MANAGING POST DISASTER RECONSTRUCTION PROJECTS THROUGH A CULTURAL PERSPECTIVE: A LITERATURE REVIEW

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ABSTRACT

Post Disaster Reconstruction (PDR) is a very important, complex and highly demanding process, including well planned set of activities done by well experienced construction professionals. Strength in terms of sustainability, particularly in the PDR of developing countries, is undoubtedly still not at an adequate level. One of the main challenges that affecting for the success of the PDR project performance is that not managing community cultural continuity properly while affording development opportunities in PDR projects which end up with cultural incompatible solutions, which are unsustainable in the long run. The success of PDR project performance is based on the success of their main 4 components: site, layout, construction and policies. The study identifies how those components of PDR projects are affected by the community culture with the lessons learned by past PDR project experiences all around the world. Further, the cultural factors which affect for each feature of PDR has been identified through the findings. Besides the thorough literature findings, the study has presented with proposed methodological aspects in order to continue the study in future.

Keywords: Community Culture; Cultural Factors; Post Disaster Reconstruction.

1. INTRODUCTION

Sri Lanka has a very unique culture with a vast cultural diversity and it is highly disturbed by different types of natural disasters such as Tsunami, floods and landslides (Amaratunga *et al.*, 2015). Post Disaster Reconstruction (PDR) is not just a good opportunity to convert the destructive zone into a sustainable community with a long-term developmental guidance, but also a favourable moment to get prepared for the next disaster (Ye and Okada, 2002). Advantages of sustainability, especially in the PDR of developing countries like Sri Lanka, is definitely not at a sufficient level (Sridarran *et al.*, 2008). The same mistakes are repeated over and over again and most of those mistakes arise due to low level of consideration given to social- cultural dimensions, while undertaking PDR. This matter should be carefully addressed by studying the cultural context of the country (Jaygasu, 2002).

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The previous researches have been highlighted that, one of the key challenges is to reinforce social and cultural stability through the development opportunities that are offered by PDR, without people ultimately ending up with culturally inappropriate solutions, which lead to long term unsustainability (Boen and Jigyasu, 2005). But, a detailed study on the impact of culture has not been done yet to identify the real reasons for those challenges. Furthermore, there is a necessity to identify that, to what extent a cultural impact can affect to a PDR project performance (Ismail *et al.*, 2014). In order to successfully implement these PDR projects in Sri Lanka, construction professionals should find out the social cultural impact to the project properly and they should have a proper knowledge to manage them. Sri Lankans attitudes on cultural concepts are in very high level and their life styles are hardly bound to the community culture. Sri Lanka has a very unique, proud cultural identity as well. Since the community culture impact on the PDR projects in Sri Lankan context is different from other countries, carrying out a study to analyse this impact will be very important for the success of the future PDR projects in Sri Lanka (Sridarran *et al.*, 2008).

Hence, this paper intends to bring in literature synthesis addressing the importance of the community culture to PDR projects, the community culture impact for the PDR projects and the cultural factors affect for the PDR projects. Ultimately a conceptual framework is developed to understand the community cultural impact on PDR projects.

2. METHODOLOGY

An extensive literature review facilitates the researcher to strengthen the base of the research by congregating the prevailing knowledge around the research area. Furthermore, Saunders *et al.* (2016) illustrated that a strong literature can facilitate the researcher to make sure that the existing knowledge related to research area is contemporary and the researcher is developing an original knowledge that is not existing in the current literature. Thus, a comprehensive literature review is vital for research to collect prevailing knowledge on the research area to pave the path to move beyond it to discover a piece of new knowledge.

Hence a comprehensive literature review is conducted addressing the importance of the community culture to PDR projects. Furthermore, the community culture impact for the PDR projects and the cultural factors affect for the PDR projects were identified through the literature synthesis. Thus, a robust literature review is conducted by accompanying books chapters, journal publications and conference proceedings. Compiling the extensive literature findings, a conceptual framework was developed to understand the community cultural impact on PDR projects.

3. IMPORTANCE OF COMMUNITY CULTURE TO PDR PROJECTS

As in Ismail *et al.* (2004), PDR projects can be defined as the modification, or entirely replacement of a facility in stages (involving extensions, renovation, additions or advancement of the functional performance of a facility), which is completely or partially destroyed due to catastrophic event. Success factors (CSFs) can be used to improve the effectiveness of the current and future projects (Davies, 2002). ''Project success is a function of project-related factors, project procedures, project management actions,

human-related factors and external environment and they are interrelated and interrelated'' (Chan *et al*., 2004, pp.75)

Ismail *et al*. (2014) have listed critical success factors that affect to PDR projects by analysing previous literatures According to their findings political local needs and culture has obtained the highest frequency and level of community control has the second highest as the success factors. Combination of these two success factors suggest the impact on community culture on PDR projects. Therefore, it can be said that community cultural impact is critical in success of PDR projects among other success factors. The rising interest for the studies can be seen in the past few years over the areas like community culture of the PDR, the relationship between culture and PDR project success, the community cultural effects including national cultural differences on PDR projects (Ross and Kivrak, 2009).

Community culture is a combination of attitudes, values, beliefs and assumptions that people share about themselves, others and about the natural world, in which they live (Little, 2012). Culture covers aspects as a way of life of a group, as a specific way of behaving and as a set of strategies adopted for existence linked to the ecological setting (Jaygasu, 2002). There are still many cultural considerations in many Asian countries that have to be considered when building a house, or other infrastructure to the community and this can vary from one country to another country or even from area to adjacent area (Ophiyandri, 2008). It incorporates patterns of communication that people have created to meet their needs, everyday behaviour, social etiquette, religion, policies and education (Adams, Goldbard and Ybarra-Frausto, 2002). According to Axner (2012), there are many physical and social components which are highly interconnected, in developing countries, where the system of social life at the village or community level is very complex.

Identifying the systems of local reconstruction projects and lifestyle of the end users are very important in order to define successful PDR that fit better with the requirements and desires of people, regarding their culture, traditions, habits, and values (Félix *et al*., 2015). Cultural consideration for the PDR projects may always restore the confidence of the people whose life has been completely changed due to the disaster (Max Lock Centre, 2006).

4.   THE COMMUNITY CULTURE IMPACT TO PDR PROJECTS

Post Disaster Reconstruction (PDR) projects need to be more human oriented comparing to other construction projects. Gunawan (2008) has identified that there are 4 components in post disaster reconstruction projects which have proved to be crucial in determining successful or unsuccessful outcomes in terms of community cultural influence. These components are known as site, layout, housing and popular input policies. The author further described that these four components are closely related to how the community react to a given PDR project based on the culture, either in terms of kinship, rituals or values.

4.1   SITE

All cultures exist within their environmental context. Appropriate site identification and selection for a PDR projects is very essential for the community and time-consuming

procedure, because it is bound with numerous dimensions including the community culture (Sridarran *et al*., 2008; Barakat, 2003). Therefore, poor choice of site for the new settlement can result the re-settlement programs unsuccessful (Gunawan, 2008). Housing relocation projects are delayed mainly due to the difficulties of finding suitable land areas to build large number of housing schemes, which are compatible with the disaster affected community culture, unwillingness of beneficiaries to be relocated and inadequate provision of infrastructure by government.

After the reduction of buffer zone some people tend to return back to their previous lands, even though they were offered with the houses constructed by donor driven projects. (Boen and Jigyasu, 2005). This is mainly due to their reluctance to change their usual lifestyle. Bouraoui and Lizarralde (2013) have stated in their research that in relocation after floods in Bousalem city, communities were dissatisfied with the new location by comparing the level of well-being experienced in their previous location in Bousalem. The major issue of this relocation was that relocated area was far away from the earlier village of Bousalem, which leads to a high level of dissatisfaction.

Moreover, the relocation is highly disturbing to the social and traditional structure based on family backgrounds. Relocated people face the difficulties while familiarising with the systems of urban life ending up homeless and unemployed (Lin and Lin, 2016). Author provides examples from the Typhoon Morakot case in Taiwan in 2006. In another post tsunami case in Tamil Nadu, India, more than 80% of the affected people within fishing communities, refused relocation due to their livelihood is related with their location and it was impossible to find satisfactory land to reconstruct all coastal houses in new locations and project was not successful (Barenstein and Pittet, 2007).

4.2   LAYOUT

The second factor that plays an important role in the PDR projects is the layout or design of the settlement (Gunawan, 2008). The space designs for the relocated villages should be fully compatible with the lifestyle of the villagers. Traditional resettlements need to be highlighted with narrow streets, open spaces in both public and private areas which can be used for the activities such as religious functions and clusters of housing with different typologies characterized by traditional lifestyles (Boen and Jigyasu, 2005).

Past researchers have been highlighted that most of the PDR housing projects are build up without considering these cultural impacts. According to Gunawan (2008) the village, Flores in Indonesia, after the earthquake could not function well like the previous village because the plan was in accordance to uniform national criteria by the government, instead of the local culture and tradition. As a result, no space was allocated for the social gatherings and the general rituals of villagers as in their original environments. The design was failed due to the whole 'city-like' plan which includes wide roads creating a grid pattern and row housing (Gunawan, 2008). This suggests that it is needed to provide space for social interaction and rituals while designing the villages after disaster.

While designing housing reconstruction, residence in extended families (family background) is still the norm. The designs based on the assumption of occupancy by a nuclear family arise problems in extended family lives because the designs are inappropriate to their needs (Barakat, 2003). Lin and Lin (2016) highlighted in their research that Thaiwan villagers faced lot of difficulties due to inadequate kitchen facilities and lack of space to expand the families. In the South Indian reconstruction project, the

master plan for the houses that was developed, followed the concept of clusters. Later on, villagers were dissatisfied with the design as they couldn't have pooja room for their rituals, and the designed scheme was smaller than the previous plot (Tauber, 2015). In the Tamil ethnic culture, people use detached toilets. In Marathwada reconstruction in India, the provision of attached toilets was useless as Tamil people use detached toilets according to their ethnic culture. Later, those attached toilets were used to store grain by the communities (Jaygasu, 2002). These designs may lead the community to long time exhaustion as well as disorders.

The designs of houses should be considered the requirements of women too, mainly due to female headed families (women become widows due to disaster). Therefore, sanitation facilities, privacy and high security should be provided in designs for the women and children in order to prevent sexual assaults.

4.3 CONSTRUCTION

Construction process is also one of the most important components for the success of PDR projects. The community organizations tend to construct projects by implementing locally feasible cost-effective technologies, whereas through the participative, clear and accountable systems (Jayaraj, 2008). The utilization of local resources is a good choice than the other solutions (Lizarralde and Davidson 2006; Barakat 2003). Further, those materials that can be found locally are culturally, and socially more suitable, since they are familiar with the community and those materials can be obtained in low costs as transportation costs are not incurred. Even innovative technologies should be used in a proper manner, whereas combination of traditional and modern construction methods can be used (Bouraoui and Lizarralde, 2013).

Hughes (1987) has studied the situation after three years of the reconstruction projects which were done due to the, devastating earthquake in Turkey. The author observed that there were so many changes done to those reconstruction later by the local people in order to suit with their traditional culture. Traditional structures and temporary storage sheds were attached to the reconstructed houses and used traditional techniques again. These houses were built using the stone and timber, found out from the destroyed houses with fresh soil roofs derived from the surroundings (Huges, 1987). Communities have considered the aesthetic appearance and social status while constructing according to their culture. Such examples show clearly how people adapt themselves and change the surroundings accordance with their lifestyle.

In another post tsunami reconstruction project in India the community didn't satisfied with the reinforced concrete houses built by Non-Governmental Organizations (NGOs), without any veranda due to their failure to address the climatic and socio-cultural requirements of the space (Gunawan, 2008). At the village reconstruction in Marathwada, India, the government have provided large infrastructure, which were more than enough for the community. But the village committee could not maintain those infrastructures with their financial resources. The villagers face economic difficulties due to paying higher taxes for these infrastructures, which were kind of useless (Jaygasu, 2002).

Therefore, the construction professionals need to identify the housing standards with social structure determinants and size; culture affects forms, function, and aesthetics.

4.4 POLICIES

The last factor is policy making, which is a popular input for the success of PDR projects. Much effort has been gone into developing disaster reconstruction policies and institutions on a global scale from the past years. While some countries may have existing legislation, regulation and policies in place, to review and amend in a disaster occasion, some countries have to enact new legislations and regulations in the relocation, planning and construction stages in PDR projects (Bilau *et al.*, 2018). Project failures or partially successful projects are mostly characterized by policies, which focus less on consultation with the disaster affected community (Smith, 1991). These policies highly disregarded cultural factors of the community. The decisions made by government or aid agencies need to consider needs and values of the resettled populations (Kulatunga, 2011).

Barenstein (2006) explored how the government policies failed to pay proper attention to the social-cultural and environmental conditions of reconstruction projects after the tsunami in 2004 at Tamil Nadu, destroying peoples' cultural identity and livelihood resources. These policies adopted, repeatedly neglect the various types of households and the diversity of their needs which lead the failures to consider the affected residents differently (Aldrich, 2012).

Delays were occurred while initiating the housing projects due to the changes of the policy decisions from the Government of Sri Lanka (GoSL), regarding relocation of affected community and the rights of those displaced persons. The GoSL has enforced a buffer zone of 100m restricting any construction or development within this limit, which affected for the occupation of most people living in the coastal areas, and they loss their source of income. The government had to revise the policy, which delayed the reconstruction programmes and some donors were loss due to this delay.

On the other hand, some policies were positively affected for the reconstruction projects. In PDR in Kathmandu Valley, Nepal, the government removed the existing constraints on the forest usage so that the people may make use of the local resources like timber for reconstruction, which provided economic benefits for the community (Jaygasu, 2002).

5. CULTURAL FACTORS AFFECTING PDR PROJECTS

Cultural factors impact community with the nature, timing, tasks, and rituals of lifestyle transitions, as well as the significance the family attaches to each transition (Dude, 2014). The cultural factors refer to cultural dimensions through which a community can be recognized by others (Cross, 1978). Communities make an identity within their living environment through these cultural factors. These factors can be identified as follows:

Ethnicity - Many authors have suggested that the common origin and decent of the people makes the group an ethnic group. Ethnic identity differs from other identities as this is history distinguished (Verkuyten, 2005).

Religion and Spirituality- This is a set of communal beliefs and practices which are shared and organized with the aim of spiritual development. (Hodge and Derezotes, 2008).

Livelihoods- The lifestyles of a particular community are very important in community culture. The day to day lifestyle, occupation systems are the components that are overviewed under livelihood.

Family Background- How the community identify the arrangement of the family and their primary believes as a family which has a cultural identity (McGoldrick, 2005).

Rituals- Rituals guide the behaviour of small sets of people or celebrated across the entire community. Most of these rituals are bound with ethnicity and the religions of communities.

Attitudes- Related with the feelings about any given thing and reflection of values we hold (Fishbein and Ajzen, 1975) believe that attitude is a learned tendency to respond to a given entity in a favourable or unfaourable way.

Social interaction- The way people contact with their community and how they behave with the other people in their living environment and interaction with outside communities.

Social Status- Social class, an external variable influences cultural identity based on how one understands one's place in a system, the environment one grows up in, and how others perceive a person (Anderson and Collins , 2007).

From the lessons learned in past disaster scenarios in global context which have been found through the literature, the cultural factors that affect each component of the reconstruction projects can be determined as given in Table 1.

Table 1: Examples for the cultural impact from past disaster scenarios

Feature	Cultural Factor	Case
Site	Ethnicity	• Flores in Indonesia
	Religion and spirituality	• Flores in Indonesia
	Livelihoods/Occupation	• Post flood relocation in Bousalem city, • Post tsunami case in Tamil Nadu, India
	Family background	• Typhoon Morakot in Taiwan
Layout	Livelihoods	• Typhoon Morakat in Thaiwan
	Rituals	• Flores in Indonesia, • South Indian reconstruction project
	Social interaction	• Flores in Indonesia
	Family background	• Typhoon Morakat in Thaiwan
	Habitats	• Marathwada reconstruction in India
	Gender	
Construction	Livelihoods	• Earthquake in Turkey, • Post tsunami reconstruction in India
	Social interaction	• Post earthquake reconstruction in Italy
	Social status	• Marathwada reconstruction in India
	Economy	• Reconstruction in Marathwada, India
Policies	Livelihoods/Occupation	• Tsunami in 2004 at Tamil Nadu, • Tsunami reconstruction in Sri Lanka
	Family Background	• Typhoon Morakat in Thaiwan
	Social Interaction	• Typhoon Morakat in Thaiwan

| Economy | • Kathmandu Valley, Nepal |
| Gender | • Reconstruction of Dibbulapalem |

(Sources: Jaygasu, 2002: Bouraoui and Lizarralde, 2013: Barenstein and Pittet, 2007: Lin and Lin, 2016: Gunawan, 2008: Tauber, 2015: Hughes, 1987: Geipel, 1991: Barenstein, 2006)

6. CONCEPTUAL FRAMEWORK

The findings through the comprehensive literature review for the areas mentioned in the objectives for the community cultural impact on post disaster reconstruction project performance, are mapped together using a conceptual framework (see Figure 1). The framework can be applied to find out the relationship between community culture and the success for the PDR projects.
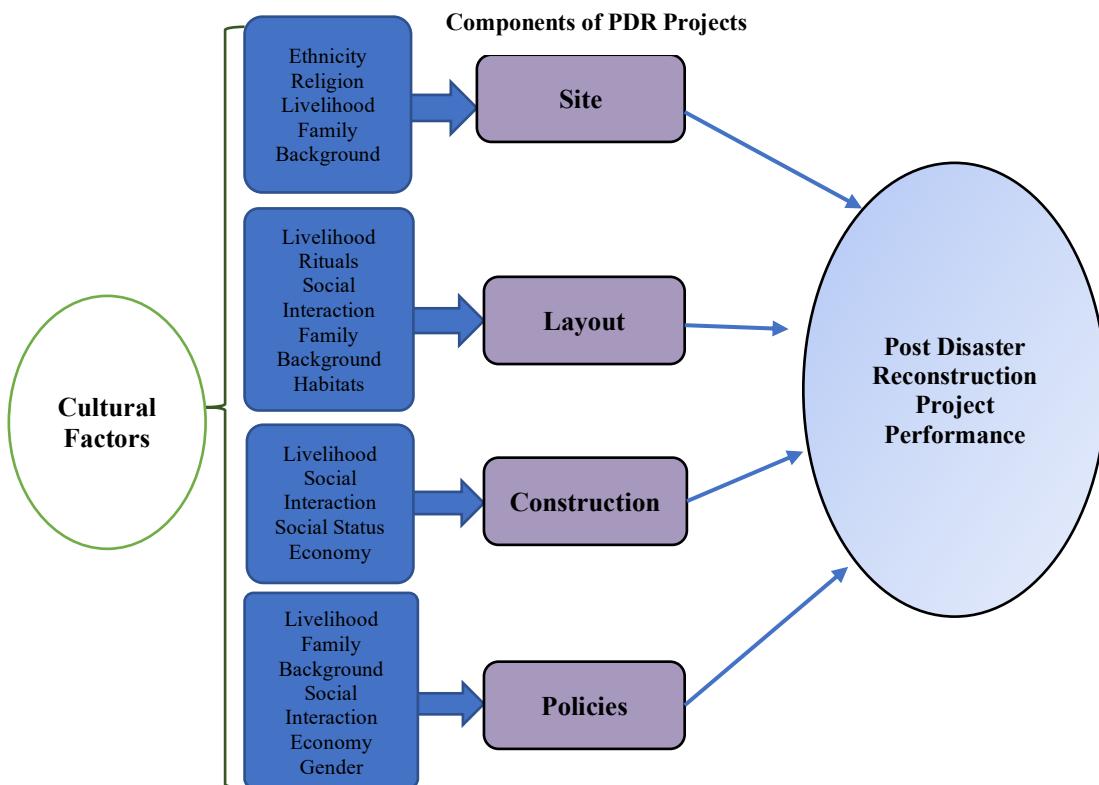

Figure 1: Conceptual framework

The conceptual framework shows how the community culture affects for the PDR project performance through the cultural factors and how it should be led to the success. Through the literature review four main components of the PDR projects that are affected by the community culture, have been identified as Site, Layout, Construction and Policies (Refer Section 3). Those are shown in the middle of the framework. Combination of those four components lead to decide the PDR project performance. While achieving the project performance through those components, each and every component has the influence by the community culture. Every component is affected by set of cultural factors which has been identified in the sub sections of Section 3. Site selection has the impact on cultural factors like ethnicity, religion, livelihood and family background. Livelihood, rituals, social interaction, family background, habitats and gender impact for the design of the PDR project. Construction of PDR projects depends on the cultural factors like

livelihood, social interaction, social status and economy. Policies have the impact on livelihood, family background, social interaction, economy and gender (Refer Table 2). Those cultural factors which are described in the section 4 have been shown at the left side of the framework. The PDR performance is determined through the success of its components which are affected by those cultural factors. This framework clearly shows how the community cultural factors affect to the performance of PDR projects indirectly. Therefore, this framework summarises that PDR project success depends on the success of their components which are the part of PDR process. It is clear that those components can't be succeeded unless the community cultural impact positively effect on those components. This relationship shown in the framework suggest that community cultural impact on post disaster reconstruction projects. Finally, this framework has been developed from the literature findings considering the global context.

7. CONCLUSIONS AND RECOMMENDATIONS

In the past decades, several disastrous events have occurred and caused severe damages to people and infrastructure all over the world. Opportunities occurring from disasters break the current limitations and barriers and the traditional scope by creating a blank slate for building houses and infrastructures. The successful performance of a PDR project depends on how well the initial decisions respond to the needs of the affected people. In terms of the planning and implementation of reconstruction programmes social cultural appropriateness of recovery measures have been a recurring challenge and continue to cause project failures in disaster reconstruction.

The PDR project components like site, layout, construction and policies are closely related to how the community react to a given PDR project based on the culture, either in terms of kinship, rituals or values. The previous researches have been highlighted that, one of the main challenges is to reinforce cultural continuity through development opportunities that are afforded through PDR, so that one does not end up with cultural incompatible solutions, which are unsustainable in the long run. Therefore, managing cultural factors properly in previously mentioned stages of PDR projects is a must in order to succeed in the PDR project performance.

The main solution to manage the cultural impact on PDR projects is that, increasing community participation for these projects. The beneficiaries should have the control and responsibility of their own decisions (type of house to be built, type of technology to be used, contribution in self-help, hired activities, etc); however, these decisions should be framed by contractual clauses that attempted to guarantee that the resources offered were efficiently and properly used. The professionals involve in the PDR projects should have paid more attention about community cultural conditions after disasters in order to make their projects more sustainable with cultural compatibility. Yet, the research findings were completely based on a thorough analysis of literature, which leads a way forward to continue the study to explore the community cultural impact to PDR projects in the actual scenario.

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