the most educated people have left the country. However the Island benefits from higher standards of education than other Caribbean countries	Very variable. Certificates are not always recognized or are considered fake. Children immigrating during their school years are affected by the change of country and education system		On average, lower level of education. Certificates are often not recognized. The language plays a barrier even for highly educated people. Children immigrating during their school years are affected by the change of country and education system

Table 6.1: *Assessment of the main drivers of vulnerability to disaster for each of the main social groups*

	Vulnerability factor	Montserratians	Guyanese	Jamaican	Dominican (DR)
Human resource	**Cultural identity**	High level of pride in Montserratian culture and practices. Domination of the Montserratian culture over others	Strong stigma related to the culture and practices (violence, robbery…). Lack of identification to the Montserratian culture	Strong stigma related to a culture perceived as more violent than Montserratian culture. Lack of identification to the Montserratian culture	Strong stigma, especially against women who are often considered as sex workers, and against the culture and practices. Lack of identification to the Montserratian culture
	Memory of disaster and knowledge of natural hazards	Most Montserratians have experience of major disasters (see Chapter 7)	Little or no experience of hurricane and volcanic hazards	Little or no experience of volcanic hazards	Little or no experience of volcanic hazards
Physical resources	**Access to home ownership**	Easier access to loans and hence to ownership. Many people still paying mortgages on properties in the exclusion zone, making them financially more vulnerable than before	Access to ownership made more difficult for foreigners, but several Guyanese have become home owners	The difficulty of getting a loan from the bank forces most to rent and live sometimes in houses of poor condition	The difficulty of getting a loan from the bank forces most to rent and live sometimes in houses of poor condition
	Exposure of housing to hazards	Displacement to the North has created the opportunity to build hurricane-proof homes. Some households still live in temporary housing	The new houses are generally hurricane-proof. There are not necessarily adapted to all local hazards because of a lack of knowledge	They depend on maintenance by the owner	Tend to live in the cheapest houses and areas, at the border of the exclusion zone, more exposed to ash falls. Houses often are not maintained by the owner and are in poor-condition
	Means of transportation	Most households have their own vehicle	Variable depending on income	Variable depending on income	They tend to depend much more on public transportation, irregular.

Table 6.1 (continued): *Assessment of the main drivers of vulnerability to disaster for each of the main social groups. The table is an overall assessment based on qualitative data collected from each group. It aims to draw out the major differences between the situation of each group. It does not represent the situation of all individuals in the groups. It does not provide an exhaustive list of differences and characteristics but highlights those that seem most likely to affect the long-term post-disaster recovery process and vulnerability to disaster. The table can serve as a tool for planners and decision-makers concerned with demographic change, with the marginalization of social groups, and with their consequences for the sustainability of the recovery process.*

Key: Dark green means that the group is not made vulnerable or marginalized by the factor presented in each row. Light green means that although the whole group is not made vulnerable by this factor, it varies more at the individual scale. Light red means that the factor presented in the row makes most members of that group more vulnerable to a disaster. Dark red means that the factor is a major issue for whole groups and makes its members more vulnerable to a disaster.

6.2.2.1.   Linguistic diversification

The diversification of the society has induced in the meantime more linguistic heterogeneity than what Montserrat used to have before 1995. It concerns mainly the Dominican (DR) community, and more recently the Haitian community, who respectively speak Spanish and Haitian Creole. To a lesser extent, it also concerns the Guyanese and Jamaicans who do not talk the same colloquial English than the Montserratians and have a recognisable accent. A teacher of the secondary school highlighted during an interview in January 2016:

> *"The other challenge now that the school faces now and that it didn't face pre-volcano, it's the influx of students with a second language, Spanish. So we now have to find a way to help them."*

One of the main impact of the language barrier is reflected in terms of inequalities of access to employment. While they often come to Montserrat without speaking English, the Dominicans (DR) and Haitians are confronted to limited opportunities of employment. They are essentially restrained to the domestic and construction sectors and have therefore limited ability of getting more integrated in the society. A Haitian man who speaks English explained:

> *"My people when say to me to help them to get a job, you know… One thing that I consider, when they say, truly you could get the job but language barrier…"* (Interview of January 2016)

Because he is one of the few Haitian able to speak English, he has to translate for the rest of his community, a task which he finds exhausting and annoying. About his sister who does not speak English but works with English-speaking people, he said:

> *"Almost every day [her chief] has to call me and tell me what to tell her. It's very embarrassing, you see? First of all, what they're supposed to do is learn the language first and then get themselves ready for work."* (Interview of January 2016)

Beyond access to employment, the lack of capacity to communicate (in English) increases the mistreatments and relations of dependency, at work, at school and in daily life. Issues are reported in all sectors. At school, teachers report more cases of violence from the non-native English students and explain them by the academic difficulties and the frustration faced by these students. Social workers and residents report more cases of prostitution among the Spanish-speaking community. Social workers and Dominicans (DR) justify it by the inability to access other financial resources because of the language barrier. A Dominican (DR) leader commented:

> *"You know, the language barrier is some problem. Sometimes they speak but they don't understand English. And then when, if you go somewhere, it's not easy to communicate because of the language. Plus… but that is in everywhere, not only in Montserrat. Everywhere when the people is non-national, then some people, some people you try you know, let's say, neglect them or abuse them, so you know, so sometimes… we have women here so they cannot find a job so easy and some men are… you know, take advantage from the situation, you know… you know what, you are woman so you know some… in that everyplace there are men using that situation to… you know..".*
> (Interview of January 2016)

Ultimately, it contributes to stigmatize these women and increase their marginalization (Guadagno, Fuhrer, & Twigg, 2017).

The linguistic diversification requires therefore the implementation of adaptation strategies to support the integration of non-Montserratians in all sectors of the society, to enable the communication between different groups and hence to support the functioning of all institutions. So far, limited measures for adaptation are implemented at community level, but suffer from lack of financial and time capacities. It often comes from individual initiatives of those who can speak English in the non-English speaking communities. For instance, a bilingual Dominican (DR) woman took the initiative to voluntarily teach English to the members of her community, but alone and without financial support, she argues that her work is far from sufficient to address the language barrier.

As the needs have not been anticipated at the beginning of the recovery period, the adaptations at the national and institutional levels are essentially reactive and dependent on the resources available at the moment. For instance, the social services do now use the help of a bilingual mediator to communicate with the Dominican (DR) community. A popular radio program is now conducted in Spanish and was used for communicating about the risk of hurricane in September 2017. Language gradually becomes a concern in several sectors of society but is still not being seen as a priority by the government. The rapidity of the demographic change and of the apparition of these new challenges in a post-disaster context makes difficult the implementation of measures of adaptation. In the education sector, the staff complains of the lack of coordination between sectors and lack of capacities to teach English to the non-native English speakers, to communicate with their families and more generally to adapt to the heterogeneity of languages. An official of the Minister of Education complained during an interview in March 2016 that

"[schools alone] can't do all changes"

In terms of support of the immigrant children, he explained that it requires the participation of other agents of change, including the family. He also underlines the need of training teachers to teach English as Second language, to do more counselling in different languages as for now there is only support in English while Dominican students often present mental health issues. A psychiatrist for young students emphasizes the need for more psychological support for the Dominican students in order to address problems in the community in the longer-term. While the needs are now better known, their implementation is dependent on time, resources and coordination, all of which are lacking.

Because there are gradually more non-English speaking people, the diversification of languages and the lack of adaptation strategies affects both the non-English speakers but also the whole society, including schools. The management of the language diversification is directly linked to other socio-economic issues, such as the relative limited job opportunities for the non-English speakers or the stigmatization of the Dominican (DR) women.

6.2.2.2.   Socio-economic vulnerability of immigrant communities

If the language issue is the most obvious when talking about the difficulties of integration and social cohesion, it is intimately linked to socio-economic conditions of immigrant communities. It is not possible to list all the factors of vulnerability among the different communities and to know which one may eventually affect their capacities to cope with a natural hazard. However, it is possible to identify some major socio-economic factors of marginalization which affects the daily life and hence which could play a significant role in case of a disaster (Wisner et al., 2004). The situation varies depending on the characteristic of each community, on their migratory process (when, how and where from?) and on the level of skills and qualification of each immigrant and communities. Those difficulties are clearly translated through the challenges faced by the children especially.

The socio-economic situation differs from one community to another, partly due to the reasons that brought them into Montserrat, but also depending on the challenges they faced once on the island. The language is not the only issue justifying the further marginalization of the Dominican (DR) community. The socio-economic background of the immigrants also plays a critical role, especially among the low-skilled immigrants. Coming from poorer countries where rules in matter of education are not as strict as in Montserrat, a large number of low-skilled immigrants and their families do not have the same level of education than the Montserratians. A government official working in the Ministry of Education explained:

> *"The challenges we have, some of the children they come from different social background, from... instances where a child may not have been attending school regularly. But as the result of Montserrat's law, that every child must be at school. In our context, once a child comes on island, they must be engaged in some education institution. So you may find that, a child who may be age 14 may, because of absences from school, from where they're coming from, from their own country, they may only have limited exposure to education. So they may be operated at the lower level of what is required for them within the school environment".* (Interview in March 2016)

The language barrier can in addition perpetuate or even accentuate the socio-economic gap between the Dominicans (DR) and the other communities.

The migratory process itself may affect the educational background of the immigrant children, and therefore indirectly their level of integration or marginalization. Migration to Montserrat leads to separation and reconnection of families, students often having to interrupt their studies to follow their parents, sometimes too late to be able to pass the final exam or/and learn English and adapt to the Montserratian school system. Another commonly reported issue concerns children admitted to Montserrat without a legal guardian, at the charge of friends or relatives while their parents are abroad for a period of time. A government official of the Ministry of Education explained:

> *"They may be their parents who have been travelling for work, and so now they have really settled, they are now bringing their child to spend that time with them, to get to redevelop that connection with their child, but the child may have grown up, let's say with the grandmother or another relative, so you find that when they come, they're not really familiar with their parents [...] because their parents have been travelling for work, and so you have issues in socially, among some parents and, even to the point where this academic year, we have seen an increase in number of mental related behaviours coming out among children and most of them are migrant children."*
> (Interview of March 2016)

Moreover a few cases of children being stateless following the migratory process have been reported. The same government official added:

> *"There are situations where neither the mother nor the father are naturalized so the child cannot be considered as a Montserratian although he was born in Montserrat. So that child becomes stateless until such time where either the parents' country accepts them as being a national of their country or the child reaches the age where he can be registered as a Montserratian. So you have cases like those in Montserrat. And it is challenging for the non-nationals [immigrants] too because... When the child was born here, and your country of origin does not accept them as a national of their country, your child is stateless until such time and they do not get the benefit of Montserratian's child who is either Montserratian's who parents, by mother or father been*

naturalized Montserratian or born Montserratian. Hum... so you have that challenge for non-nationals [immigrants] as well, whenever they want to travel, when it comes to health care, there is that difference between the two. Although they have access to it, they are treated differently in terms of how they would have to pay for that service. That's one of the challenges we have." (Interview of March 2016)

The education difficulties and psychological troubles of the immigrant youths is a concern expressed by a variety of stakeholders, including school staff, medical sectors, social services and policy-makers, as the challenges faced by immigrant children can be multiple. Moreover, the British government is particularly focused on childcare issues at the international scale and contributes to influence measures for better integration of immigrant children and for making it a priority. A senior government official argued:

"The report that came out [from the British government] which ask you to support the non-English speaking children on island, they are migrants, their families, their parents have not naturalized in Montserrat but we're expected to provide a service that will provide support for these children because they're children regardless of what language they speak and so you find that Montserrat whose first language is English now has to make accommodation in his policies to allow for guidance counsellor who speak Spanish, other supports who speak Spanish as a result of these Spanish-speaking children, it also allows for changes in our policies in terms of how, what kind of support and care we give in domestic and child abuse situations for non-English speaking child so that's a real live example of how their policies are affected as a result of British and government support, direct support." (Interview of April 2016)

The senior official added:

"You would question in the Montserrat context that even among our own English speaking [people], there are funds that we need to put in place and implement other policies that, you know we have to take a piece of that pie to give to our policy area for which is of interest." (Interview of April 2016)

The issues faced by immigrant children are not considered as a main priority for the GoM, because of the fact that it does not concern directly the Montserratians and because it is seen as an additional cost for the Island. However, the financial and political dependency of Montserrat in the UK forces the GoM to gradually adopt adaptive measures addressed to the immigrants.

The institutions related at various extents to the socio-economic issues faced by the immigrants presents different level of adaptive capacities and different objectives. The compression of time explained by Olshansky et al. (2012) plays here a critical role. While the GoM is gradually forced to adapt, the British legislation concerning immigration and citizenship prevents to address the issue of stateless children. Because the legislation is not unique to Montserrat but concerns the whole United Kingdom and Overseas Territories, it is more complex to adapt to the specific and recent issues faced by Montserrat. In the same way, while individuals and specific organizations, like schools, are aware of the need of adaptation to the new issues, their capacity of adaptation is hindered by the decisions of the GOM.

6.2.2.3. *Stigmatization and hierarchization of the society*

The socio-economic situation of each community, their background and cultural practices, and the context in which they migrated, that's it a context of rapid change and fear, influence the way they are perceived and hence get integrated into society. The socio-cultural differences and their more or less recent arrival in Montserrat stresses stigmatisation of the immigrant and prevents inclusion and integration, fundamental principles for efficient disaster risk reduction (Gaillard & Navizet, 2012; Guadagno et al., 2017). Similarly to what has been observed in the rest of the Caribbean (Ferguson, 2003), Montserrat as a receiving society maintain strong prejudices against the immigrants. That refers to the question of social cohesion, addressed in Chapter Five.

Social networks are developed in different ways depending among the communities and tend to be exclusive. Although the Jamaicans and Guyanese tend not to have a strong bonding network, Montserratians refer to them by their country of origin. The terms "the Jamaican", "the Guyanese", or "the Spanish" (referring to the Dominicans (DR)) are used in

daily life to identify a person or a group. Slights physical, clothing, attitude or language variations allow to distinguish a group from another and hence contribute the segregation depending on the origin. Among the main groups, the Dominicans (DR) correspond to the group who presents the most differences with the Montserratians. There are said to fit in less than the Jamaicans or Guyanese, essentially because of cultural, language and physical differences. A Montserratian man during an informal discussion in February 2016 explained that the:

> *"Jamaicans fit more than the Spanish because they have the same ancestors from Africa and similar culture. For the Spanish it is more difficult to fit. At least physically, they are sometimes different, and their culture is different."*

Stigma and prejudicial comments are common both in daily life and in the context of work, strongly affecting the integration of immigrants. The stigmatization is mainly felt through daily discourses and is reported among all immigrant communities. Throughout my fieldwork and daily informal discussions, I very rapidly observed the racist comments against immigrants and distinction between Montserratians and immigrants. The simple fact of talking about something annoying on the island, for instance the harassment by men in the street, was often commented for being attributed to immigrant men, even though the question of nationality was not even mentioned previously. A Guyanese woman explained that just by listening at the radio or listening people to speak, it is possible to know that some Montserratians want the immigrants leaving the Island. A Guyanese during a FGD in April 2016 summarized the situation by saying that here

> *"Instead of shooting you with a gun, they shoot you with their mouth and that's worse."*

A woman living in Montserrat for 40 years, well known and respected, also explained during an interview in January 2016:

> *"But yes, I am not from Montserrat. So it's a small place and there is that tendency to feel threatened when somebody comes from outside. That hasn't changed [since I arrived]. [...] Well there is still that... people are welcoming, people are welcoming. But there is [...] always going that element when you*

have come from abroad. […] Well, it's probably more pronounced now in the same time that there are more foreigners. Whenever they talk, I am at the top of it and I say, you remember me, and they so "oh, oh, not you, we are not talking about you" but yes… sure not you but you get this sentiments…"

Other immigrants also argued that the level of discrimination increases with the demographic change on the island.

In spite of multiple protests from immigrants and persistent frustration and anger, the question of discriminations and stigmatization remains largely silent within society. Immigrants often talk about it only if they feel safe and anonymously by fear of the possible consequences, and Montserratians often deny the existence of the problem, preventing therefore any discussion about the topic. In reaction to the feeling of rejection, immigrants themselves also commonly express their frustration and anger again the Montserratian community. Some forms of stigmatization mainly translate it, with the Montserratians often being characterized as pretentious, arrogant or lazy for instance. Critiques against Montserratians are related mainly to their attitude towards immigrants, highlighting the difficult relationships between communities and the lack of social cohesion.

In 2017, after I published a blog article at the request of the International Organization for Migration on the experience of a Jamaican immigrant in Montserrat; Montserratians reacted very strongly and debated aggressively. For instance a written comment on social media in April 2016 was:

"Our actions can speak for themselves. As a nation the Conscience thinks we have done an EXCEPTIONAL job in assimilating immigrants. No one can control Zenophobia [sic] in every individual. As a nation we above reproach. No violence towards non nationals, and access to services is not prohibited. Can improvements be made; Of Course. But in general we are way above average."

At the political level however, the issues faced by immigrants however seems to be increasingly highlighted within the political discourses, especially in campaign periods. In January 2017, during the by-elections campaign, most candidates addressed a message to the

immigrants, promoting the inclusion of all nationalities. A senior official of the British Government office explained:

> *"We are beginning to recognize different groups here, but it does take a while and there is some resistance to it and then when you start to get segregation, social segregation, labour market segregation and languages segregation in a tiny place for a tiny population, I worry about that."* (Interview of May 2016)

In a debate between two policy-makers, one was arguing that uneven treatment between Montserratians and immigrants was normal and even essential to prevent the Montserratians to be disadvantaged in their own country. The opponent argued that such comment was not relevant anymore in Montserrat as more than half of the population is immigrant. He argued therefore that a discriminatory treatment toward such a large part of the population was therefore prejudicial to the whole society in the long-term, reminding also that a large part of the immigrant community had the right to vote and therefore could influence political decisions in the long term. This reflects a progressive understanding that the issue of stigmatization of the immigrants is crossing scales and also affects the Montserratian society. The rising proportion of immigrants compared to Montserratian people is therefore an important factor of change. Despite of the resistance of the population, it forces the decision-makers to rethink their social policies and to take better into consideration the needs of the immigrants.

6.2.3. *Unanticipated impacts of immigration management on demographic recovery: turn-over and stabilization of the population size*

One of the first objectives of immigration was to increase the size of the population in order to extend the size of the market and keep the socio-economic life on the island viable after the emigration of 75% of the population. An objective often repeated by policy-makers would be to reach a population of 10,000 people but the number of inhabitants has remained at 4,000-5,000 inhabitants since 2002. Although this is in part linked to Montserratians going abroad to work or study and to the relatively low number of return from post-disaster diaspora, one of the main factors explaining the relative stabilization in population size is the turnover

of the immigrant population. While new immigrants regularly arrive, they do not necessarily settle long enough to allow an increase of the population. While some immigrants stay in Montserrat long enough to be naturalized and eventually move to the UK, many more move back to their country of origin after varying lengths of time in Montserrat. The lack of official data on migration makes it impossible to determine how long immigrants tend to stay on the island, their main reasons for leaving, their destination when they depart Montserrat, or the numbers taking different options.

In addition to preventing population growth, the turnover generates a lot of stigma and a general bad perception of the immigrants. It contributes to prevent the implementation of measures for the integration of immigrants. Policy-makers often argue that it would cost too much to the Island to implement programs for the immigrants if they leave rapidly after and therefore do not allow Montserrat to see the benefit of these efforts. A senior official explained:

> *"[We are] always having to importing skills for short period of time and then you lose that skills again. Even at that time when you would have someone from another country been trained, and then they're gone, they leave as well... individuals. So one of our greatest challenge has been the turn-over of the skills at that level as the result of the immigration policies that where in place at that time."* (Interview of April 2016)

Within the institutions depending on immigrants to function, such as the secondary school or the hospital, the turnover also makes long-term planning challenging as the head teacher of a school explained during an interview in January 2016:

> *"Well, we have frequent turn-over over of staff, teachers left, you have to recruit a new one and then they left. So you have that change over almost every year. [...] For me the biggest concern is that... is retention. Whether they are going to continue the next year, so they are on contract so whether they are going to continue their contract or not. That is really the biggest issue I have with the staffs who are not from Montserrat."*

The stabilization of the population results from the interactions between the different dimensions of the recovery process as well as the conflicts of priorities during such process,

that is to say supporting the integration of immigrants who will potentially leave Montserrat versus privileging the Montserratians who are assumed to stay in the Territory. A senior official from the GoM explained how measures for supporting the socio-economic needs of immigrants are perceived beneficial only for the immigrants and not for Montserrat, despite of their cost:

> *"So although it may be something [promoting immigrants integration] that we want to do a little later down [the line], because [UK government is] trying to affect immigration policy where people live in Montserrat and become part of the population, you want to increase your population growth, you're now providing a service where it does not necessarily help you to increase the population growth on a one hand, because we can have a […] child come trained up in our system lately and so you can have an influx of these people who come for short period of time and then they get the opportunity where they would have to pay for this and they get it for free then leave."* (Interview of January 2016)

Therefore policy-makers often suggest privileging the needs of Montserratians, like this government official who said during an interview in February 2017 that:

> *"It is better to privilege the natives and try to keep your own people on the island."*

instead of implementing measures of integration of the immigrants. Although it aims to encourage Montserratians to stay and hence to relaunch the demographic growth, it prevents efforts for social cohesion yet essential for long-term recovery (Cheong, Edwards, Goulbourne, & Solomos, 2007; Nakagawa & Shaw, 2004)

This approach, which aims to support the demographic growth, is not supported by any evidence. There is no quantitative data available to know the patterns of emigration from Montserrat, the reasons and the country of destination. However, interviews and informal discussions reveal that only a part of immigrants consider Montserrat as a step before migrating to the UK. The lack of data prevents to know what part of immigrants is concerned. However, many immigrants explain that they do not intend to migrate again when they decide to move

to Montserrat. A Guyanese man explained that he decided to stay because he managed to develop his business, but his own brother and mother could not afford well enough their life in Montserrat, persisted to be in a very unstable situation, and therefore decided to try a new life in the UK. The Jamaicans participating in the FGD also express their willingness to leave the island as soon as they will get another job opportunity somewhere else as they do not feel good enough in Montserrat, suffering too much from the lack of job opportunities and from the verbal violence against them. The level of integration, linked to socio-economic condition and language, is often mentioned as a determining factor. Those who have decided to stay generally express that they have found a good balance in their life, often arguing that they "got accustomed" to the quiet life in Montserrat or like the safety and calm of the Island. From all the interviews, it appears that those who aim to leave Montserrat rapidly often do not feel good in the Island for various reasons, either because they financially cannot afford a lifestyle they enjoy or because the difficulties they face in terms of integration.

There is therefore a contradiction between the arguments of the policy-makers for not supporting the integration of immigrants and the objective of raising the size of the population. It reflects a reactive approach where measures aiming to support the recovery process are taken step by step and depend on the resources available. Because it is perceived that the immigrant creates a competition for financial resources, the reaction is to preserve the latter for the Montserratians, without consideration of the long-term benefits and of the interactions between the different dimensions of the recovery, like demographic, social and economic recovery.

6.3.   Reactions to the changes induced by immigration and post-disaster management

As mentioned earlier, mainly physical, economic and demographic recovery have been considered as priorities. The lack of management of social issues is often presented by policy-makers as a consequence of the volcanic crisis and justified by the lack of financial and human resources, in addition of the lack of time available to take decisions. However, the multitude of unanticipated change led by the massive and rapid immigration in Montserrat during the post-disaster period gradually encourages the implementation of reactive measures. The management of immigration highlights several conflicts of interests and priorities which are

emphasized by the multitude of consideration to protect social rights and by the differences of approach between the British government and the GoM.

For instance, the implementation of a minimum legal wage is a recurrent question in Montserrat. While it is often presented as a way to prevent ill-treatments, poverty and social dumping of immigrants towards Montserratians, it could prevent the necessary increase of population. It is often argued that enabling the private sector to manage the salaries by themselves allow them to employ more people, and therefore eventually to attract more immigrants and hence to increase the size of the population. So far, there is no evidence that this strategy is efficient. On the contrary, informal discussions with some immigrants reveal that the hard working conditions were encouraging them to leave when they could get a better opportunity elsewhere.

6.3.1. *Evolution of the management of immigration*
6.3.1.1. *Immigrants as actors of change, and fear*

Immigrants are progressively gaining influence on policy-making, due to their number (about half of the population), to the right of vote which parts of them are entitled (CARICOM members in the Island for at least three years), and the role they play for the development of the Island. It forces policy-makers to better consider their specific needs. For instance, immigrants not only affect the result of the political elections, but they also influence the whole political campaign. While there is no quantitative data on that matter, it is often said that the current government has won thanks to the vote of the immigrants. Its program was more social than the opponent's one, and hence was addressing more directly some of the issues faces by the immigrants. During the by-election campaign in January 2017, the candidates also emphasized in their program the need to create an inclusive society and to facilitate the integration of immigrants. One candidate allocated about one third of his radio campaign to the question of inclusion, social cohesion and equality between nationalities:

> *"For those that immigrated here for a better life for their family, for those that*
> *immigrated to help rebuild this country, for those that came to retire. Now is*
> *not the time to give up. For those that had to move overseas and still yearn to*
> *return home. Now is not the time to give up hope. Montserrat needs help. The*
> *people of this country deserve better. We need a new kind of politics, a politics*

of inclusion. Instead of creating divisions we should be breaking down barriers. Everybody on this island deserves to be treated equally. Do we really think Montserrat is going to progress if we disenfranchise half the population? Do we think there is a Guyanese heaven, a Jamaican heaven, a Santo Domingo heaven, a Montserrat heaven? If we can't live together here how will we live together there? We want a Government of the people, by the people, and for the people." (Radio political campaign in January 2017)

Immigrants become therefore major agents of change for leading the recovery processes. The change induced by the immigrants tend therefore to redefine the power relationships between groups and the type of decisions that are taken. In this sense, Montserratians perceive immigrants as a threat. They express fear of being less considered, of having to face a too important job and salary competition and of losing their cultural identities and habits.

6.3.1.2. Immigration control as reactive measure to limit change

The gradual recognition that immigration was going on with additional social, economic and cultural change, the society and the GoM gradually reacted by adapting their measures and policies. Some specific measures have been adopted at the local scale by organizations like schools, social services or churches to cope with the emerging social issues. Schools for instance have implemented particular programs and methods to deal with marginalization and language issues. The social services train their workers in order to be more professional and to deal better with the new social issues. However, there is no general strategy at the national level aiming to deal with the change in the population structure and the need of integration. A decision-maker explained about that:

"We just administrate those things by themselves, but we don't have a sort of overarching policy that says we are multicultural or diverse nation or territory and this is what it means." (Interview in May 2016)

To cope with the new challenges that have emerged from the massive immigration, the decision-makers adopt rather reactive methods aiming to better select the type of immigrants, even if that may prevent demographic growth.

While immigration has been made easier with easy procedures during the first years of the volcanic crisis from 1998, it is now gradually more controlled and more defined. The objective is to select better the type of immigrants and their skills, depending on the specific needs of the island at different periods. Although the need of having a work permit has always been a requirement for working in Montserrat, it has been relaxed in 1998-1999, while it becomes now stricter. The officials working at the immigration office explain how since 2014-2015 they control more carefully that the work permits well correspond to the job that the immigrants are doing and that the employer is well the one declared. Only the OECS members are exempted as the freedom of movement is part of the OECS treaty. The visa application and extension are also becoming stricter in the last years. While so far it was common to ask a holiday visa and try to find a job later, it is now forbidden to work with such visa. If it is done and found out by the Department of Immigration, the extension of the visa is refused. Instead, it is now required to ask a 3 months working visa and then ask an extension, which costs EC\$100, until they can provide a work permit. The extension is also subject of the amount of financial resources as the immigrants have to be self-sufficient. The process is judged costly and tiring by the immigrants, especially for those in the most unstable situations who do not have constantly a work permit.

Moreover whereas the access to the British Overseas Citizenship was used as a strategy by Montserrat to attract the immigrants, the procedure is gradually made more complicated and is still in debate. The objective is not anymore to attract as much immigrants as possible but rather to stabilize the immigrants living in the island and to select those who come. Until 2003, only five years of residency on Montserrat were necessary to access to the BOT citizenship. It has now been extended to eight years of residency in Montserrat and there are still debates to know whether it is long enough or not. A senior official of the GoM explained during an interview in May 2016 the objective of such change:

> *"What you find which earlier was a bigger challenge, when the period for satisfying naturalization was less was that a lot more people who have*

migrated quicker to the UK and it affected the rebuilding process because skills especially [...] people would have trained up individuals in an area where it is skill gap and then five years [later] the person becomes naturalized and moves to the UK so then you have to start the whole process all over again and still trying to build the capacities required for work to help us move on on development and that has been one of the major challenges.[...] Moving to 8 years is to slow the process a bit more."

This official made very explicit the link between demographic growth and naturalization procedure:

"Even some people think eight years is still not enough, not enough time... it's something we will have to look at that as population growth is one of our objective [...] [the turnover is] still there but it's not a big rush as it was previously when... at the time it was less [years of residence compulsory]."
(Interview in May 2016)

Policy-makers argue that the turnover has decreased with the evolution of the legal time of residence for naturalization. There is however no data and statistical analysis to understand if the change of legislation is the main motivation for a longer time of residence in Montserrat or if there are other reasons justifying this evolution. The information given about the Governor's office, in charge of naturalization, tends to demonstrate that there is not such strong link. They explain that application for BOT passport are often done much later than the minimum eight years legally requires as immigrants generally requires more time to meet all the criteria, especially the financial requirements. That confirms the difficulty of integration commonly expressed by the immigrants. It also refutes the idea that immigrants leave the Island very fast and that the legislation in terms of time of residence compulsory affects their decision. The strategy does not address the social issues and therefore does not tackle the problem of immigrants leaving the island because of a lack of integration but is instead focused on the control of immigration as a process and a tool.

In addition, the growing feeling of being threatened by the massive immigration has led to several protective reactions aiming to preserve the balance of power at the profit of

Montserratian. For instance, governmental jobs are mainly offered to Montserratians, limiting the immigrants to the private sector. Officially that is not legal, but it is widely practiced and often thought as compulsory to give the priority for jobs to the Montserratians first. The Labour Department specifies on the press note that:

> "All employers are reminded of Section 4.8 of the Work Permit Policy which requires that 'Every job being offered to a non-belonger must have first been advertised extensively in the media in order to give local persons a fair opportunity to apply'. Proof of such advertisement must be submitted to the Labour Department when making application for Work Permits" (The Montserrat Reporter, n.d.)

However, the Race Relations Act states in section 5 that: "No person shall, with respect to any employment at an establishment in Montserrat, discriminate against another— (a) in the arrangements made for the purpose of determining who should be offered that employment; or (b) in the terms in which the offer of employment is made; or (c) by refusing or deliberately omitting to offer that employment to a particular person. (2) No employer shall discriminate against an employee in relation to— (a) the terms of employment of that employee; (b) the employee's access to opportunities for promotion, transfer or training, or to any other benefits, facilities or services; (c) acts of dismissal, or disciplinary acts or any other act of the employer which is to the detriment of the employee" (GoM, 2013, p.7). Therefore while legally, discrimination in employment is forbidden, there are practices that encourage giving priority to Montserratians. During the interviews, Montserratians and immigrants often claimed that governmental jobs were legally reserved, granting priority to Montserratians. A social worker, who thought themself very knowledgeable about employment legislation, was very surprised to discover the contrary when we looked together for the laws.

The lack of minimum wage is often reported as a significant source of tensions between communities. Although it is a factor of important inequalities, the debate it raises highlights the difficulties that policy-makers face to deal and manage immigration. A report of the UNICEF (2016, p.13) states "While there is an economic justification for the lack of a minimum wage in the territory, the absence of this mechanism creates a situation where workers can be exploited. Given Montserrat's difficult economic situation and the scarcity of jobs, workers are forced to accept any payment offered". The question of a minimum wage is

highly debated in terms of its impact on recovery and on immigrants themselves. Some policy-makers argue that it could decrease the number of people that employers could employ, and therefore increase the unemployment. For others it is a way to equalize the conditions between all communities, to avoid too low salary and enable everybody to pay taxes and therefore fully contribute to the economy. The Labour Act, drafted in 1996 with the Protection of Wages Act Legislation and never completed, refers to a minimum wage and potential fines if it is not respected. However, it does not fix any amount (GoM, 2012). The Montserrat Civil Service Association and Montserrat Allied Workers Union both support its establishment too but argue that it is not in the interest of some policy-makers who are themselves employers. Yet without official protection, the social dumping may continue as workers, both Montserratians and immigrants, have few resources to counterbalance it. Montserratians perceive that as an additional threat on their ability to compete economically. According to some entrepreneurs, it also contributes to slow down the economy as the involvement in the private sector is too unstable compared to the public sector. While no decision has been taken on this matter so far, the debate it raises illustrates the view of policy-makers on immigration management, namely an instrument to serve one specific purpose, which is demographic growth. It also demonstrates how such approach has repercussions on Montserratians also and affects the other dimensions of the recovery processes.

6.3.2. Reinforcing local identity to cope with the rapid change
6.3.2.1. Cultural and identity development as a response to the change

Another major source of fear generated by immigration is the social and cultural changes that occur. The reaction to that is an increase of efforts to preserve and even develop the cultural identity of Montserrat. Various measures are implemented for that both by policy-makers and civil society.

The development of the sense of pride of being Montserratians has been officially stated in the Sustainable Development Plan for 2008-2020 (GoM, 2010, p.44). One strategic focus aims to be the "Promotion of health, well-being and national identity – The essence of this strategy is the promotion of health, well-being and national identity through education, nutrition, physical exercise, sports, healthy lifestyles and engagement in cultural events. As a result of this approach, it is expected that by 2020, […] that there will be a greater sense of

identity and national pride among Montserratians". During an interview in April 2016, a GoM senior official explained that several efforts are currently done in order to develop the national identity of Montserrat. There was not such willingness before the volcanic crisis according to her. She explained that the status of British Overseas Territory could have for long prevented Montserrat for developing its own identity. Children now learn a national song, in addition to the British anthem "God saves the Queen". She said that several national traditions are now resurrected:

> *"So the things that we try to do is as much keep as many of those things that help to identify our self, our national dance, get the knowledge about our national birds and dishes, goat water promoted more of that and bringing to, infusing more in our culture to want to bring that. [...] Because we have lost quite a bit of that, institutional memory of things because of the mass migration of Montserratians leaving as the result of the volcano."*

She suggested that the fear of losing their identity and to efforts to reinforce it is due, on the one hand, to the emigration of Montserratians during the volcanic crisis, and on the other hand, to the large immigration that has followed:

> *"Because there was a push to... with the whole sense of immigrants, perception of immigrants taking over Montserrat, you're trying now to hold on to something Montserratians that get the other to [fit] into that culture. So when you come to Montserrat, you do as a Montserratian would do."*

A Montserratian woman also explained the link between immigration and enhancement of local culture by saying:

> *"The more [immigration] happens, the more people get [resistant], I think it's correct, no one wants to lose its culture, every island has its own unique culture [...] we don't want to lose that [...] a lot of it is lost all over the world because the people who are the champions of certain things they are not here [...] We have some of our culture still [...] But not much. And we want, we want to hold on."* (Interview in January 2016)

A policy-maker confirmed:

"Our sense of what is being a Montserratian is lost, the traditional things like the way we cooked things, you know our... our cultural... you know like masquerade and all those kinds of things that are deeply embedded in the culture, people are... they have anxiety because those things are being lost and also they have anxiety because young people are leaving, you know, all generation... so I think there is this feeling that for some people they really don't want to come to turn to the fact that it's a completely new Montserrat. And that it's being defined not just by the people who've been here long long time but it's also being defined by the people who come here to settle and make their life and raise their family and go to school. That I think it's a big challenge for us and Montserratians..." (Interview in May 2016)

Therefore, national symbols are raised to redefine the identity of Montserratians as the latter has been altered by the rapid and intense demographic change. There are signs of resistance to the recent changes. A Montserratian scholar, writing at the end of the volcanic crisis, identifies what constitutes "Montserratness", in other words the Montserratian identity: "What constitutes Montserratness is inextricably linked to the aforementioned cultural element, thus Montserratness is directly related to 'possessing' the Montserrat culture. It almost seems incongruous for Montserratians to claim a culture since their shared beliefs and behaviours are plaited with African, Irish, British and Caribbean influences. Yet, the mix that has evolved is prototypically Montserratian. The essence of Montserratness is captured in maroons, 'box hands', calypsos, steelbands, masquerade and string bands. It is also manifested in dressing in one's 'Saturday and Sunday best', the 'strangers' paradise' hospitality, 'the-morning-neighbour-morning' greeting, the communal joys and sorrows' and an exciting 'Montserrat English' (dialect). There is no Montserratness without these Irish legacy: the Shamrock, the Lady and the Harp, St Patrick's Day, goat water, surnames such as Allen, Bramble, Dyer, O'Brien, O'Garro, Riley and Tuitt." (Shotte, 2008, p.3). She therefore clearly associates the Montserratian culture and identity with the symbols and characteristics that existed prior-1995. Although she mentions a mix of influences, she does not refer to the more recent influences from Jamaica, Guyana and Dominican Republic. She mentions the Caribbean influences but rather referring to those who have shaped the pre-disaster identity. In the same way, during informal discussions and interviews, Montserratians often distinguish the

members OECS countries, considered as culturally close from Montserrat, and the immigrants of Jamaica, Guyana and Dominican Republic, considered at contrary as very different from the Montserratian culture.

Interestingly the development of the national identity and of the national pride was one of the scenario drawn by the Montserratian participants of a scenario project of the future development of Montserrat after the Hurricane Hugo and at the beginning of the volcanic crisis in January 1997 (Possekel, 1999). The favourite scenario was called "Proud Alliouagana[2]". Among various objectives, Montserrat's history and culture were aiming to raise pride and self-esteem of the population, for a "people oriented, self-determined, cohesive and indigenous, environmentally sound economy" (Possekel, 1999). This scenario was developed before the extended demographic changes that affected the island.

This approach therefore aims to develop bonds among the Montserratian community. However as some research has shown before, based on Putnam's theories (Cheong et al., 2007; Macnab, Thomas, & Grosvenor, n.d.), a strong bonding social network can prevent the development of bridging social network. This approach seems to prevent social cohesion between all communities, yet an important support for recovery process. During an interview in May 2016, a senior official of the British government argued in the sense of a better inclusion and more efforts for making immigrants feel part of the community, saying:

> "Some people are feeling that [immigration to Montserrat] is an easy path [to move to the UK] and they think that [immigrants] are using Montserrat in a sense. So I think that has to be... that issue has to be addressed a little bit better. Either we have to... be more welcoming to people so they do feel part of the place and they do feel 'oh I was gonna go for my British citizenship, maybe I still will but I'll still gonna stay in Montserrat' you know.
>
> [...] We need to find a new sense of identity. There was a strong sense of identity in the past and there wasn't necessary for somebody they had a policy, they defined it for people because people just had it but now things are so

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[2] Alliouagana is the name initially given by the Amerindians to the Island of Montserrat

different that I would say, we probably need to think about how we will consciously and maybe through policy, maybe through activities help Montserratians redefine their identity."

The need of inclusion of different communities is increasingly acknowledged by a part of the society. However, according to the British Government senior official, although the creation of a new sense of identity through the acceptation of the diversity is judged important by many on the island, little is done for it:

"I felt that a lot of people in the government, they get [the need of more inclusion] and they want that, but we don't have a policy about that, as such. We don't have certain practices, we don't have a... diversity coming, you know that kind of things. So I try to do that as much as I can in my... and surely the Premier you know and other officials you would hear them to talk about that [...] So that's something [the diversity] that we really need to promote in a myriad of ways and we're just beginning to do that. Yes, we do have Spanish speakers at the schools, we are beginning to recognize different groups here but it does take a while and there is some resistance." (Interview in May 2016)

Some policy-makers and social workers argue for strategies to reinforce social cohesion that acknowledge the new context. In this sense, the Red Cross is considering the idea of implementing some village competitions in order to create an identity based on the village where people live now and not based on the Island where they belong or the village where they used to live before 1995. Moreover, in 2016 and 2017 a few basketball games between opposing villages were organized, as had been done prior 1995, in order to reinforce pride and self-identification for the new villages. However such events are irregular and uncoordinated at the national level. The objective here is clearly to unify different groups around a common characteristic and hence decrease the importance of the country of origin as factor of segregation. Although this village competition had existed for several years, it had been abandoned since 2005 (Figure 6.4). Montserratians tend to persist in identifying themselves by their village of origin, very often located in what is now the exclusion zone, instead of referring to the neighbourhood where some have been living for twenty years. The sporting competition reflects the gradual recognition by community leaders and social

stakeholders that social cohesion needs to be reinforced and that diversity needs to be embraced.

Figure 6.4: Sign in the entrance of the village of Lookout about the village competition (©Charlotte Monteil, 2017)

The Montserratian population often criticize efforts to include all communities. These efforts, like the language classes for the Dominican (DR) and Haitians, are perceive negatively because they seem to make the Montserratians being a minority and threaten the continuation of the pre-disaster identity and culture. They contribute to post-disaster change on the island and establish a different identity than the one that is claimed by a part of the Montserratian community. On the contrary, the efforts to preserve or even create a Montserratian identity based on symbols used before the volcanic crisis corresponds to the will to recreate a sense of return to pre-disaster normality and stability.

6.3.2.2. *Absencing immigration in the identity creation process*

The reinforcement of Montserratian culture is a reaction to the multiple changes that have occurred on the Island since 1995. It appears as a stable element, associated with what the Montserratians perceive to be the "pre-volcano" Montserrat. In the meantime, it seems to exclude the non-Montserratians, more specifically those who do not belong from this particular culture, from the identity of Island in post-disaster recovery. In the interviews and FGD, immigrants often express anger and feeling of rejection against them. For instance, a group of Guyanese explained that the Christmas and St Patrick periods are very difficult period to cope with for them. Many Montserratians from the diaspora come back, sometimes after several

decades living out of the island, and tell proudly to the immigrants that they are the local ones. The St Patrick festival, while officially addressed to all residents, tourists and members of the Montserratian diaspora and enjoyed by the immigrants as well, fails in several aspects to include the non-Montserratians. In 2017, I attended a popular event of the festival and noted that the presenter was frequently using the pronoun "we", referring only to those sharing the history and culture of Montserrat even though he was speaking to a very diverse audience. He was talking about the Irish heritage and the specific history of Montserrat. All non-Montserratians were hence reminded that they were actually not the target audience of the event. In the same way, participants of the Cultural Pageant Competition were asked to represent a village of Montserrat. Most of the participants had chosen or were given a destroyed village while the most recent villages (Look Out, Davy Hill, Brades or St Peters), comprising more than 42% of the total population in 2015, were not represented. A group of Guyanese, talking about the event, explained me that this single event was not a problem, acknowledging the unique history of Montserrat, but that the repetition of such practice and the lack of events targeting everybody, whatever their origin, ultimately felt excluding. The strong distinction between Montserratians and non-Montserratians is reinforced verbally on many occasions through the specific vocabulary that is used.

Festivals serve as a metaphor of the efforts implemented for creating a post-disaster identity of Montserrat. Immigrants seem to be excluded from this identity, despite of the fundamental role they play in this process. Despite the widespread feeling of being marginalized, very few collective actions are implemented. Anger is present but is rarely expressed publicly. It has been necessary for me to organize anonymous and hidden focus group discussions to discuss the question more deeply. Different reasons are highlighted to justify the lack of collective action. They include the feeling of lack of legitimacy to complain as they migrated for economic reasons and the lack of leadership in the Jamaican and Guyanese community, preventing the coordination and the implementation of actions. The lack of representation of immigrants within institutions and government also prevent some specific issues being raised and to highlight the different needs between Montserratians and immigrants.

Individual actions by the immigrants themselves, to prevent their marginalization and fight against the discrimination they face, are made difficult by their precarious condition, both in terms of employment and in terms of the naturalization process. During interviews and informal discussions, immigrants explain that they cannot take the risk to complain, as Montserratians would, because it would be more difficult for them to find another job. That would compromise the objectives that have led them to migrate, in other words earning money. A Dominican man (DR) explained:

> *"[People] are afraid to talk to somebody because you know… the language. And then, they don't want to loss what they have, you see."* (Interview in January 2016)

Immigrants also often express the fact that they feel they are not allowed to speak and complain. They explain that they receive very aggressive reactions when they protest against some of the discriminations they face. While many immigrants feel that they are well integrated in daily life, there is a diffuse feeling among the immigrants of not being considered legitimate or allowed to speak equally to the Montserrat-born people, especially when it comes to political or societal issues. A Dominican explained that while he lives on the island for more than 20 years, more than half of his life, his opinion is never listened to or accepted by Montserratian. Such observations are also made when immigrants have been naturalized and are officially Montserratian. A Jamaican social worker explained during an interview in January 2016:

> *"But at the end of the day, that's said, there still have issues with the persons who are naturalized or non-naturalized, because they, what should I call it, there are the personal issues that exist in the country with the persons who are non-nationals [immigrants], even if you are naturalized. […] once you don't have, you are not born Montserratian, there is a difference in all of that, so… most of time people get frustrated because of that, because they have the skills, occasional requirements and they still get the mediocre jobs. And somebody without the requirements get the job over you."*

Because Montserratian society is originally composed of only a few large families, well-known and well-identified through their family name (like Sweeney, Ryan or Fergus), those who do not belong, namely immigrants, are easily identified and excluded. According to the

discussions with immigrants and Montserratians, those who get naturalized continue to feel and to be considered as immigrants.

The silence of immigrants and the absence of integration of their culture in the process of creating a national identity reflects the wider pathway of development decided by the Montserratian society and the role attributed to the immigrants. Immigrants are associated with the post-disaster period and to specific roles, namely to support the economic, physical and demographic recovery of Montserrat. Immigrants are not part of the narrative of post-disaster recovery, as they are not considered as part of the society.

While some policy-makers and some people working with communities try to highlight the need to embracing the different cultures, immigrants are mainly seen through a utilitarian lens: they fill the empty positions and inject their money into the local economy but they may do no more than "fit-in" to Montserratian society. With the increasing number of immigrants, two contradictory trends are developed: one reinforcing the Montserratian culture and in turn failing to embrace the new diversity of the island, the other one recognizing the importance of embracing the diversity of communities and the added value of the immigrants.

6.4.   Conclusion

If the increase in immigration clearly addresses specific needs for post-disaster recovery, evolving as time passes, the lack of management of the process and of a long-term view has generated some extended changes in the society, especially in terms of socio-cultural and economic structure. It has led to resistance by a part of the Montserratian population and policy-makers, and a gradual segregation of society by nationality or country of origin.

The general marginalization of the immigrants in the post-disaster recovery is therefore expressed on the one hand, in their daily life because of limited access to financial, social, human and physical resources; and on the other hand, through the lack of recognition of their role in the recovery process and in the post-disaster identity of Montserrat. Considering their relative number, about half of the total population, that has considerable implications on the level of social cohesion created through the post-disaster development and on the vulnerability of the society to disasters.

In Montserrat, because it is impossible to recover the resources and the lifestyle that have been destroyed as a result of the volcanic crisis, the return to a sense of normality and stability goes mainly through the preservation, or even the reinforcement, of what is perceived to be the Montserratian identity. Shotte (2008, p.1) explains: "Admittedly, this is an uphill struggle since the Montserrat identity is being squashed, and sometimes made invisible, due to the pressures from the more dominant cultures in this multi-ethnic, multi-cultural metropolis. Despite the challenges, Montserratness is still being celebrated and the desire to sustain an island identity remains strong". Although this process helps Montserratians to have a sense of control over their life and the place where they live after a long-period of uncertainty, also perhaps to psychologically recover, it hinders adaptation. Instead of a learning process that enables the Island to adapt to the post-disaster change, Montserrat adopts a very conservative approach that rejects these changes. As a consequence, it prevents adequate consideration of the new issues faced by the society and the emerging drivers of vulnerability. It hence seems to prevent the implementation of the ideal of "building-back-better" and of strengthening of resilience in the long term.

Disaster can create significant social disruption and transform the socio-demographic structure of the population. The constraints of the post-disaster period and the need to support the psychological and social recovery of the affected social groups can hence contribute to the reinforcement of bonding social capital, while preventing the development of bridging and linking social networks. In a context of significant demographic transformation, from a relatively homogenous society to a socio-culturally diverse society, such a recovery trajectory may contribute to maintaining immigrant groups in a situation of relative marginalization, which is a root driver of vulnerability to disaster (Wisner et al., 2004). Yet, in Montserrat strengthening of bonding social capital has come as a reactive response, both formal and informal, to disaster and as a psychological recovery strategy. It corresponds to the desire to recreate a sense of normality during the post-disaster period and to recreate a sense of community.

This study also highlights the conflict between short-term goals and long-term needs. While immigration has been used to support economic and demographic recovery in the short-term, it requires accompanying measures to support inclusion and integration in order to

prevent negative repercussions in the long-term. In the absence of such measures, the resulting marginalisation and vulnerability of immigrant groups has consequences at the national scale. Such a development trajectory prevents the achievement of sustainable recovery learning from the past disaster and by building-back-better. It fails to integrate the communities of newcomers, despite the critical role for long-term recovery, and can promote a maladaptive development on long-term. I have demonstrated here that if social capital plays a critical role in supporting the recovery processes, post-disaster demographic transformations, from a homogenous to a heterogeneous society, require adaptation in the way that social capital is mobilised. In particular, even though the immediate needs of psychological recovery may encourage the reinforcement of bonding networks, there is a need to build bridging and linking social connections in order to foster resilience in a diverse society.

CHAPTER SEVEN

MEMORY, RISK PERCEPTION AND DISASTER RISK REDUCTION DURING THE RECOVERY PROCESS

One major aspect of the recovery process is to learn from the past to reduce the risk of disaster and promote resilience. Yet, the variety of responses to a disaster illustrates various levels of learning and adaptation strategies, leading to different degrees of sustainability (Dyer, 2009; Field et al., 2012). Reducing the risk of disaster requires not only knowing about the risk, but also implementing actions, either at national scale or by individuals themselves. These are directly linked to the way the risk is perceived (Renn, 1990; Wachinger, Renn, Begg, & Kuhlicke, 2013). The social representation of risk derives from the way it is built as a social object through the influence of culture, communications, and collective memory (Gruev-Vintila & Rouquette, 2007).

However, as we have seen in the previous chapter, post-disaster change, among others, induces great challenges for the recovery process, in particular to knowledge and memory of disaster. The different communities have different experience of disaster and hence, different forms of knowledge of risks. Moreover, rapid post-disaster change tends to encourage a desire for short-term stability and certainty, and in this way undermines the efforts for sustainable development. The willingness to reduce the risks of disaster faces more issues and priorities than it does in non-crisis time (Olshansky, Hopkins, & Johnson, 2012), including a lack of resources and the need to relocate people in an emergency. It leads to gradual mental block when it comes to address the risk of disaster. Although this is necessary for psychological recovery, it can be harmful for preparedness to natural hazards.

Through the experience of Montserrat, I analyse the difficulties of implementing actions of preparedness and more generally to communicate about risks. I examine how risk perception gradually evolves with the recovery process and the emergence of new needs and desires, and how that affects risk communication. The amount and rapidity of change of the society also frame the memory of the disaster and the level of trust in the actors of DRR. The study reveals a highly ambivalent attitude of society, including people and policy-makers, with the risks and with risk management, inducing a constant trade-off between forgetting and remembering the risk of volcanic hazards.

7.1. Risk perception and redevelopment of Montserrat

Many Small Island Developing States situated in the tropics are exposed to a diverse range of natural hazards. This often means that an island can be impacted by different hazards within a narrow timeframe, which presents challenges for recovery. In Montserrat, two consecutive major hazards, namely Hurricane Hugo in 1989 and the successive volcanic eruptions from 1995 to 2010 (five phases), strongly affected the life on the island (see Chapter Four), but also helped to raise awareness about the level of exposure of the island to hydro-meteorological and volcanic hazards. However at the time of this study, gradual change in the level of consideration of the different risks are observed. Different factors affect the risk perception and the willingness to act, including the time passing, the level and type of memory, the type of actors and the level of trust between actors.

7.1.1. How does the risk of disaster shape the redevelopment?

The rebuilding of the north of Montserrat has been the opportunity to build new settlements and infrastructures while taking into consideration the existence of risks and the experience of previous disaster. The successive eruptions and the destruction of a large number of infrastructures by pyroclastic flows in the south of the island has led to the creation of an exclusion zone. Its borders have gradually moved as the volcanic activity was evolving as seen in Chapter Four. As a major constraint for the recovery of Montserrat, it constitutes an obvious consideration of the risks in the redevelopment of the island. The establishment of zones based on the level and type of volcanic activity has allowed the type of activity allowed in each zone to be defined. As the volcanic activity has remained low since 2010, the perception of the exclusion zone and the level of fear towards the risk of volcanic eruption has evolved. With the recovery process going on, new priorities emerge and the risk of disaster linked to volcanic hazards seems to become less significant in the strategy of development.

Officially the development of Montserrat is clearly focused on the northern part of the island, in other words an area not exposed to volcanic hazards for the most part. The Physical Development Plan for 2012-2022 clearly focuses on the development of the north and does not consider the zone C, V and F as part of it (GoM, 2012). The Sustainable Development Plan 2008-2020 mentions the development of "volcano-related economic activities", including geothermal energy, volcano-based tourism and sand mining, all located around the volcano in the southern part of the island. But it does not explicitly

mention the south of the island as an area of future development (GoM, 2010). However, despite of the lack of an official plan for this area, the exclusion zone plays growing role in the economy and social life of Montserrat. In 2016, the Guardian synthesized the situation Montserrat as follows:

> "It's still a grim sight, but 20 years after the first eruption, Montserratians are beginning to reconsider Soufrière Hills. The nation's government, elected at the end of 2014, is now betting the country's future, in part, on the very volcano that almost destroyed it. The eruption is the past, they argue; geothermal energy, sand mining and tourism are the future. 'We have learned to live with the volcano,' said the island's premier, Donaldson Romeo. The 'long, hopeless period' that began with the eruptions is over. 'Ash to cash' he said with a grin" (Schuessler, 2016).

The expression used by the Premier of Montserrat "Ash to Cash" reveals the willingness to use the damaged area for its economic potential instead of continually considering it as a prohibited and dangerous area. Therefore we observe that after an initial distancing from the volcano and thereby from the volcanic risk, a part of the population and of the policy-makers express the willingness to go back to the south for conducting various economic activities. By doing so, they argues that the risk is not high enough and is too uncertain for restraining the development to the north of the island only (see also Haynes, 2006).

7.1.2. *Differential levels of risk perception depending on hazards*

While Montserrat is prone to several natural hazards, not all of them raise the same degree of concern. As shown in Chapter Five, the displacement to the north and the rebuilding of the infrastructures and dwellings has been an opportunity for structural change and for building better, in order to be better prepared for the various hazards that could affect the Island. The displacement has been an opportunity to largely reduce the exposure to volcanic hazards and to build infrastructures more resistant, especially to hurricane. It has enabled the building of houses generally less vulnerable to the risk of hurricane and the setting up of shelters for hurricane in Churches, schools and in the old refuge built during the volcanic crisis for displaced people (Figure 7.1). However, as we have seen, the level of compliance to the building code is variable depending on the neighbourhood, the type of hazard, the type of household, its origin and its previous experience of disaster. The consideration of risk in the rebuilding of the north of the island

therefore considerably depends on the perception of risks depending on the different actors and on the level of consideration expressed by the disaster managers and the policy-makers.
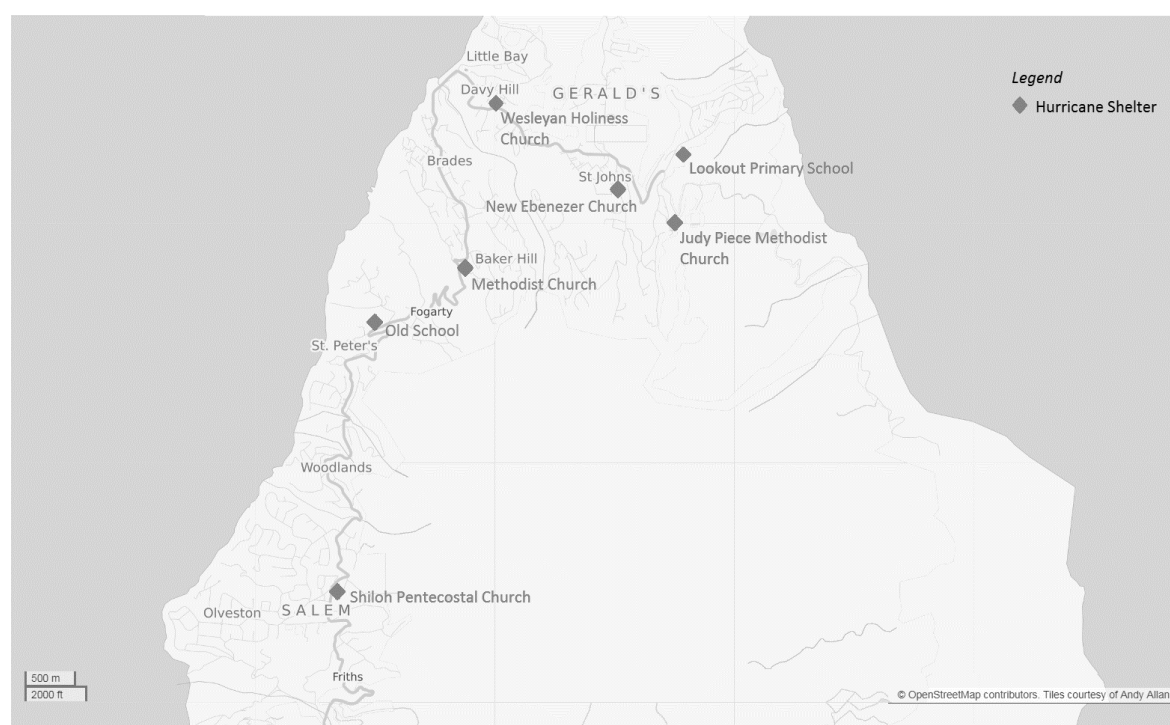
Figure 7.1: *Map of the hurricane shelters in the north of Montserrat*

Interviews and policy reports reveal a common agreement among disaster managers and policymakers about the need of preparedness to hazards, but with a different level of concern depending on the type of hazard. Overall it is recognized that the development of the island is highly dependent on the risk of disaster and therefore that the recovery of Montserrat cannot ignore the need to prepare for hazards. Decision-makers talk about the uncertainty of the future and the possibility that an event may considerably affect the re-development of the island. A senior policy-maker explains that because the population lives now on one third of the island only, the government has to make sure that the population, their livelihoods and national investments are safe. However, the level of concern for the different hazards and for the need of preparedness largely depends on the level of certainty associated with each hazard.

Noticeably during the interviews conducted for this study, policy-makers, community leaders and the general population naturally guided the discussion toward the risk of hurricane, mentioning the risk of volcanic hazards only when I asked specific questions about it or when talking about the development of the south. During an interview, a leader of the Dominican (DR) community naturally shifted from the risk of volcanic hazard to the risk of hurricane. When I asked him what could be done to prepare his

community to volcanic hazard, he mentioned the building of a shelter in the Dominican (DR) church, actually designed especially to accommodate people in case of hurricane. The risk of hurricane is a greater concern for the north of the island while the perception of risk of volcanic hazards tends to be limited to the exclusion zone. Contrarily, the risk of volcanic hazard is not a strong concern in the inhabited part of the country. It is partly explained by a lower exposure to volcanic hazards than in the exclusion zone. Moreover, because the exclusion zone is uninhabited, it has become less concerning in terms of risk, despite of the activities going on there.

The degree of concern for hazards among the population does not only vary depending on the actual level of risk but also depending on the level of monitoring and on the level of trust in the institutions in charge of risk management and monitoring. Volcanic hazards are highly monitored and controlled scientifically by the volcano observatory. The exclusion zone is highly controlled with strict rules limiting its access to specific uses only and under strict supervision. A volcanic hazard zone has been created rapidly after the first volcanic eruption while no map exist for the other hazards susceptible to affect the island. This leads to the perception that the risk is managed and limited to the uninhabited exclusion zone. Therefore, inhabitants of the country, disaster managers and policy-makers rarely mention the need to conduct more specific disaster preparedness measures for volcanic risk. During interviews, residents of Montserrat commonly referred to the MVO as the institution in charge of managing the risk. They delegated the responsibility to this institution, explaining that if anything happens, the MVO would react and protect them. They have therefore developed a sense of safety thanks to the existence of the exclusion zone and of the MVO as monitoring agency.

Contrarily, the other hazards do not benefit from such close assessment and preparedness measures. There is a relatively poor identification of the vulnerable zones and vulnerable households to hurricane, flooding or earthquake for instance. However, seasonal campaigns are available for raising the level of awareness about the risk of hurricane and for educating to the adopted preparedness measures. Efforts are done to promote an effective communication and thereby make preparedness measures effective. Preparedness efforts are spread across the whole society, not only among the organizations in charge of DRR or monitoring. The Red Cross, major agency in charge of disaster preparedness focuses on the risk of disaster by adopting a broad perspective, not only based on communication about the hazard itself but by tackling factors of vulnerability such as poverty, lack of access and transportation or lack of skills. There is therefore a major

difference in the type of preparedness measures implemented to cope with the risk of volcanic hazards and the other hazards. While preparedness to volcanic risk is mainly based on scientific monitoring and on delimitation of exclusion zone, other hazards, mainly hurricane, are tackled through a more integrative approach and benefit from more efforts for raising awareness.

Risk perception, all over the island, varies also depending on the groups of people. On the 15th of February 2016, after more than two months in total spent in Montserrat, I wrote in my field notes my surprise when a man talked spontaneously about what he would do in case of a new eruption. He was a Montserratian, grown up in St Thomas and went back to Montserrat since 1998. He explained that he was planning to stay in Montserrat except if the volcanic activity was to increase again, in which case he would have to reconsider his plans. This concern seems to be present among the population but rarely spontaneously mentioned as a factor deciding of the future life plan. Instead, the Montserratians who have remained in the country talk about the risk of volcanic hazards only during the interviews when I raised the subject myself. They present other factors susceptible to influence their life course such as job opportunity, family issues or need to earn more money abroad. Indeed the formal and informal interviews reveal that there is a very different level of concern between different groups of people. The Montserratians who have always remained in Montserrat commonly mention the need to move forward and the fact that the volcano is now inactive. A Montserratian man for instance asked on social media in January 2018:

> *"Will Great Britain help[the Island] to get well and pay its people to return now the Volcano is real quiet?"*

Moreover, policy-makers tend to mention the risk only when talking about the development of infrastructures and economic activities in the southern part of Montserrat but not when talking about the north. Other citizens easily talk about the volcanic eruptions as a past experience and as a part of their history, they rarely mentioned it as a risk for the future. Contrarily, the Montserratians who have left the country (the diaspora) during the disaster tend to be more vigilant and concerned about the persisting risk. Informal discussions also reveal that it was mainly the recently returned Montserratians and the member of the diaspora who express concerns about the risk of volcanic hazards affecting the north. For instance at the beginning of 2017, a Montserratian mother and her daughter, both back on the Island for holidays after living for about twenty years in the UK, were asking several people what were the areas less exposed to volcanic hazards to buy a land and build a

house. They were unsure whether the Silver and Centre Hills, in the north and the centre of the country, were also active and susceptible to erupt. This difference of perception among different sections of the society is often justified by the fact that the diaspora has kept the image of destruction as their last image of Montserrat before leaving the country and therefore associate much more the country to the volcanic risk.

In Montserrat, it seems that risk perception, and the preparedness efforts that result from it, depend mainly on:
- the level of certainty of the natural hazards,
- on the experience of a previous disaster and
- on the trust in the institutions in charge of monitoring and DRR.

These strongly contribute to determination of the recovery process and the adaptation strategies to face future natural hazards.

7.1.3. *Gradual reinvestment in the exclusion zone*

While the risk of volcanic hazards is considered as mainly limited to the exclusion zone, the risk perception within this area seems to evolve as the volcanic activity remains low. The evolution of the risk perception within the exclusion zone is translated by the change of its use during and after the volcanic crisis. Testimonies collected for this study reveal that people only really understood the risk posed by the volcano after the 25th June 1997 eruption when 19 people were killed by pyroclastic flows even though the first eruption started two years beforehand. Most of the people who were killed were farmers, going regularly into the exclusion zone to continue to grow their crops and tend to their livestock. According to the emergency coordinator at that time, several alerts had been given to them to urge them to leave the exclusion zone. They were resistant because of their need for income but also because, as explained a Montserratian woman during an interview in January 2017:

> "[they were] doing it for months so they knew exactly what the volcano was doing."

Therefore farmers were not worried. The death of these people is commonly highlighted as a major trigger for fear and realization of the actual danger of the volcanic hazard.

In the years that followed that fatal event, entry into the exclusion zone has remained illegal and limited. However in 2016 and 2017, informal talks with

Montserratians reveal that illegal entries in the exclusion zone are frequent and consider as normal by many, even by some very well informed about the danger. A group of fishermen explained that it is where there are good fishing spots. A couple of tourists told me that they went to visit Plymouth illegally, pretending to not know that an authorization was required, despite of the visible "no trespassing" signs at the entrance of exclusion zone V. Due to its prohibited character, there are no accurate data on the extent and on the purpose of the use of the exclusion zone and on the evolution of that use in parallel with the evolution of the volcanic activity.

In the meantime three major economic activities, all related to volcano, have been allowed since that the volcanic activity has decreased: geothermal production, including the initial work of drilling and setting up the infrastructure, sand mining and tourism (Figure 7.2). Geothermal drilling has started in 2012 with the objective to start to production by 2020. Its location, in an elevated point between St Georges Hill and Garibaldi Hill, in the zone V of the exclusion zone (see Chapter Four), takes into consideration the risk of volcanic hazards since it cannot be affected by pyroclastic flows (ATOM, 2015; EGS Inc., 2010). Sand mining also constitutes a major economic activity for the south of the island. While it was mainly located on the Eastern side of the island, it was moved in 2012 to the Belham Valley and to various beaches filled by lahars during the volcanic crisis. It includes work of collection in the valley and transportation by truck through the exclusion zone up to the jetty in Plymouth to carry the sand to the barges. While this activity has been going on long before 1995, the lahars constitute an essential resource for this activity. It has grown from 0.30% of the GDP in 2010 to 2.62% in 2015 (Eastern Caribbean Central Bank, 2017). Finally tourism has strongly increased since 2015. Before that date, the access to the zone V, mainly to Plymouth, was strictly forbidden and the observation of Plymouth and of the volcano was only possible from Richmond Hill in zone C. In 2016 the government decided to allow the access to tourist tours once a week, under strict supervision. Group tours are organized with a maximum of 50 people allowed each time in the exclusion zone plus bus drivers certified and trained to emergency evacuation.

Figure 7.2*: Economic activities being developed in zone V of the exclusion area. (A) farming, (B) semi-private project of restoration of the beaches for touristic infrastructure, (C) geothermal activities, (D) sand mining (©Charlotte Monteil, 2016, 2017)*

Noticeably, pressures are growing to encourage the cleaning and rebuilding of some villages, particularly Cork Hill, located in zone C and totally evacuated in 1997. Those villages have been strongly damaged by the ash falls but have never been affected by pyroclastic flows due to their location (see Chapter Four). Since 2017, pressure has increased for even further reinvesting in these areas where people persist to identify themselves. Many displaced Montserratians also continue to pay mortgage for their house despite not living there anymore. In March 2017, for the first time since its evacuation, the whole area has been cleaned up in order to organize the Cork Hill reunion, a one week meeting of the people living there before 1997 (Figure 7.3). Since then, other meetings are planned several times a year, including cricket matches, barbecues and an annual reunion. This goes in parallel to the growing willingness to restore and reinvest in the area as a major objective to move forward after the volcanic crisis. The 2017 budget speech, made public in June 2017, formalizes for the first time the possibility to regenerate this area through specific incentives. From the 1st of July 2017, exemptions from Import Duty and Consumption Tax are applied for three years for the building materials imported in order to fix or build in Cork Hill, Delvin's, Foxes Bay, Weekes's and Richmond Hill (Romeo,

2017), which are all villages located in the zone C and evacuated between 1995 and 1997. This decision of the government reveals the willingness to reinvest in the south for settlement and business development as part of the recovery process of Montserrat.

Figure 7.3: *Cork Hill reunion in March 2017 (©Edith Duberry)*

Before the presentation of the 2017-2018 budget and the formalization of this objective, formal and informal interviews reveal critics and scepticism about the feasibility of the project. A physical planner explained that the decision would be taken only if the pressure from the population becomes too strong, as renovating the south of Belham Valley will face a large number of issues. He explains that the cleaning of Cork Hill for the reunion in March 2017 shows a growing pressure coming especially from the people who have been evacuated from the area and living now either in the north of Montserrat or abroad. Indeed, during the budget speech, the Premier said:

> "The work of the Cork Hill Reunion Committee in organizing the reunion, which took place earlier this year March 19-25, was inspiring to us all. The efforts and hard work paid off, it was a great success. […] I want to further support their efforts and therefore Cabinet has recently approved granting exemption." (Romeo, 2017)

This way, the Premier clearly expresses the willingness to pursue the reinvestment in the south and to encourage initiatives in this direction.

The gradual reinvesting in the exclusion zone, formally and informally, reveals a growing perception that the area is safe. It is linked both with the fact that there has not been volcanic activity since 2010, hence that the volcano is now not in eruption anymore, and to the lack of clear and efficient communication about the persisting risk.

7.1.4. Risk communication during the post-disaster period

The efforts for risk communication during the recovery period reflect what has been learnt from the previous disaster and the importance that is given to the risk of disaster in the redevelopment of the country. As seen in the Chapter Two, risk communication emphasizes three major elements, namely the information given, the method it is communicated, and the way it is received and understood (Bier, 2001; Breakwell, 2000). It contributes to the way the risks are perceived and how accurate that the perception is. In the meantime, the way risks are communicated reflects how risk is perceived by the authorities, those in charge of the communication, and how they want the risk to be perceived by the society.

In Montserrat, since the beginning of the volcanic crisis, risk communication remains very top-down (see Donovan & Oppenheimer, 2013). Information concerning the level of risk and the preparedness measures to adopt is provided by a few organizations, namely the GoM, DfID and the Governor's Office, the Red Cross, DMCA and MVO. Schools, churches and national radio also play a role of mediator between the mentioned organizations and the population.

Noticeably, the level and type of information communicated vary depending on the type of hazards. As mentioned above, there are major differences in communicating and preparing for hurricane hazards versus volcanic hazards. Because the risk of hurricane is seasonal, it benefits from an annual campaign of communication and preparedness activity. It includes radio messages, flyers, drills and communication about what to do before, during and after a hurricane. In the same way, in February 2018, DMCA started to actively encourage measures of preparedness to earthquake after several earthquakes were recorded in the Caribbean region in the previous months. In a Facebook post of the DMCA addressed to the population (Figure 7.4), it is explicitly mentioned that the need of preparedness emerged from what is perceived a growing risk. The recent earthquakes in the region therefore play the role of reminders of the risk of earthquake and hence encourage measures of preparedness (Bickerstaff & Simmons, 2009; McEwen, Garde-Hansen, Holmes, Jones, & Krause, 2017).
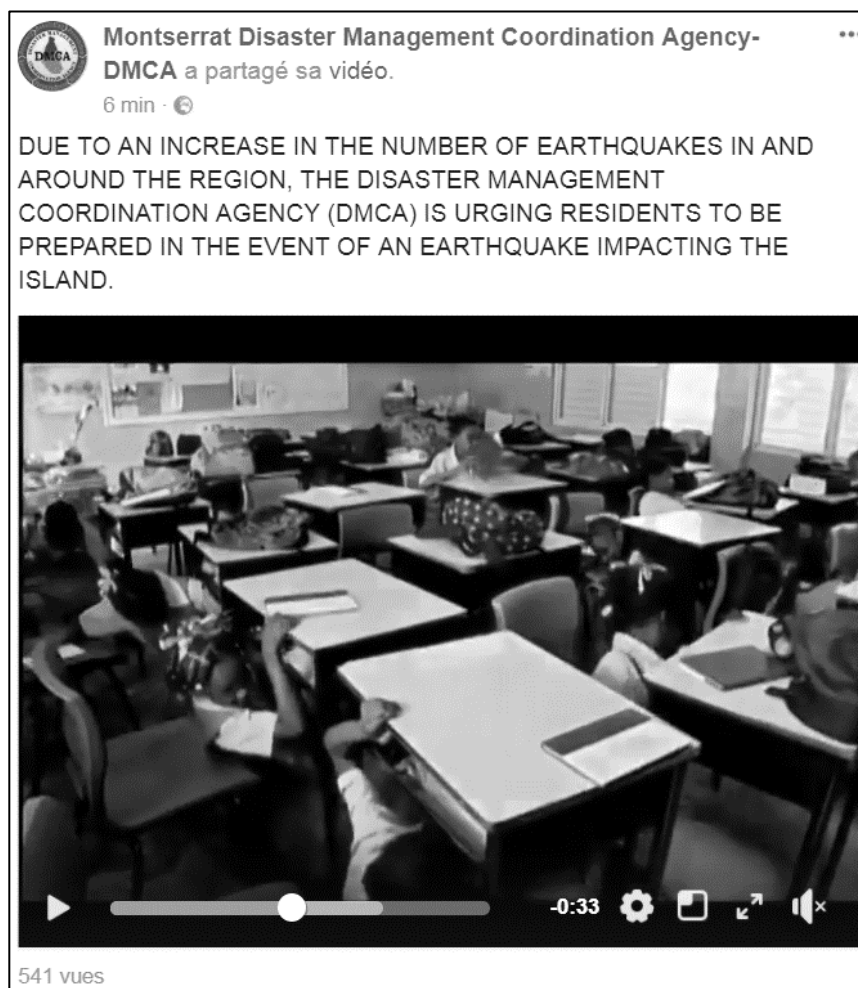
Figure 7.4: *Facebook post on the 12 February 2018 by DMCA to encourage preparedness to earthquake*

The risk of volcanic hazard however does not benefit from a specific and well organized program for communication. It depends more from how the risk is perceived by the authorities and the time passing. Consequently, it has largely evolved during the period of low activity since 2010. Now, efforts of communication include mainly messages about the exclusion zone and what has to be done within this area (Figure 7.5). Specific programs and drills are addressed to the workers of the exclusion zone in order to emphasize the need of use radio and specific measures of precaution. However, according to an employee of DMCA, the respect of the exclusion zone and of the precaution measures is attained more by force than by individual conviction of the risk following advice. An employee explained during an interview that people do not go to the exclusion zone because they are scared of the fines if the police catch them, and not because they are convinced that the warnings are justified. In reaction, scientists of the MVO explain that they have to remain very strict and vigilant on what they allow within the exclusion zone in compensation of the decreasing vigilance of the society. Risk preparedness and communication are therefore still conducted in a very top-down way, led by scientists and authorities.

Figure 7.5: Signs indicating the limits of the exclusion zone and the risk of lahar (©Charlotte Monteil, 2016)

Risk communication faces several challenges identified by policy-makers and agencies in charge of monitoring and disaster management. A major one is the access to immigrant communities. When this issue is discussed with the actors in charge of communication, the language is mainly emphasized. To cope with that, a number of flyers have been translated into Spanish and Haitian Creole. The MVO also translated one of its documentaries about the volcanic crisis in French. A staff member explained that they were considering in 2016 to translate it in Spanish also but did not have the competencies yet.
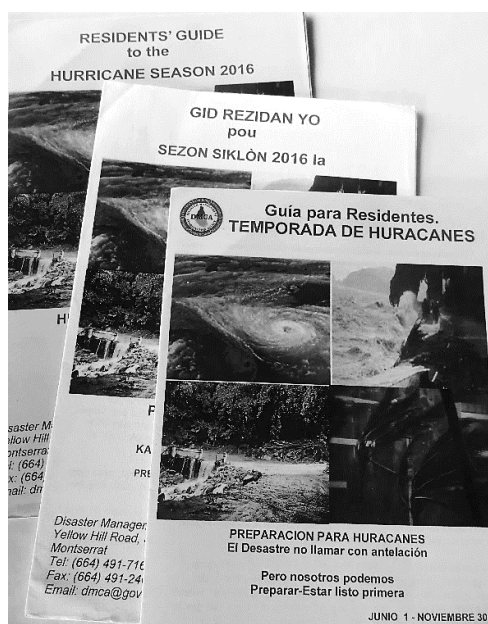
However, this documentary is mainly watched by tourists. In the same vein, flyers related to risks of disaster and preparedness measures are generally translated in different languages (Figure 7.6) in order to be accessible to all.

Figure 7.6: Flyers for preparedness for hurricanes, written by DMCA and translated in Spanish and Haitian Creole

However despite the efforts of translation, the question of access to these information, and efficiency of the message, has been raised by members of the diaspora more concerned about risks of disaster, as well as by some staff members of DMCA and MVO. They question the type of media actually read, seen or listened to by the immigrant communities. While ZJB radio is the main media for the Montserratians, non-nationals, especially non-

English speaking communities, do not listen to it as much. Yet most information are communicated through ZJB. To compensate, in 2017, a Dominican (DR) woman started a program in Spanish on the national radio, directly addressed to her community, in which she presented information related to hurricane but never related to the volcanic hazards. During an informal discussion, members of the diaspora who regularly travel to Montserrat were wondering where the flyers about natural hazards were available. They never noticed whether there were some at the airport and at the port, the two only entrance gates on the Island. A MVO employee in charge of the communication about volcanic risk explain that he has doubts about the efficiency of their communication strategy and hesitates to pursue in the same way they are currently doing. He particularly questions the efficiency of the MVO methods on the new communities living in Montserrat, but explains that so far, they have not been able to implement any other solution. So far, the MVO gives a weekly short report on Facebook, a monthly report on the radio, and an annual more detailed report developed by the SAC and addressed to the authorities of the country. Concerning the weekly report on social media (Figure 7.7), several Montserratians explained that they just read the first sentence "Activity of the Soufrière Hills volcano remains low" and do not continue reading. An employee of DMCA gives an analogy between volcanic hazards and birds. He explains that while early in their life, birds are careful and stay away from humans, they gradually come closer as they see that humans are not hurting them, so close that the human could catch them easily. He explains that as the volcanic activity remains quiet, residents of Montserrat act with the volcano in a similar way as the birds with the human.
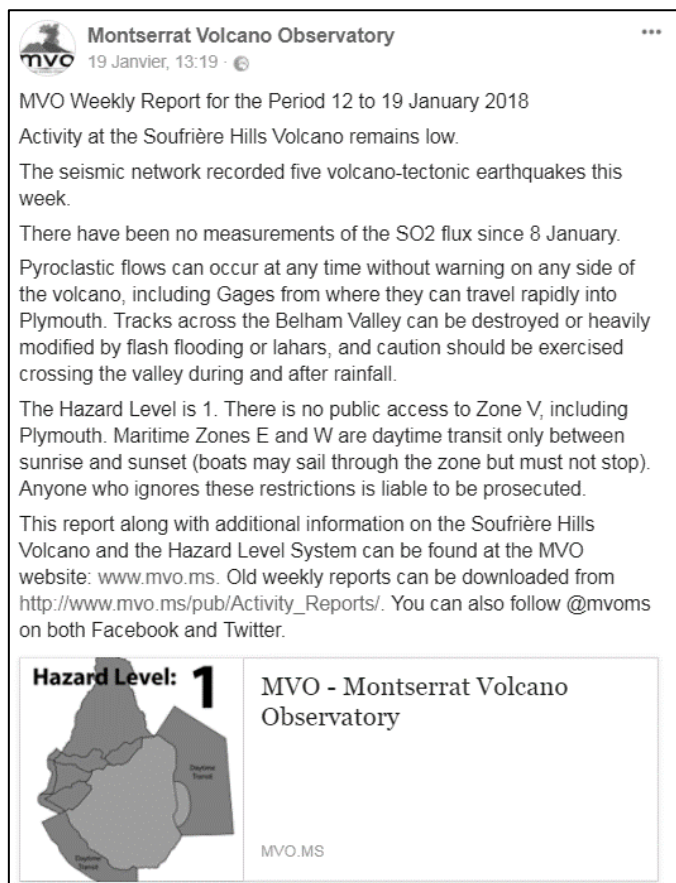
Figure 7.7: Example of a Weekly report of the MVO on the volcanic activity

While communication about the risk of hurricane persists year after year due to the seasonality of the hazard, communication about volcanic risk has gradually evolved. It has stopped being a priority tackled by all types of institutions. Instead, it is considered at the charge of some very specific organizations in charge of a top-down communication strategy. A policy-maker in the Ministry of Education explains that schools tackle much less the risk of volcanic hazards than the risk of hurricane because it is not part of the general curriculum. He considers that it is not the role of schools to tackle this issue as there are institutions in charge of that. A head teacher explained:

> *"We had persons from the MVO, we had them coming in and sharing about the volcano. Actually we use them, the scientists, to share on specific aspects of science, so where the syllabus requires information on volcanology or anything closely related we invite scientists to come in and share with the students."* (Interview in January 2016)

In the same way, another head teacher explains that now, the school does not spend time talking about the volcanic hazards because

> *"[we are] out of volcano now."* (Interview in January 2016)

while they were a psychological support and had regular discussions with the students during the early stage of the crisis. She mentions that DMCA sometimes comes to the school to distribute flyers and talk to the students, but only about hurricanes. Schools therefore rely on other institutions to communicate about risks.

The efforts of communication about volcanic hazards are therefore mainly focused at remembering the past disaster, as an important event now rooted in the history of Montserrat. At school, students are encouraged through different exercises to remember and learn about what happened (Figure 7.8).
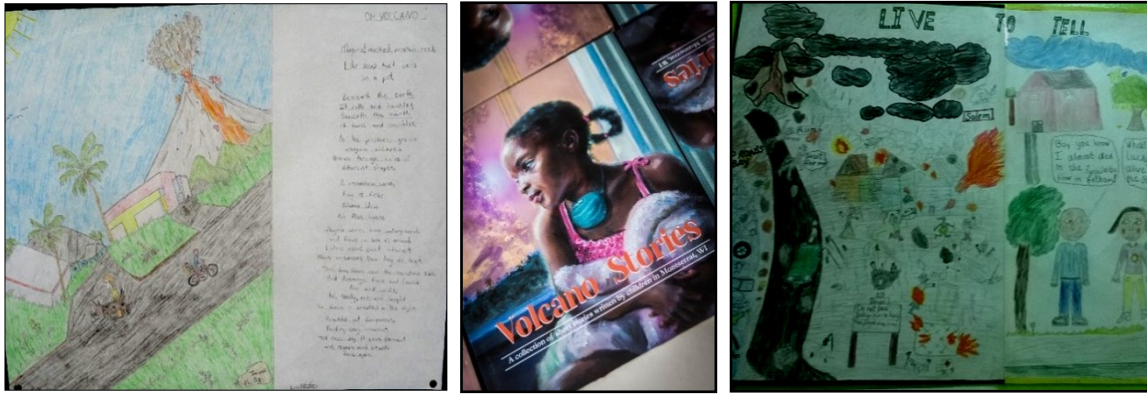
Figure 7.8: Three students' work on the history of the volcanic crisis (from left to right: illustration and poem exhibited at the MVO; Volcano Stories book written by students for the Creative Writing Competition hosted by the MVO in 2013 (Edgecombe & Gladding, 2016); poster made by the students of a Primary School telling people's story during the eruption (©Charlotte Monteil, 2017)

Anniversaries also are seen as an opportunity to commemorate the past disaster, more than to sensitize the population. A few months before the 25th of June, 2017, the 20th birthday of the death of 19 people in an eruption, a senior British policy-maker explained that although this day could have been an opportunity to really raise awareness about the risk, any communication for awareness raising strategies was difficult to implement. Although some agencies, such as DMCA, and some policy-makers aimed to take this day as an opportunity to talk about the risk, they explained during informal interviews that they faced opposition from Montserratians decision-makers who argue that they do not want to scare people or that it is not a priority. Instead that day has mainly been used and seen as a commemoration day, indicated by the speech below, given by a pastor on the 25th of June 2017, and published in the newspaper The Montserrat Reporter on the 7th of July, 2017:

> "First and foremost, I must give thanks to God for being with the People of Montserrat throughout the past 20 years. As we look back there is no doubt that from the start of the crisis in 1995, through to the events of June 25th, 1997 and since God's hand has been with the people of Montserrat; with those who evacuated and live beyond our shores and those who have remained to hold the fort, including of course Nationals, Non-Nationals and friends of Montserrat. The evidence is there for all to see that we are a blessed people and we know it beyond the shadow of a doubt. But let us go back twenty years. […]
>
> This commemoration indicates that we remember your pain and your grief and we will never forget each and every one of the 19 who lost their lives that day […].

With them also, and with each succeeding eruption, familiar landscapes disappeared […].Gone with them an island lifestyle […]. Families torn apart, father here, mother and children there, old parents and grandparents somewhere else […]. We are a resilient people, and that resilience grounded in a solid faith in God has brought us through some tough times. Some VERY tough times. But I wonder if perhaps what we need today is to take a break from resilience. […]

As we think of what we have lost, and most of all of those we have lost, let us not be ashamed of our tears. I pray that today, God may use those tears to wash away some of the pain, guilt, and misunderstandings that many of us have been living with for twenty years. I pray that it will offer us all, wherever we are, on the Rock or in exile, an opportunity to draw closer to each other, give thanks, comfort each other, and strengthen each other with grace and truth" (The Montserrat Reporter, 2017).

Communication about volcanic hazards has become gradually focused on the objective of remembering, more than on the objective of raising awareness, unlike the communication on hurricanes. The memory of disaster is therefore seen as the main element for encouraging preparedness.

7.2.   The role of memory for social learning and DRR
7.2.1. *Direct and indirect experiences of disaster*

The level of consideration of risk of natural hazards is strongly determined by the experience of past hazards and the memory of these hazards (Connerton, 2009, 2010; Le Blanc, 2012). The reconstruction of Montserrat has been largely influenced by the memory of the hurricane Hugo which seriously or totally damaged about 85% of the dwellings (Berke & Wenger, 1991). Indeed, policy-makers, Montserratians, and some immigrants who arrived just after the hurricane and because of the reconstruction needs, still remember the level of damage. Moreover, the frequent hurricanes and storms affecting, at various degrees of intensity, the neighbouring countries, such as the tropical storm Erika in Dominica in 2015, serve as indirect experience (see Renn, 2004; Wachinger, Renn, Begg, & Kuhlicke, 2013). The social and spatial proximity of the other Caribbean islands helps to enhance the perception that the same type of event can happen in Montserrat and

therefore serve as a motivator to increase the level of preparedness in Montserrat at the governmental level. A policy-maker explained:

> *"Every hurricane season we're actively watching what is created in the coast of Africa [...] and come across and thinking well, will that turn that way or that way before it gets to Montserrat or wherever in the Caribbean [...] all we can do is being well prepared and certainly [...] activate some programs and make sure you mitigate against that sort of risk as well you can I mean. You never know what scale of things you're going to have, you know like Hurricane Hugo, I hope it won't be that bad but..."* (Interview in February 2016)

Similarly the measures of preparedness to volcanic hazards are marked by the experience of the volcanic crisis. Policy-makers and disaster agencies strongly rely on people's memory to respect the measures of precaution. As seen previously, some initiatives are organized by the MVO mainly to support the transmission of the memory, such as writing competitions on the theme of the volcano and the publication of the book "Volcano Stories" (Edgecombe & Gladding, 2016) as the result of one of these competition among children and teenagers (Figure 7.8). Apart from that, measures for raising awareness and for encouraging preparedness measures have decreased. A DfID decision-maker underlines the difficulty to make plans for volcanic hazards considering their uniqueness and their low frequency. On the occasion of the 20th Anniversary of the eruption of the Soufrière Hills Volcano on 20th June 1997, he said

> *"Nobody can have adequate plan for volcanic eruption because it's… the last one in Montserrat before this one was about 300 years ago and each eruption, each volcano is very different."* (Radio talk in June 2017)

Most efforts for reducing the risks are based on the presence of an exclusion zone, efficient if respected by the population. It is assumed that memory is the main factor encouraging the population to understand the actual danger and to respect the safety measures. The former governor Frank Savage said:

> *"It's important to record [the past experiences] and that the new generation learn what happened in the past, how they can protect the future families."* (Radio talk in June 2017)

A policy-maker also explained:

"Technically it is still an active volcano and anyone who thinks it isn't needs to check a few facts, but if everybody observes the rules and procedures, like no access to the exclusion zone and what to do in case the activity resumes, there should be no threat of life from it." (Radio talk in June 2017)

Another DfID policy-maker summarizes that by saying:

"Anybody who has been here for more than 10, for more than 5 years, 6 years, knows about the ashing. So they know that, and that's probably the most likely thing that can happen [for] the volcano in the next little while, we can get some ashing of that sort again. And I'm not saying it won't blew up neither but we are here, not there. […] any place that people can live and rent have been scientifically allocated that they can live there. There is very clear demarcation based on very scientific research and the experience of the last volcano about where it's safe to live and where it's not." (Interview in May 2016)

The fact that the volcanic crisis is still recent and has constituted a strong experience for the Montserratian society is assumed by several policy-makers and disaster manager to be enough to respect the rules. A disaster manager explains that the volcanic risk is not what they focus in priority as people are constantly reminded the existing risk by the proximity with the volcano.

7.2.2. *Obstacles to translate memories into knowledge and social learning*

As discuss earlier in Chapter Two, while direct and indirect memory are important factors of risk perception, they do not determine the willingness to act and therefore the level of preparedness measures implemented (McEwen et al., 2017; Wachinger et al., 2013). Memory needs to be translated into knowledge and hence accurate risk perception in order to allow action ultimately (McEwen et al., 2017). However the literature suggests that despite an accurate perception of risk, other factors may influence the willingness to act for preparedness and there is no direct causal pathway between the experience of a natural hazards and a higher level of preparedness (Haynes, Barclay, & Pidgeon, 2008b; Wachinger et al., 2013). Effective social learning may be strongly influenced by memory but also depends local socio-economic conditions, on sense of place, on types of narratives and on their level of transmission, among other factors (McEwen et al., 2017). Wachinger,

et al. (2013) highlight three variables influencing the decision-making for preparedness measures: the experience and motivation, the trust and responsibility and the personal ability.

In Montserrat several factors seem to affect the learning processes and the creation of a more resilient society following the volcanic crisis and Hurricane Hugo. Despite a relatively recent experience of the disaster, the memory of the events gradually evolves in time, depending on the level of "memorialization" (Le Blanc, 2012) and differs greatly between groups of people depending on their experience and access to "indirect experience". It therefore leads to different level of knowledge and learning. Secondly, despite several reminders, the uncertainty concerning future volcanic hazards combined with the recovery needs lead to conflicts of priority and strong pressures for reopening more exposed area and more generally for minimizing the preparedness measures. The tensions between the different dimensions of recovery leads to both processes of "active remembering", that is materializing events and making efforts for transforming individual memories into a communal memory, and "active forgetting" (Connerton, 2009, 2010; McEwen et al., 2017). Finally, the perception of level of agency and trust in the decision-makers strongly influence the willingness and capacities to act.

7.2.2.1.   *The memory of disaster: not a fixed image*

Development of preparedness measures for volcanic risk is strongly reliant on the memory of the past volcanic event, assuming that the experience is recent enough for everybody to remember it. However memory is not a fixed image representing what exactly happened in the past. It evolves for individuals and groups, being shaped by new realities and new needs. Because individuals cannot remember everything, information and data naturally fade away as time passes and as they seem irrelevant or useless (Muzaini, 2015). But at the same time of this unconscious process of forgetting, active and conscious efforts are conducted either to remember or forget and contribute to the place making (Muzaini, 2015). Halbwachs & Coser (1992, p.51) argue that "the mind reconstructs its memory under the pressure of the society", forgetting the constraints of the past as they no longer operate, and adapting the memory to the framework of present. Memory helps to shape the vision of the present and the desires for the future, but is also shaped by them at the same time (Halbwachs & Coser, 1992; Hamer, 1994), leading to diverse and evolving memories. It is a social construct shaped both by the process of actively remembering and actively

forgetting some elements of the past (Connerton, 2009, 2010; McEwen et al., 2017; Muzaini, 2015).

Interviews and informal talks with Montserratians who have remained on the island reveal important differences in the narratives about volcanic hazards when talking about the previous experience versus when talking about future risks. The ash falls which occurred during the volcanic crisis are generally described as very scary events where visibility was extremely limited. A disaster manager explains that roofs can collapse under the weight of the ash, and electricity can be cut. Cork Hill and Richmond Hill, two areas that former residents have started to clean and want to reinvest in progressively, were covered by 10 to 30 cm of ash between 1995 and 1999 according to the British Geological Survey[1]. In Salem, currently inhabited and considered as safe, an inhabitant explains that many shops including his own shop were destroyed or damaged because of the ashes. He said that they were reaching upwards of 30cm. When talking about ash falls people also remember the extreme difficulties and the tiredness they had of cleaning everything so often. However when they are asked about the risks of reinvesting in the south, Montserratians tend to consider ash falls as something annoying more than dangerous. They mention the need of cleaning the ash but do not express worries about the danger of it. A Montserratian woman explains with irritation that there is no need to talk about ash falls as it is not worse than the snow falls happening in Europe. It reflects a process of "active forgetting", that are efforts conducted to almost deny the event (Connerton, 2009; McEwen et al., 2017). The narratives evolves, gradually minimizing the hazard, and although people are aware it can happen, they no longer talk about it as a dangerous event. It does not necessarily means that they have a different risk perception but it highlights what they want the situation to be. We can wonder if the change of narrative people have for volcanic risk is conscious and in this case, is like Halbwachs & Coser (1992) say, the oblivion of the constraints of the hazard as it belongs to the past, or if it is a conscious change of narrative. Indeed by normalizing the risk and making it controllable, it allows them to move on from the disaster and take action for redevelopment. It also gives them back a sense of control that they have lost during the disaster while they were forced to move from their house and unable to plan the future due to the high level of uncertainty. Transforming their memory, or making active efforts to forget, translates what the present and the future means for them. Denying the risk, consciously or unconsciously, highlights the willingness not to frame development around risk of disaster. The narratives of hazards

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[1] Source: http://www.bgs.ac.uk/discoveringGeology/hazards/volcanoes/montserrat/environmental.html

based on memory of the past and the memory of the events therefore evolve depending on the present and future interests.

The memory of the disaster does not only evolve over time and depending on the personal and collective interests, it also strongly differs among the different groups living on the Island, either now or during the disaster. We observe major differences between the Montserratians who have experienced the volcanic eruptions and who have remained on the island, the Montserratians who have left the island during the volcanic crisis, the immigrants who arrived either during the crisis or more recently, and the young people too young to have experienced and remember the crisis. The Montserratians who have been forced to leave the island because of the volcanic crisis tend to keep a very fixed memory of it. Visiting the south of Montserrat with a member of the diaspora and a Montserratian displaced to the north, only the first was crying and speaking with a very emotional tone. The second explained to me later that she got used to the situation now and had had to accept it, otherwise it would be too hard. It is a common comment from the Montserratians who have remained on the island as they justify that they have to move on and that they are tired of thinking of the volcano. During the St Patricks Day Festivals in 2016 and 2017 when numerous Montserratians living abroad came back for holidays, many of them explained that they did not recognize their island. One explained that she had never come back until then and had just discovered the amount of change. For many, the last image they had of Montserrat was an image of destruction. A disaster manager explains that when he goes to London, the members of the diaspora ask him a lot of questions about the safety of the island and the current volcanic situation. In Montserrat, among the residents, that is not a daily concern. Only the occurrence of some reminders, such as the sulphur smell, the discovery of the sinkhole, or an anniversary bring attention to the risk. In daily life contrarily, questions about a possible volcanic hazard in the future rather tend to raise irritation and denial. The two groups who have experienced the same situation have reached a different level of acceptance. While for the diaspora, the last memory of the island is associated with an image of desolation and destruction, the Montserratian residents have gradually built a new life on that and downplay their memory of the event, even making efforts to forget it.

A part of the population living in Montserrat, namely the youths who were born during or after the crisis, and the immigrants have limited or no experience of the volcanic crisis. Those who arrived or were old enough before 2010 have experienced some ash falls but did not experience the displacement, destruction, pyroclastic flows and sudden

uncertainty about the future. Unlike the two other groups described above, they do not have direct experience and therefore have no memory of the disaster. They therefore depend mainly on what is told about the volcanic crisis and how they are informed about the risk. A Dominican (DR) woman living in the north of Montserrat tells that she never saw the volcano as she does not have a car. During the interviews, the non-national people explain that they know what happened on the island and that is the reason which has enabled them to come on the island. However, similarly as the Montserratians who have remained on the island, they prefer not to think about it. A Guyanese man in Montserrat since 2004 explains that while he was scared and worried in the first years after arriving on the island but then he got accustomed to it. A Dominican (DR) man also explained:

"We have to [become] accustom[ed] to [living] with that reality. So, I don't think we need to worry too much about that. Because we live in here and we depend on that you know. We think that God is in control and whenever happens, everybody is in the same situation." (Interview in January 2017)

The policy-makers and disaster managers struggle to assess the level of awareness about risks among the groups that did not experience the volcanic disaster. A policy-maker explained during an interview in May 2016:

Policy-maker: *"They know, they know. People absolutely know that it can explode any time."*

Interviewer: *"Do you think that non-national people also know?"*

Policy-maker: *"Well, I hope so... but that's a very good question. That's a very very good question. […] because if you have not been through it, you don't know what the consequences are. However they are not at risk in the same way than people who lived in Plymouth."*

A disaster manager also explained in 2016 that he does not know how efficient the regular efforts of communication among the immigrant communities are. While it is often argued that people know because they are told the story, the lack of integration of the non-national communities and the difference of language for some prevent them to have access to these stories and therefore to have an indirect experience of the disaster.

Similarly a part of the population has never experienced hazards like hurricane, landslides or lahars. Guyana not being prone to hurricanes, it is assumed that Guyanese immigrants are less aware of the risk and of the preparedness measures to adopt. Likewise

the traditional ways of building houses vary depending on communities and are not to always adapted to the topography and the regular landslides during heavy rains. Because local conditions were not taken into account, a house built and owned by a Guyanese family had been partially damaged by a landslide in the beginning of the 2010s. According to a group of Montserratians, that would not have happened if it had been built by Montserratians as they have enough experience of landslide to respect the basic rules of building.

As the population is becoming more and more diverse, the experience and memory of disaster therefore largely differs among the different groups of people.. The way to deal with these differences also varies according to the type of hazards. While few efforts are done to reinforce the communication about the risk of volcanic hazards and thereby allow everyone to have an indirect experience and to improve their risk perception, much more effort is extended around the risk of hurricane. It is recognized that not everybody has the same knowledge of the risk and that it is necessary to regularly remind the level of risk and the type of preparedness measures. Such differences between preparedness to hazards are linked to the strategies of recovery post-disaster, to different level of uncertainty of the various hazards, and to the level of agency in terms of preparedness.

7.2.2.2. *Memory and awareness threatened by conflicting needs and uncertainty of risk*

The way of dealing with natural hazards and enhancing the level of preparedness is intimately linked with the recovery process. The difference of communication and preparedness strategies mainly between the risk of hurricane and the risk of volcanic hazards reveal major differences of relation between the population and these risks.

The word "accustom" is often used to describe the relation that all people living on the island have with the volcanic risks. Montserratians who have experienced the disaster are willing to forget about the risk. It is commonly argued that people are tired and traumatized by the long period of uncertainty and the level of disturbance during the crisis. It is perceived that talking about the risk is perpetuating the uncertainty and the instability. Hence, the willingness to feel safe and to move on contributes to minimize and normalize the risk. Being confident in the system allows them not to feel constantly worried about the future (Giddens, 1990; Lewis & Weigert, 1985; Luhmann, 2000) and instead to spend their energy and their thought for planning economic and social development. Without totally

denying the risk of volcanic hazards, policy-makers and residents tend to delimit it to the exclusion zone and to consider that the rest of the island is safe, minimizing the risk of ash falls in the north of Montserrat and neglecting the fact that some activities are going on even in the exclusion zone. A policy-maker argued during an interview in May 2016:

> *"Any place that people can live and rent have been scientifically allocated that they can live there. There is very clear demarcation based on very scientific research and the experience of the last volcano about where it's safe to live and where it's not. And nobody can live legally in any unsafe zone."*

Another policy-maker said during a radio show in June 2017:

> *"[Scientists] all say with reasonable certainty [...] we've seen the worst of it in terms of the scale of what it can do and such are the plans in place and the hazard zone system that it should never again, provided everybody observe those procedures [...] that's the volcano again should never be a threat to life. Everybody is now in the safe area."*

The containment of the risk in the exclusion zone and its high monitoring by scientists therefore gives a sense of safety for daily life. It takes into consideration the places where people live but neglects the fact that the exclusion zone is both a crossing point and an increasingly economic and recreational area.

Not only is the risk considered as limited to a specific area, but its intensity also tends to be minimized. The evolution of the description of ash falls proves that gradually the risk is not considered as important as it was in the past, despite the recent experience of disaster. Although people are aware it can happen, they have changed the way they talk about it. It does not necessarily mean that they have a different risk perception, but it highlights what they want the situation to be. We can wonder if the change of narrative people have for volcanic risk is conscious and in this case is, like Halbwachs (1992) says, the oblivion of the constraints of the hazard as it belongs to the past, or if it is a conscious change of narrative. Indeed, by normalizing the risk and making it controllable, it allows them to move on from the disaster and take action for redevelopment. It also gives them back a sense of control that they have lost during the disaster while they were forced to move from their house and unable to plan the future due to the high level of uncertainty. Transforming their memory, or at least the way they talk and perhaps perceive the past, translates what the present and the future means for them. Denying the risk, consciously or unconsciously, highlights the willingness not to frame development around risk of disaster.

The narratives of hazards based on memory of the past and the memory of the events themselves therefore evolve depending on the present and future interests.

The same minimization of the risk is observed concerning hurricanes. While annual campaigns of communication and efforts of awareness raising, a disaster manager argued that although people are aware that the risk of hurricane comes back every year, they do not expect a big event. He said that people expect a lot of wind but do not think that a big event could happen. Less than one decade after Hurricane Hugo, Possekel (1999) who examined the recovery process, noticed that a hurricane was, "perceived as a rare and extreme event that will not repeat itself for a long time". Having survived a previous disaster also contributes to make the concerned population feel they are able to cope with it again and do not need to worry too much about it. A Guyanese man in Montserrat since 2005 argued in September 2017 during an informal discussion:

"We have survived once, we will survive twice."

He explained that now everybody feels confident that they could survive so they do not feel particular fear and are quite confident in the future. It is often what makes the population living in Montserrat qualifying themselves as "resilient", neglecting or even reinforcing the vulnerability to disaster by being too confident in the system. It refers to a phenomena often explored in the literature, where experience generates a false sense of security (Donovan & Oppenheimer, 2013; Pelling, 2011; Wachinger et al., 2013; White, 1945). Moreover, the fact of having a high knowledge of volcanology reinforces the idea that they can cope with another hazard. People commonly show high pride of being all "little volcanologists" and being familiar with a lot of the jargon, like "pyroclastic flows" or "lahar". However, lay knowledge is not always used or framed in order to promote resilience (McEwen et al., 2017). Indeed the feeling of confidence and safety derived from this high knowledge actually prevents paying attention to the preparedness measures and the communication about risks. It can therefore generate a greater vulnerability to disaster.

The spatial and narrative containment of risk associated with the idea that memory and local knowledge are sufficient to prepare for volcanic hazards helps to give back a sense of control in a very uncertain context. Therefore, although it counteracts awareness raising and development of preparedness measures, it supports other dimensions of the recovery and allows people to gradually find back stability and recover psychologically. People often explain that they would not sleep at night if they were thinking of the risks and that they are tired of having to assume that there may be new disturbances in the future

again. There is a clear willingness to think that there is no risk anymore. The willingness to move forward encourages people to ignore the risk and gradually to start to plan new development in the south closer to the volcano. Montserratians who experienced the disaster frequently says things like "*It can't erupt again, we had too much*", linking their need of stability to the tiredness and trauma of the disaster.

To recover psychologically, as they have benefited from very little counselling, the displaced Montserratians express the willingness to stop taking into consideration the risks, to stop thinking of it. There is therefore an active and conscious effort for forgetting, as remembering appears likely to trigger unwanted outcomes (Connerton, 2009; McEwen et al., 2017; Muzaini, 2015) . While for a part of the population, the psychological recovery goes through ignoring the risk and living their lives where they have been displaced. That goes through the conscious and wanted efforts of reinvesting in the places that they identify as home. There is a growing willingness to reinvest in Cork Hill especially, but also some other villages which are located in the exclusion zone but are considered as relatively safe as not directly exposed to pyroclastic flows. Despite the major difficulties for reinvesting in these villages, linked to the lack of basic infrastructures, the difficulties of access, and the uncertainty of the future in terms of volcanic activity, there is a growing pressure on the government to facilitate the return. The emotional attachment therefore counteracts the main measures for disaster risk reduction and the initial strategy of recovery, that is developing infrastructures only in the north, out of the exclusion zone. It leads a part of the displaced people who have not succeeded to create a new sense of place in the new settlements in the north to consider that recovering means going back to normal, or at least going back to where they used to live. In February 2017, a policy planner affirmed that the government had not decided yet what to plan for the south and whether they wanted to redevelop it, considering the risk of volcanic activity. He said the pressure on the government to return to the south was growing from the diaspora and the elderly Montserratians especially. In March 2017, the Cork Hill reunion was the first major social event in the exclusion zone since the evacuation. Five months later, in June 2017, in his budget speech, the Premier stated eventually that:

> "The work of the Cork Hill Reunion Committee in organizing the reunion,
> which took place earlier this year March 19th – 25th was an inspiration. The
> Office of the Premier and his team will further support these efforts. Therefore
> Cabinet has recently approved granting exemption from Import Duty and
> Consumption Tax for three years on all building materials imported

specifically to repair or build any structure located in those villages of Cork Hill, Delvin's, Foxes Bay, Weekes's and Richmond Hill from the 1st of July. This will give direct support to those people who want to rebuild their homes and regenerate these important areas. The initiative will encourage significant construction activity in the private sector. As a business opportunity, it allows for the building of new homes and villas for sale as we increase housing and villa stock" (Romeo, 2017).

As the volcanic activity remains quiet, the trajectory of recovery is therefore gradually influenced by the emotional attachment and the willingness to take back control.

Moreover it is often argued that talking too much about the volcano and about the risk of disaster gives a negative or scary image of the island and therefore prevents investments, immigrants, and tourists, all of which contribute to the demographic and economic recovery of the island. The budget speech of 2014-2015 clearly states the need of giving a positive image of Montserrat to attract investors and people. It said:

"the MCAP [Movement for Change and Prosperity] team has rebuilt the image of Montserrat abroad and brought a new sense of confidence among our partners and potential investors. That kind of confidence is critical in our efforts to attract investment (GoM, 2014).

Communication about the volcanic or other hazards tends to remain low in order not to scare potential incomers. Therefore, there is no consensus about the necessary level of communication about risks, especially risks linked to volcanic hazards. Professionals of tourism and disaster managers say that they feel that the government intentionally tries not talking too much about it in order to change the image of the island and stop linking it to the volcano only. As tourism is one of the major economic development sectors, efforts are done to reinforce the idea that Montserrat is now safe. A professional of tourism explains that the policy-makers encourage them to not talk too much about the volcano and focus more on the other aspects of the island. According to this professional, the volcano is seen through a negative lens by the policy-makers as it gives a sense of danger while from the point of view of many tourists, it is what makes the island unique. Therefore encouraging the development in the south and not communicating too much about the volcano is commonly perceived by the policy-makers as a way to reassure incomers about the safety level. The manager of an estate agency explains that villa buyers feel reassure when they see some economic development in the southern area, especially the opening of a bar-

restaurant in Isles Bay, in the south part of the Belham Valley, an area largely covered by lahars. She says that since the bar-restaurant has opened, potential buyers of villas in Garibaldi Hill think that the risk may not be so high, and that they would not be isolated in case of hazard. Recent returnees explain that when they were still in UK and thinking about going back to Montserrat, the policy-makers explained to them that the volcanic activity was quiet. One of them says if she knew the volcano was still active, she would not have come back.

There is therefore a rational cost-benefit trade-off being conducted among the society to show and hide the risk (Bickerstaff & Simmons, 2009) reinforced in a period of recovery when it is necessary to take action quickly to rebuilding the resources and to recreate a sense of stability. The denial of risks is therefore a way to quickly achieve what are seen as main priorities.

7.2.2.3. *Lack of trust and lack of agency impeding the decision to act*

We previously noticed major differences in the consideration of risk of hurricanes and risk of volcanic hazards in the recovery process. In addition, to be influenced by the type of memory of the previous disaster, the level of certainty of the risk of the future and the motivation and needs for development in the future, the level of preparedness to natural hazards is also largely influenced by the level of agency of the different actors, including policy-makers, disaster managers, scientists and people. Their capacities to act then is highly dependent on the level of trust they have with each other. A number of studies have interpreted the silence of communities about risks as cultural response to the sense of powerlesness and dependency (Bickerstaff & Simmons, 2009; Giddens, 1990). Ignoring the risk when it is perceived that nothing can be done is a way to protect the society and the individuals themselves against unmanageable anxiety and preserve ontological security, that is preserving a sense of stability and order in people's life (Giddens, 1990).

Preparedness to hurricane and to volcanic hazards are managed by different actors. In the case of volcanic hazard, the major measure is to delimit the areas where people can go and cannot go. It is decided by the authorities in partnership with the scientists of the MVO. People commonly express the feeling of a lack of capacities to prepare, except staying out of the exclusion zone. A man who experienced the disaster said if it erupts again he would leave the island. There is the common perception that people either would survive a second time as they faced it once or would definitely leave because of fatigue from the

1995-2010 crisis. Many explained that they would not feel able, psychologically mainly, to face the same uncertainty as what they faced during this period. Besides emigration, very few other individual strategies of adaption are exposed, such as building a house not too close toa road and with an edge to protect from the ashes, having a greenhouse for crops. Some senior policy-makers clearly stated during public radio shows and interviews that there are no preparedness measures to adopt considering the uncertainty of the eruption and the existence of the exclusion zone. They stressed that respect of the rules, like not accessing the exclusion zone without special authorization, is the main preparedness measure people can adopt, and that it makes people safe. Reducing the risk of disaster linked to volcanic hazards appears therefore mainly dependent on the authorities' decisions while it is perceived that the people have no agency on that.

As it is perceived that all habitations are safe since they are located out of the exclusion zone and since people are assumed to know the risk, efforts to reinforce the preparedness measures are limited even in the areas that are closest to the volcano, especially the different neighbourhoods of Salem. Most efforts for reinforcing preparedness at household and community levels are conducted by the Red Cross in coordination with the DMCA which conducts communication efforts. A disaster manager of Red Cross explained

> *"One of the things that we indicated […] is that through trainings, because of the family emergency planning, which is household family emergency planning, we educate the households to get a plan that a family can carry out, you know, emergency action which must be… and it's the reason that's why we wanted to work on the emergency pathway and on route in Fritz and Flemmings community."* (Interview in January 2016)

However, such measures are relatively limited and the efficiency of the communication measures is questioned by a large range of actors, including policy-makers, scientists and the general population. Indeed it concerns an area where demographic changes are rapid and massive, with few if any direct memory of the disaster, making more difficult the implementation of communication programs efficient in the long-term.

While it is perceived that preparedness to volcanic hazards can mostly or only be handled by authorities and that individuals have low agency and low capacity of action, the situation is a bit different for the preparedness for hurricanes. There are more diversified actions implemented for reducing the risk of disaster linked to a hurricane. They depend

on a larger and more diversified range of actors, from individuals to local institutions and associations and to authorities. There is more sense of control and agency than for volcanic hazards. It is well acknowledged that the implementation of preparedness measures at all levels may be enough for reducing the risk of disaster. Spontaneously, actors give more practical solutions for preparing for hurricane than they give for volcanic hazard. During a question specifically oriented towards preparedness to volcanic hazards, a Dominican (DR) man spontaneously switched the question to give an example of preparedness measure for hurricane. He explains that his church, in construction at the time of the interview, was planned to have a room as shelter. He said:

> *"If whatever happens, everybody is in the same situation. But that's why I tried my best to build a building who can be a good shelter for people. So that building we have right now is strong enough if anything happens so we can shelter the people in it."* (Interview in January 2016)

The frequency and regularity of hurricanes every year at the same season gives a better sense of agency. It gives the perception that the hazard is well known and can therefore be better anticipated. A disaster manager explains that the people are aware that hurricanes can happen every year and therefore that they have to prepare. However he argues, as Possekel (1999) noted some years after Hurricane Hugo, that they do not expect a major event to occur as "God is on their side" and major events are considered are rare. The expected limited intensity of hurricanes therefore seems easier to manage than the volcanic hazards which are too uncertain.

As the risk perception decreases over time while the volcanic activity remains low, doubts about the necessity of these measures emerge and the trust in authorities by people is threatened. But trust plays a major role in the functioning of the society. Luhmann argues that the "only alternatives to appropriate trust are 'chaos and paralysing fear'"(Lewis & Weigert, 1985, p.968). The social function of trust is to reduce the complexity to a manageable proportion (Luhmann, 2000) and therefore to facilitate decision-making in a situation of uncertainty. It inevitably involves a part of risk-taking and doubt and therefore remains precarious as different elements can decrease the level of trust, ultimately to the level of distrust (Lewis & Weigert, 1985). It requires believing that trusting will have more positive consequences than not doing so. Lewis and Weiger (1985, p.971) argue that "the behavioural content of trust is the undertaking of action of a risky course of action on the

confident expectation that all persons involved in the action will act competently and dutifully".

In Montserrat, the decision by the population to trust authorities and scientists, and hence to respect the exclusion zone and the measures of precaution, is essentially based on the memory of the previous disaster and on the awareness that the volcano can erupt any time and can be very hazardous. However, the fact that the volcanic activity is low since 2010 jeopardizes the idea that the risk is still present and that it is better for the society to respect measures of precaution than to move forward without taking into consideration the risks. According to a disaster manager, people now respect the rules concerning the exclusion zone because they are forced to do so and scared of the fines if they are found to be breaking the law, more than they are scared of a potential volcanic eruption. He says that when regular activity was going on, it was easier to make people respect the safety rules. In the same vein, a Montserratian woman who was part of the group organizing the Cork Hill reunion explains that they will go back and settle in the exclusion zone depending on the government, when it will decide to provide the necessary facilities and infrastructures, such as a bridge to cross the Belham Valley and electric connection. Moreover, when in 2015 the MVO detected an increase of volcanic activity and stopped all entrance to the exclusion zone, thereby halting the mining activity for five weeks, the workers expressed lot of anger against the MVO. The fact that there was ultimately no eruption gave the perception that there was an excess of precaution from the MVO and therefore that the MVO was responsible of the lack of incomes of the workers for that period. Similar comments had been made during the crisis (Haynes, Barclay, & Pidgeon, 2008a). Despite the need of precaution, disaster managers fear that people become less responsive, in other words that they trust the authorities less, if alerts are too frequent and not followed by an actual hazardous event. That is even more evident that Montserratians generally consider that they all know the volcano, having experience several eruptions themselves, and may be able to know by themselves what is risky and what is not.

There is indeed a general feeling that the decision of reinvesting in the south depends on what the authorities decide only, and not on the evolution of the volcanic activity, as it is perceived that "the volcano is dead" now, as may people often repeat. The regularity of hurricanes, unlike volcanic hazard, reminds people that it is necessary to adopt measures of preparedness and trust the authorities, as the risk appears too high otherwise. The respect of measures of preparedness to volcanic hazards therefore only relies on the

trust that they are adequate and that authorities and scientists know that it is necessary. Reminders, such as the smell of sulphur or an increase of volcano-tectonic activity, play a major role for emphasizing the need of respecting the measures of precaution and trusting the authorities about risks. For instance, the MVO reports an increase of calls from the public, especially from the neighbouring island of Antigua, where the population has less access to fast information, when the smell of sulphur becomes more present. Similarly, they report that the discovery of a sinkhole in 2016 has been a reminder that "nothing is taken for granted" and that the island is prone to natural hazards, even though the sinkhole was not related to an increase of volcanic activity. It triggered questions from the public and has been the opportunity to increase, at least temporarily, the interest of the population for the information about the volcanic activity and to counteract the efforts for forgetting (Muzaini, 2015). However, similarly to the perceived excess of measures of precaution, reminders may eventually lose their effect on population and become ineffective.

The maintenance or reinforcement of trust between the different stakeholders therefore strongly depends on the level of familiarity with these actors (Lewis & Weigert, 1985). Trust requires some evidence of trustworthiness which can be very diverse, based on rationality and emotional components. The particular situation of Montserrat having a double government makes trust building difficult (Wilkinson, 2015), due to the ambiguous relation of dependency with the British government. The latter is often suspected to have its own interests, different or even contrary to the ones of Montserratians. Moreover it is perceived that consultants working with DfID are not always useful and efficient and that they do not know the local context. The doubts about their competencies and about their actual interest weakens the level of trust in British authorities, the same who are in charge of the disaster management. In the same vein, the immigrant population does not benefit from the same familiarity with the different stakeholders in charge of disaster management. A disaster manager explains for instance that the immigrants, who used to have less trustworthy decision-makers in their countries of origin, are less prone to follow the advice and orders of the authorities in Montserrat. He takes the example of Jamaicans who do not generally have trust in police because of social issues in their country of origin and says that if there was a need of evacuation in an emergency, Jamaicans may not immediately respect the orders of the police. The trust in authorities is partly threatened by their perceived lack of transparency. When people perceive that there are hidden interests, they tend not to follow the recommendations of authorities for preparedness and DRR. Hence, the fact that recreational and economic activities increase in the south while authorities

continue to claim that it is dangerous to go into the exclusion zone makes the message unclear and affects risk communication. During an informal discussion, two residents, both non-nationals, were wondering why tourists could go to Plymouth and not the residents of Montserrat. Saying so, they highlight their lack of understanding of the rules in place and suspect other interests not well known.

The question of competency also emerges when addressing decisions made by the Montserratian government. A manager of a sand mining company, willing to make further investment in the exclusion zone and to clean a beach for settling touristic infrastructures, complains that the government does not fully support his company in this project and states that the incompetency of the current government prevents it from taking a decision good for the Montserratian society. He argues that the government is too "small-minded" and unable to take big decisions. The measures of precaution therefore seem for him not to be based on an actual risk and an actual knowledge of the situation but rather on a lack of competencies.

Acknowledging the fact that respect of the safety measures depends on the level of trust people have in it, the MVO implements various measures of communication about the work they are doing, to reinforce their links with the population, especially through schools. Internships for local students are offered, and visits of the MVO are regularly organized for the pupils. They also organize an annual competition of creative writing for adults. A staff of the MVO argued that people certainly participate more for the prizes, especially the helicopter tour, than for contributing to the memory of the disaster, but by doing so it maintains the familiarity of people with the scientists and therefore potentially their trust. The same person suggests that they should invite the Dominican (DR) community to visit the observatory and by doing so, reinforce the level of trust by a group which is not familiar with the Montserratian system and with the various organizations, and which has low or even no direct experience of the disaster. The same suggestion has been made during a meeting with a group of women thinking about how to promote the integration of non-nationals. It was argued that only by making immigrants familiar with the local organization, they could gradually behave in a culturally acceptable way and integrate into the society. If reinforcing familiarity and eventually trust into the different stakeholders does not directly contribute to DRR, it appears as essential to implement and make effective measures of preparedness, especially in a fast changing and highly destabilized society. The ways of building trust therefore must evolve gradually with the change occurring during the recovery process because the evolution of the local and global

context strongly affects trust. This underscores the importance of dialogue between all stakeholders involved, directly and indirectly, to DRR efforts, and implementation of tools which enable the integration of needs and knowledge of all and therefore reinforce mutual trust (Gaillard and Mercer, 2012).

7.3. Conclusion: recovery process as the result of the negotiation between forgetting and remembering risks

Risk perceptions are evolving, varying depending on the efforts for forgetting and remembering the past disaster. The negotiation between those two processes contributes to shape the "new normal" and the vision for the future. It determines how the development is framed on risk of disaster. The trajectory of recovery of Montserrat is influenced not only by the past events, the resources remaining, and the future needs and challenges, but also by how those are remembered and interpreted. There is therefore an important negotiation between "active remembering" and "active forgetting" (Connerton, 2009, 2010) in order to create a new identity and a new vision of the future. Different strategies are used in Montserrat to materialize and memorialize both forgetting and remembering.

The efforts for forgetting are evidenced by the fact of not talking about the risk in daily life, what Muzaini (2015, p.104) qualifies as "conspiring silence". It is commonly argued that if people keep talking about the volcanic risk, it will give a negative image of the island. In the same way, frequent efforts are undertaken to emphasize the positive aspects of the disaster such the rise of artistic creation, the opportunity for the displaced people to further their education in the UK, or the fact the volcano represents a major touristic attraction. Gradually, the narratives about the volcanic hazards also change, normalizing and "absencing" the risk. The development of the island is therefore not framed around of the risk of volcanic hazard. At the same time as Hetherington (2004 in Bickerstaff & Simmons, 2009) demonstrated, the risk is never fully eliminated and it retains always the capacity to transform into presence in case of the outbreak of a reminder. Absencing the risk in Montserrat therefore does not mean that the risk is totally forgotten and denied. Several events regularly contribute to make the risk 'present' again, at different degrees and for different lengths of time.

The implications of this active forgetting for recovery, encouraged by the tensions between needs and priorities for development, are important. They help to explain the difficulties of achieving a sustainable recovery and learn from the lessons of the past. The

need of disaster risk reduction during the recovery period is largely counterbalanced by the need of ontological security (Bickerstaff & Simmons, 2009; Giddens, 1990), in other words the need of perception of safety, stability and order, as the psychological effects of the disaster are still very present. It impedes the willingness to think and adapt the efforts for disaster risk reduction, especially in the case of uncertain hazards and when trust and agency are low. An accurate risk perception is also not sufficient to arouse the willingness to act. In Montserrat, the implementation of such measures therefore essentially rely on the memory of the past disaster, despite the fact that it varies depending on groups and individuals and as time passes. The trust on decision-makers is also essential for supporting the respect of the measures of preparedness.

Consequently, the prevalence and gradual increase of the "active forgetting" of the past disaster and the absencing of the risk contributes to recreate forms of vulnerability to disaster among the population, especially within a rapidly changing society where groups have very different experiences, needs and interests. Those who have less direct or indirect experience of disaster and less access to communication about risks are less able to adopt adequate measures and attitudes for living with the risk. Those correspond essentially to the recent immigrants, who accumulate other factors of vulnerability as we have seen in chapters Five and Six. The active efforts for absencing the risk at the scale of the entire society counteract the limited efforts done by disaster management agencies to communicate about the risk. Two different messages are clashing against one another, affecting the trust in authorities for respecting the preparedness measures. Dialogue and efforts for building trust are therefore essential to facilitate adaptation to risk and efficient implementation of DRR measures.

Active forgetting therefore calls into questions the learning and adaptive capacities of Montserrat during the post-disaster period. While learning is essential to promote adaptation and sustainability of the recovery process (Djalante, Holley, Thomalla, & Carnegie, 2013), I have shown in this chapter that it faces many obstacles and cannot become fully effective. Djalante et al. (2013, p.2108) emphasize the role of knowledge for informing better DRR practices and "the need for resilient risk-governing institutions". However the recovery process in Montserrat shows that knowledge alone is not enough to stimulate better consideration of the risk. Memory of the past disaster strongly evolves under the influence of other needs, such as the psychological recovery and the need of stability, leading gradually to a maladaptive society (see Lebel, Grothmann, & Siebenhüner, 2010; UNFCCC, 2007), or in other words a society that adopts "adaptation

measures that do not succeed in reducing vulnerability but increase it instead" (UNFCCC, 2007, p.30).

CHAPTER EIGHT

DISCUSSION AND CONCLUSIONS

This thesis has its origins in the growing recognition of the critical importance of the post-disaster recovery processes for making a society more resilient and for reducing the risk of future catastrophe. Although the recovery period is marked by major and diverse disruptions across society, it is also an opportunity for change and for "building back better". This concept was institutionalized in the *Hyogo Framework for Action 2005-2015* (UNISDR, 2007a, 2007b, 2015) as an effective and sustainable way to decrease the risk of disaster and increase the resilience of communities. At the same time, this thesis also arose from the observation of the complexity of the post-disaster period and of the recovery processes (see Berke, Kartez, & Wenger, 1993; Johnson & Hayashi, 2012; Medd et al., 2015; Olshansky, Hopkins, & Johnson, 2012; Rubin, 2009; Rubin, Saperstein, & Barbee, 1985; Tierney & Oliver-Smith, 2012).

This chapter draws together the findings from earlier chapters and outlines the main conclusions of the study. It is necessary to first place it in the wider framework of disaster risk reduction and post-disaster recovery.

8.1. A summary of the research objectives

The post-disaster period receives relatively less attention from researchers, policy-makers and practitioners compared to the other stages of the disaster cycle. Most studies focus on the short-term post-disaster period, including early relief, emergency response and physical reconstruction. The long-term recovery period is still relatively neglected despite evidence showing its major importance for building resilience and reducing the risk of disaster (Berke et al., 1993; Chang, 2010; Davis, 2007; Olshansky, 2005; Rubin, 2009; Rubin et al., 1985). Moreover, existing research is often inadequate in the sense that it tackles only specific dimensions of the process, in particular, reconstruction, displacement, or economic redevelopment, and fails to address the complexity of the whole process (see for instance DeWaard, Curtis, & Fussell, 2015; Fussell, Curtis, & DeWaard, 2014) (Hayashi, 2007; Hettige & Haigh, 2016; Johnson & Hayashi, 2012; Lawther, 2016; Tierney & Oliver-Smith, 2012).

My study aimed to address this complexity of the post-disaster period, and in particular analyse the changes implemented during that time. Although cascading impacts of the disaster can impede the socio-economic and physical long-term re-development of the affected territory by limiting the amount of resources available for managing development (Birkmann et al., 2010), the changes implemented during this period are critical to building back better (Birkmann et al., 2010; Gawronski & Olson, 2013), and therefore to the future of the affected population. It offers a window of opportunity to reduce vulnerability to disaster and build resilience (Kammerbauer & Wamsler, 2017; Levine, Esnard, & Sapat, 2007; Olshansky, 2005). However most research looks at the impacts of the disaster and fails to analyse the changes implemented and their long-term impacts (Birkmann et al., 2010). According to Capoccia and Kelemen (2007, in Gawronski & Olson, 2013, p.134), the changes implemented have "the potential to trigger a path-dependent process that constrains future choices" and are therefore highly determinant of the trajectory of the recovery process.

A major post-disaster transformation concerns societal relationships, in particular the unplanned change in terms of social capital of affected communities. Although there is strong evidence of its importance for disaster recovery, it receives relatively less attention from researchers and practitioners (Aldrich, 2012; Nakagawa & Shaw, 2004). Because the demographic structure of the society may be highly disrupted by the disaster, social capital strongly evolves during the recovery period. In this thesis, I tackled in particular the roles and impacts of immigration, bounding and bridging social capital, and social cohesion throughout the recovery process and sustainable development.

Because it is difficult to measure recovery and affirm when it ends (Johnson & Hayashi, 2012; Medd et al., 2015), I decided to analyse the process in relation with the specific objective of disaster risk reduction. Considering that recovery involves both a process of "restoration of pre-disaster functions" (Lindell, 2013, p.812) and a process of adaptation or innovation based on different learning degrees (Djalante, Holley, Thomalla, & Carnegie, 2013; Lebel, Grothmann, & Siebenhüner, 2010; Pelling, 2011; Tosey, Visser, & Saunders, 2012) from past events, the creation of conditions for a "new normal" that will be less vulnerable to disaster than was the case in the past is critical. Through this research, I analysed how the changes implemented have reflected the types and degree of post-disaster learnings and how they affected the vulnerability of all or a part of the society.

Therefore, this thesis aims to better understand, from a comprehensive perspective, the motives and visions that shape the post-disaster recovery process. It is intended to better

understand the obstacles to a sustainable re-development processes and to the implementation of adaptive strategies to reduce the risk of disaster. It contributes in particular to a better understanding of the adaptive strategies in a context of rapid demographic change.

I present here the major conclusions emerging from this study, concerning the case study of Montserrat itself, but more generally its contribution for the understanding of post-disaster processes in a wider context. I also discuss the main limits of the study and how it could be extended and taken further.

8.2. Research conclusions
8.2.1. Recovery: a multi-scale and multi-dimensional process

At the beginning of this thesis, I was expecting to analyse the timeline of the recovery process in order to find out some key stages and "critical juncture" points (Gawronski & Olson, 2013) that require specific attention for improving the process. This was assuming that recovery was a relatively sequenced and linear process. However, the study has highlighted that because the post-disaster recovery occurs in a complex system, it includes multiple dimensions that have each their own pace and their own objectives. Of those, physical recovery (settlement and critical rebuilding in particular) is the most examined by researchers, policy-makers and practitioners, because it is easily quantifiable and evaluable. However, recovery also includes other dimensions like social, demographic or psychological recovery. In Chapter Five, I compared the development of four different neighbourhoods during the post-disaster period. Starting with the analysis of the rebuilding process, it has been possible to identify the interactions between the different dimensions of recovery, across different spatial and temporal scales. Rapid rebuilding, driven mainly by short-term objectives and without regard to the socio-economic needs of different communities, has prevented the creation of the conditions for sustainable redevelopment. The development of neighbourhoods without consideration of their interactions with other scales may also affect the sustainability of the development of the broader society as it can create negative externalities, such as spatial segregation of the population. Similar conclusions emerge from Chapter Six where I show that the specific focus on demographic recovery was prioritized over consideration of the social, economic and cultural changes that emerged during the post-disaster period. The complexity of the recovery process cannot be understood or explained in terms of the linear sequence of phases associated with

the conventional model of recovery (Rubin, 2009). I have demonstrated through this thesis the need to consider recovery as a multi-dimensional, multi-scalar and multi-temporal process. It cannot be assessed on the basis of a single dimension or at a specific point of time but requires a comprehensive approach to analysis.

8.2.2.   Obstacles to the adoption of a comprehensive approach to recovery

This study of the redevelopment of Montserrat has demonstrated the difficulties of considering the different dimensions of recovery, as well as the strong interactions between each other, and of adopting a long-term view in a context of considerable uncertainty. The main reasons identified by this case-study find support in the wider research literature. Although the recovery process plays a critical role in determining the character of long-term development, proactive change and decision-making are made difficult by time compression, a notable characteristic of post-disaster recovery (Olshansky et al., 2012). The large increase of activities, (like reconstruction, communication, planning, decision-making) during the response phase of the disaster, induced mainly by the need to replace capital services, prevents anticipating long-term needs. Chapter Five highlights how on Montserrat the short-term need to rebuild has been prioritized, and how that strongly affects long-term development, both at the scale of the neighbourhood and at the national scale. It also emphasizes the difficulties to implement rapid adaptation strategies in a very bureaucratic and hierarchical system of governance. In a post-disaster context where decisions and actions must be made faster than during normal times, some major actors of the recovery, such as governments, cannot compress on time their activities and decisions (Olshansky et al., 2012). Having to follow official procedures impedes their ability to implement long-term development plans during the recovery period, prevents the system from adapting easily during the post-disaster period to the new characteristics and needs of the post-disaster context, and even contributes to the reproduction of factors of vulnerability to disaster.

The complexities faced during the recovery process are also largely induced by the destruction of major infrastructure, in particular human resources like qualified professional staff, and the rapid post-disaster changes generated by the population displacement and by the relatively high level of rapid immigration. The lack of representation of about half of the total population illustrates the fact that the concerns and needs of many immigrants do not make it onto political agendas that prioritise the needs of

native Montserratians. In the meantime, it induces a poor understanding of the immigrants' socio-economic context. The lack or the inadequacy of statistical data also prevents the formulation and implementation of proactive evidence-based policies, both in terms of adaptation to socio-demographic change (see Chapter Five and Six) and in terms of adaptation to risk of disaster (see Chapter Five and Seven). In Chapter Six, I show that the reactive measures for immigration control were largely linked to a lack of understanding of the motivations, behaviours and needs of immigrants. In Chapter Seven, I also show that the lack of preparedness measures to reduce the risk of disaster linked to natural hazards was often justified by the high level of uncertainty associated with these hazards, as well as by the lack of data on the vulnerability of settlements, households and buildings.

8.2.3.   *How does the past influence the present and future?*

I have argued that the local vision of what the future of Montserrat should be is essentially a nostalgic vision. Although nostalgia supports the psychological recovery of the affected community, it proves to be maladaptive. Indeed it fails to accept and integrate post-disaster change. Instead, it promotes a development strategy based on pre-disaster socio-economic context, no longer relevant in post-disaster period. My research confirmed that, as other studies have found (Aijazi, 2015; Joakim, 2013; Khasalamwa, 2009; Wisner, Blaikie, Cannon, & Davis, 2004), pre-existing socio-economic conditions of a society, including the system of land division, social stratification, level of poverty and the system of governance, contribute to shaping people's response to disasters.

I go further than this, showing that the image of the past also shapes the recovery process. This image is recreated through specific symbols and informs the vision of the future. Since in the case of Montserrat it is not possible to return to a pre-disaster state, collective efforts to recover a sense of normality and stability focus largely on cultural identity (see Chapter Six) and certainty (see Chapter Seven). For the affected community, the Montserratian cultural identity, as expressed in cultural narratives and practices, is seen as the remaining link between the pre- and post-disaster periods.

This link implies strong efforts to create a collective imaginary of what the society was before the disaster. This imagery derives from the balance of "active remembering" and "active forgetting" (see Chapter Seven). In this effort, the recovery process is mainly oriented to preserving, and even reinforcing, symbols of the pre-disaster period, such as the idea of 'Montserratness' (see Chapter Six). In the meantime, it operates through the

exclusion of what does not belong to this past identity. That includes on the one hand, the gradual absencing, or at least normalization, of disaster risks in the collective imagination, in particular regarding the most uncertain volcanic hazards (see Chapter Seven). It highlights a contradiction between the willingness to remember the story of the disaster, as part of the narrative of Montserratness, and at the same time, to play down the risk of disaster despite scientific evidence that shows the risk still exists. At the same time, it also involves the exclusion of the immigrants from narratives of the recovery process, as if they were not a major characteristic of the post-disaster period (see Chapter Six).

Active forgetting has major implications for long-term and sustainability of the recovery process. In Chapter Seven, I demonstrated how the gradual absencing of risks of disaster contributes to direct attention away from available risk information and limits its circulation, gradually affecting the way that risk is perceived. It also counteracts the efforts made by DRR agencies to strengthen people's risk awareness, by developing a false sense of safety and hence undermining messages that aim to encourage disaster preparedness. This may become a driver of vulnerability for some groups, in particular those who do not have a personal experience of the disaster, specifically young people and immigrants, and those who are the most exposed physically and economically to volcanic hazards. It can also increase the vulnerability of the Montserratian economy if the most exposed areas continue to be reinvested in for economic and recreational purposes. While a central element of post-disaster recovery processes is to learn from the past, the case of Montserrat highlights that there are several obstacles to the learning process. It highlights the complex links between experience, knowledge of risk, and implementation of preparedness measures. It shows indeed that the benefits of experience of a disaster in the knowledge of risks can be counteracted by the need of psychological recovery through stability and feeling of certainty.

The Chapter Six demonstrated that the instrumentalization of immigration to meet specific needs of the post-disaster recovery process, and their exclusion from the vision of post-disaster Montserrat, generates social tensions and marginalization of some ethnic groups, which in the long-term is detrimental for the whole society. The lack of consideration of socio-economic change led by immigration also contributes to making the most marginalized more vulnerable to disaster. The persisting stigmatization of immigrant communities and their socio-economic and political marginalization partially prevented the building of trust in the disaster management agencies and the authorities, and the

development of knowledge of the risks and of preparedness measures. It thus prevents adaptation to natural hazards and learning from past disaster.

In this study, I have highlighted the critical role of social cohesion for sustainable recovery and the difficulties to fostering it on Montserrat during the post-disaster period. Although previous research emphasizes the role of bonding social networks for recovery, its role evolves through the recovery process. In the short-term, reinforcement of bonding social networks is an unconscious motivation to preserve a feeling of normality and resist the changes that have proliferated since the disaster. However, because bonding networks tend to exclude those who do not belong to the network, their reinforcement prevents cohesion-building *across* communities and hence prevents the integration of immigrant groups. In association with the efforts to reinforce the cultural identity of Montserrat, the push to preserve and strengthen bonding social capital therefore jeopardizes economic, social and demographic recovery, namely the necessary increase of the population through the decrease of population turn-over (see Chapter Six). I argue here that a shift from the reinforcement of bonding social networks to the building of bridging social capital is necessary to enhance the sustainability of the recovery process (Cheong, Edwards, Goulbourne, & Solomos, 2007; Djalante, Holley, & Thomalla, 2011; Hawkins & Maurer, 2011; Leonard, 2004; Macnab, Thomas, & Grosvenor, n.d.). and to build social cohesion, essential for strengthening trust between stakeholders and collective action in the long-term (Aldrich & Meyer, 2014; Chamlee-Wright, 2009; Chamlee-Wright & Storr, 2011; Leroy et al., 2016; Nakagawa & Shaw, 2004). However, the reactive nature of redevelopment in Montserrat, led by the desire to re-establish the society and culture as existing before the disaster (see Chapter Five, Six and Seven), makes this transition from an emphasis on bonding social capital to a focus on bridging social capital extremely difficult.

This finding highlights the importance of better understanding what is needed for a sustainable long-term recovery process. It has significant implications for the measures adopted to build social recovery, in addition to the more traditional measures designed to support economic and physical recovery. Further research is needed to understand better which measures might most effectively support this shift from bonding to bridging social capital.

8.2.4. Obstacles for learning and adapting to change and risks during the post-disaster period

The recovery of Montserrat to date reflects a limited learning process. It can be seen as maladaptive in the sense that the post-disaster recovery measures only partly succeed in reducing vulnerability, for instance, through the displacement of the population to an area less exposed to volcanic hazards, but increase and even create other vulnerabilities at the same time (UNFCCC, 2007). Reflecting on the different levels of learning (Argyris and Schön, 1996 in Pelling, 2011) presented in Chapter Two, my research leads me to conclude the redevelopment of Montserrat reflects single-loop learning, that is the implementation of incremental improvements, in particular, in terms of preparedness for hurricanes and the establishment of an exclusion zone in regards to volcanic hazards. However, there is no evidence of double-loop learning. Because the changes implemented in Montserrat to adjust to post-disaster needs are mainly reactive, they do not adequately address the different recovery processes and therefore are not sustainable.

Building a resilient system presupposes the capacity to adjust to the post-disaster change and plan the recovery process accordingly. It therefore requires governance and social systems to be sufficiently adaptable. Yet the dual system of governance of Montserrat, because of its status as a British Overseas Territory, prevents such adaptability. For instance, it depends on British legislation, not adapted to the specificities of the post-disaster context. It also strongly depends on the work of consultants, sent for short periods, which is not necessarily effective for long-term development. Moreover, as the population tends to push for the restoration of socio-economic conditions pre-exiting the volcanic crisis, in particular in terms of social relations and of the island's pre-disaster cultural identity, it strengthens resistance to change. It prevents adaptive planning for recovery, but rather forces rapid reactions, without previous planning, as impacts of the post-disaster reactive measures gradually emerge. Hence, twenty years after the opening of the territory to immigration, it becomes urgent to react to the effects to the unmanaged migration. This perpetuates the societal instability and uncertainty in terms of future development, as the lack of post-disaster long-term management enables the emergence of cascading effects of disaster. Moreover, it perpetuates the affected community's feeling of a lack of control of their life and their future generated by the disaster.

The recovery of Montserrat proves so far to be maladaptive as it fails to build resilience. While the Montserratian community encourages the reinforcement of the bonding social network as a way to recreate a sense of normality, that strengthens at the

same time boundaries between communities and exclusion of the immigrant groups. Hense, the community fails to adapt to the diversifying society and maintains, or even increases, the inherent marginalization of immigrants, a major factor of vulnerability to disasters. Moreover in order to enable the psychological recovery of the affected community and strengthen Montserratians' feelings of safety and stability, the recovery process as it is conducted in Montserrat tends to absent the risk of disaster and thus prevents the implementation of efficient DRR measures. Therefore, in the long-term this can lead to a collapsing system (see Bunce, Mee, Rodwell, & Gibb, 2009), reproducing conditions that incubate disaster and failing to build resilience.

8.3. Limits of the study

The study has been conducted based on the experience of Montserrat. This case is extreme in several aspects, in particular the duration of the volcanic crisis, the extent of damage and post-disaster change, and the small size of the population. The choice of this case derives from a purposive sampling (Patton, 1990). The selection of an extreme case is justified by the possibility to emphasize some processes during the recovery period. The small size of the population and the remoteness of the territory, typical from SIDS, have enabled the illumination of the major factors and tensions contributing to explain the recovery processes in place. It is important however to acknowledge the specificities of Montserrat in order to explain them and before generalizing the study.

The tension between trying to strengthen bonding social capital and the clear need of reinforcing bridging social capital is particularly relevant for places with a very or relatively homogenous society before the disaster. Such results indeed can be more disputable in more heterogeneous places as the role of cultural identity and the boundaries between communities are less defined. The balance between bonding and bridging social capital hence may be quite different in such context. Moreover, the intensity and rapidity of demographic change may have exaggerated the reactions, in particular the efforts for reinforcing the pre-disaster cultural identity of Montserrat. Such process may be less significant in another context.

Another limitation of this study is linked to the methods adopted for this research. The choice of methods was largely defined by ethical considerations. Because of the unusually small-scale of Montserratian society and because of the politically and socially sensitive nature of the topics tackled in this study, it has been necessary to protect the

anonymity of participants. Issues of safety and language have also influenced the type, number and diversity of people interviewed. Both the collection and the analysis of the data may have been influenced to some extent by my personal characteristics as researcher (see Chapter Three).

8.4. Further research

As the research progressed, the framing of the study rapidly shifted to the role of immigration in the period of post-disaster recovery, which became a major focus of attention. The resulting research contributes to the emerging body of knowledge on the role and consequences of immigration for recovery following a disaster. Much research has been conducted into population displacement and emigration as a consequence of disaster (Guadagno, Fuhrer, & Twigg, 2017) but much less on post-disaster immigration into affected areas. This study provides interesting results that could be explored in different contexts. Although the status of Montserrat is atypical because of its continued relationship as an Overseas Territory of the UK, it shares similar characteristics with many other small islands that are also exposed to volcanic hazards and other potentially disastrous events. There may be value in comparing them where there are similarities in geographical and population size, to better understand the influence of different systems and structures of governance. Moreover, it should be considered to conduct a similar study in a more heterogeneous society as the tension between bonding and bridging social capital may be less strong. That may involve different adaptation strategies following demographic change. This would help build a more complete picture of the post-disaster recovery process.

Demographic change, in particular immigration, during the post-disaster recovery period raises important questions in terms of governance and environmental justice. It can induce a redistribution of the resources and of the risks among the communities (Sandoval, Gonzalez-Muzzio, & Albornoz, 2014). I have demonstrated that the pathway of recovery adopted in Montserrat has at the same time created marginalization. This brings into questions how the recovery process can adapt to demographic change in order to sustain social/environmental justice. Analysing the recovery process through the perspective of environmental justice may provide a basis for characterizing tangible long-term goals, based on ethics and equity. The concept of environmental justice can also provide keys for assessing the long-term sustainability of the recovery process (Walker, 2012).

This study has focused on a context of post-volcanic crisis. Volcanic hazards are quite atypical because of the length of time for which they can continue, their unpredictable return period of hazard, or the multiple forms that the hazards can take (like pyroclastic flows, lahars, ballistics, ash, lava…). The creation of an exclusion zone and the consequent loss of space or infrastructure for instance, also creates specific conditions for the recovery process, quite different than what could happen in case of flood or hurricane for instance. I demonstrated that in Montserrat, the uncertainty and instability induced by volcanic hazards have largely contributed to the strengthening of cultural identity at the cost of social cohesion in particular. It has more generally induced resistance to socio-economic change during the post-disaster period. It would be necessary to explore whether the same resistance to social, cultural and political change occurs in the context of other, less destructive hazards, with similar implications for the social and/or cultural organization of affected communities. This question is particularly important considering the importance of cultural identity and collective imaginaries in the recovery process, as demonstrated in this study. Investigating differences in response in relation to the type of hazard and the extent of disruption may also reveal more about the role of different forms of social capital in recovery strategies and processes in different contexts.

A major issue emerging from this thesis is the difficulty of measuring and quantifying progress across the different dimensions of recovery. Further efforts are needed to develop a range of adequate indicators of critical components of the recovery process that would enable the different stakeholders to better assess the long-term needs of the society and the efforts needed to meet them. This thesis primarily serves to highlight the importance of adopting a comprehensive and longitudinal approach for the understanding of post-disaster recovery.

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APPENDIX

EXTRACT OF INTERVIEWS

To read:

- *CM: Charlotte Monteil (Interviewer)*
- *I: Interviewee*

Extract of an interview with a government officer, conducted on 25 April 2016

CM: so for you what are the main problems you have to address since you are in the government with the non-national people coming on the island?

I: Okay, speaking from an educational point of view with migrants coming here to seek employment, some would bring along their children, and most time they will bring their children after they would have settled for a bit. Hum... the challenges we have, some of the children they come from different social background, from... instances where a child may not have been attending school regularly. But as the result of Montserrat's law, that every child must be at school. In our context, once a child comes on island, they must be engaged in some education institution. So you may find that, a child who may be age 14 may, because of absences from school, from where they're coming from, from their own country, they may only have limited exposure to education. So they may be operated at the lower level of what is required for them within the school environment.

CM: Even at such age? even at 14?

I: At 14 yes... So you may find that, that child may not be as literate as they should at the age 14, who... the person at age 14 in Montserrat should be able to operate at that level, they may not have had a full primary education. So they're missing up the basics, so you find issues of literacy and numeracy and as the result of that, the frustration comes in. and that can find an increasing behaviour problems as the result of that.

CM: at school or?

I: At school and sometimes even at home. Because it's true, some of those individuals who come, that may be their parents who have been travelling for work, and so now they have

really settled, they are now bringing their child to spend that time with them, to get to redevelop that connection with their child. But the child may have grown up, let's say with the grandmother or another relative. So you find that when they come, they're not really familiar with their parents […]. Because their parents have been travelling for work. And so you have issues in socially, among some parents and, even to the point where this academic year, we have seen an increase in number of mental related behaviours coming out among children and most of them are migrant children

CM: Which kind of mental related problems?

I: Sometimes a child may be very depressed, may come very depressed. You have suicide attempts, as serious as suicide attempts, and you also found that, just their behaviours, you can't explain […], and on one case in particular, where the child want to bite them... under... their skin… and wanted to eat grass on the ground, so... Some very odd behaviours. And you really can't point your hand to what it is, because they would have come into our system at a later age, where we would not have followed their history, to know what is the issue that is affecting them. And part of it too as I mentioned earlier, they may not have been with that, their parents growing up. So it's all the changes, of them coming from a different culture and now living this culture off with their parents which they're not familiar with or they may be other things happening, maybe abuses or other stuffs like that. But we do not know the history about so you have that challenge that we have to be dealing with. And coupled with that, is that among them you have nonspeaking, non-English speaking students who would come in especially at second school level where they would not have had English as the first language. And on top of that, some of them may not have been in school as regularly too so it makes very difficult for them first to grasp at the level where they should be educationally and secondly to grasp with the language, dealing with the language barrier. And you find that play out in behaviour again where there would be fights. There would be grouping gangs so they go among themselves because they can speak among themselves and not necessarily dealing with communicating effectively with their other English-speaking pairs. And so you find that they end up having fights, suspensions, not being in school as often as they should as the result of this type of behaviour, so you have that challenge among the youths. The other challenge is that, in our education system, a child enters, well should exit around age 16, so we have... Child is coming from another Caribbean country where their education system allows them to go beyond, their policy is different to our policy. Coming to the Montserrat environment they may not be allowed into a regular secondary school because they would have pass the age, so somebody coming

at 16, somebody coming at 17, would not form part of our secondary school, and have education here. So that's now create another social situation where they would probably have to find private tutors to allow them to get the requisites CXC to be able to have some forms of qualification to get into the job market

CM: Is it something that the government now would try to tackle?

I: Well we are. We... This year, which is new, this semester coming up, this academic year coming up, it's a... We have an access-learning program that we are going to be introducing, and that helps persons who have not been able to accomplish their bases in maths and English, at least the bases in maths and English towards that level where they can be able to write CXCO level

CM: So even though they are like 16, 17 years old, they can access to the program.

I: Yes, they have access to that program. And that would help to build up the literacy and numeracy level across the society, because some of these teenagers, their parents would now... They have gone through the naturalization process and have chosen Montserrat at their home, and so at the result of that they now become world of Montserrat in that sense that they become part of our community, and to look at the overall development of our community, we have those challenges. We try to build the literacy standards up. Literacy and numeracy standards, to build that knowledge up, to allow them to be more employable and end up developing other social skills as the result of not being appropriately engaged. So we're working on that this year coming through and... But in addition you have at the college, you have few more programs coming in but as I mentioned earlier, because of that barrier of not having completing all secondary [tuition] properly or not even having these O levels that would help you to get a good start, the basic entry into... To help you in your carrier path is to have the math, at least the mathematics and the English, to allow you to be able to advance in the society, and in your carrier path. So you will find that the programs at the college, some of them would have get to individuals who have already attend the mathematic and English and they excluded these ones who did not have it. So we are now making it open to everyone nationals and non-nationals once they're interested in building their…, you know in the community, they have chosen Montserrat as their home... Giving them the opportunity to develop these skills. So that is how we are looking at combatting that challenge of literacy. Most of the people who come here, now they come for domestic work, especially those from Caribbean countries, the more domestic, for domestic work,

or in the construction field. […] And most of those individuals, most of them does not have the late basic literacy or numeracy skills. And to offer them that opportunity…

CM: Yeah... even among the adults

I: Yeah, yes. In among the adults... other migrants who would come, those one... The ones I speak of, especially from the Caribbean, they would normally stay around for 10-20 years, some would stay longer. Part of the challenge with some of those who come is the opportunity that, Montserrat becomes an opportunity for them to get into the UK because we are a UK... territory. So once you have satisfied the requirements to be naturalized, it gives you the opportunity with the regular documentation for you to be able to move through to the UK.

CM: Yeah, after 8 years

I: Yeah, so what you find which earlier was a bigger challenge, when the period for satisfying naturalization was less was that a lot more people who have migrated quicker to the UK. And it affected the rebuilding process because skills especially, I can speak from a government point of view because my background is from government [...] people would have trained up individuals in an area where there is skill gap and then five years [later] the person becomes naturalized and move to the UK. So then you have to start the whole process all over again and still trying to build the capacities required for work to help us move on on development, and that has been one of the major challenges.

CM: So by moving to eight years it…

I: Moving to eight years slows the process a bit more. So you'll find those within the service who would have those who are more employable at the higher level who end up staying a bit longer and...and actually start settling down, build their own homes here and to live here so there is no longer that rush that it was when it was less. It was first three years and then five

CM: Oh, it was three years?

I: Yes. So then it became... it was so easy, three years like that. It was much quicker but when you... for eight years, you would have invested in certain things here then it changes your thinking in terms of... you weight the options more than when you are just here not... necessarily developed a commitment of wanting to stay. You can take off and you leave. But even some people think eight years is still not enough, not enough time... it's something we will have to look at that as population growth is one of our objective and recognizing

the economy of scale when you have a bigger population and in terms of how you're able to move […] the economy forward as a result. And it also helps to build an attractive... people are here longer and you're building their capacities here, the knowledge base, based on what they are common with. Then it helps us, it helps us with development even more than us always having to importing skills for short period of time and then you lose that skills again. Even at that time when you would have someone from another country been trained, and then they are gone, they leave as well... individuals. So one of our greatest challenge has been the turnover of […] the skills at that level as the result of the immigration policies that where in place at that time. It's still there but it's not a big rush as it was previously when... at the time it was less.

Extract of an interview with a technical officer (I1) and civil servant (I2), conducted on the 19 January 2016

CM: how do you feel working in Montserrat? About Montserrat and about the hospital?

I1: Montserrat? How I feel? I came for a specific job description but the experience is completely different [...]. What I was asked to do, right. So in terms of the [...] that's fine, but in reality I think it's much more challenging than what I expected

CM: Why is that?

I1: The health system is in a period of redevelopment right? Because after the volcano, they lost 80% of the health infrastructures, so the government has decided to reconstruct the hospital, a new hospital, because this is a post-disaster hospital

CM: So they will build a new one?

I2: This one is actually a school

[…]

I1: I came to support the infrastructure redevelopment agenda, right? It is funded by the DfID, so I came as the hospital director to provide technical assistance, so the redevelopment of hospital infrastructures and services

CM: And where will be this hospital?

I1: Where will it be? The location? We're not sure yet! It's still looking for preferred site

CM: There are some ideas at least?

I1: Yes we have ideas! But let me tell you. When I came, there was a preferred site and after two years, the government changed and the new government wants the hospital in another site

CM: Why did they change?

I1: Why did they change? Politicians. Not even to do with… not even to do with evidence. So when I came here the hospital site was this site for redevelopment. After the last elections, we are now looking for another site. So that's create a little of… for me, of frustration. In that, after two years, I don't think much have been achieved after two years. And the reason is, for that, I think one: it could be circumstances beyond the government, beyond my control, because the government change policy direction. That's why. And second of that… I say a lot about the government, I don't think people here on island after volcano, who didn't go, left to England, I don't think they are much accommodating for redevelopment….

CM: What do you mean?

I1: They are not too welcoming foreign consultants to come to teach them the things

CM: The people who left the island?

I1: The people who have remained

CM: Oh yes ok

I2: So you had 2-3000 who remained and about 10-11,000 who left. And then the people who staid all the time, obviously most of them came from the south of the island. And then here they settled their own life, their own bubble if you like and they are very protective of Montserrat, they are very… you know, because you lost a lot, your identity and all the things, they are protective from foreign people coming in, and the impact they always done

But interestingly, I'm not foreigner, I am a Caribbean

I2: Which is funny [...] because he is a West Indian and I am a Montserratian and we are treated differently. You know I come from here and almost everybody knows me but I studied in the UK and I was off for a long time

CM: And that's enough for…

I2: That's enough for them to [..]

CM: And you, you don't consider yourself as a foreigner [speaking to I1]?

I1: I am, let me tell you I am…

I2: He is, he is! but not in a such negative way as much who did not come from the region

I1: I don't care

I2 (Addressing to I1): Yes but […] people are accepting you because you are West Indian, they have a connection with you as English person [I1 disagree]

I1: No no no, I am here from the Third World, […] there is acceptance in my behaviour to not to do that

I2: But you behave in a way that they are familiar because you are West Indian

I1:Because I am Grenadian yes! I am much more emotionally strong but I must say… even though I am from Caribbean, right? Coming here, this is a shock for me. Because I am from Grenada which is a small island and went to Trinidad which is a multi-racial society […] and I am accepted as a professional. Here they don't accept me. They don't accept […] and I have no excuse. And the thing is that also, I came with DfiD. And some people, that are blaming development, the stage of development and the difficulties, the lack of development and DfiD

CM: Oh they complain about DfiD?

I1: DfID yes. So anybody that DfID bring here and funded for working here will experience some sorts of resistance. So there is this issue, right?

CM: But this resistance that you feel is from the politicians? from the…

I1: No! The resistance is from the civil service, from the structure. The resistance is from the […], the civil servants, the public servants. […] I will tell you. Politicians resist. I don't think there is a […] from the politicians.

I2: And politicians are… most of them are local nevertheless. They still have personal issues with working with outside consultants. And that influences how they work

I1: No I think… no but I think that for strict professional point of view, it's not how the politicians proceed. Civil servant bureaucracy and that resistance to change to way they do business. Right? And it's rooted in culture. And what you will see is that Montserratians are, most of Montserratians work overseas, go to UK to do their Master and Undergrad. So

they [...], most of my friends here went to same University as me, we fought together, we computed the same exams and here now, they don't even accepted

I2: And this is in the 90s […] and they were friends. The difference wasn't here. And professionally thought they were also resisting together. It's our psychological, you know… being protective of Montserrat and being protective of the little, of what was left because there is not so much which was left compared to what was here before. So it's partly understandable

CM: No but I understand but…

I2: You know it's not right but it's understandable.

I1: Another thing in the resistance I see is in the disparities in [...].

CM: In what?

I1: In salaries. Disparities. Because foreign consultants are paid international rates. And the locals are paid the local salary. And there is a big gap. And that is expected. So a technical person will get 5,000$, and DfID, funded by the DfID to do the same work he will get 20,000$. And that is actually parallel public services that you have, and that is [...] animosity and resistance from the public service

I2: And that is at every level. I heard senior, senior people to say the same thing.

I1: I thing that is one of the problem. But my experience here as director here… if I had to come back here, I would not sure.

CM: Really?

I1: No I would not.

CM: Because too much resistance, too much difficulties?

I1: Well that is one and… I don't think… I don't think we share the same vision. There is the issue of capacities here. Most of people here, they don't go anywhere. They came for university and they work here and that's all. Somebody like me who work as a director in Trinidad [...], so I have understanding of the health sector. But people that are here [...]. So if you come and say that you can be more efficient they don't support but they never experienced it. So there is a capacity issue here. They may have an important qualification but don't have really the exposure to work with…

[…} So for people coming to tell them it's very very hard. And you see that, you will notice that. Montserrat is considered to be one of the most researched country in the world. And you see you are here. There are [..] of consultants and who well work. But it's on paper, nothing to do in practice. So the difficulty is how you institutionalize all of that, how you implement. Implement change in Montserrat, that is very complex. And this is the most complex place I've ever seen. […]

Extract of an interview with a teacher (Secondary School), on the 26 January 2016

CM: *And which kind of changes did you observe in the school since the eruption?*

I: Changes in the staff, composition of staffs. Changes in the number of students and the nationality of the students.

CM: So when you say changes in the composition of staff, what do you mean?

I: Well, we have frequent turn over among the staffs, teachers left, you have to recruit a new one and then they left. So you have that change over most every years

CM: But do you mean that they are going to another school in Montserrat or…?

I: No, no they are going off island. This is the only secondary school of Montserrat. No so, off island. The recruitment has slowed just a bit now, except that we having difficulties for teachers in some subject areas, particularly math and English.

CM: So the teachers, where do they come from? And the staff in general?

I: We have from Dominica, we have from Jamaica, we have from Guyana, we have from St Vincent, we have locals… all across the Caribbean. At one point we had from India as well.

CM: And was it the same before the eruption? Or when you started?

I: No, it wasn't as bad, you had quite a large number of Montserratians, of teachers. But after with the eruptions, they have lost their home, some of them lost their job because most people migrated, the population of the school at one time was as low as 92

CM: And now it is?

I: It is 340. So that's recovery. But I haven't really identified students based on their nationality in the school but I can tell you that the population of Montserratians in the school now is just about half. They are from all across the Caribbean.

CM: And because you have lots of teachers and staffs from other countries, do you face some particular issues with that, or…?

I: For me the biggest concern is that… is retention. Whether they are going to continue the next year, so they are on contract so whether they are going to continue their contract or not. That is really the biggest issue I have with the staffs who are not from Montserrat. What we have done to include some of the culture, to include some of the strengths from whatever they are from, in our school, in cultural aspects of the… so we had a cultural presentation, we did it twice. We actually featured the culture of all other territories, so they were able to share and everybody appreciate each other's culture. And that was really really essential for the unity of the school.

CM: Yes I guess, it's very interesting! For how long did you do that?

I: We have done it for Commonwealth day, we did it twice. Two separate occasions on Commonwealth day.

CM: So it was the staffs and students also?

I: Staffs and students.

CM: And which kind of cultural aspects did they present?

I: some they danced, some did more dramatic presentations, and displayed for… flags and [] items. So we had that. We have a number of students from Santo Domingo, Spanish speaking, and I guess they are different in term of culture from us, but they were able to portray their culture, they did it and dance. And the students accepted what they did, and actually presently surprised, the presentations, they were very welcoming.

CM: You were not expecting that?

I: Not expected, they didn't expect it. I mean, they did their national dance, most of students had no idea on what their national dance was, so they didn't expect indeed they will be quite dramatic but most of students enjoyed it. It's different to what they would do here. So those, activities like those actually help to strengthen the school.

CM: What kind of other activities do you do to integrate them?

I: Well basically what we do, we include anything in what we do right? And we had the opportunity to show case talents and culture from each of the individual island. We do so, and we also allow the students from each island, and allow their parents, to determine which aspect of the culture they want to show case. So we don't specify, we let them decide with their parents what they will show case.

CM: Yes, so according to their own personality and… So you told that the Spanish students are the most different culturally. So what… how to you see that? In daily life, at the school?

I: At the school… It is just that… getting them to conform to what we have here. One of the things I have found out by speaking with residents here who are from Santo Domingo is that the children are given certain privileges earlier than ours.

CM: What kind of privileges?

I: So that they are free to make decisions, they are free to attend, you know, they can attend shows later in the evening. So that you may have a local child 16, on the 16, not be able or shouldn't be able to do certain things or go certain places. In their culture, that's not so. You know, they are freer, their children. We have to bring remind that it is the way, we are and they need to obey… That's basically it for them. And then the other challenge now that the school face now and that it didn't face pre-volcano, it's the influx of students with a second language, Spanish. So we now have to find a way to help them. To learn English, because they need to learn English. Because all school is in English.

CM: So how do they manage? Because it takes time to learn a new language…

I: Actually honestly because the numbers are greater now, we have more problems than we used. When the number was smaller, they quickly learned the English because then they needed to communicate with the others. But now, we have 20, plus maybe 25 or then, so you find they gather in groups and they continue to speak Spanish. When we had 2 or 3, they learned the language quicker.

CM: Yes, I assumed it's because they had to.

I: They had to. But now, that they don't have to they can ask to friends who know some English, what's the word they said, you know, it's even more difficult to learn for them the English. They learn the book and they learn our dialect. But instruction isn't in dialect. So they can tell you in dialect but then translate it into written form, they have problem.

CM: And how the teachers manage that?

I: They try to teach them the English. Some of them actually give up to make it easier for them because they know they have the ability, they will translate to them sometimes in Spanish to let them to do the work, but it's not really the best, because they still need to do it in English. And that they are some who will work in Spanish and English to try and [..], we are looking at make different strategies to try to teach the English.

CM: And at the end, what is the level of the students?

I: Some of them are quite good, but the job after is the English language. If they want to be examined in French, sorry in Spanish, it would be okay. But it doesn't work because the exit exam from the Caribbean council, CXC, is in English.

[…]

CM: And about the other students, like Guyanese and Jamaican…?

I: They, they already speaks English so, they tend to be ok. The only time we will see a difficulty among the students is if in our society there are some incidents. If there are some disagreements between the Guyanese and Jamaicans and so on, or whatever… when they come to school, the students will discuss, so after very quickly we say them "it's not acceptable" and what they do in over there is not acceptable" you know… We have sessions on how to respects each other, like females, and values, and… We haven't had to do that for long time. So it's ok, it's… understanding that students are from different backgrounds and then they will have different experiences and different cultures. And getting all the students to respect differences, to be inclusive, and… to understand the culture, and share, so…

CM: I assume that the fact of having teachers from different countries may help

I: It may help, yes absolutely. We remind them that once you enter the gate of Montserrat Secondary School, I'm not interesting of where you are from, you are student of Montserrat Secondary School and it's all your identity here. So, they understand that as well. It probably helps their community as well cause, the children now understand and they have friends from different countries so parents now have to accept that our children have friends from different places. And in PTA meetings, I would have said to their parents, because when we have PTA,

CM: PTA is?

I: Parents-teacher association. I make sure that they are our students and I don't make a difference if they are Guyanese, Jamaican, Santo Domingo… they are students of the MSS and reports on students of the MSS and any talk about where you are from, I don't entertain it.

Extract of an interview with a senior office of the British government in Montserrat, of the 13 May 2016

CM: So I am very confused whether they would be a minority or…

I: Well, they would be statistics because the immigration department... I don't know if they released them to you

CM: I asked but they said they didn't have those specific data and…

I: Yes, they wouldn't... I don't have any idea on what the ratio would be but that would be really interesting to know

[…] No, and even if they don't release to, you know, outside researchers, it's the kind of information that our statistic people should be having or gathering. Because statistic... we need evidence-based policy and our statistic so far are very, are weak here, you know. So people are beginning to think to gather statistics like that, they are hard pressed to even do the basic economic statistics and social statistics, so... but you're right, I mean that would be a very interesting piece of information. That would help somebody doing an analysis to make a judgement about how open we are, how non-open we are. […]

Because most of what people think is based on perception here and some people, it doesn't matter whether data are available or not, they're not interested in that part

CM: Of course, and in that case you cannot...

I: But it is the responsibility of government to be making evidence-based policy. So it is an issue for the government. We can't tell the public to do that. Although I heard somebody famous, I can't remember the name of that person, but I like the saying. He said: "everybody has the right to their own opinion but not everyone has the right to their own... evidence" ["Everyone is entitled to his own opinion, but not his own facts" is a quotation from the late U.S. Senator Daniel Patrick Moynihan]. You know, it means that evidences are evidences. Yes... so I think that's probably universal.

[…]

CM: Considering the fact that Montserrat is very prone to several natural hazards, what is the view of the British government about the risks of disaster?

I: Okay, well... maybe we can go back to your earlier question on what is the relationship between UK government and the government here in the UK, Okay... Montserrat is one of the 14 overseas territory, you must know all of this, and they are through all over the world. And the relationship is that the overseas territories are former colonies, they're not called colonies now because it's a different relationship mitigated by constitution, so it's a lot less... it's not like that, it's more of a partnership or at least that's the idea. Okay so, the government of... the UK government passed a white paper in 2012, which you should look at, which is about the overseas territory which states the policy toward the overseas territories which is basically that it has an obligation toward them. They are territory of Britain, okay, so... you know you have some places with tinier population than here, you know Pitcairn, there is a lot of British aid which goes in there because their obligation is to sustain the people as long as the place is habitable in the territory. And that's certainly true for Montserrat. Yes, there are hazards […], there are hurricanes and earthquakes, and they haven't had this volcano for 300 years or so. So there is no intention of the British government because it is a risky place, you know, to change in that policy. What we do, it's trying to ensure that our policies take into consideration the risks here and helps to mitigate them, helps Montserratians be resilient and be able to mitigate them and the government in such a way that... you know... Because we have a small economy, governance in such a way that we take advantage of whatever economic opportunities are there. And you have the right kind of system in place and governance and so on, that's the territory is able to govern itself more and more, you know, more efficiently and boost the economy, that's the interest of the UK government in the territories.

CM: Yes, but I assume that even if there is that obligation, you have to take into consideration the risks, the different hazards

I: Yes

CM: So how does that affect the way, the development of Montserrat?

I: Well, you know... part of governance here is managing, is disaster management. So we have a big shrunk of that, we have the MVO, which is probably the State of the art of volcano monitoring place of the world, everybody... we have an exclusion zone, people

can't go where surely the volcano could erupt again. We know... we know a lot of that volcano now. We don't know when it might erupt but we know a lot on what might happens if it does, so you know. We are all in the North now, you know, we don't, we're now in the South, that's one of the way of managing, we manage hum... if you can go in, if you can't, you know, all that kind of stuffs. So that's the volcano part. You know we have to think about marine safety and all those kinds of things, in that context.

Then the other part is earthquakes and hurricanes. We have earthquakes all the time just because we have an active volcano, but none of them have been that serious. But that's true in the all Caribbean, Antigua, our neighbours and so on, are prone to earthquake, and perhaps tsunamis can happen in the Caribbean but we have warning systems, we have monitoring systems for that, to... and then we have a disaster management facility, yeah? And then the governor, the governor has a big responsibility for that […]. And when, and this particularly focuses on hurricanes you know, but it's generally on disasters.

[…]

CM: *And what is the view of people on volcanic risk?*

I: They don't… they don't want to hear anything about it because they've been exhausted about

CM: *Yes that's totally normal, but at the same time…*

I: Yes, but they know, they know. People absolutely know that it can explode any time.

CM: *Do you think that non-national people also know?*

I: Well, I hope so... but that's a very good question. That's a very very good question. But that's a very good question because if you have been through it, you don't know what the consequences are. However, they are not at risk in the same way than people who lived in Plymouth. They are safe in terms of the eruption of the Soufriere, right? But ashing, they didn't experience... I've been told in 2010 we had heavy ashing, so everybody who has been here before knows that ashing is not a nice thing. Ash fall, you know, that could happen any time, so anybody who has been here for more than 10, for more than 5 years, 6 years, knows about the ashing. So they know that, and that's probably the most likely thing that can happen vis-a-vis of the volcano in the next little while, we can get some ashing of that sort again. And I'm not saying it won't blew up neither but we are here, not there.

CM: Yes, yes that's true. But aren't you concerned about the houses in Flemmings, Hope…? Because it is a lot of non-nationals living there…

I: Yes, but any place that people can live and rent have been scientifically allocated that they can live there. There is very clear demarcation based on very scientific research and the experience of the last volcano about where it's safe to live and where it's not. And nobody can live legally in any unsafe zone. There is some activities carried on, some are in the unsafe zone, people go on and do that like in Cork hill car races and stuffs like that, but you cannot live, you are not allowed to live and it is monitored anyway, so you know... but has been scientifically designated a safe zone.

CM: Yes, but for the ash falls? Ash falls can go...

I: Anywhere, they would come in Brades

CM: Yes, exactly, that's why... all those houses that are not in so good condition,

I: Yes, but that's the problem. Housing is a problem here and the Premier has that in the top of his agenda. You know, housing is.... he is working very hard to trying to build the housing at optimal standards. Hum... so that is a concern that housing... it, it... in some place, it's not adequate, but it's not because of the ashing, because we're all subject to the ashing, doesn't matter what kind of house you live in.

CM: Yes, some houses I guess are more resistant

I: Some may be closer, but when it happens ... or the roofs may be fallen like that, yes of course, but that may happen in heavy rain. You know, they're just... the standard isn't high enough... People shouldn't be living but have to live in those kinds of houses and things have really really been done to try and build new houses for them and get people to move in better houses. So that is a concern but it is not one that has been ignored and the housing thing is not like... oh well, this is for this kind of persons but not for that kind of people because it's anyone who lives in substandard housing, you know... yes... okay?