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Empowering Local Governments in Making Cities Resilient To Disasters: Case Study as a Research Strategy

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Empowering Local Governments in Making Cities Resilient To Disasters: Case Study as a Research Strategy

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Abstract

The paper intends to elaborate the research methodology adopted for a doctoral research study aimed at developing a framework to empower the local governments to make cities resilient to disasters in the built environment context. Based on the constructionism epistemological undertaking and the theoretical perspective of being interpretivism in nature, the research would fall under the category of qualitative research. Therefore, qualitative strategies are best suited for conducting this study. Various research strategies exist for qualitative research, such as case studies, ethnography, grounded theory and phenomenological research. The research seeks to investigate how local governments can be empowered to make cities resilient to disasters in the built environment context, and out of the available qualitative research strategies, case studies have been identified as the most appropriate research strategy for the research discussed in this paper. The paper compares and contrasts the available research strategies and claims the suitability of the case study research strategy, in achieving the aims and objectives of the research. In doing so, the paper outlines the inherent components of the methodology namely, research philosophy, approach, strategy, choice, time horizon and techniques while justifying the suitability of the selected methodology through various research methodology literature.

Keywords

Case study, Disaster, Local Government, Research methodology, Resilient cities

Introduction

Research methodology can be identified as the basis by which to direct the research to the right path. It informs the philosophical underpinnings, research strategy and choice of data collection and analysis. Methodology varies according to the research problems investigated and therefore identification of the most appropriate research methodology is essential to achieve the aims and objectives of the research and to ascertain the credibility of the research findings. Therefore selection of an appropriate research methodology is one of the fundamental aspects of any doctoral research study to ensure the reliability of the research findings. As such, the paper aims to elaborate the research methodology adopted for a doctoral research study aimed at developing a framework to empower the local governments to make cities resilient to disasters in the built environment context.

The paper first discusses the process of establishing the research problem. Then the paper discuss in detail the research philosophy, research approaches, research

strategies, choices of methods, time horizons and techniques and procedures while adopting Saunders *et al.* (2007) research 'onion' as a guideline.

Establishment of the research problem

A research is a systematic and methodical process of enquiry and investigation with a view of increasing the knowledge domain (Collis and Hussey, 2009). At the outset of any research, it is important to find an acceptable focus for the study which in turn requires continuous focusing and re-focusing (Easterby-Smith *et al*, 2008). In this research the initial focus has been defined based on the researcher's area of interest and the research problem has been established based on reviewing of relevant literature and expert opinion. Many authors, for example, Saunders *et al.* (2007); Remenyi *et al.* (1998) were on the agreement of the need for selecting a research area which matches the strengths and interest of the researcher. As such it is important to select an area which the researcher is particularly interested and capable of. Adding to those, Saunders *et al.* (2007) further highlighted the need of considering, achievability within the available time, relevance at the time of finishing the research, achievability within the available financial resources, access to data sources and appropriateness of conducting the research. Accordingly, the initial interest of the field of research came from the researcher's own expertise and interest. Thus the subject area has been defined as "making cities resilient to disaster".

A critical literature review has then been conducted to establish the research problem of the study. The main purpose of the critical literature review is to develop a good understanding and insight into relevant previous and current research in the field of study (Saunders *et al,* 2007). Moreover, the literature review process involves identifying gaps in the existing research. In other words, a strong literature review is the basis for sound empirical research which helps to identify the research gap and to suggest research questions that address the gap (Eisenhardt and Graebner, 2007). Through the initial review of literature, it was able to recognise local government as one of the key stakeholders in making cities resilient to disasters. Although local governments have been identified as a key stakeholder in the process of making cities resilient, with the initial literature review it was able to identify several gaps in the contributions made by local governments in making their cities resilient. As such, the critical review of literature has helped to refine the initial research ideas and to gain a thorough knowledge in the area of research. As Easterby-Smith *et al* (2008) mentioned, the review remains as an ongoing process which requires refinements and modifications as the study progresses. This is because new findings emerge all the time and it is important to reflect the new findings. Also, adjustments to initial arguments might require if the empirical findings lead the research in a new direction (Easterby-Smith *et al*, 2008). Having carried out a critical review of literature, the researcher was able to establish the research problem, the aim and the objectives of the study and was able to develop the initial conceptual framework. These were further refined based on expert opinions.

Unstructured interviews were carried out with three experts who are extensively involved in the disaster management field of study and based on their opinion the research problem has been refined and the aim, objectives and conceptual framework has been further refined to reflect the refined research problem. The next

section highlights the research problem which have been established and refined through this process.

Research problem

The world is experiencing rapid urban growth with a consequential increase in urban poverty. As a result of rapid urbanisation, the world's population is increasingly concentrated in large cities with poor housing and lack of basic protective infrastructure (Red Cross, 2010; UN-ISDR, 2010). This excessive unplanned urban growth leads to various physical, social and economic vulnerabilities. Consequently, the impacts of disasters are highly detrimental when they occur in urban environments. According to the Red Cross (2010) more than fifty percent of the world's population lives in cities and urban centres, increasing the risk of informal settlements, social inequality and environmental degradation, making them more vulnerable to disasters. It is therefore important to strengthen these urban cities by increasing a city's resilience to disasters. The built environment provides a core to many human activities and plays a critical role in every city. Thus, when moving towards sustainable urbanisation and safer cities, it is necessary to develop the built environment with an effective degree of resilience, in order to withstand and adapt to the threats of disasters (Bosher, 2008).

A large number of stakeholders need to become involved in the process of making resilient cities, following which local governments are required to play an essential role as they are the main governing body in every city. Several authors, as well as institutions such as UN-ISDR, have identified local government as one of the key stakeholders in the process of making cities resilient. Some have argued that local authorities are the vehicles through which the disaster risk agenda could be championed as they are rooted in the local communities where disasters happen (Manyena, 2006). As such, a resilient city needs to be able to deal with any impending hazard locally and the local governments being the main governing body in every city, are expected to undertake the responsibility of managing the situation in their respective cities. Due to this emerging need to empower local governments to implement disaster risk reduction measures, UN-ISDR has specifically addressed the 2010-2011 world disaster risk reduction campaign to local governments under the theme of "Making Cities Resilient – My City is Getting Ready". While further recognising the importance and long term nature of the campaign it has been further extended until 2015.

Even though there is a growing concern among researchers and practitioners about the role of local government in making cities resilient, several incidents have been reported on the inadequate contribution of local governments in taking the lead role in disaster risk reduction initiatives. Pearce (2003) has identified that some local governments do not include or work with people and this has made it difficult to make decisions and provide reasonable solutions for disaster related problems. According to Manyena (2006), the development of disaster resilience by local authorities is largely dependent on the capacity of local authorities to plan and manage the development activities. As such strengthening of local government should be a primary concern of policy makers (Pelling, 2003; Dillinger, 1994; Abbott, 1996; Schubeler, 1996). This emphasises the need to develop the capacity of local governments in order to implement proper disaster risk reduction within the areas under their jurisdiction. Therefore it is important to identify the challenges faced by local governments in implementing disaster risk reduction initiatives and

to understand how local governments can be empowered and governance can be reformed to ensure successful implementation of disaster risk reduction initiatives at the local level. As such the empowerment of local government in making cities resilient to disasters emerges as a very important research area in today's context with much potential.

Even though much research is available on the role of local government in disaster risk reduction and making cities resilient, there is a gap in research yet to be filled on how local governments can be empowered to take up a lead role in successful implementation of disaster risk reduction initiatives in their respective local areas. Several authors have identified the importance of good governance in disaster risk reduction, but how good governance could be incorporated at local governmental levels to make cities resilient has not been clearly addressed through academic research. Hence there is a need to undertake research on how local governments can be empowered to take a leading role in making cities resilient to disasters through reformation of the existing governance structure. Consequently, the aim of this research is to develop a framework to empower local governments to make cities resilient to disasters in the built environment context. In order to achieve this aim the research objectives and research questions have been formulated.

The research questions are the key issues that will be addressed through the research process. Hence, in achieving a greater focus, the researcher has established a number of research questions. Key questions are listed below.

- How could local governments be empowered to take a leading role in making cities resilient within the context of the built environment?
- What are the weaknesses of the existing local governance structure in relation to making disaster resilient cities?
- How could the local governance be restructured to ensure an effective commitment in making cities resilient within the context of built environment?

Sri Lanka was severely affected by the Indian Ocean Tsunami in 2004 and also with serious floods at various times. The Joint Report of the Government of Sri Lanka and Development Partners, issued in December 2005, highlights that the 2004 tsunami caused the death of 35,000 people and destroyed US $ 900 million worth of assets and infrastructure in Sri Lanka. More recently, during early months of 2011, Sri Lanka has been severely affected by floods and the lives of many people have been disrupted, as well as many rice crops destroyed (Reuters, 2011). During the event at least 57 people were killed, around 193,700 were affected and at least 35% of rice crops were destroyed. As a developing country which is prone to natural disasters caused by floods, cyclones, landslides, droughts, coastal erosions and also to low-frequency and high impact events like tsunamis (DMC- SL, 2005), Sri Lanka is vulnerable to disasters and is in great need of disaster resilient cities. On the other hand, according to the report on climate change vulnerability in Sri Lanka, the country is experiencing rapid urbanisation where it is estimated that the percentage of urban population would rise to 50% in the year 2016 (Ministry of Finance and Planning, 2006). Furthermore, in 2009, the manufacturing, construction, and services sectors, which are primarily urban-based, accounted for 83.3% of GDP (Climate Change Secretariat, 2010). This clearly indicates that the majority of economic activities of the country are taking place in urban areas and are not distributed geographically, making the country more vulnerable to disasters. Thus,

Sri Lanka, being a country experiencing rapid urban growth and being vulnerable to various natural disasters, provides a sound basis for this research and hence the scope of the research will be focused on Sri Lanka.

Research methodological design

A research design is "*the logic that links the data to be collected and the conclusions to be drawn to the initial questions of a study*" (Rowley, 2002). The methodological design of this research has been structured based on Saunders *et al.* (2007) research 'onion' which is depicted in Figure 1. This provides guidelines to select the most appropriate research methodology. The research 'onion' has six layers, each of which indicates an important aspect which need to be looked at when deciding an appropriate methodology. According to Saunders et al (2007), each of these important layers need to be peeled away before coming to the central point which is, data collection and analysis. Accordingly, the subsequent sections illustrate the research methodological design of the research based on Saunder *et al.* (2007)'s research 'onion'.
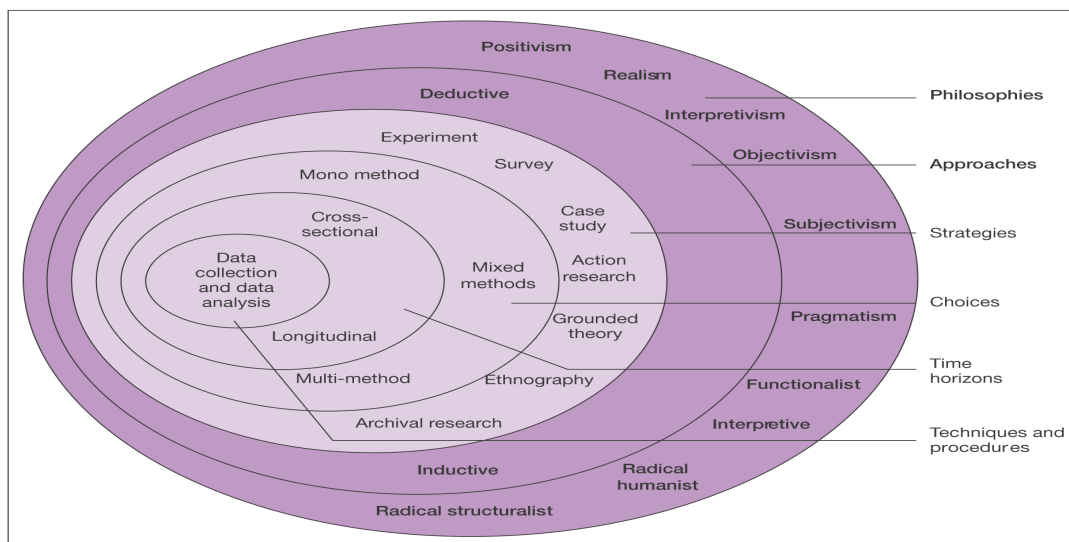

Figure 1: The research 'onion' (Source: Saunders *et al*., 2007)

6   Research Philosophy

The research philosophy contains important assumptions about the way in which the researcher view the world (Saunders *et al*., 2007). These assumptions will underpin the research strategy and the methods chosen as part of that strategy (Saunders *et al*., 2007). While recognising the importance of research philosophy, Easterby-Smith *et al.* (2008) claim that they are central to the notion of research design and failure to think through philosophical issues can seriously affect the quality of research. The next section explains the three major ways of thinking about the research philosophy: epistemology, ontology and axiology.

Epistemology

Epistemology is concerned with what constitutes acceptable knowledge (Saunders *et al.*, 2007; Collis and Hussey, 2009). In other words, it is concerned with what we accept as valid knowledge (Collis and Hussey, 2009). The aim of this research is to develop a framework to empower local governments to make cities resilient to

disasters in the built environment context which would be achieved by way of developing the capacities of local governments and by reforming the governance structure. Therefore, in this research, the researcher has more authority over the data collection as no external reality has existed and there is no objective truth. Therefore the research will fall under the view of a constructionism perspective, which argues that there is no meaning without a mind and the truth or the meaning comes into existence in and out of our engagement with the realities in our world (Crotty, 1998). This is also known as social constructionism and considers that the reality has been socially constructed (Saunders *et al.*, 2007). As such, different people may construct meanings in different ways even in relation to the same phenomenon (Crotty, 1998). In terms of empowering local governments to make cities resilient to disasters, the researcher is deemed to be a part of the research and the reality is determined by people rather than by objectives and external factors, and this is a core element of social constructionism as explained by Easterby-Smith *et al.* (2008). Therefore constructionism can be identified as the best way of enquiring into the research question.

Ontology

In addition to the epistemological positioning, ontological assumptions represent another important part of the research. Ontology is the study of being (Crotty, 1998), and concerned with the nature of reality, and raises the question as to what assumptions we would have to make about the way in which the world works (Saunders *et al.*, 2009). In other words, it is the philosophical assumption about the nature of reality (Easterby-Smith *et al.*, 2008). There are two ontological assumptions namely, realism and nominalism considering the nature and the structure of the social and organisational reality (Johnson and Duberly, 2000; Burrell and Morgan, 1979). Realists assume that the external world has a pre-determined nature and a structure and reality exist independently of human consciousness and cognitions. In contrast, nominalists assume that reality is a product of our minds where different observers may have different viewpoints.

This research is expected to explore the ways in which local governments could be empowered to make cities resilient to disasters within the context of built environment. In addressing this, the meaning given to resilient cities and the ways of empowering local governments does not have a pre determined nature and a structure and the truth could be varied upon the place and time and on the viewpoints of the observer. Therefore within the two extremes, the intended study could be positioned more towards the nominalism stance.

Axiology

Axiology is another branch of research philosophy which explains the value system. The researchers are demonstrating their values such as personal values, feelings and beliefs, which would create a part of the research philosophy throughout the research process. Axiology can be classified into two opposing views, i.e., whether the reality is value free or value laden. This research could be identified as value laden research where the choice of research area, formulation of research questions, choice of methods, formulation of research design and data collection techniques, implementation of data collection, analysis of data, interpretation of data and conclusions would be intruded by values that the researcher holds (Bryman and Bell, 2003).

Having identified the epistemological, ontological and axiological assumptions of the research and the fact that the research is socially constructed and value laden, it is important to further look into the theoretical perspectives which govern the research philosophy. According to Crotty (1998), the theoretical perspective provides the philosophical stance informing the research strategy and thus providing a context for the process and grounding its logic and criteria. The main focus of this research is to develop a framework to empower local governments to make cities resilient to disasters which is a complex issue and which cannot be theorised by definite laws as physical sciences (Saunders *et al.*, 2009). Therefore the theoretical perspective which governs this research has been positioned towards an interpretivist stance. According to Saunders *et al.* (2009), interpretivism, which is an attempt to make sense of the world around us, is highly appropriate, particularly in the fields such as organisational behaviour. This would facilitate the study of the existing structure and the governance arrangements of local governments with a view to understand and explain what is going on.

Research approaches

Research approach is concerned with the use of theory. Saunders *et al.* (2007) identified two main research approaches: deductive and inductive. Deductive approach is about developing a theory and hypothesis and design a research strategy to test the hypothesis. Inductive approach is about collecting data and developing theory as a result of the data analysis.

As shown in Figure 2, two main principles of research are involved: namely, the research in the explanatory sciences and research in the design sciences. The first three phases of the research process are under explanatory science where the core mission is to develop valid knowledge to understand the social world or to describe, explain and predict the existing state of the social world (Aken, 2005). According to Vaishnavi and Kuechler (2004) all designs begin with an awareness of a problem and therefore design research is also known as 'improvement research' which highlights the problem solving and performance improving nature of an activity. As such, the intention is to study the current practice of local governments in making cities resilient to disasters. This will develop knowledge on existing barriers faced by local governments and would help to explore good practice in the field concerned. Having identified the problem, the suggestions for the problem solution are drawn from the existing knowledge/theory base. In this research, the suggestion would be to develop a framework to empower local governments through reformation of the governance structure.

Accordingly, the next three phases of the research process could be categorised under design science, where the core mission is to develop knowledge that could be used by the government to design solutions to their field problems (Aken, 2005). The development of the framework will fall under design science where an attempt is made to develop an artifact according to the suggested solution.

Explanatory sciences and design sciences both play an important role in this piece of research where explanatory science would lead to understanding the nature and the causes of the problem, and would be helpful in designing solutions. On the other hand, design research would lead to the development of the solution itself (Aken, 2005). A fully and partially developed framework would then be validated to evaluate the applicability to the research problem. Development, evaluation, or in

this case validation and further suggestions, would frequently be performed in the course of the design effort (Vaishnavi and Kuechler, 2004), and finally the recommendations would be generated. Accordingly, the research will use an inductive approach and will develop a theory (framework) as a result of the data analysis.
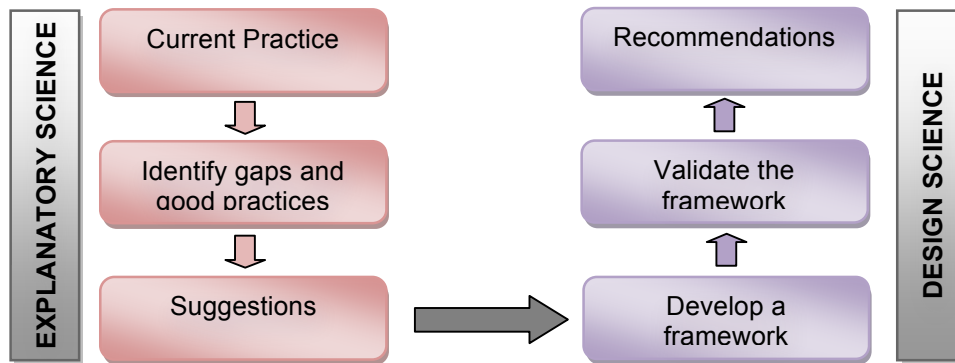

Figure 2: Research process

Research strategies

Rationale for selecting case study research

There are a number of different research strategies such as, experiment, survey, case study, action research, grounded theory, ethnography and archival research. A research strategy like experiment is not applicable to this study as the researcher does not have a control over the phenomenon being investigated. Experimental studies are concerned with looking at the relationships between two or more variables (Saunders *et al.*, 2007). It attempts to manipulate independent variables to observe the effects on the dependent variables (Collis and Hussey, 2009) which are not particularly applicable in this scenario. As discussed under philosophy and approach, this research is governed by interpretavism stance and uses an inductive approach. As such, strategies like surveys are also not associated with this research, as survey strategy is normally used in deductive research (Saunders *et al.*, 2007), and positivist studies (Collis and Hussey, 2009).

Further, based on the constructionism epistemological undertaking and the theoretical perspective of being interpretivism in nature, the research would fall under the category of qualitative research. Therefore, based on the philosophical stance of the research, qualitative strategies are best suited for this study. The qualitative research normally emphasises the words rather than quantification in the collection and analysis of data (Bryman and Bell, 2003). As a result, the research would lead to generation of a theory as the outcome of the research. According to Creswell (2003), five main strategies of enquiry in relation to qualitative research would exist. They are ethnography, grounded theory, case studies, phenomenological research and narrative research. These strategies are summarised below.

Ethnography: where the researcher studies an intact cultural group in a natural setting over a long period of time by observation.

Grounded theory: where the researcher attempts to derive a general abstract theory of a process, action or interaction grounded in the views of participants in a study.

Case studies: where the researcher explores in depth a programme, event, activity or a process of one or more individuals.

Phenomenological research: where the researcher identifies the human experiences concerning a phenomenon as described by the participants in a study.

Narrative research: where the researcher studies the lives of individuals and stories about their lives and then it will be retold or restructured by the researcher in a narrative chronology.

The aim of the current research is to develop a framework to empower local governments to make disaster resilient cities within the context of the built environment by way of developing their institutional capacities and providing more authority and resources through reforming the existing governance structure. As such, phenomenological and narrative research would not be relevant to this piece of research as they are more towards identifying human experiences and studying the lives of individuals. Similarly, ethnography is about describing and explaining the social world (Saunders *et al.*, 2009), which requires the researcher to become a full member of the group being studied, in order to understand the phenomenon being investigated (Collis and Hussey, 2009; Easterby-Smith *et al.,* 2008). In the current research, the researcher is outside the natural setting and seeks to develop a framework to empower local governments to make disaster resilient cities. Therefore ethnography would not be applicable in this context. Alternatively, grounded theory which is helpful for researchers to predict and explain behaviour to build theory (Saunders *et al.*, 2009) and case studies, which involve an empirical investigation of a particular phenomenon within its real life context using multiple sources of evidence (Yin, 2009) can be identified as the most suitable strategies for this research.

Between grounded theory and case studies, case studies has been selected as the most appropriate strategy for this context as it enables the researcher to obtain a good understanding of the context of the research and the processes (Saunders *et al.,* 2007), and it would be possible to get the answers to both the explanatory and the design part of the research. A case study is an empirical inquiry that investigates a contemporary phenomenon within its real life context, especially when the boundaries between phenomenon and context are not clearly evident (Yin, 2009). One important strength of the case studies is the ability to undertake an investigation into a phenomenon in its context and therefore case studies are considered as a valuable way of looking at the world around us (Rowley, 2002).

In addition, according to Yin (2009), three aspects need to be considered in selecting an appropriate strategy, namely; the type of research questions posed, the extent of control the investigator has on the actual behavioural events and the degree of focus on the contemporary as opposed to historical events. 'How' and 'why' form of research questions usually require detailed investigation and case studies are one strategy that supports detailed investigation which is necessary to answer these type of questions. In the current research the study is mainly focused on answering 'what' and 'how' forms of research questions. For example this research seeks to answer questions like, "how could local governments be empowered to take a leading role in making cities resilient within the context of the built

environment?", "what are the weaknesses of the existing local governance structure in relation to making disaster resilient cities?" which require a detailed investigation and in such instances, the researcher does not have control over the behavioural events and needs to conduct the study in the real-life setting. The study also focuses on a contemporary event where existing background knowledge is present to develop an initial conceptual framework which justifies the selection of the case study research strategy. On the other hand, case studies have a unique strength to deal with a full variety of evidence-documents, artifacts, interviews and observations, and this had an impact on the selection (Yin, 2009). As such adopting case study strategy allowed the use of multiple sources of data collection and analysis, which has increased the credibility of research findings.

Case study design

According to Creswell (2003), case study research involves the study of an issue explored through one or more cases within a bounded system. Case studies are more appropriate in the circumstances where the research seeks to answer 'how' and 'why' research questions (Yin, 2009). This research mainly focuses on answering a 'how' type of research question which is "how the local government can be empowered to make the cities resilient to disasters" and therefore would be more appropriate for a case study approach. The nature of this research requires gaining a rich understanding of the context of the research and the processes being enacted (Saunders et al., 2009), and therefore, the case study strategy would be the ultimate strategy for this research. Case studies may offer insights that might not be achieved with other strategies (Rowley, 2002) and thus case studies have been selected as the most suitable strategy. Yin (2009), has distinguished between four case study strategies based upon two dimensions such as, single case vs. multiple case and holistic case vs. embedded case. According to Saunders *et al.* (2009), single case is used where it represents a crucial case or alternatively an extreme or unique case. As far as this research is concerned, different cities have different administrative structures and are resilient to disasters in varying degrees. Thus, as argued by Yin (2009), this research has used a multiple case design since there has been no strong justification for the choice of a single case study, and as it is preferred over single case design. In looking at the second dimension of Yin's (2009) argument regarding holistic case vs. embedded case, he refers to the unit of analysis. As defined by Miles and Huberman (1994), the unit of analysis of a study is a "phenomenon of some sort occurring in a bounded context". In this research, a city is taken as a case and the research is concerned with the empowerment of local government and their contribution towards making cities resilient. Therefore the unit of analysis for this research can be taken as 'the empowerment of the local government'. As such this research takes a holistic case type. Accordingly, it is intended to conduct three holistic case studies by selecting three cities in Sri Lanka which are potentially vulnerable to disasters and the findings would be generalised across the country. Further, the case boundary could be defined as the city in which the research is being conducted.

Validity and reliability in case study research

How the quality of the research is maintained and managed is a key requisite in qualitative research. According to Yin (2009) four tests are commonly used to measure the quality of case studies being conducted. These include; construct

validity, internal validity, external validity and reliability. Table 1 highlights the different tactics that are intended to use in this research to fulfill the requirements of these four tests. These tactics will ensure the validity and reliability of the case studies being conducted.

Table 1: Case study tactics for four design tests (adapted from Yin, 2009)

Test	Case study tactic used in the research	Phase of research in which tactic occurs
Construct validity	Use of multiple sources of evidence Getting draft case study report reviewed by key informants	Data collection Composition
External validity	Pattern-matching Explanation building Address rival explanations	Data analysis Data analysis Data analysis
Internal validity	Use of replication logic	Research design
Reliability	Use case study protocol Develop case study database	Data collection Data collection

Research choices

According to Saunders *et al.* (2007) in choosing the research methods the researcher can either use a single data collection technique and corresponding analysis procedures (Mono method) or use more than one data collection technique and analysis procedure to answer the research questions (Multi method). He further argued that if the researcher chooses to combine data collection techniques and procedures using multiple methods design, four different possibilities are available, namely, multi- method quantitative studies; multi- method qualitative studies; mixed method research and mixed model research.

As explained elsewhere the research concerned is aimed at gathering qualitative data and comes under the broader context of qualitative research. Qualitative researchers typically gather multiple forms of data by way of interviews, observations and documents, rather than relying on single data source (Creswell, 2007). Accordingly this research is a multi-method qualitative study which intends to use a combination of more than one data collection technique with associated data analysis techniques, more details of which will be discussed under the section 'techniques and procedures'. This will strengthen the validity of the research as the researcher will review and analyse all the data that cut across different data sources (Creswell, 2007).

Time horizon

Time horizon is an important element in planning any research project. There are two perspectives for time horizon, namely, cross sectional studies and longitudinal studies (Saunders *et al.*, 2007). Within the cross sectional studies the researcher investigates particular phenomenon at a particular time and the research will be a 'snapshot' taken at a particular time (Saunders *et al.*, 2007). In contrast, the

longitudinal studies focus on investigating variables or group of subjects over a long period of time (Collis and Hussey, 2009).

Considering the nature of the research concerned, it is clear that it does not require an investigation over a long period of time. The aim of the current research is to develop a framework to empower local governments to make disaster resilient cities. Accordingly, the investigation is intended to carry out at a given point of time and therefore falls within a cross sectional study.

Techniques and procedures

Sri Lanka, being one of the countries which was badly affected by the 2004 Tsunami and also by floods on various occasions, has been selected for this research as the country is in great need of disaster resilient cities. As such, in this research it is proposed to conduct three case studies within Sri Lanka by selecting three geographical areas within the country. The cities have been selected based on the judgement of the researcher which allowed selecting those cities which were particularly informative in nature. As such the cities which have been badly affected by disasters and which are prone to future disasters were chosen.

In case study research, a bounded system or multiple bounded systems can be explored through detailed and in depth data collection involving multiple sources of information such as observations, interviews, audio visual material and documents and reports (Creswell, 2003). Within the case studies, interviews have been conducted to gather valid and reliable data that are relevant to the area of study. The interviews were designed to capture the city's resilience to disasters and to understand the commitment of the local government in making the city resilient to disasters and associated problems. As such, the data were gathered through semi-structured interviews with the local and other government officials, policy makers, industry practitioners and experts who are engaged in the respective areas of study.

In addition, two series of expert interviews are conducted with the experts in the field of study. The first series of expert interviews has already been conducted with the view of gaining background knowledge pertaining to this field of study. The second series of expert interviews will be conducted in the latter part of the research for the framework validation purposes. The main idea behind conducting expert interviews is to reduce the biasness in data sources and to increase the validity and the reliability of the research conclusions by way of triangulating multiple sources of data and multiple methods of data collection.

In the meantime, government and other publications relating to the establishment of local governments, their structure and other administrative and funding arrangements, have been studied to get an in depth idea about the cases to be observed.

Finally, the data collected would be analysed based on the explanation of analysing qualitative data as indicated by Saunders' *et al.* (2009), which involves summarising the data, categorising and structuring the data using narrative to recognise relationships, develop and test propositions and produce well grounded conclusions. NVivo (version 9) software will be used at the data analysis stage to manage, organise and analyse qualitative data. This software has many features that help the process of qualitative analysis, which is effective when dealing with a large number of interview transcripts.

As multiple cases are chosen, when interpreting data, first a detailed description of each case and themes within the case would be analysed, followed by a thematic analysis across the cases (Creswell, 2003). The data analysis and data collection would be conducted simultaneously which would help in refining and validating the framework throughout the data collection and analysis phase.

Conclusions

A research is a systemised effort to search for new knowledge. The paper presents the research methodology of a doctoral research aimed at developing a framework to empower local governments to make cities resilient to disasters. In doing so, the paper has presented and justified the research methodology from the establishment of the research problem to data collection and analysis. The study applies interpretavism as its philosophy and theoretical underpinning. The main focus of this research is to develop a framework to empower local governments to make cities resilient to disasters which is a complex issue and the paper argued that this cannot be theorised by definite laws as physical sciences. Case studies have been selected as the preferred research strategy and the rational for selecting the case study strategy has been presented. The study intends a holistic multiple case design in which the unit of analysis becomes "the empowerment of the local government". Accordingly, three case studies have been conducted by selecting three cities in Sri Lanka which are potentially vulnerable to disasters. Within the case studies, semi-structured interviews have been conducted together with document reviews. In addition, two series of expert interviews would be conducted with the experts in the field of study to reduce the biasness in data sources and to increase the validity and the reliability of the research conclusions. The research is still in progress, and the measures taken to ensure the acceptability of the research findings are also discussed.

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