Integrating Disaster Risk Reduction and Climate Change Adaptation: The Influence of the Adaptive Capacity of Local Government Units in the Philippines on the Potential for Incorporating CCA Policies in Their Local DRR Management Plans

Jesper Jansweijer
Supervisor: Mark Pelling

This dissertation is submitted as part of a MA degree in: ‘Disasters, Adaptation, and Development’ at King’s College London.
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Cover photo: Houses next to fishponds in Tagalag, Valenzuela City, Metro Manila, the Philippines. © Jesper Jansweijer
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This Dissertation is 11,979 words.

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Date: 26 August 2014

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Abstract

This study aims to assess the components of adaptive capacity and the influence of these components on the ability of local governments in the Philippines to incorporate Climate Change Adaptation policies into their existing Local Disaster Risk Reduction Management Plans. The framework for this study is composed of the components of adaptive capacity and their influence on the adaptation process. After assessing the adaptive capacity and the adaptation process of local governments in the Philippines, the study finds that successful integration of Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA) depends not only on sufficient adaptive capacity, but also on the need for significant overlap between the communities of DRR and CCA.
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<tbody>
<tr>
<td>BDRRMC</td>
<td>Barangay Disaster Risk Reduction Management Council</td>
</tr>
<tr>
<td>BDRRMP</td>
<td>Barangay Disaster Risk Reduction Management Plan</td>
</tr>
<tr>
<td>CCA</td>
<td>Climate Change Adaptation</td>
</tr>
<tr>
<td>CDRRMO</td>
<td>City Disaster Risk Reduction Management Office</td>
</tr>
<tr>
<td>CDRRMP</td>
<td>City Disaster Risk Reduction Management Plan</td>
</tr>
<tr>
<td>CLUP</td>
<td>Comprehensive Land-use Plan</td>
</tr>
<tr>
<td>CVA</td>
<td>Community vulnerability assessment</td>
</tr>
<tr>
<td>DILG</td>
<td>Department of the Interior and Local Government</td>
</tr>
<tr>
<td>DRR</td>
<td>Disaster Risk Reduction</td>
</tr>
<tr>
<td>IEC</td>
<td>Department of Information, Education and Communication</td>
</tr>
<tr>
<td>LDP</td>
<td>Local Development Plan</td>
</tr>
<tr>
<td>LDRRMP</td>
<td>Local Disaster Risk Reduction Management Plan</td>
</tr>
<tr>
<td>LGU</td>
<td>Local government unit</td>
</tr>
<tr>
<td>MDRRMO</td>
<td>Municipal Disaster Risk Reduction Management Office</td>
</tr>
<tr>
<td>MDRRMP</td>
<td>Municipal Disaster Risk Reduction Management Plan</td>
</tr>
<tr>
<td>NCCAP</td>
<td>National Climate Change Action Plan</td>
</tr>
<tr>
<td>NDRRMC</td>
<td>National Disaster Risk Reduction Management Council</td>
</tr>
<tr>
<td>NDRRMP</td>
<td>National Disaster Risk Reduction Management Plan</td>
</tr>
<tr>
<td>NFSCC</td>
<td>National Framework Strategy on Climate Change</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-governmental organisation</td>
</tr>
<tr>
<td>PAGASA</td>
<td>Philippine Atmospheric Geophysical &amp; Astronomical Services Administration</td>
</tr>
<tr>
<td>PfR</td>
<td>Partners for Resilience</td>
</tr>
</tbody>
</table>
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Introduction

Due to their exposure to the impacts of climate change, local government units (LGUs) in the Philippines are required by law to adapt to climate change. However, most LGUs suffer from several constraints that impede this process. Furthermore, rather than simply taking Climate Change Adaptation (CCA) measures, local governments in the Philippines are required to integrate these measures with their existing Local Disaster Risk Reduction Management Plans (LDRRMPs). The impact of a lack of adaptive capacity on this integration process is the subject of this research.

Thus far, the academic literature has focused on the availability of resources and technologies as main constraints of adapting to climate change (Inderberg & Eikeland, 2009), whereas institutional constraints and individual perceptions have been somewhat overlooked (ibid.), even though they have been recognised as a key feature of successful CCA (Brooks & Adger, 2005; Brockhaus & Kambiré, 2009). Institutional constraints regarding social and human capital have been addressed since (e.g.: Moser & Ekstrom, 2010; Pelling, 2011; Mimura & Pulwarty, 2014), but the effects of individual perceptions and information gathering on the adaptive capacity of organisations are still largely ignored.

The aim of this study is to identify and assess the components of adaptive capacity that, according to Brooks and Adger (2005), potentially lead to constraints in the adaptation process, as described by Moser and Ekstrom (2010), and how these constraints influence the integration of CCA in the existing LDRRMPs. Individual perceptions of government officials who are in charge of writing the LDRRMPs are considered when analysing these components. To include individual perceptions, this study uses the frameworks presented by Brooks and Adger (2005) on the components of adaptive capacity, and Moser and Ekstrom (2010) on the adaptation process, both of which include an element of individual perceptions. By looking at different cases in urban and rural settings in the Philippines, empirical evidence is gathered to analyse in what way the adaptation process of LGUs is influenced by constraints to organisational adaptive capacity and individual perceptions.

This way, the study contributes to a growing body of academic literature on adaptive capacity in a Climate Change Adaptation framework. By assessing the constraints in the components of adaptive capacity for local governments, as well as the individual perceptions, this study questions whether the practice of integrating DRR and CCA, as promoted by the UNFCCC (UNFCCC, 2009) is potentially flawed.
The next chapter critically assesses the existing body of literature regarding mainstreaming and integration of DRR and CCA. It also introduces the components of adaptive capacity, and the importance of social learning and individual perceptions that influence changes in behaviour. The second chapter discusses the rationale of the research, whilst the third chapter briefly describes the legislative situation in the Philippines, focusing on the climate change act (RA 9727), and the disaster risk reduction act (RA 10121). The research sites are also introduced in this chapter. The fourth chapter presents the research questions and methodology, whilst findings of the research are analysed in chapter five. Finally, chapter six concludes the most important findings and recommendations for future research.

Data from fieldwork is referred by using the abbreviations “LG” for local government unit, “GA” for government agency, “NG” for NGO, and “P” for LDRRMP. A full guide to the referencing of field data can be found on page 56.
1. Literature review

This section starts by presenting an overview of mainstreaming DRR and CCA as well as the scope for integrating DRR and CCA. As LGUs rely on their adaptive capacity to undertake the integration of DRR and CCA in their local policies, the main focus of this chapter is on the concept of adaptive capacity, the factors that influence this capacity, and how individual perceptions play a role in adaptive capacity.

1.1 Mainstreaming DRR and CCA

Mainstreaming DRR and CCA ensures the inclusion of the effects of natural hazards into longer term strategic development planning and programmes (Benson, 2009), or into other policy and legislation (Pelling & Holloway, 2006; Tearfund, 2008). Overall, mainstreaming can be considered to be the “integration of adaptation in other policy domains” (Uittenbroek et al, 2013, p.399). Mainstreaming has been widely acknowledged as a holistic approach that addresses the needs of climate and non-climate disaster risk within other sectors, policy, and legislation. This strategy is necessary to ensure the prioritisation of DRR and CCA and to provide an institutional basis for its national and local policy implementation (Pelling & Holloway, 2006; Schipper & Pelling, 2006; Benson, 2009; Uittenbroek et al, 2013). The integration of DRR and CCA into development programmes is especially important, given the potential of development programming to unintentionally prolong, exacerbate or create new forms of vulnerability (Benson, 2009). By mainstreaming, these negative aspects can be avoided and further positive aspects of risk reduction can be included, thereby improving overall development approaches (Kok & De Coninck, 2007).

An integral part of mainstreaming is its implementation of a legal framework. Legislation can provide governmental actors with uniform directions across different sectors. By providing both penalties and incentives, it ensures that proper action is taken across different scales (Pelling & Holloway, 2006; Benson, 2009; Llosa & Zodrow, 2011). In fact, it is advocated by Pelling and Holloway that legislations should be “the first step in mainstreaming” (2006, p.7), or even that a lack of legal framework would lead to inaction in governments (Llosa & Zodrow, 2011). In the Philippines, this legal framework is embedded within DRR and CCA legislation (RA 10121 and RA 9729 respectively).

However, some barriers persist in preventing the positive effects of mainstreaming to be included in development programmes. They range from institutional barriers to individual and cultural barriers (Pasquini et al, 2013). These barriers may persist due to a lack of personal or
governmental interest on issues regarding DRR and CCA (ibid.), or a lack of information and knowledge (Kok & De Coninck, 2007; Tearfund, 2008; Pasquini et al, 2013). Some cultural attitudes towards either DRR or CCA, such as a fatalistic stance due to trust in the intervention of a higher power, might also pose a barrier to any mainstreaming activities (Benson, 2009). Furthermore, on an organisational level, political factors might favour short-term pay-offs rather than long-term planning (Birkmann et al, 2013).

There are also some barriers to mainstreaming that follow from issues regarding inherent incompatibilities (Kok & De Coninck, 2007). For mainstreaming CCA into development, there might be dissimilarities between the time scales on which climate change or development issues are addressed (Sietz et al, 2011), or incompatibilities with the tasks of different professions (Wamsler, 2006), as Wamsler (2006) notes that urban planners might not perceive risk reduction as part of their activities. There might simply be a restriction on the capacity of governments or organisations regarding the amount of mainstreaming that is demanded from them; as Sietz et al (2011) mentions: “the effects of [mainstreaming] climate come on top of [the mainstreaming of] other environmental, gender or health care issues” (p.494). Tearfund (2008) even warns for the effects of “mainstreaming fatigue” (p.7), when the demand for mainstreaming several different components becomes overwhelming for the capacity of local governments. Apart from additional requirements to mainstream CCA and DRR in policies and programmes, governments and organisations might already suffer from existing constraints on resources and capacities (Sietz et al, 2011; Pasquini et al, 2013), making mainstreaming even more challenging.

1.2 Integrating DRR and CCA

The objectives of both DRR and CCA activities focus on reducing vulnerability and building resilience in order to manage the impacts of hydro-meteorological hazards (Gero et al, 2011; Solecki et al, 2011; Djalante & Thomalla, 2012). The synergies of an integrated approach are often most noticeable on local levels, where communities and individuals do not always make a distinction for themselves between DRR and CCA (Gero et al, 2011; Djalante & Thomalla, 2012; Birkmann et al, 2013). When a natural hazard impacts them, they do not feel the difference climate change or a regular natural hazard (Shaw et al, 2010).

One of the advantages of integrating the two approaches is the increased efficiency of use of resources and effectiveness of specific programmes. DRR has a longer history of presence within communities, previously focusing on response and recovery, which resulted in forming experience, tools, networks, knowledge and institutions (Djalante & Thomalla, 2012). Rather than reinventing these, CCA could draw on the existing experience and knowledge of DRR networks
and institutions (Mercer, 2010; Djalante & Thomalla, 2012). It has been noted that many CCA and DRR strategies duplicate each other (Gero et al., 2011), and to avoid wasting financial, human, and natural resources, integration could lead to enhanced effectiveness and make the concepts more comprehensible for communities and individuals (Mitchell & Van Aalst, 2008; Gero et al., 2011; Birkmann et al., 2013). This increased efficiency of resources could be especially important when considering the capacity of governments in developing countries (O’Brien et al., 2006).

However, there are many challenges to establishing an integrated approach. Despite the clear benefits and scope for integrating the approaches, DRR and CCA have been established as different communities of research and practice, whilst their programmes are implemented by different government agencies, and receive their funding from different sources (Thomalla et al., 2006; Mitchell & Van Aalst, 2008; Birkmann & Teichman, 2010; Solecki et al., 2011; Djalante & Thomalla, 2012). These differences could make it difficult to initiate a dialogue between DRR and CCA agents, even though these relations are critical for a successful integration (Mitchell & Van Aalst, 2008; Gero et al., 2011).

The different origins of DRR and CCA mean there are differences in approaches which might lead to additional difficulties regarding integration. Where DRR includes both top-down as well as bottom-up approaches, CCA has emerged from a generally top-down perspective, driven by the findings of global climate change (Mercer, 2010; Mitchell et al., 2010). The problem with global climate change predictions is that it is often difficult to down-scale the data of the impacts, resulting in a lack of local data on regional-specific effects of climate change (Birkmann & Teichman, 2010). Figure 1.1 illustrates the differences in traditional approaches between DRR and CCA, with DRR focusing on preparing for and responding to the impacts of natural hazards, and CCA focusing on adapting to changing environmental conditions (Thomalla et al., 2006).

Apart from the differences in approach, a problematic difference in scope of study exists, whereby CCA focuses on hydro-meteorological hazards, whilst DRR also focuses on non-meteorological hazards. Furthermore, CCA focuses on both extremes in weather, as well as changes in climatic means, whereas DRR focuses only on reducing vulnerabilities to extreme events (Mitchell & Van Aalst, 2008; Birkmann et al., 2013). The fact that both approaches do not overlap completely, is shown in figure 1.2.
Figure 1.1: Traditional foci of Climate Change Adaptation and Disaster Risk Reduction communities (Thomalla et al, 2006, p.44).

Figure 1.2: Overlap between Disaster Risk Reduction and Climate Change Adaptation (Mitchell & Van Aalst, 2008, p.4)
Nonetheless, the focus of DRR and CCA are growing towards each other: Both DRR and CCA are holistic and preventive in nature, and both DRR and CCA include a component of poverty reduction as a tool in order to reduce vulnerabilities (Thomalla et al, 2006), even though poverty itself does not necessarily equal vulnerability (Wisner et al, 2004; Schipper & Pelling, 2006), it is one of the factors that determines vulnerability and resilience (Wisner et al, 2004). Both DRR and CCA also recognise the importance of sustainable resource management and ecological resilience, in order to increase the resilience and security of individual livelihoods (Thomalla et al, 2006). This way, DRR and CCA are encroaching on each other’s traditional territories: CCA was traditionally more occupied with the environment and DRR with reducing vulnerabilities (ibid.) as illustrated by figure 1.1, which was demonstrated by their respective organisations: CCA in environmental ministries, and DRR in development or defence ministries (Mitchell & Van Aalst, 2008; Birkmann & Teichman, 2010). The growing overlap between DRR and CCA is illustrated by Shaw et al (2010): In a traditional DRR project, the height of a river dyke would be determined by the previous experiences, whereas in a CCA project, the height would be determined by the predicted flow of water using climate models, as traditional DRR was based mainly on past experiences, traditional CCA focused mainly on future predictions: (Shaw et al, 2010). However, current DRR projects are more anticipatory in nature to include future predictions (Thomalla et al, 2006; Shaw et al, 2010). Similarly, current CCA projects put more emphasis capacity building to address both current and future vulnerabilities (Thomalla et al, 2006). Table 1.1 shows how the different approaches are showing signs of further converging, increasing the potential for integrating DRR and CCA.
Table 1.1: Convergence between DRR and CCA (Mitchell et al, 2010, p.8)

<table>
<thead>
<tr>
<th>Differences</th>
<th>Signs of convergence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relevant to all hazard types</td>
<td>DRR programmes have always considered weather-related hazards but there are indications that some are now taking into account the impact of climate change on hazard frequency and magnitude and on vulnerability and planning interventions accordingly</td>
</tr>
<tr>
<td>Practice of DRR strongly influenced by post-disaster humanitarian assistance</td>
<td>Common ground being found in joint mainstreaming into development sectors – so specialists on both adaptation and DRR working in infrastructure, water/ sanitation, agriculture and health for example</td>
</tr>
<tr>
<td>Most concerned with the present and near future: addressing existing risks based on assessment of local experience and historical record, for example</td>
<td>DRR increasingly forward-looking and CCA increasing using and existing climate variability as the entry point for activating adaptation processes. The idea of ‘no regrets’ options is a key area of convergence.</td>
</tr>
<tr>
<td>Traditional and local knowledge is the basis for community-based DRR and resilience building</td>
<td>Growing number of examples where local knowledge and meteorological/climatological knowledge being considered side-by-side to inform DRR interventions</td>
</tr>
<tr>
<td>Traditionally has considered risk a function of hazard, vulnerability, exposure and capacity</td>
<td>IPCC special report on managing the risks of extreme events and disasters for advancing adaptation (due in 2011), promises convergence in this area</td>
</tr>
<tr>
<td>Full range of established and developing tools</td>
<td>Significant progress made in integrating learning from DRR into adaptation tool development</td>
</tr>
<tr>
<td>Incremental development, moderate political interest</td>
<td>New, emerging agenda, high political interest</td>
</tr>
<tr>
<td>Funding streams often ad hoc, unpredictable and insufficient</td>
<td>DRR community demonstrating signs of being increasingly savvy in engaging in climate change adaptation funding mechanisms</td>
</tr>
</tbody>
</table>
1.3 Adaptive capacity

Integrating DRR and CCA has the potential to reduce the resources needed to implement programmes, which is especially relevant in developing countries which might lack resources (O’Brien et al., 2006). The accessibility and availability of these resources partly determines the capacity of LGUs in the Philippines to adapt to climate change (Smit & Pilifosova, 2001; Brooks & Adger, 2005; Nelson et al., 2007; Moser & Ekstrom, 2010; Pelling, 2011).

Adaptive capacity in relation to climate change has been defined as a system’s capacity or potential to adapt to the impacts of climate change (Smit & Pilifosova, 2001; Winsvold et al., 2009): the ability to address the added risks that come with climate change, as well as the ability to make use of any opportunities that climate change might bring (Brown et al., 2010). Having adequate resources and the ability to use them appropriately are fundamental to a successful adaptation process (Nelson et al., 2007), along with other vital components. Practically, adequate adaptive capacity means that a system is able to make adjustments that allow it to expand its coping range, either under existing climate variability or regarding future climate predictions, as illustrated in figure 1.3 (Jones & Boer, 2005; Satterthwaite et al., 2007). Peaks outside the coping range in figure 1.3 represent loss and damage suffered from climatic events. Loss and damage occurs when actors are not able to respond to climatic events, due to limited adaptive measures (Warner & Van der Geest, 2013). The costs associated with loss and damage are often difficult to quantify, but almost certainly hamper any efforts towards sustainable development (ibid.). The adaptive capacity of LGUs in the Philippines would determine their capacity to integrate CCA into their DRR plans, along with the influence of external factors.

![Image of figure 1.3: Schematic representation of increase in coping capacity over time (Adapted from Jones & Boer, 2005, p.116 and Füssel, 2007, p.267).](image-url)
According to Brooks and Adger (2005), the components that contribute to adaptive capacity are information, resources, willingness to change, and willingness to acknowledge the risk. Although these appear to be distinct components, they often reinforce each other, rather than work in isolation. Constraints in multiple components can significantly decrease the adaptive capacity and the variety of adaptation options available (Klein et al., 2014).

Information on climate change and hazards is an integral part of adaptive capacity. Both knowledge of historical data and future scenarios are important (Brooks & Adger, 2005). Sharing this information between different organisations is an important part of increasing adaptive capacity (Brown et al., 2010; Moser & Ekstrom, 2010; Pelling, 2011), as well as the general accessibility (Gupta et al., 2010) and the quality of the knowledge (Satterthwaite et al., 2007).

Resources of adaptive capacity include financial capital, social capital, human capital, and natural capital (Brooks & Adger, 2005; Pelling, 2011). Social capital is formed of institutions and their formal and informal networks (Brooks & Adger, 2005), where human resources comprise of the staff and leadership of organisations and their skill and expertise (Brooks & Adger, 2005; Satterthwaite, 2007). Some individuals, high-level leaders with the right knowledge, expertise and commitment, have the ability to enhance adaptive capacity (Benson, 2009; Moser & Ekstrom, 2010). The availability and accessibility of these resources play a key part in enhancing the coping range (Smit & Pilifosova, 2001).

Willingness to adapt to climate change depends on the acknowledgement of the risks of climate change, as well as a well-organised civil society in order to encourage collective action (Brooks & Adger, 2005). The acknowledgement of the risk can be obstructed by ideological beliefs or vested interest (ibid.). Awareness raising is needed in order to enable successful adaptation (Pelling, 2011).

Gupta et al. (2010) add that the components of adaptive capacity are also dependent on the freedom of human capital and institutions. Successful adaptation depends on a variety of problems and solutions which require the unrestricted involvement and consultation of extensive external networks. The capacity of organisations to learn depends on trust and their openness to future uncertainties, as well as learning from past experiences. Capacity to change depends on the accessibility of information and good quality leadership that is visionary, entrepreneurial and collaborative (ibid.).

More general socio-economic and political situations, such as economic prosperity, available technology, information and skills, and infrastructure, can influence the adaptive capacity (Brown et al., 2010). The accessibility of the local components is influenced by these external factors (Smit & Pilifosova, 2001; Smit & Wandel, 2006).
Learning is an integral part of increasing adaptive capacity (Winsvold et al, 2009; Gupta et al, 2010). This is partly due to the continual evolution of climate science and fine tuning of climate predictions, as illustrated by the 5th Assessment Report by the IPCC (IPCC, 2014). At the same time, it takes time for the most up-to-date climate science to disseminate through to the local level, as was found by Benson (2009) when looking at the implementation of a project on disaster risk management planning in Manila, the Philippines. The next section discusses the potential of social learning, networks, and access to information that are important when increasing adaptive capacity.

1.4 Social learning, social capital and access to information

Pelling & High (2005) propose a perspective that “sees adaptive capacity as arising out of social learning” (p.1). Social relationships are an integral part of social learning, which therefore depends on networks and social capital (ibid), as well as the access to information (Pelling, 2007). Ison et al (2000, in: Pelling & High, 2005) define learning as “a transformation in the potential for behaviour of an actor in response to experience […]” (p.6). In relation to climate change, this means the potential to change the behaviour of either components of the system, or the whole system, that allow appropriate adaptation measures to be taken to adapt to the impacts of climate change (Pelling & High, 2005). This change in behaviour is labelled as a change in routines by Berkhout et al (2006).

When applied to organisations, this learning has been described by Argyris and Schön (1978 in: Collins & Ison, 2009) to consist of either single-loop or double-loop learning. Where single-loop learning is described as the ability to learn new skills (Pelling & High, 2005), or learn from experiences (Gupta et al, 2010), double-loop learning is described as changing the values in an organisation (Pelling & High, 2005). The difference between the two is the difference between “…doing things right and doing the right thing […]” (Ackoff & Pourdehnad, 2001, in: Pelling & High, 2005, p.8).

Berkhout et al (2006) suggest that the process of organisational learning from experiences, or single-loop learning, can be divided in several components, which are illustrated in figure 1.4. Organisations start out with having their own routines, represented in their daily activities. Operational dynamics enable organisations to carry out these routines, whilst their dynamic capabilities enable organisations to change their routines. This dynamic capability, or the ability to change daily routines as a result of a new experience, depends on signalling and interpretation for an outside impulse to be identified by the organisation. This signal is then interpreted and it is determined whether previous routines are adequate. If the existing routines are not sufficient to deal with the external signal, a change of routines would be required. Search and experimentation are ways in which an
organisation can initiate a change in daily routines. The next step of knowledge articulation and codification involves an evaluation of the changes made to the routines, and a finalisation of changes so they can become the new daily routines. Finally, a process of feedback and iteration is required in order to evaluate the new routine.

![Diagram](image)

**Figure 1.4: Schematic representation of the learning cycle (Berkhout et al, 2006, p.140).**

This process makes clear that organisational learning is not restricted to absorbing new information, it also involves the capacity to act upon that information (Winsvold *et al*, 2009; Berkhout, 2012), and the perception that change is needed (Berkhout, 2012). The successful outcome of these learning practices is dependent on the flexibility in the coordination between different actors that are involved in the process (*ibid*). This coordination can go through formal institutions, such as legislation or frameworks and guidelines, and informal institutions; personal relationships on the basis of similar cultural norms and values or social capital (Wenger, 2000; Pelling & High, 2005). Informal institutions allow for informal interaction of actors between formal institutions, and have subsequently been labelled as the shadow system (Pelling *et al*, 2008). This grey area of interaction has the potential to play an important role in learning and innovation of an organisation (Pelling & High, 2005). There is also evidence that social learning among colleagues promotes more opportunities for learning than via a top-down systems (Reed *et al*, 2013).

Apart from trust and norms in informal institutions to hold groups together, networks are also an integral part of social capital (Putnam, 1993 in: Pelling, 1998). Weak linkages between organisations have the potential to constrain adaptive capacity (Brown *et al*, 2010), and lack of
linkages can lead to a so called silo mentality, where individual governmental departments lack cooperation (Pasquini et al., 2013; Mimura & Pulwarty, 2014). When lacking proper linkages, systems can develop their own set of norms and values (Mimura & Pulwarty, 2014), which hampers the formation of informal institutions as they rely on a shared set of norms and values (Pelling & High, 2005). The importance of leadership in networks has been widely recognised (Moser & Ekstrom, 2010; Mimura & Pulwarty, 2014), especially the need for collaborative leadership as a way to bridge gaps between different groups (Gupta et al., 2010; Mimura & Pulwarty, 2014). Apart from collaborative leadership, a decentralised government system also allows for the emergence of new networks (Miller, 1994; Adger, 2003).

Shared learning through horizontal linkages also increases the access to information (Reed et al., 2013) whilst a lack of sharing of experiences between actors and a lack of connectedness to different scales of government potentially limits learning opportunities and constraints adaptive capacity (Adger et al., 2005; Brockhaus & Kambiré, 2009). Although access to good quality information is important for learning and increasing adaptive capacity, this access to knowledge does not automatically lead to a change in behaviour (Cracknell, 2001; Marteau et al., 2002; Hulme, 2009; Gifford et al., 2011). Overcoming a deficit of information is not the only requirement for change in behaviour, as is recognised in the education literature (Marteau et al., 2002). In order to turn knowledge into action, people’s perception must include the need for change.

1.5 Changing behaviour

Behavioural change is not merely determined by the information and quality of knowledge, in what is known as the deficit model. In order to change the behaviour of individuals, individual perceptions are also important. These include the trade-offs between perceived benefits against perceived barriers of a certain action, the perceived opinion of others, and the perception of the individual’s ability to perform the behaviour, also known as self-efficacy (Marteau et al., 2002; Grothmann & Patt, 2005; Gifford et al., 2011). Not only are the perceptions of the policy makers important, the perceptions of the beneficiaries of the policies also matter. If their perception is that no change is needed, they are unlikely to agree with the policy, which will then not reach its goals (Patt & Schöter, 2008). Religion can also play an important role in forming perceptions, as hazards are sometimes perceived as acts of god, which are either unavoidable or can be averted by prayer. This fatalistic outlook, originating from norms, values, and belief systems, can constraint the believe in self-efficacy and therefore limit the perceived need for, and the potential success of, adaptation projects (Lavigne et al., 2008; Adger et al., 2009; Benson, 2009; Gaillard & Texier, 2010).
Therefore, without the necessary motivation and belief to adapt, a change in behaviour is not likely to happen (Grothmann et al, 2013). This is regardless of other components of adaptive capacity (Gupta et al, 2010). In essence, the driving force behind adaptive capacity is the perception of individuals and their willingness to acknowledge the risk and the willingness to change. These elements were also mentioned by Brooks and Adger (2005) as being part of the adaptive capacity of organisations and have been used to explain the behaviour of people in relation to natural hazards (Grothmann et al, 2013).

However, a further complication in relation to climate change is the effect of uncertainty of the impacts on climate hazards; people cannot rely on past experiences alone. Therefore, communicating climate change is in essence communicating uncertainty (Jones & Mearns, 2005; Patt & Dessai, 2005; Winsvold et al, 2009). The terminology associated with climate change reflects this uncertainty (ibid). The way in which this uncertainty is framed and communicated, is potentially important for the perception of people and their willingness to acknowledge risk and warrant change in behaviour and routines (O’Neill & Nicholson-Cole, 2009; Moser & Dilling, 2010; Feinberg & Willer, 2011). For example, fear might lead to denial in acknowledging risk, and lead to apathy, which limits the willingness to change behaviour and routines (ibid). Whereas focusing on self-efficacy would improve the perception that adaptation can be successful (Shaw et al, 2009).

This literature review has shown that in order to mainstream and integrate CCA and DRR, local governments are dependent on their adaptive capacity, which in turn is determined by their ability to learn about CCA and how to integrate it with DRR. In order to turn their knowledge into action, they are dependent on their perception regarding the need for, and potential success of, CCA.
2. Rationale

For the interpretation of data, this study assumes a post-structuralist approach. This means the author acknowledges that there are multiple narratives possible from a single source of data (Ramberg & Gjesdal, 2013), and that this multiplicity entails that the data presented in this study is an interpretation of the author (Lawlor & Moulard Leonard, 2013). Similarly, for the participants in this research, their interpretation of the data has made their narrative unique. The author therefore acknowledges that the data collected in the research was constructed even before the study took place and this data has further been interpreted by the author. In order to reduce the impact of the author’s interpretation on the data, all findings are presented in a relation to the current academic literature.

For the interpretation of data, the study accepts the different components of adaptive capacity, as proposed by Brooks & Adger (2005). In order to analyse the different components within the adaptation process, the study uses the framework presented by Moser and Ekstrom (2010), presented in figure 2.1, that distinguishes the different phases of the adaptation process and identifies several barriers that limit the capacity to adapt climate change policies. By combining the frameworks of Moser & Ekstrom and Brooks & Adger, this study focuses on what components of adaptive capacity play a role in which part of the adaptation process. The different stages of the adaptation process present a useful framework to assess how LGUs incorporate CCA into their LDRRMPs. The analysis focuses on the first two elements of the adaptation process (gathering the necessary information and making the decisions), as the focus of the research is on the writing of the LDRRMPs, rather than the implementation of them.

![Diagram](image)

*Figure 2.1: Phases and sub phases throughout the adaptation process (Moser & Ekstrom, 2010, p.22027).*
3. Research context

This chapter discusses the impacts of climate change in the Philippines as well as the current legislative frameworks that LGUs are required to use to integrate CCA and DRR. The research sites are also introduced.

3.1 Climate change and the Philippines

Due to its location in the Pacific typhoon belt, many parts of the Philippines are extremely prone to the impacts of typhoons, storms and heavy rain (Israel, 2010). Research in recent years has shown that climate change has the potential to increase both the frequency and intensity of natural hazards (Huq et al, 2003; Cannon & Müller-Mahn, 2010; Thomas et al, 2012). Although there is no specific evidence of stronger typhoons in the Philippines so far (PAGASA, 2011; Thomas et al, 2012), both storm patterns and storm paths have changed in recent decades (ibid). Changes in climatic means, such as increasing temperature and irregular rainfall patterns, also present challenges to the Philippines (PAGASA, 2011). Socio-economic factors, such as rapid and unregulated urbanisation in Metro Manila and poverty, have led to increasing numbers of households being exposed to the effects of climate change (Bankoff, 2003).

These impacts of climate change are creating new challenges in the context of DRR and overall development in the Philippines (Adger et al, 2003), as disasters have the potential to disturb the development process of the Philippines. Disaster can limit the effects of increases in overall development (Shipper & Pelling, 2006), or even potentially undo previous development gains (ODI, 2013). Prompted by the destructive nature of tropical storm Ondoy (international name ‘Ketsana’) in 2009, the Philippines national government passed a climate change act in order to adapt to the potentially destructive impacts of climate change (CDKN, 2012). The Climate Change Commission proceeded by developing a National Framework Strategy on Climate Change (NFSCC) in 2010, followed by a National Climate Change Action Plan (NCCAP) in 2011.

3.2 Climate change legislation

All levels of government in the Philippines enjoy a great deal of freedom in decision making and all levels are subsequently required to submit several plans on key issues, such as economic development and disaster management. The Philippines started decentralising under president Aquino in 1986, and was formalised in a new constitutions in 1987 and the local government code in 1991 (Miller, 1994; Eisma-Osorio et al, 2009). The Philippines are now divided in four layers of
governments, all of whom are called local government units (LGUs). The different divisions top-down are: autonomous regions, provinces, municipalities (in rural areas) or cities (in urban areas), and barangays. The latter can be compared to neighbourhoods in urban areas, or villages in rural areas.

In 2009, the national government of the Philippines passed RA 9727, also known as the climate change act, which required all the levels of government to submit plans on how to adapt to climate change. However, LGUs have not yet started writing these plans due to the delay in implementing funds and new government agencies. A year after RA 9727, RA 10121 was passed: a law on DRR. Just as with the climate change act, a national framework and national plan were drawn up by the national government (DILG, 2010; NDRRMC, 2011; DND, 2011). However, in contrast to the climate change act, this law was not entirely new, instead it was building on a previous law on disaster response (Presidential Decree No.1566, enacted in 1978). This meant that most of the government agencies and funding for the law were already in place (DILG, 2010). Local governments were aware of their responsibility to deal with disasters, whereas the need to deal with climate change was a new responsibility. So instead of writing plans specifically on CCA, the national government has integrated CCA into the law on DRR.

Even though government agencies and funding were in already in place, the differences between the old and new law on DRR were significant nonetheless. It involved several paradigm shifts to focus more on the responsibilities of LGUs, and the need to address vulnerability reduction, rather than responding to disasters (DILG, 2010). Existing government departments and agencies were restructured to deal with the new responsibilities. The National Disaster Risk Reduction Management Plan (NDRRMP) also included the framework from the climate change act, making it mandatory for LGUs to include CCA measures in their LDRRMPs (NDRRMC, 2011). A joint memorandum circular in 2013 reinforced the need for LGUs to include CCA practices (NDRRMC, 2013).

Another difference was the allocation of funding. Since the Local Government Code (RA 7160, in 1991), 5% of the revenue of a LGU was to be allocated to a calamity fund, which would be released in case of a disaster (EMI, 2011). With the new law on DRR, this 5% remained, but 70% of it was to be used on preventive measures, leaving the remaining 30% to be released as additional funding in case of any calamities. The 70% could be used for any of the four priority areas of the NDRRMP: 1) Disaster prevention and mitigation, 2) Disaster preparedness, 3) Disaster response, 4) Disaster recovery and rehabilitation (NDRRMC, 2011; NDRRMC, 2013).
3.3 Introduction to study sites

To study the effects of adaptive capacity on the adaptation process of LGUs to integrate CCA and DRR, two main sites were selected: Metro Manila and Benguet/Mountain Province. The study looks at the LDRRMPs both at barangay and city or municipality level. In collaboration with host organisation Partners for Resilience, a number of barangays were selected in Metro Manila: Potrero and Catmon in Malabon City and Tagalag and Balangkas in Valenzuela City. In Cordillera Administrative Region, barangays Pito and Poblacion in the municipality of Bokod (Benguet province), and barangays Kayan East and Kayan West in the municipality of Tadian (Mountain province), as well as the municipality of Bauko, were selected. The location of the cities and municipalities is shown in figure 3.1.

Figure 3.1: Overview of fieldwork locations (Authors compilation; Data available at DIVA-GIS, 2014).
3.3.1 National Capital Region: Malabon and Valenzuela City

The cities of Malabon and Valenzuela and the selected barangays all lie on the delta of the Tullahan River. Malabon and especially Valenzuela have experienced problems with land subsidence, and are both low lying areas that are regularly flooded by typhoons and monsoon rains.

3.3.2 Cordillera Administrative Region: Municipalities of Bokod, Bauko and Tadian

The main source of livelihood in these regional areas is related to agriculture, however, farmers are experiencing difficulties due to changes in temperature and rainfall. Apart from these changes, the mountainous region also suffers from legal and illegal deforestation, as well as legal and illegal mining. Combined with heavy rainfall and typhoons, many households are exposed to landslides.
4. Methodology

This section introduces the research questions as well as the methods used for data collection.

4.1 Research subject and research questions

By combining an adaptation process framework and an adaptive capacity framework, the study aims to identify the components of adaptive capacity and their relation to a successful integration of CCA policies into local DRR management plans. These include assessing the components of information, financial capital, social capital, and human capital in the adaptation process of LGUs in the Philippines. Individual perceptions, such as acknowledging the risk of climate change and the willingness to change the system to adapt to the impacts of climate change, and social networks and places where ideas for adaptation originate, are important aspects of adaptive capacity. Consequently, it is important for this study to focus on what drives individuals to make decisions to adapt to the impacts of climate change. This way, the study forms a holistic picture of the adaptation processes within LGUs, their constraints, and their drivers to achieve successful integration of CCA and DRR policies.

From the review of current literature on adaptive capacity, this study hypothesizes that constraints in one or more components of adaptive capacity reduce the potential of LGUs to integrate CCA and DRR. Furthermore, the way in which CCA policies are implemented by LGUs depends on the ability of a system to encourage individuals to change behaviour in order to integrate CCA and DRR. The components of adaptive capacity, the networks, and individual drivers for integration are examined through the following research questions:

1) How do networks influence the accessibility of available information?

2) Where do ideas for implementing Climate Change Adaptation policies originate?

3) What are constraints in the adaptive capacity of local government units that restrict the implementation of Climate Change Adaptation policies?

4) What is the mind-set of government officials and how do individual perceptions influence the integration of Disaster Risk Reduction and Climate Change Adaptation?
4.2 Data collection methods

The data for this study was collected using a qualitative research methodology. This included conducting semi-structured interviews with relevant stakeholders in the process of adapting CCA policies into LDRRMPs. One of the advantages of using a qualitative methodology is that the data collected provides “information about the “human” side of an issue” (Mack et al, 2005, p.1). A qualitative research methodology was deemed suitable for this study, as it aims to identify in what way individuals deal with constraints in adaptive capacity, and why they react in a certain way. A qualitative methodology has been found to be most effective to suit this particular aim (Cloke et al, 2004; Mack et al, 2005). Another advantage of this methodology, is the flexibility it offers in its study design: the response of participants during interviews shape the rest of the interview, forcing flexibility on the part of the author (Mack et al, 2005). Another example of the flexible approach is that the study design is iterative, allowing adjustments to be made in the contents of interviews according to new information (ibid).

For this study, twenty-seven in-depth, semi-structured group and individual interviews were conducted. Eight Barangay Disaster Risk Reduction Management Councils (BDRRMC) were interviewed, along with the City or Municipal Disaster Risk Reduction Management Offices (CDRRMO and MDRRMO) of two cities and two municipalities, and the flood defence office and land use planning offices of one city. A further eight interviews were conducted with members of NGOs that were active in strengthening the capacities of LGUs. A further five government agencies were interviewed, who are active in providing support to LGUs when writing their LDRRMPs.

4.3 Sampling

The sites were selected in cooperation with the host organisation from Partners for Resilience (PfR). Using a purposive sample, meant that sites were selected by criteria relevant for the study (Cloke et al, 2004; Mack et al, 2005). The sites were selected due to their high exposure to the effects of climate change and low income, making them interesting cases due to their financial constraint but also necessity to adapt. Half of the LGUs interviewed were urban, whilst the other half where located in rural settings. PfR also provided access to a number of regional branches of national government agencies, as well as a number of NGOs part of the PfR network, whose work was directly related to the integration of CCA into DRR in the selected sites.
4.4 Data Analysis

Interviews were transcribed by the author either on the same day, or the next day, allowing for information gathered during previous interviews to be included in the following interviews. The interviews were categorised by identifying main thematic areas according to the components of adaptive capacity by Brooks and Adger (2005), as well as different drivers on how to cope with constraints in adaptive capacity and perceptions to adaptation.

This process of categorising is recognised by the author as being a potential area that allows for the interpretation of the author to mix with the raw data as provided from the interviews. Taking a post-structuralist outlook, this interpretation is unavoidable (Cloke et al., 2004) as even the raw data is considered to be interpreted by the research participants themselves, prior to the interviews. In order to minimise the influence of the interpretation of the author, any findings are triangulated by using the interpreted data in the following interviews to allow for corrections to be made by the participants, as well as by referring any findings to current academic literature (Baxter & Eyles, 1997).

4.5 Challenges and bias

Apart from the interpretation of data by the author, a number of other factors have potentially had an impact on the collected data. For the interviews at barangay level, the author was assisted by translators, as English was not their first language. There is a chance that this affects the way in which questions are asked and answers are relayed to both participants and researcher, however the translators were well trained, for the most part university degree holders, and well versed on the topic of adaptive capacity and Climate Change Adaptation. Due to the fact that most jargon is not translated into the local Tagalog language, the author could for the most part keep track of the way questions and answers were communicated by the translators.

A potentially more pressing issue was that the research sites were areas where PfR were working with the LGUs. This implies that the LGUs at some level had to acknowledge the risk of climate change to be able to be included in the projects funded by the NGOs. Also, as PfR provided the translators and transport to and from interviews, staff from PfR were often present during the interviews, making it possible that answers of the participants were rephrased in order not to disappoint their partners. The author has found no evidence of this in practice, as LGUs and PfR staff alike were often open in their criticism to the system of the new laws and the lack of overall support they received.
Apart from influences from PfR staff, the author is aware that his own positionality could potentially influence the data collecting process (Cloke *et al.*, 2004). The interaction between the researcher and participants and the nature of the data collecting process, interviews, could potentially influence the data that is provided (Hoggart *et al.*, 2002; Cloke *et al.*, 2004). By making the author part of collecting the data, the author is in effect an active part of the research itself (Bexter & Eyles, 1997). This makes the identity of the author important to consider when conducting interviews and analysing data. By being reflexive of the author’s own positionality, both during interviews and data analysis, the author minimised the potential influence on the data.

Using the described methods of data collection and analysis, the research was granted ethical clearance by the Geography and Social Science Research Ethics Panel (Appendix 1) of King’s College London. Research participants were always provided with the information sheet and consent forms, and verbal or written consent was always provided prior to the interviews.
5. Results

This chapter first describes the level of integration as found in the plans of the LGUs. The main focus of this chapter however, is on the analysis of the constraints in adaptive capacity, and how they influence the implementation of CCA projects as well as the integration of CCA measures in the LDRRMPs.

5.1 Integration and mainstreaming in the Philippines

The climate change act of 2009 and the disaster risk reduction act of 2010 both require local governments to integrate CCA measures into other existing plans. Where the climate change act focused on the need to mainstream CCA in overall development plans and land use plans, the disaster risk reduction act focused on the need to integrate CCA in the LDRRMPs. However, a review of five LDRRMPs from the research sites revealed a lack of integration (P1; P2; P3; P4; P6). Regarding mainstreaming CCA, adaptation measures for climate change should have been integrated with the LDRRMPs as well as in the Comprehensive Land-use Plans (CLUPs) and the Local Development Plans (LDPs). According to some respondents, this mainstreaming has not happened (NG7; NG8), as the CLUPs and LDPs are written by government officials from different offices within the local governments. These government officials might not be aware of the requirements of the disaster risk reduction law, assuming that climate related natural hazards are the responsibility of DRR offices (ibid.). Even though, according to the law, the office that is in charge of writing the LDRRMPs is part of the office that is in charge of writing the LDPs (DILG, 2010), cooperation between the disaster council and the development office is limited. This limited cooperation has led to a “silo mentality” between the different offices, as described by Pasquini et al (2013) and Mimura and Pulwarty (2014), where there is insufficient communication between the different offices which has resulted in a lack of integration. The overall development plans do not focus on the impacts of natural hazards or climate change, and the LDRRMPs do not focus on reducing vulnerability.

Integration of CCA and DRR, although limited, is attempted by local governments, as shown in their LDRRMPs (P3; P4; P6). However, this integration is mostly limited to either acknowledging the need to integrate, without stating any practical projects or programmes to establish the integration (P3; P4; P6), or to two specific plans: tree planting and waterway clean-up drives (P2; P3; P4). These specific programmes are promoted through national government initiatives, like the national greening programme (DENR, 2014), or have been part of the lives of
people for decades, like village clean-up days and small-scale tree planting for own consumption (NG6). The lack of integration can be explained by assessing the constraints to specific components of adaptive capacity. The next part of this chapter identifies those constraints along the adaptation process, and discusses how the current situation in adaptive capacity has influenced the outcomes of limited integration of CCA in the LDRRMPs.

5.2 Components of adaptive capacity

When writing the LDRRMPs and integrating CCA measures, many local governments follow an adaptation process similar to the theoretical model as shown in figure 2.1 (page 24). In order to understand what the problems are, and what needs to be included in the LDRRMPs, LGUs gather information by consulting community vulnerability assessments (CVAs) (GA5; LG1; LG7; LG9; LG12). Different options are then assessed and selected according to priority. After this, the plans are written up and sent for approval to the Department of the Interior and Local Government (DILG) (NG7). Even though the DILG has no mandate to enforce any changes to the plans, they have to be approved by the department before funding is released. After the funds are released, the projects and programmes in the plan can be implemented and reviewed by the LGU and any NGOs that might be involved.

5.2.1 Information gathering

Even though information on its own is not enough to change the behaviour of individuals, having sufficient and good quality information has been recognised as an integral part of the adaptation process (Brooks & Adger, 2005; Satterthwaite et al, 2007; Gupta et al, 2010). In order to know what to adapt to, LGUs have a number of different sources of information. Firstly, they receive information through government workshops that are organised by regional departments of the national government, such as the department of education or the DILG, or by the department of Information, Education and Communication (IEC), which is in charge of government information programmes (GA1; GA2; LG2; LG3). Secondly, LGUs receive information from higher levels of government. Thirdly, LGUs conduct CVAs either themselves or have them conducted by other government departments or NGOs (LG1; LG7; LG12). Ideally, this system, as illustrated in figure 5.1, provides LGUs with both information on climate change and information on how it will impact their LGUs, as well as focusing on what LGUs themselves can do to combat the negative impacts of climate change on their communities.
However, there are a number of issues regarding the flow of information. Due to a lack of accurate long-term predictions on the impacts of climate change on a municipal, city, or barangay level, LGUs are forced to base their worst case scenarios on past experiences to make the impacts of climate change understandable (GA4; LG1; LG8; LG12). This implies that they have already experienced the worst that they can expect, and that they have coped with the impacts before, which means some urgency of the exacerbated impacts of natural hazards due to climate change can be lost (LG3). Also, some CVAs do not focus on socio-economic factors that influence vulnerability, rather they only identify which areas are exposed to natural hazards (NG7). The failure to include socio-economic factors of vulnerability make it difficult to include these aspects later on in the adaptation process (Moser & Ekstrom, 2010), which makes it likely that vulnerability reduction is not part of the LDRRMPs.

A lack of horizontal relations between different LGUs hampers the dissemination of knowledge even further. The government workshops that are supposed to provide information on climate change causes, impacts, and predictions. However, these agencies suffer from limited capacity: only a couple of representatives per LGU are allowed to attend the workshops, and it is difficult to encourage all the LGUs to attend. Some LGUs mention difficulties in getting to the workshops, as they can be far away or difficult to reach (LG5; LG12; LG13). Those that do attend
the workshops might not disseminate the information throughout the LGU afterwards, due to lack of interest in the subject or failing to see the importance for other government offices to know about the information (NG5; NG7). A lack of sharing information and ideas between different organisations impedes social learning and limits potential for increased adaptive capacity (Brown et al., 2010; Moser & Ekstrom, 2010; Pelling, 2011; Reed et al., 2013). A respondent from GA5 mentioned that the government depends on NGOs for help in disseminating information on climate change, as they do not have enough capacity themselves. However, some NGOs also suffer a lack of means and therefore rely on replications of good practice and sharing of information and ideas (NG2). Due to limited capacity by both government agencies and NGOs, an important part of the dissemination of information is the replication of information and ideas between LGUs. However, a lack of horizontal relations within LGUs and between LGUs is hampering these replications. These limitations impede the dissemination of information to the lowest levels of government. Especially barangays suffer from a lack of knowledge on climate change causes, impacts, and adaptation measures (LG1; LG5; LG6; LG7; LG8). This lack of knowledge impedes their ability to adapt their LDRRMPs to include CCA measures.

Above all, the content of the government workshops is, more often than not, still focused on responding to disasters or preparing for disasters, rather than reducing vulnerabilities or on the impacts of climate change specifically (LG6; LG7; NG4; NDRRMC, 2011), and with all the different organisations providing the information, conflicting messages add to the confusion (GA4; LG13). This limited understanding and information leads to inaction in some cases. Respondents from LG1 mention: “a lack of accurate long-term predictions on a local scale, limits the capability of us to make long-term plans. Instead, we have to make short-term plans and update them regularly”. Whereas respondents from LG13 noted: “CCA was not included [in our LDRRMP], as our knowledge was insufficient”.

Horizontal and vertical networks play an important role in the dissemination of knowledge as shown in figure 5.1. However, the networks, or lack thereof, also expose some problems with the current way of disseminating information. The current top-down system of disseminating information is prone to loss of knowledge on climate change issues when leadership changes after elections and new leaders bring in new office staff (NG4; NG6), and limits inputs from lower level governments. Some LGU officials might be unwilling to cooperate with other LGUs that hold different political views (NG5; LG7). Sometimes knowledge in higher LGUs is not sufficient to disseminate in the first place (LG13). Initiatives to adapt to climate change at lower levels of government can be hampered when higher levels of government do not share the same willingness to adapt (LG7).
Figure 5.1 also shows a lack of horizontal networks, indicated by the dotted lines. Even though these networks are in place, they are mostly used for social events or in times of disasters (LG1; LG9; LG13), rather than for cooperation of issues regarding vulnerability reduction and climate change impacts. This is illustrated by the lack of replication of ideas (LG1; LG9; LG12; GA4), or the lack of cooperation and even the distrust amongst LGUs. Respondents from one barangay mentioned they had an idea for constructing a large earth dyke to protect their barangay as well as neighbouring barangays (LG4), however, this idea was never conceptualised with other LGUs. Another LGU even distrusted the ability of neighbouring LGUs to contain forest fires, so the idea was proposed to construct fire lines along the border of the LGU, so forest fires from neighbouring LGUs could not affect them (LG14).

In short, these factors limit the quality and accessibility of knowledge and information, a vital component of adaptive capacity (Brooks & Adger, 2005; Gupta et al, 2010; Moser & Ekstrom, 2010). The lack of accurate predictions limits the knowledge of LGUs what to adapt to, whilst vulnerability reduction cannot be included in the LDRRMPs as no information is collected on socio-economic factors. Lack of horizontal relations further limits the dissemination of available information, whilst the top-down structure limits the input of lower level governments and their potential to share their own knowledge and ideas. All LGUs in the research admitted that a lack of knowledge on climate change hampered their ability to effectively include CCA measures in their LDRRMPs (GA5; LG1; LG5; LG6; LG7; LG8; NG2). This is in spite of the added information the LGUs in this research are receiving through the PfR project partners. However, even respondents from one of the NGOs within PfR admitted to not knowing enough about climate change to assist LGUs in their area (NG4).

5.2.2 Decision making

After gathering the information, LGUs proceed to forming ideas for CCA measures based on the CVAs, which are then reviewed by the local DRR council. Mostly, this meant that projects were proposed regarding planting trees or cleaning up rivers and waterways (P2; P3; P4). Although in one case, a rural LGU also expanded a drainage system, as it proved insufficient during previous monsoons (LG7). The national development plan also calls for advice to be given to farmers on crop varieties and resilient agricultural practices (NEDA, 2014). Although some farmers were adapting their agricultural practices individually, individual adaptation practices like these were not incorporated in the LDRRMPs, as they are not considered to be related to DRR (LG6; LG7;
LG13). This shows a lack of focus on reducing vulnerabilities that are not related to disasters directly.

Many factors are important when determining what projects and programmes are to be incorporated in the LDRRMPs. One important constraint is the limited funding for LGUs (LG2; LG4; LG6; LG11; LG13), limiting the number of CCA measures that can be implemented. According to the law, the funding is a set percentage of the LGU’s revenue. LGUs with more revenue therefore have more money to spend on CCA programmes, however the sites selected in this research were picked for their lack of funds, therefore a lack of funds is to be expected. To overcome this constraint, some LGUs actively searched for additional sources of funding (LG7; LG8), whilst others did not know where to go for additional resources (NG7). Adding to that, one respondent from one NGO mentioned: “Even if they would have more money, they still would not know how to use it” (NG6), referring to the lack of knowledge on climate change and adaptation measures in many LGUs.

Leadership and staff within LGUs could also constraint the capacity to integrate CCA policies into LDRRMPs. With every election, new leaders and staff need to be trained to understand the impacts of climate change (GA4; NG4; NG6), as with every election the entire staff of LGUs is replaced (NG4; NG6). With all the issues regarding the lack of knowledge, elections have the potential to decrease the knowledge and awareness of LGUs regarding climate change. However, newly elected leaders could also take an active interest in climate change, as was the case in two research sites (LG7; LG8).

Personal vested interests by leaders with activities not complementary to DRR and CCA are not uncommon (NG4), and could limit the number of CCA measures that are implemented. Furthermore, purchasing heavy equipment in order to prepare to respond to natural hazards is a very popular way for leaders to seal votes. This measure is very visible and seems to show that this particular LGU is engaged with DRR, and is safe to live in or to invest in (NG5). This short-term pay-off is conflicting with long-term goals to reduce vulnerability (GA4; NG2; NG3; NG5), something noted by Birkmann et al (2013) to present a barrier in mainstreaming DRR and CCA. Most LDRRMPs still focus on response or preparedness, rather than reducing vulnerabilities. Constraints on budget, staff, and leadership could potentially limit the number and the content of CCA measures that are included in the LDRRMPs. However, these constraints alone cannot account for a lack in capacity to integrate CCA and DRR; knowledge and mind-set of people also need to be considered. Where constraints regarding knowledge were described earlier in this chapter, the next section focuses on the mind-set of people working in the LGUs.
5.2.3 Acknowledging the risks of the impacts of climate change

The mind-set of people and the perception of the importance of climate change also influences the integration of CCA into the LDRRMPs. As noted by Berkhout et al. (2006), signal recognition and interpretation are integral parts of the learning cycle. To recognise the signal of climate change, the risks of the impacts of climate change need to be recognised as well. In terms of adaptive capacity this concept relates back to the willingness to change and to acknowledge the risk (Brooks & Adger, 2005; Moser & Ekstrom, 2010).

In order to adapt to climate change, LGUs need to prioritise climate change. Sometimes economic activities such as logging or mining take priority over CCA (NG6). In these LGUs, the acknowledgement of risk of climate change is also lower (NG6). However, many LGUs recognised the importance to adapt to climate change (GA4; LG5; LG14). Nonetheless, many LDRRMPs are only written in order to comply with the law and release additional funds (LG11), rather than being written because LGUs are actually involved with DRR and CCA. At times, LGUs even copy plans that were written in other LGUs in order to release the funds (NG1; NG2; NG4; LG13; GA5). The implementing agency, the DILG, lacks the mandate to check the quality of the plans; funds have to be released when a plan is submitted.

When LGUs did write their own plan out of the recognition of the risks that climate change might bring to their area, most plans focused on disaster response, or preparing to respond to intensified natural hazards as a result of climate change (NG2), rather than implementing projects to reduce the vulnerability and exposure of people (P1; P2; P3; P4; P6). In other words: when risks due to climate change were acknowledged, the approach was based on dealing with the outcomes of the risk, rather than adaptation beforehand in order to minimise the impacts of the risk. Projects to purchase heavy equipment in order to respond to disasters is a more visible approach with tangible and short-term results (NG2; NG4), which has the added advantage of sealing votes and investments. Some local mayors were also hesitant to implement long-term plans in order to prevent later mayors to take credit for their work (GA5).

The focus on disaster response can be explained by LGU experiences with the previous law on disasters, which was focused only on dealing with the outcomes of natural hazards (DILG, 2010). The new law introduces a lot of new terminology and demands a paradigm shift in the mind-set of LGU leaders from response to risk reduction (ibid.). This shift in mind-set has not yet taken place in most LGUs, as it has been hampered by lack in adaptive capacity regarding information on the risks and knowledge on how to react. Some specific events however, lead to changes in mind-set. Severe storms like Ondoy (international name: Ketsana) or Yolanda (international name: Haiyan) are packaged by the government and NGOs as impacts of climate
change. This has made LGUs acknowledge the risks of climate change more than before (NG1; NG2). However, it remains a slow process: by 2013, 20% of the LGUs in the Cordillera Administrative Region still did not have a LDRRMC established, and most of the plans submitted to the DILG are the first plans since the implementation of the new law almost four years ago (NG4; GA4; LG3; LG5; LG12; LG13). This process of, perhaps inaccurately, communicating severe storms as the products of climate change, is known by government agencies and NGOs as “laymanising” climate change information. They argue that by relating climate change impacts to previously experienced weather phenomena, it is easier to understand for lower levels of government with limited scientific knowledge on climate change (GA1; NG8). Another communication strategy used is to install an element of fear for the impacts of climate change to encourage LGUs that action needs to be taken. These communications strategies imply the government and NGOs focus on single-loop learning (Pelling & High, 2005; Gupta et al, 2010), rather than double-loop learning, whilst the latter is needed to encourage a change in mind-set by focusing on changing values in organisations (Pelling & High, 2005).

In short, LGUs in general do acknowledge the risk of climate change, however the mind-set of many LGUs still focuses on short-term rewards and on responding to disasters, whilst lack of knowledge of effective CCA measures limits their self-efficacy (Marteau et al, 2002; Grothmann & Patt, 2005; Gifford et al, 2011). These constraints limit effective CCA measures that can be taken by LGUs. A focus on single-loop learning to shift paradigms is not sufficient and these constraints would remain in place, even if other components of adaptive capacity would be sufficient. This was also found by Brooks and Adger (2005), Gupta et al (2010), and Grothmann et al (2013).

5.3 Discussion

In the Philippines, climate change is often communicated in a way that people are made afraid of the consequences, either by presenting a destructive natural phenomena in the past as climate change, or even deliberately to make people scared of climate change, thereby attempting to force a change in behaviour (GA5; LG4). According to respondents of GA5, fear was used to communicate climate change in order to “provoke emotions that make people act and avoid tragedy. People have to be reminded of disasters, as they forget their [past] experiences, as it becomes part of their daily lives”. However, a number of studies have claimed that fear is not an effective motivator in relation to climate change, advocating it could even lead to maladaptation or apathy and denial (Grothmann & Patt, 2005; O’Neil & Nicholson-Cole, 2009; Moser & Dilling, 2010; Feinberg & Willer, 2011). On the other hand, even if fear was to be an effective tool in encouraging a change in behaviour,
the projects would be limited to coping with an experience they have already had. This makes some LGUs confident that they can cope with climate change based on their previous experiences (LG3), not taking into account any changes or exacerbations due to future climate change, thereby negating the importance to actively reduce vulnerabilities.

The visibility or invisibility of climate change is another factor in the limited attempts to reduce vulnerability as part of CCA or DRR projects and programmes. Even though many LGU representatives claim to either experience climate change themselves, or have people from their community inform them that they are experiencing climate change by changing temperature and through natural hazards (LG6; LG7; LG13), actual projects to reduce vulnerability are not popular for politicians as the outcomes are not always visible to voters, or the benefits are only noticed after their term of office (GA5). When CCA is a priority for local government officials, it is often still difficult to implement CCA policies as potentially harmful economic activities, like logging, mining, or other polluting industrial enterprises, are difficult to regulate (NG6; LG6; LG12), and often enjoy influence in the political process themselves (NG6). Power relations and political systems are therefore an important factor of the ability of LGUs to implement CCA measures that focus on reducing vulnerabilities.

Integrating CCA policies into LDRRMPs is therefore a difficult process. The way in which climate change issues are communicated, and the perceptions of climate change and possible solutions for vulnerability reduction, along with lack of funding, staff, and information leads to constraints when integrating CCA and DRR in the decision making phase of the adaptation process, whilst the information gathering phase is hampered by lack of accessible information and horizontal networks limiting social learning potential. These drivers, combined with a historical mind-set of responding to disasters, and limited knowledge of the new law, are maintaining the mind-set of disaster response as a priority over overall vulnerability reduction. With limited available information and limited horizontal networks to allow for social learning from good practices, and a lack of focus on double-loop learning, the shift in mind-set from disaster response to reducing disaster risk has not yet materialised on the level of municipalities, cities or barangays. Some higher levels of government and government agencies do acknowledge that: “To truly address all underlying vulnerabilities, DRR and CCA need to be included in all plans” (GA5). However, after assessment of the LDRRMPs, it is concluded that most LGUs are still not focusing on addressing underlying vulnerabilities. Table 5.1 shows the four thematic areas of the national DRRMP, but most local DRRMPs do not implement projects focusing in all these areas.
Table 5.1: Four components of the NDRRMP and their foci (Adapted from: NDRRMC, 2011). The yellow colour illustrates the focus of most LDRRMPs, and the blue colour illustrates a weak focus (P1; P2; P3; P4; P6).

<table>
<thead>
<tr>
<th>Four thematic areas of the NDRRMP</th>
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<tr>
<td>Prevention and Mitigation</td>
<td>Reducing vulnerability</td>
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<tr>
<td>Disaster Preparedness</td>
<td>Preparing to respond</td>
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</tr>
<tr>
<td>Rehabilitation and recovery</td>
<td>Recovering from disaster &amp; Reducing future vulnerability</td>
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</table>

This focus on response rather than on vulnerability reduction means that the mind-set on DRR in the Philippines is more akin to the traditional approach, as illustrated by Thomalla et al (2006) in figure 1.1 (page 15). This means that if CCA measures are not directly related to disasters, it is unlikely that they will make their way into the LDRRMPs. Individual adaptation measures by farmers, such as changing crops, planting seasons, or income diversification, and by urban dwellers, such as raising houses or adding stories, are not always integrated in LDRRMPs (LG7; LG8; LG12; P2; P4).

In short, the convergence of CCA and DRR in the selected research areas is not as far as illustrated by figure 1.2 (page 15) and table 1.1 (page 17). With a mind-set of disaster response that leans more towards traditional DRR, the overlap between DRR and CCA is not as great as when the focus would lie on reducing vulnerabilities, a common ground between the two (Gero et al, 2011; Solecki et al, 2011; Djalante & Thomalla, 2012). The constraints in components of adaptive capacity and mind-set reduce the effectiveness of integrating CCA into LDRRMPs, as demonstrated by the difference between figures 1.2 (page 15) and 5.2. Where 1.2 shows more overlap between CCA and DRR due to growing convergence of the two communities, as found by Mitchell and Van Aalst (2008), figure 5.2 shows a lack of overlap due to the focus on traditional DRR rather than vulnerability reduction, as found in this study. Due to the current mind-set of government officials, compounded by constraints in multiple components of adaptive capacity, the potential for integration of CCA measures into LDRRMPs is limited. This limits not only the amount of projects, but also the content of projects regarding CCA and DRR, as can be seen by
the lack of projects focusing on CCA and lack of integration in the current LDRRMPs. A lack of networks and double-loop learning prevents the two communities to converge.

Figure 5.2: Lack of overlap between Disaster Risk Reduction and Climate Change Adaptation as found in the Philippines due to a lack of convergence between DRR and CCA communities (Author's compilation, after: Mitchell & Van Aalst, 2008, p.4).
6. Conclusion

This study has assessed the adaptive capacity of a number of LGUs in the Philippines regarding the integration of CCA measures into their LDRRMPs. However, these LGUs were found to be suffering from constraints in multiple components of adaptive capacity, limiting the quantity and quality of CCA policies as well as impeding on the integration of CCA practices into LDRRMPs. Apart from limitations to integration due to constraints in adaptive capacity, individual mind-sets were found to be an integral element of the integration process. A shift in mind-set from traditional DRR and CCA to a combined focus on vulnerability reduction is key to integrate these two communities. This focus is still lacking with most of the staff and leaders of LGUs.

The study found that when integration is attempted before government representatives have a mind-set that allows for significant overlap between CCA and DRR approaches, the limited overlap would result in a limited number of projects available to incorporate into the LDRRMPs. The danger of implementing integration without significant overlap between DRR and CCA does not only limit the quantity of projects; some projects that are perceived to only focus on DRR or CCA individually are in danger of being excluded from LDRRMPs, as was illustrated by the exclusion of individual adaptation efforts in the LDRRMPs by farmers. When the focus of an individual is on the traditional communities of DRR and CCA, a shift in people's mind-set is needed to accomplish a change in behaviour that could bring the communities closer together and eventually lead to successful integration of DRR and CCA. In order to achieve this change in the mind-set of people, double-loop learning is required, rather than a single-loop learning that can be achieved through the spread of information.

The directive to integrate DRR and CCA often comes from either higher levels of government or international NGOs. Due to the benefits of integration, compared to practicing DRR and CCA individually, there is a danger that “integration” is implemented as a fashionable development practice, without paying enough attention to the constraints that limit the potential for integration. However, this would need to be established by researching the motivations of governments and NGOs and what drives them to require local governments to integrate the two communities.

An important question remains: How much overlap between DRR and CCA would be sufficient to achieve a successful integration between the two communities? Even though the framework used in this research proved valuable to assess the components of adaptive capacity and the importance of individual perceptions, the framework lacks the ability to address the more
normative question of “how much overlap is enough?” Moreover, the answer to this question is likely to be dependent on local circumstances such as local organisations and institutions. The difficulty in answering this question makes it all the more important that governments and NGOs are aware of the potential dangers of integrating the two communities. In extreme cases, integration of CCA and DRR without the proper adaptive capacity and convergence of communities, has the potential to result in malpractices, as it limits the quantity of available project options as well as the quality of the content.
References


Cracknell, B. (2001). Knowing is All: or is It? Some reflections on why the acquisition of knowledge, focusing particularly on evaluation activities, does not always lead to action. Public Administration and Development, 21(5), pp.371-379.


PAGASA (2011) *Climate change in the Philippines*. Quezon City: DOST-PAGASA.


# References to field data

## Interviews

<table>
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Appendix 1

Geography Research Ethics Screening Form

Department of Geography Research Ethics Screening Form
King’s College London

Please Note: Filling out this Geography Research Ethics Screening Form does NOT constitute College Ethics Approval.

This Geography Research Ethics Screening Form will help you to determine if you must submit a College Research Ethics Application to the College Research Ethics Committees before starting your research, under the guidelines for working with human participants set out by the Social Sciences, Humanities & Law Research Ethics Sub-Committee (SSHL RESC), and the Geography, Gerontology and Social Care Workforce Research Unit Panel (GGS REP).

In order to complete this process, please
(a) Familiarise yourself with the professional research ethics guidelines of The British Sociological Association: http://www.britsoc.co.uk/equality (Statement of Ethical Practice)
(b) Read “Which kinds of research require ethical approval through the KCL Research Ethics Committees?” (p. 2 of this form).
(c) Answer the questions in Table 1 below, sign the form and also obtain the signature of your supervisor.
(d) Return the signed (by both you and your supervisor) Geography Ethics Screening Form to the Geography Department office and KEEP A COPY which you will place in Appendix 1 of your IGS/dissertation.
(e) If ethics approval is needed (answering ‘yes’ to question 2 in Table 1), you must apply for college ethics approval through the appropriate College Research Ethics committee, and not start ANY research (including preliminary ‘trials’) until ethics approval has been granted in writing.

Table 1. Department of Geography Research Ethics Screening Questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
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<td>1. Have you read and familiarised yourself with the professional research ethics guidelines of The British Sociological Association?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>2. Does your research “involve human participants” and/or “raise other ethical issues with potential social or environmental implications”?</td>
<td>Yes</td>
<td>No</td>
</tr>
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If you answered ‘No’ to question two, you do not need to submit your research for ethical review. If you answered ‘Yes’ to question two, please use the flowchart on http://www.kcl.ac.uk/innovation/research/support/ethics/about/index.aspx to establish your risk level and where you need to apply (see Table 2).

Table 2. Three levels of risk for project types, and how to obtain College Research Ethics clearance.

<table>
<thead>
<tr>
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<th>How to submit</th>
</tr>
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<tr>
<td>Low risk:</td>
<td>Can be reviewed using an on-line process. The process includes guidelines and prompts to help ensure your project is low-risk: <a href="http://www.kcl.ac.uk/innovation/research/support/ethics/applications/lowrisk/index.aspx">http://www.kcl.ac.uk/innovation/research/support/ethics/applications/lowrisk/index.aspx</a></td>
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<tr>
<td>Moderate risk:</td>
<td>Should be submitted to the Geography, Gerontology and Social Care Workforce Research Unit Panel (GGS REP): <a href="http://www.kcl.ac.uk/innovation/research/support/ethics/applications/midrisk.aspx">http://www.kcl.ac.uk/innovation/research/support/ethics/applications/midrisk.aspx</a></td>
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<tr>
<td>Uncertain risk:</td>
<td>Should be submitted to the Social Sciences, Humanities and Law Research Ethics Sub-Committee (SSHL RESC): <a href="http://www.kcl.ac.uk/innovation/research/support/ethics/applications/highrisk.aspx">http://www.kcl.ac.uk/innovation/research/support/ethics/applications/highrisk.aspx</a></td>
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</tbody>
</table>

In all cases, even if ‘no’ risk, you MUST sign and return this Geography Research Ethics Screening Form to be kept on file with the Department Office, and if an Undergraduate or Masters student, submit a copy of this at the end (as part of Appendix 1) of your IGS or Dissertation. In cases where there is low, moderate or high ethics risk, you MUST complete the College Research Ethics Application at least one month before you intend to start your research and obtain written approval from them BEFORE carrying out any research.

Carrying out research without ethical approval by the College Ethics Committee may result in a charge under misconduct regulations as “action that deviates from accepted institutional, professional, academic or ethical standards will be regarded as misconduct and an infringement of these regulations” (Academic regulations). Regulations concerning students & General regulations” B3 – 1.1, King’s College London. You should note that your research will not be covered by the College’s insurance until you have completed the College ethical review process. This means that unless you receive ethical approval for your research, if a participant makes a legal claim regarding the research, then you would be personally liable. It is your responsibility to submit your research for College Ethical Review in good time to carry out any research.

Provisional IGS/dissertation title: An analysis of local climate change adaptation plans (CCL4AB) in the Philippines

Student Name: Jesper Jansen<br>Student Card No: 1269749<br>Student Signature: [Signature]<br>Date: 28/04/2014

Supervisor Name: Mark Kelby<br>Supervisor Signature: [Signature]<br>Date: 28/04/2014

Last updated 6 March 2013
GEOMETRY RISK ASSESSMENT FORM

RISK ASSESSMENT FORM AND ASSOCIATED DOCUMENTATION

After reading through ALL risk categories, please select RISK TYPE A or B below.

RISK TYPE A

You are only eligible for RISK TYPE A if all of the following are true:
- Your work take place within: college premises or home or within organizations/ premises that have their own clear risk assessment in place.
- Your work involves ONLY library/archival data or existing on-line/other data.
- Your work WILL NOT expose you to risks greater than in everyday life.

DECLARATION: I have considered ALL categories in this form and I declare that I am undertaking a student project/dissertation where: a) NONE of my research will be outside of college premises or home or organizations/premises that have their own clear risk assessment in place; and b) it does not involve ANY of the risks identified in ANY of the categories of this risk assessment form. Should my research project change, such that there are new risks involved, then it is my responsibility to resubmit this form after completing an assessment for Risk Type B.

SIGNATURES OF PERSON FILLING IN A RISK ASSESSMENT AND COUNTERSIGNATURE.

A. Person filling in this risk assessment

Name (Typed or printed in BLOCK letters):
Signature:
Date:

B. Countersignature and date

(Students – Research Supervisor; Research Staff – Project Leader; Academic Staff – Head of Department)

Name (Typed or printed in BLOCK letters):
Signature:
Date:

Print this page in triplicate; the three copies signed and countersigned, and lodged with:
(1) Your supervisor.
(2) The Department Office.
(3) One for retention by yourself.
For UGT and PGT students, this signatures page of your risk assessment must be included in Appendix 1 of your dissertation.

RISK TYPE B

Fill out THIS PAGE and ALL OTHER PAGES in this form.

DECLARATION: I have considered ALL categories in this form and have indicated which risks apply to me that are greater than in everyday life and normal activities (writing yes/no for every section). Where I have answered ‘yes’ then I have also indicated the degree of risk from 1-5 (1=low, 5=high) and, where appropriate, added notes or comments relating to the level of risk. I have identified and added any additional risks not explicitly covered by this form in the final section.

SIGNATURES OF PERSON FILLING IN A RISK ASSESSMENT AND COUNTERSIGNATURE.

A. Person filling in this risk assessment

Name (Typed or printed in BLOCK letters): JESPER JANSWEGER
Signature:
Date: 19/05/2014

B. Countersignature and date

(Students – Research Supervisor; Research Staff – Project Leader; Academic Staff – Head of Department)

Name (Typed or printed in BLOCK letters): M. ROYING
Signature:
Date: 21 May 2014

Pages in this form should be printed in triplicate; the three copies signed and countersigned, and lodged with:
(1) Your supervisor.
(2) The Department Office.
(3) One for retention by yourself before fieldwork commences.
UGT and PGT students, this signatures page of your risk assessment must be included in Appendix 1 of your dissertation.

work outside of the UK, please do not forget to obtain insurance in accordance with College regulations (application for: http://internal.kcl.ac.uk/about/pf/finance/treasury/insure.aspx).
From: kcl - crec-lowrisk
Sent: 02 June 2014 10:39
To: Jansweijer, Jesper
Cc: Pelling, Mark
Subject: Low risk ethics application: KCL/13/14-560 - Jesper Jansweijer

Dear Jesper,

Please find attached the outcome letter to your recent low risk research ethics application:
**KCL/13/14-560 - Scope for, and issues with, decentralisation of climate change adaptation policies in the Philippines**, reviewed by the GSSHM REP.

Kind regards,

Annah

*Annah Whyton*
*Research Support Assistant*
*KCL | Rm 5.2 Franklin-Wilkins Building | Waterloo Bridge Wing | London SE1 9NH*
2 June 2014

TO: Jesper Jansweijer

SUBJECT: Approval of ethics application

Dear Jesper,

KCL/13/14-560 - Scope for, and issues with, decentralisation of climate change adaptation policies in the Philippines

I am pleased to inform you that full approval for your project has been granted by the GSSHM Research Ethics Panel. Any specific conditions of approval are laid out at the end of this letter which should be followed in addition to the standard terms and conditions of approval, to be overseen by your Supervisor:

- Ethical approval is granted for a period of one year from 2 June 2014. You will not receive a reminder that your approval is about to lapse so it is your responsibility to apply for an extension prior to the project lapsing if you need one (see below for instructions).
- You should report any untoward events or unforeseen ethical problems arising from the project to the panel Chairman within a week of the occurrence. Information about the panel may be accessed at: http://www.kcl.ac.uk/innovation/research/support/ethics/committees/sshl/reps/index.aspx
- If you wish to change your project or request an extension of approval, please complete the Modification Proforma. A signed hard copy of this should be submitted to the Research Ethics Office, along with an electronic version to crec-lowrisk@kcl.ac.uk. Please be sure to quote your low risk reference number on all correspondence. Details of how to fill a modification request can be found at: http://www.kcl.ac.uk/innovation/research/support/ethics/applications/modifications.aspx
- All research should be conducted in accordance with the King’s College London Guidelines on Good Practice in Academic Research available at: http://www.kcl.ac.uk/iop/research/office/help/Assets/good20practice20Sept200920FINAL.pdf
If you require signed confirmation of your approval please email crec-lowrisk@kcl.ac.uk indicating why it is required and the address you would like it to be sent to.

Please would you also note that we may, for the purposes of audit, contact you from time to time to ascertain the status of your research.

We wish you every success with this work.

With best wishes

Annah Whyton – Research Support Assistant
On behalf of
GSSHM REP Reviewer