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Post-Disaster Housing Reconstruction in Sri Lanka: What Methodology?

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Abstract

Research methodology is the procedural framework within which the research is conducted. This includes the overall approach to a problem that could be put into practice in a research process, from the theoretical underpinning to the collection and analysis of data. Choice of methodology depends on the primary drivers: topic to be researched and the specific research questions. Hence, methodological perspectives of managing stakeholder expectations of PDHR context are composed of research philosophies, research strategy, research design, and research techniques. This research belonged to social constructivism or interpretivism within a philosophical continuum. The nature of the study was more toward subjectivism where human behavior favored voluntary stance. Ontological, methodological, epistemological, and axiological positioning carried the characteristics of idealism, ideographic, anti-positivism, and value laden, respectively. Data collection comprises two phases, preliminary and secondary. Exploratory interviews with construction experts in the United Kingdom and Sri Lanka were carried out to refine the interview questions and identify the case studies. Case study interviews during the secondary phase took place in Sri Lanka. Data collected at the preliminary stage were used to assess the attributes of power, legitimacy/proximity, and urgency of stakeholders to the project using *Stakeholder Circle*™ software. Moreover, the data collected at secondary phase via case studies will be analyzed with NVivo 8. This article aims to discuss these methodological underpinnings in detail applied in a post-disaster housing reconstruction context in Sri Lanka.

Keywords

post-disaster housing reconstruction, research methodology, research philosophies, research strategy, research design

Post-Disaster Housing Reconstruction in Sri Lanka

The 2004 Boxing Day tsunami, which was a result of the fifth largest earthquake of the last century, caused great devastation in Sri Lanka, making more than 1,000,000 people homeless. The task of reconstruction after the 2004 tsunami was an onerous challenge to a developing country like Sri Lanka, which required the deliberate and coordinated efforts of all stakeholders for effective and efficient recovery of the affected community. This resulted in a large number of post-disaster housing reconstruction (PDHR) projects. A wide array of stakeholders came together on such projects to execute the final outcome. In the aftermath of early reconstruction efforts, dissatisfaction was expressed by some stakeholders. The areas of criticism included time, cost, quality, coordination with infrastructure, and linkage to livelihoods (Haigh & Amaratunga, 2010; Hidellage & Pullenayegem, 2008; Karunasena & Rameezdeen, 2010; Keraminiyage, Amaratunga, & Haigh, 2008; Lyons, 2009; Mulligan & Shaw, 2007; Nissanka, Karunasena, & Rameezdeen, 2008; Perry, 2007; Ratnayake & Rameezdeen, 2008). Nevertheless, the reconstruction provided an opportunity for the development of Sri Lanka. Thus, the industry sector of Gross National Product before and after the 2004 tsunami stood at 5.4 and 8.0, respectively. This was mainly due to the growth of housing output. Moreover, several acts stipulate that housing is one of the three basic requirements necessary for a standard of living and personal security. Furthermore, Nissanka et al. (2008) and Ratnayake and Rameezdeen (2008) identified stakeholder expectations in PDHR as an under-researched domain and where further in-depth studies are required. Only a few studies have been carried out to explore the expectations and of stakeholders caught up in disasters in Sri Lanka. Accordingly, this study was undertaken to achieve the objectives as stated in the section "Aim, Objectives, and Research Questions," using an appropriate methodology.

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Table 1. Research Objectives and Questions of the Study.

Objective	Research questions
Identify and classify the stakeholders of PDHR projects in Sri Lanka and to explore the relationships	Who is a stakeholder in a PDHR project? What are the bases for the classification for stakeholders in PDHR? What factors determine the salience of the stakeholders? What relationships exist between these stakeholders?
Critically examine stakeholder requirements of post-disaster housing reconstruction projects in Sri Lanka	What strategies/programs are adopted in post-disaster housing? What are the needs/expectations and gaps of PDHR in Sri Lanka?
Compare and contrast stakeholder needs and the expectations of PDHR projects	What needs and expectations are common to PDHR projects? What needs and expectations are unique to PDHR projects?
Critically evaluate the strategies and mechanisms used by reconstruction projects to capture and address the needs of stakeholders and manage their expectations of PDHR	How do strategies and mechanisms varied between the projects?
Develop recommendations for effectively identifying, classifying, and managing stakeholders to deliver successful PDHR	How do successful PDHR help theory development?

Note. PDHR = Post-Disaster Housing Reconstruction.

What Is Research Methodology?

Saunders, Lewis, and Thornhill (2009) describe that methods are techniques and procedures used to obtain and analyze data, and methodology is the theory of how research should be undertaken. However, Oliver (2008) included both theoretical and practical matters of data collection in the term *methodology*. The Oxford Dictionary definition uses the term *method*, to represent both the terms: method and methodology. It states that "a method is a way or order of doing something where theory and practice of acting in which the actor seeks to achieve a true interpretation of his part by mentally identifying himself with the character he is playing." Therefore, it can be concluded that methodology is an umbrella term where methods are a part.

Aim, Objectives, and Research Questions

The aim of this research is to explore and investigate how to identify, classify, capture, and address the needs of stakeholders, and manage their expectations of reconstruction projects, to deliver effective PDHR in Sri Lanka. Accordingly, the following objectives and questions were devised (Table 1).

Research problems lay the foundation for the decision of selecting an appropriate philosophy, which is discussed in the section "Research Positioning."

A research paradigm is a philosophical framework that guides how research should be conducted, based on people's philosophies and their assumptions about the world and the nature of the knowledge (Collis & Hussey, 2009). They introduce philosophies as the use of reason and argument in seeking truth. Thus, any research would belong to a philosophy. Research positioning in Figure 1 is the diagrammatic representation of this premise.

Research Positioning

Easterby-Smith, Thorpe, and Lowe (2012) identify research philosophies as the base for effective research design and argue that failure to adhere to philosophical issues can affect the quality of the research negatively. They highlight three important reasons behind understanding philosophical issues in the research process. First, it helps to clarify the research design. Second, it helps the researcher to identify which research designs will work and which research designs will not work under different circumstances. Finally, it helps the researcher to identify and create research designs that may be outside his past experience. Furthermore, it may also suggest how to use different research designs within different subject areas and different knowledge structures. Figure 1 diagrammatically positions the research in a philosophical continuum.

Social science is a branch of science that studies society and the relationships of individuals within a society. It extends its knowledge toward human behavior and its impact on the outside world. Society does indeed possess an objective facility and is built up by subjective meaning. Research on managing stakeholder expectations in PDHR revolves around "human relationships," and PDHR activities include a socio-psychosocial element, which has a link to the outside world. Therefore, this research belongs to social sciences.

This study combines the views of Burrell and Morgan (1979) with Collins (1998) and Guba and Lincoln (1998). Burrell and Morgan (1998) have stipulated four sets of assumptions: ontology, epistemology, human nature, and methodology. Collins and Guba and Lincoln underline axiology in their assumptions apart from ontology and epistemology. Accordingly, this research takes an account of human nature, ontology, methodology, epistemology, axiology, and the nature of the society. These help to position the research within the philosophical continuum, as illustrated in Figure 1.

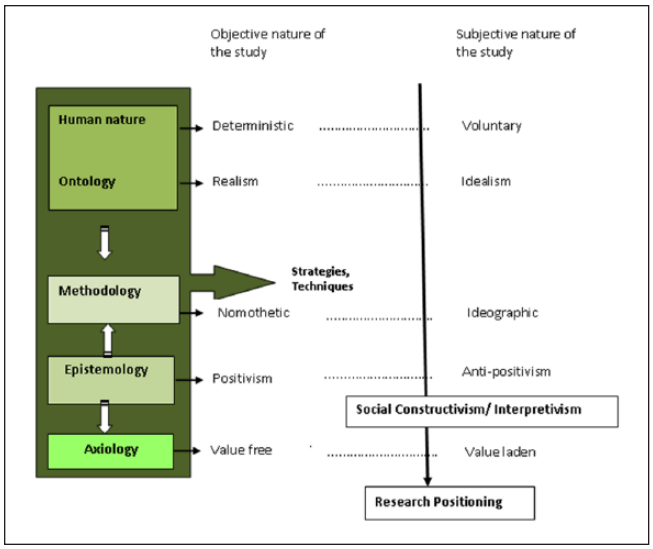

Figure 1. Research positioning within the philosophical continuum.

Objectivity and subjectivity. If the reality is an observable phenomena, with evidence it is said to be objective. The other extreme of the continuum, subjectivity, refers to the perception of reality by individuals, which is influenced by personal beliefs. Thus, Saunders et al. (2009) assessed that social entities exist in a reality external to social actors.

Disasters triggered by natural hazards are most of the time unpredictable and do not exist to be perceived objectively. However, man-made and human-induced disasters are not unexpected all the time. The PDHR process, procedures, and policies, however, are regularized but subject to change. Therefore, the study is more toward subjective axis of the continuum.

Human nature. Human nature is the subject and object of enquiry (Burrell & Morgan, 1979). These can identify the perspectives in social science, which entail a view of human beings responding in a mechanistic or even deterministic fashion to the situations encountered in the external world (Burrell & Morgan, 1979). Human beings cannot be divorced from their natural environment. For example, during PDHR, a variety of stakeholders emerge. Thus, these stakeholder expectations vary from each other. This may depend on the type of house they received, education and socio-economic background, values, and attitudes. Human behavior in the social scientific theory too varies between determinism and voluntarism (Burrell & Morgan, 1979). Deterministic nature depends completely on the situation, environment, or the organizational factors, which affects the behavior and activities of a human being. In voluntarism, it is expected that the human enjoys the autonomy and is free willed.

If PDHR is taken as a situation, the strategies to manage the stakeholder expectations are determined partly by free will and partly by the government and organizational/project policies and procedures. Nevertheless, voluntary mechanisms could emerge because of the urgent and chaotic atmosphere after a disaster. It can be concluded that human nature in this study is a blend of determinism and voluntarism.

Ontology. Ontology refers to the assumptions that we make about the nature of reality (Easterby-Smith et al., 2012). Social scientists are faced with a basic ontological question: whether the "reality" to be investigated is external to the individual—imposing itself on individual consciousness from without—or whether it is a product of individual consciousness; whether "reality" is objective nature or the product of individual cognition; or whether reality is given out there in the world or the product of one's mind (Burrell & Morgan, 1979).

Burrell and Morgan (1979) hold a viewpoint on realism, which is at one end of ontology that social world is external to individual cognition and is a real world made up of tangible and relatively immutable structures. The individual is seen as being born into a living, within a social world that has a reality of its own, which exists out there. Idealists believe that reality is made up of ideas or thoughts and individuals have differing viewpoints. Thus, what counts for truth can vary from place to place and from time to time. Hence, names, concepts, and labels created are regarded as artificial creations whose utility is based on convenience for description, making sense and negotiation in the external world (Burrell & Morgan, 1979). Accordingly, Morgan and Smircich (1980) recently developed a six-way classification of the nature of the social world: reality as a concrete structure, reality as a concrete process, reality as a contextual field of information, reality as symbolic discourse, reality as social construction, and reality as projection of human imagination. Reality as a social construction is the most suited classification to this research due to the reasons stated below.

In this study, identification and classification of stakeholders of PDHR, exploring their relationships based on salience, and strategies to manage the expectations depending on the type of housing project, are perceived differently depending on the situation and usage. The researcher analyzed the subject matters by being an observer of the project. Furthermore, the research environment is not expected to control and simplify with assumptions. Thus, observation partially contributes in developing explanations and theories in relation to PDHR in Sri Lanka. Hence, this research favors idealism.

Method. Methodology is the technique used by the researcher to investigate the reality and obtain the knowledge (Burrell & Morgan, 1979; Healy & Perry, 2000). Carter and Little (2007) explained it as theory and analysis of how research should proceed. As such, for this study, it is presumed to be the process by which the research is carried out.

Table 2. A Comparison of Nomothetic (Realism) and Ideographic (Idealism) Methodologies.

	Nomothetic	Ideographic
1	Deduction	Induction
2	Explanation via analysis of causal relationships	Explanation of subject meaning systems and explanation by understanding
3	Generation and use of quantitative data	Generation and use of qualitative data
4	Use of various controls, physical or statistical, so as to allow the testing of hypothesis	Commitment to research in everyday settings, to allow access to, and minimize reactivity among subjects of research
5	Highly structured research methodologies to ensure replicability of Points 1, 2, 3, and 4	Minimize structure to ensure Points 2, 3, and 4

The philosophical underpinning of methodology falls between Nomothetic and Ideographic stances. Nomothetic theory depends on the scientific method, where the researcher follows a protocol and testing of hypotheses by using quantitative techniques. The ideographic approach assumes that one can understand the social world only by obtaining first-hand knowledge of the subject under investigation.

Gill and Johnson (2002) present a comparison between the Nomothetic (realist) and Ideographic (idealism) methodologies, as summarized in Table 2.

Accordingly, this research requires the researcher to be a part of the environment, and interaction with the stakeholders is needed to unearth the viewpoints in relation to PDHR projects. In this process, it is important to identify stakeholders of PDHR projects and the strategies to manage the expectations of different type of housing projects. Hence, the researcher cannot be an independent actor from the context. Furthermore, the research necessitates an in-depth analysis to gather detailed facts about the research environment. However, this study favors social constructivism and takes an ideographic stance.

Epistemology. This is the relationship between that reality and the researcher (Healy & Perry, 2000). Burrell and Morgan (1979) perceived it as how one might understand the world and communicate this knowledge to fellow human beings. A question can be posed as to whether the knowledge can be acquired or it has to be personally experienced. In other words, what constitutes acceptable knowledge, either past or present, in a field of study?

Positivism is based on the assumption that there are universal laws that govern social events, and uncovering these laws enables researchers to describe, predict, and control social phenomena (Wardlow, 1989). Positivism assumes implicitly or explicitly that reality can be measured by viewing it through a one-way, value-free mirror (Healy & Perry, 2000). In positivism, the researcher can replicate the findings and emphasize on quantifiable observations that lend themselves to statistical analysis (Saunders, Lewis, & Thornhill, 2007). As Burrell and Morgan (1979) explain, anti-positivism has different forms such as hermeneutics, interpretive structuralist perspective but firmly set against utility of laws or underlying regularities. In contrast, this study was subject to underlying laws and regulation of PDHR in Sri Lanka. Furthermore, they state that social world is relativistic and can only be understood from the point of view of the individual who are directly involved in the activities to be studied. Also anti-positivistic researchers reject the standpoint of the "observer," a position that characterizes positivistic study.

Social constructionists believe that the reality is socially constructed, where differing viewpoints have emerged. Thus, positivists believe that observer must be independent, human interset must be irreevant, explanations demonstrate causalty, resaerch progresses through hypotheses and deduction, concepts need to be operationalized where these can be measured, units of analysis should be reduced to the simplest terms, generalisation through statistical probability, sampling is required where large numbers are selected randomly (Easterby-Smith et al., 2012). According to Easterby-Smith et al., (2012) in social constuctionism observer is a part of what is being observed, human interests are the main drivers of the science, explanations aim to increase general understanding of the situation, research progresses through gathering rich data where ideas are induced, concepts should incorporate stakeholder perspectives, units of analysis may include the compexity of "whole" situation, generalisation through theoretical abstraction and sampling requires small number of cases chosen for specific reasons. These set the scene for main differences between positivism and social constructionism in this research too.

By considering the aforementioned characteristics, a social constructionism approach has been deemed to be more appropriate to this research than a positivist philosophy. Berger and Luckmann (1967) viewed that social constructivism as a blend of a social reality and symbolic interaction, where the reality we collectively experience has, in fact, been constructed by our social interactions. As set out in the "Aim, Objectives, and Research Questions" section, this research aimed to explore how to identify, classify, and manage stakeholder expectations, so that construction enterprises can deliver effective disaster housing reconstruction in Sri Lanka, which necessitates the researcher to be a part of the environment. Thus, it is the journey of creating the reality with and through relationships or interactions (with stakeholders) of the external environment, as it is believed that

reality is multiple, and there is no pre-existing reality. As such, it invalidates embracing a strong positivist approach.

Axiology. Axiology discusses the values that are attached to knowledge and help to determine what are recognized as facts and the interpretations that are drawn from them (Collis & Hussey, 2009). Positivists believe that science and the process of research is value free, in contrast to the social constructionists' viewpoint of research, which accepts values. In value-free research, the choice of what to study and how to study is determined by objective criteria, while in value-laden research, the choice is determined by human beliefs and experiences (Easterby-Smith et al., 2012). As this research is of an exploratory nature and interpretation of stakeholders forms a major component of understanding the reality, it is value laden. Hence, a social constructionist approach is more suitable.

Research on stakeholder expectations in a PDHR scenario revolves around human (stakeholders) and organizational activities (strategies and mechanisms), and thereby can be found under the social science end of the research continuum. The research is positioned within the philosophical continuum in terms of human nature, ontology, epistemology, methodology, and axiological assumptions. To capture the reality (ontology) and human nature, certain methodologies should be used. However, the tool of acquisition and dissemination of knowledge (epistemology) is the methodology. The assumptions can be placed on two extreme ends, depending on the objective or subjective nature of the study. Positioning of this study is not completely at one end because a subjective as well as objective element is embedded in the philosophical assumptions.

Research Strategy

Research strategy describes the directions or ways in which research is conducted (Remenyi, Williams, Money, & Swartz, 2003). A method is a way or order of doing something in theory and practice, whereby the actor seeks to "achieve a true interpretation of his part by mentally identifying himself with the character he is playing" (*Oxford English Dictionary*, 1989). Hence research methods refer to ways of testing the validity of phenomena, or theory(ies) or hypothesis(es). Yin (2009) identifies three conditions that have to be considered when selecting the appropriate research strategy. They are the type of research question posed, the extent of control an investigator has over the actual behavioral events, and the degree of focus on contemporary event.

Research strategy also depends on the philosophical stances on human nature, ontology, methodology, epistemology, and axiology. The research on managing stakeholder expectations of post-disaster housing projects in Sri Lanka favors social constructivism as the research can be positioned due to the subjective nature of the study. In addition to the research questions and objectives, and the philosophical underpinnings of the research, the choice of research strategy will be directed by the extent of existing knowledge, and the amount of time and other resources available (Saunders et al., 2009). Research strategies commonly used by business and management researchers are experiment, survey, case study, action research, and ethnography (Easterby-Smith et al., 2012; Remenyi et al., 2003; Saunders et al., 2009).

Experiment and survey methods reside closer to the positivism end of the continuum. Experiments are widely used in natural science research where a test of hypothesis, theory, and law are involved. An experiment involves controlling one "input" variable, holding all others constant (to the best of your ability), and measuring the effect on an output variable of a change in the control variable. Stakeholder expectations of PDHR cannot be tested in a laboratory environment and cannot be manipulated. Thus, this strategy is not appropriate for this study. However, a survey does not need a controlled environment. The meaning of results from a survey will be enhanced if an analysis plan is generated prior to data collection; then interpretations of the results will more likely be a reflection of patterns in the data and a basis for knowing more about the essential "what is" of the world being surveyed. However, research on stakeholder expectations in PDHR requires in-depth study of construction project stakeholders. The survey method is therefore not a compatible option. In action research, the researcher tries to solve the problem by being a part within the problem environment with the goal to change the status quo of the situation by changing attitudes or the behavior of participants (Waser & Johns, 2003). This needs partial control of the environment, again making it unsuitable.

Ethnography is a holistic research method where the researcher becomes a part and parcel of the environment being studied as a participant observer interacting with social groups. These observations and interactions enable the ethnographer to understand how the group develops a skein of relations and cultural constructions that tie it together over a prolonged period of time. The time factor and the need to be a participant observer are significant constraints that prevent its use for this study. Due to the constraints stated, the most appropriate approach for this research is case studies. Yin (2009) defines a case study as "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." Both "what" type of exploratory questions and "why" types of explanatory questions are covered by this approach. Research on stakeholder expectations from construction projects, in the context of PDHR, does not intend to control/manipulate the environment under examination and does not intend to interfere with the attitudes, perceptions, or the procedures of the environment (as in the case of action research), but does analyze contemporary events and requires an in-depth study on the selected environment. It will be advantageous to rely on multiple sources of evidence, and the selection of a small sample

to allow an in-depth study requires exploring and analyzing the "real-life" context of stakeholder expectation of disaster reconstruction. Therefore, case study qualifies as the most appropriate strategy. Accordingly, the case study design is explained in the next section.

Research Design

Yin (2009) created a 2 × 2 matrix for the basic types of case study designs, determining the choice between single versus multiple case studies and a holistic versus embedded unit of analysis. A single case study is appropriate over a multiple case when the circumstances are critical, unique, representative, revelatory, or longitudinal. The study in question does not fall under these categories, and thus multiple case studies are preferred over a single case study. Multiple case studies provide a rich ground for the usage of replication logic through multiple sources of evidence. Literature review supports theory building via research questions. Thus, multiple case studies will verify them. It is intended to claim literal replication by comparing the findings from the multiple case studies, and the study in question addresses generalization through analytical generalization, rather than statistical generalization.

The second choice between holistic versus embedded case study designs is based on the selection of the unit of analysis of the study. The research questions of the study mainly reflect the requirement of delivering stakeholder expectations, in PDHR leaving stakeholder expectation as the main unit of analysis and housing reconstruction projects form the boundary of the study. The research questions are composed of "what" type of exploratory questions and "how" type of explanatory questions. However, the objectives on the whole are of an exploratory nature. Hence, the design adopted in this study is multiple, holistic exploratory case studies. The next section elaborates on the research techniques used in the case study.

Research Techniques

Research techniques can be described under two major phases of the study: the data collection and data analysis techniques.

Data Collection Techniques

Three principles for data collection can be identified in case study research (Yin, 2009). The first principle emphasizes the importance of multiple sources of evidence, where six sources of data collection have been identified. Those are documents, archival records, interviews, direct observation, participant observation, and physical artifacts. The rationale for using the multiple sources of evidence has been described as the Triangulation (Yin, 2009). Data triangulation eliminates problems related to construct validity that is an important aspect when determining the quality of case study research. Yin (2009) further states the fact that, the benefits from the above six sources of evidence can be maximized, if the two principles—to create a case study database and to maintain a chain of evidence—are adhered to. The main purpose of the case study database is that it provides the critical reader with an opportunity to go back to the raw data as and when required (Yin, 2009). The chain of evidence makes the case study more reliable where the case study reviewer is allowed to follow the derivation of the evidence from the research question formation to the case study conclusions.

Data collection comprises two phases, preliminary and secondary. Exploratory interviews with construction experts in the United Kingdom and Sri Lanka were carried out to refine the interview questions and identify the case studies. Case study interviews during the secondary phase took place in Sri Lanka.

Data collected at the preliminary stage was used to assess the attributes of power, legitimacy/proximity, and urgency of stakeholders to the project using *Stakeholder Circle*™ software. Moreover, the data collected at secondary phase via case studies will be analyzed with NVivo 8.

Coding of textual data collected from interviews were carried out through content analysis. This is a method that compresses many words into fewer content categories (Krippendorff, 1980). Guthrie and Abeysekera (2006) elucidate that it involves codifying qualitative and quantitative information into pre-defined categories to derive patterns in the presentation and reporting of information. Furthermore, Guthrie and Mathews (1985) noted that, content analysis has been widely used in corporate social responsibility (CSR) and corporate governance (CG) research (Ryan & Ng, 2000). Cognitive mapping was used to display and identify relationships of concepts derived from interviews and observations.

Conclusion

Research methodology is the key to conduct a social research. Research philosophies are the core to a seminal piece of research. The discussion on Post-Disaster Housing Reconstruction in Sri Lanka: What Methodology? has identified social constructivism or interpretivism as the best-suited philosophy. Multiple, holistic case studies form the research strategy. Pilot interviews with experts who got involved in PDHR projects are used to formulate the research questions, and case study interviews were conducted to validate the same. Data analysis will be carried out in aid of software, NVivo 8 and *Stakeholder Circle*™.

Declaration of Conflicting Interests

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