Chapter 61
Designing Post-Disaster Supply Chains:
Learning from Housing Reconstruction Projects

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ABSTRACT

Post-disaster housing reconstruction projects face several challenges. Resources and material supplies are often scarce; several and different types of organizations are involved, while projects must be completed as quickly as possible to foster recovery. Within this context, the chapter aims to increase the understanding of relief supply chain design in reconstruction. In addition, the chapter is introducing a community based and beneficiary perspective to relief supply chains by evaluating the implications of local components for supply chain design in reconstruction. This is achieved through the means of secondary data analysis based on the evaluation reports of two major housing reconstruction projects that took place in Europe the last decade. A comparative analysis of the organizational designs of these projects highlights the ways in which users can be involved. The performance of reconstruction supply chains seems to depend to a large extent on the way beneficiaries are integrated in supply chain design impacting positively on the effectiveness of reconstruction supply chains.

INTRODUCTION

In contrast to the developments in increasing the accuracy of forecasting a number of natural disasters, the aftermath of these events, particularly the part related to disaster relief operations, often remains very problematic. The increased frequency of both human and manmade disasters which implies that more resources have to be allocated more efficiently, more frequently and sometimes more unexpectedly, has resulted in increased complexity in the delivery of humanitarian assistance (USAID, 2002; EM-DAT, 2008). Complexity is further increased by the large growing

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number of organizations, both governmental, and non-governmental, which are nowadays devoted to providing humanitarian assistance. Another novelty is that emergency relief efforts rarely remain within the boundaries of single countries. In most cases, multi-country collaboration is required, adding thus global implications in the development of relief efforts.

Given that logistical efforts account for a very significant portion of the humanitarian aid spending (van Wassenhove, 2006), many researchers are pointing out the crucial importance of having an efficient and effective logistics system. But as Kovács and Spens (2007) argue when it comes to humanitarian aid, there is an important distinction to be made between logistical activities that pertain to 'continuous aid work' vs. 'disaster relief'; or, as van Wassenhove (2006) points out, slow-onset vs. sudden-onset disasters. Yet, distinct phases can also be seen within disaster relief, such as preparation, immediate response and reconstruction (Kovács and Spens, 2007). Whilst the focus in the immediate response phase is one of time efficiencies, the later reconstruction phase has a longer-term focus and thus, deals with more predictable demand and the possibility to plan for constant schedules (Maon *et al.*, 2009; Taylor and Pettit, 2009).

The reconstruction phase of disaster relief operations is at the heart of this chapter. In particular, the chapter sheds light on two major European-based reconstruction housing programs with the aim of increasing the understanding of the overall supply chain design. The chapter starts with a review of relief supply chain literature, with particular emphasis on supply chain design and performance in post-disaster reconstruction. Next, the research methods of the study are presented, followed by empirical evidence from the housing reconstruction programs. The chapter ends with the key findings and conclusions.

EMPIRICAL BACKGROUND

The chapter reports the findings of a comparative analysis of two studies of reconstruction housing programs. Study 1 is based on a European Housing Reconstruction Programme in the Kosovo, while study 2 sheds light on a similar Housing Reconstruction Programme in the Former Yugoslav Republic of Macedonia (FYROM).

Study 1: Housing Reconstruction in Kosovo

Kosovo is located in the central Balkan peninsula in Southern-eastern Europe. It is a landlocked region and borders the FYROM to the south, Albania to the west and Montenegro to the northwest. For many decades it was an autonomous part of Yugoslavia, but after 1989 conflicts between Kosovo Albanians Serbians started which were continued until 1999 when NATO forces bombed Serbia. The end of the Kosovo conflict revealed a typical complex emergency situation characterized by refugees and a large-scale destruction of houses. An estimated 120,000 houses out of a total of over 250,000 were damaged or destroyed. The European Union played an important and multifaceted role in Kosovo's reconstruction particularly through the European Agency of Reconstruction (EAR). According to the EAR (EAR, 2002), 41,000 were less badly damaged, 32,000 were seriously damaged (41-60% of the house damaged) and 47,000 were very seriously damaged (61-100% of the house damaged) - most of these houses were effectively destroyed, with often not even a sound foundation remaining. This large-scale destruction, as well as the need to rapidly re-house families in Kosovo urged for increased efficiency in the reconstruction effort. Without the return of families from temporary accommodation to their homes, normal life could not have resumed in Kosovo. Several issues added to the

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