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Donor-driven resource procurement for post-disaster reconstruction: Constraints and actions

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A B S T R A C T

Post-disaster reconstruction suffers bottlenecks and challenges due to the inadequacies of resource procurement. In the aftermath of the 2004 Indian Ocean tsunami, difficulties in acquiring resources compromised donors' efforts in achieving a successful recovery. By drawing on in-field observations and surveys in Banda Aceh, Indonesia, this paper identifies the key factors that obstructed the process for NGOs to procure building materials and labour. The result demonstrates that donor-driven resource procurement was primarily impeded by (1) NGO-related factors including: NGOs competency of resource procurement and competition for resources among aid agencies; (2) external hurdles in NGOs implementing environment including: low local transportation and supply capacity, incompetence of contractor, and insufficient government support; and (3) community-related factors including: local housing culture and lack of community influence and participation. Continuous capacity building in NGOs, proactive resource assessment and planning, strengthening relationships with local community and institutions, together with a collaborative resourcing approach are likely to address resourcing constraints faced by NGOs when rebuilding communities following a disaster.

Introduction

In most cases of post-disaster recovery and reconstruction, international aid agencies provide technical and financial assistance for the disaster affected populations. Regarding post-disaster reconstruction in developing countries, the UNDRO (1982) advocates the community participatory approach as a key to success. The donor-driven model was modified in the 1980s to mix the provision of rebuilding housing by outside contractors with locally managed self-help programs (Comerio, 1998), or to combine with an appropriate level of community participation (International Recovery Platform, 2007). According to Choguill's (1996) ladder of community participation for underdeveloped countries, the degree of the external institutional involvement can be classified into the following ways: empowerment, partnership, conciliation, dissimulation, diplomacy, informing, conspiracy and self-management. However, Davidson, Johnson, Lizarralde, Dikmen, and Sliwinski (2007) point out that despite various ways in which people affected can participate in post-disaster housing reconstruction projects, not all types of participation ensure the best deployment of their capabilities.

In the aftermath of the 2004 Indian Ocean tsunami, the 'infusion of aid' model was preferred and encouraged by the majority of housing reconstruction projects. Under the donor-driven reconstruction approach, many humanitarian organizations pursued contractor-built implementation. For example, CARE (2006) used a combination of their engineers and several large housing contractors in housing projects. In comparison with contractor-built reconstruction, the owner self-built approach is empowering and participatory, and thus was popular among NGOs, such as UNHCR (2006), UNICEF (Jaspars, Harvey, Hudspeth, Rumble, & Christensen, 2007), World Vision (Bailey, Savage, & O'Callaghan, 2008), which consider community redevelopment and participation as being among their main objectives. UNDP (2007) in conjunction with UN-HABITAT designed the *Aceh Nias Settlements Support Program* (ANSSP) by which self-construction was adopted with funding support from aid agencies in the form of cash grant or transfer.

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In spite of the various reconstruction approaches and initiatives in place in Aceh, the large-scale involvement of external aid agencies in post-tsunami recovery and reconstruction was not able to improve the local social conditions; rather it reinforced such concerns regarding Aceh's sustainable development as land venue (Nazara & Resosudarmo, 2007), environmental conservation (O'Brien, Ahmed, & Hes, 2008; Roseberry, 2008) and economic dislocation (Jayasuriya & McCawley, 2008). In pursuit of reconstruction speed, massive reconstruction demands led to competition among the implementing agencies for limited construction resources such as timber (Zuo, Potangaroa, Wilkinson, & Rotimi, 2009), bricks (UNDP, 2006), cement (ADB, 2007) and labour (Pathiraja & Tombesi, 2009), causing sharp escalation in construction costs and huge funding gaps (Nazara & Resosudarmo, 2007; Steinberg, 2007).

In response to the adverse conditions induced by resource shortages, some aid agencies turned to available inferior resources (Jayasuriya, Steele, Weerakoon, Knight-John, & Arunatilake, 2005; Kennedy, Ashmore, Babister, & Kelman, 2008), or sought to import materials from outside of Aceh and even further afield with long lead time (Dercon, 2007; Zuo et al., 2009). As could be expected, without appropriate site supervision and quality control in place, a variety of construction defects and failure associated with poor building materials and workmanship occurred, to a great extent undermining donors' contribution to tsunami recovery and reconstruction (Boen, 2008; Leitmann, 2007; Steinberg, 2007).

In 2008, three years after the Indian Ocean tsunami, the 'Resilient Organisations' research team were able to undertake field trips to the tsunami impacted areas in Indonesia. The opportunity of working with CARE Indonesia allows the researchers to access information and data and to conduct a substantial study with a number of aid agencies that were meanwhile engaged in post-tsunami housing reconstruction in Indonesia. The authors spent three months in Banda Aceh, the capital city of Aceh Province, Indonesia between March and June 2008 with the aim of understanding the constraints that made the donor-driven resource procurement peculiarly difficult. A thorough field observation was made and a range of stakeholders involved in post-Indian Ocean tsunami recovery and reconstruction in Aceh were interviewed or answered surveys. The study identifies the key constraints and suggests possible solutions for improving donors' resourcing performance. A ranking hierarchy among the identified impediments is presented in order to inform the thinking and actions of priority for donor-driven resource procurement post-disaster. Although the discussion focuses mainly on resourcing issue faced by NGOs in Indonesia, it is also applicable to other donor-driven reconstruction processes.

Factors affecting resource availability for construction projects

In recent years research findings from both academic and practitioner studies have provided much-needed insights into the factors that contribute to resource availability for construction projects during the procurement process. Availability of resources has been recognized as a driving force for the success of construction projects (Bassioni, Price, & Hassan, 2004, 2005; Chua, Kog, & Loh, 1999; Tukel & Rom, 1998). Belassi and Tukel (1996) highlighted a number of environmental factors such as political, economic, and social elements which influence the project resource availability and thus the project performance.

Manavazhi and Adhikari (2002) identified the factors that lead to contractor's material and equipment procurement delay, including organizational weaknesses, suppliers' defaults, governmental regulations and transportation delays. In addition, inadequate resource planning and scheduling (Tserng, Yin, & Li, 2006) and poor site inventory management (Liu & Wang, 2007) have an impact on resource utilization at the later stages of construction.

Closer cooperation between procurement and other construction functions enables direct receipt of materials from suppliers to a construction site (Yeo & Ning, 2002). The design specifications (Tatum, 2005) and construction methods (El-Rayes & Kandil, 2005) also determine how the project team is mobilized and resources are procured. Walker and Rowlinson (2008) suggested that procurement alternatives can have a profound impact on project delivery. Pryke (2004) underlined the important role of the social network of project stakeholders, especially large contractors in resource acquisition. On account of their purchasing power, large contractors are able to deal directly with manufacturers and wholesalers thus acquire resources more easily than small and medium units (Agapiou, Flanagan, Norman, & Notman, 1998). The construction site location also bears on resource availability in terms of material transportation time and cost (El-Rayes & Khalafallah, 2005).

In post-disaster reconstruction, Singh (2007) concluded that five factors influence availability of resources for reconstruction projects including prioritization of works, ability to pool resources, lead time of procurement, existing contractual relationships and transportation into and around the disaster zone. Singh and Wilkinson (2008) added that availability of resources is also governed by the policies and strategies put in place by the authorities to deal with the reconstruction phase. Furthermore, during the tsunami reconstruction in Aceh, UNDP (2006) identified factors that impact the commercial environment in which the brick supply chain operates, including community preference, quality of raw materials, slow new technology adoption, high transportation costs and poor infrastructure for dispersal and delivery.

In light of past studies, it is clear that various researchers have recognized the factors that are likely to have an influence on the success of project resource procurement. In comparison with pre-event project construction, the post-disaster reconstruction environment is chaotic, dynamic, and complex (Alexander, 2004; Berke, Kartez, & Wenger, 1993; Birkland, 2006; Davidson et al., 2007). This study would, therefore, take this work further to identify the key constraints that impeded resource availability for post-tsunami donor-led reconstruction projects in Indonesia. The information this paper provides will lead to more effective donor-driven resource procurement for post-disaster reconstruction.

Research methodology

The authors spent three months in Banda Aceh, Indonesia with observations made during this trip. This paper, as part of the first author's doctoral study, is based on a combination of three-month field observations and the formalized research strategies including questionnaire and interview surveys. A questionnaire was designed drawing on the factors derived from the above literature review. In order to enhance the questionnaire, a pilot study was conducted by consulting with three experienced construction coordinators involved in post-tsunami housing reconstruction in Aceh, Indonesia. A total of 37 factors extracted from both literature and the pilot study are displayed in Appendix Table 1. By using the content analysis method (Krippendorff, 1980), these 37 factors were categorized into five groups.

A total of 20 questionnaire surveys were carried out in Banda Aceh between March and May 2008 with 20 elite stakeholders engaged in post-Indian Ocean tsunami housing reconstruction program. Prior to the survey, each potential participant was advised by the researchers to subscribe the Participant Consent Form