

Strategic Planning for Post-Earthquake Temporary Housing: Best Practices



Delmas Tent Camp in Port-Au-Prince, Haiti (MICA Environmental Design 2011)

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Abstract

Reconstruction following major earthquakes proceeds slowly, and emergency shelters distributed immediately post-quake are unlikely to last until homes have been restored. In the meantime, providing temporary housing for victims presents a number of challenges and can draw resources away from other activities. Although the provision of temporary housing after earthquakes is fraught with difficulty, thorough strategies by governments, NGOs, and IGOs can mitigate the challenges most commonly encountered.

(Key Words: post-disaster temporary housing, earthquakes, strategic planning)

Overview:

More than two years after the disastrous January 2010 Haitian earthquake, approximately 135,000 families are still living in tents. These temporary shelters given to residents two years ago, mostly comprised of plastic tarps, were only designed to last six months. A small number of families are candidates for temporary housing known as “T-shelters,” but the severe shortage of reconstructed housing means that the vast majority have either taken refuge in severely damaged buildings or continue to live in rapidly decaying tents (Booth 2012). Reconstruction following major earthquakes proceeds slowly, and emergency shelters distributed immediately post-quake are unlikely to last until homes have been restored. In the meantime, providing temporary housing for victims presents a number of challenges and can draw resources away from other activities. With sound pre-impact strategic planning for temporary housing, however, earthquake-affected populations can be more adequately housed during the reconstruction process and can begin rebuilding their lives even before moving into permanent homes.

Post-Earthquake Temporary Housing:

Post-earthquake housing is often conceptually divided into four categories: emergency shelter, temporary shelter, temporary housing, and permanent housing. *Emergency shelter* is an immediate solution, employed for a few hours to a few days and includes public shelters and refuge with family or friends. *Temporary shelter* is employed for a few weeks after the disaster and most commonly takes the form of tents or plastic sheeting, often provided by the Red Cross/Red Crescent or military forces and accompanied by the provision of food, water, sanitation, and other services. *Temporary housing* is a longer-term arrangement, employed until permanent housing can be secured. Temporary housing allows a return to daily activities such as work and school, and often takes the form of a rented apartment, a prefabricated home, or a small

shack, depending on the context. Finally, *permanent housing* is the return of victims to their reconstructed homes, or resettlement in a new, permanent home (Johnson 2007b, 436-437; Johnson *et al.* 2006, 368-369; Ritchie and Tierney 2011, S490). These categories are useful for understanding the various types of housing that may be employed by earthquake victims; however, the rehousing process rarely proceeds in such a cohesive, sequential manner (Johnson 2007b, 437; Ritchey and Tierney 2011, S490).

Temporary housing allows families to recover and incorporate a sense of normalcy into their lives (Johnson 2007b, 437). In situations where large numbers of homes are lost, reconstruction can take years; thus, temporary housing is crucial to rebuilding communities and economies. Adequate temporary housing should provide protection from the environment; contribute to personal safety and security, dignity, health, and well-being; enable normal household duties and livelihood activities; and bridge the gap until permanent housing is available (Da Silva 2007, 26). Thus, temporary housing must include not just a structure, but also reasonably convenient access to services and jobs (or an affordable transit system), proximity to former homes if possible and desired, maintenance of neighborhood ties and support systems, and guidance on the procedures and options for procuring permanent housing (Johnson 2007b, 437). In addition, community participation is increasingly seen as a necessary component in successful temporary housing programs (Da Silva 2007, 26).

While UNHCR standard specifications for temporary shelters are widely recognized, and national building codes apply to permanent housing (in theory, if not in practice), specifications for temporary housing are less ubiquitous (Da Silva 2007, 25; Forouzandeh *et al.* 2008, 1). The Sphere standards provide the only real minimum specifications for temporary housing (Da Silva 2007, 27). Additionally, the provision of temporary housing after an earthquake is greatly

complicated by the post-disaster context (Davidson *et al.* 2007, 101). Provision of temporary housing usually falls into either a minimal or maximal approach. The minimal approach emphasizes keeping investment of effort and resources to a minimum and prioritizes the provision of permanent housing instead. On the maximal side, state-of-the-art industrialized or prefabricated units are provided, allowing long-term occupation (Johnson *et al.* 2006, 369).

Issues Presented by Post-Earthquake Temporary Housing:

Whether minimal or maximal provision of temporary housing is pursued post-earthquake, programs often encounter a number of problems once underway. These key issues are outlined below:

Timing

Trade-offs must often be made to ensure prompt delivery of temporary housing, so that individuals can resume daily activities and begin the process of recovery. For instance, minimum standards for shelter and settlement were set aside in Haiti in order to allow faster assistance to more victims. The completion of temporary housing generally takes six to eleven months (Johnson 2007b, 451; Ritchie and Tierney 2011, S494).

Cost

Temporary housing is very expensive in relation to its intended lifespan and the cost of a permanent home, and these costs are compounded when housing or materials must be imported to developing countries. After the 1999 earthquakes in Turkey, for example, one unit of temporary housing cost approximately \$5000 USD (Johnson 2007b, 441, 451).

Resources

If temporary housing programs consume a disproportionate amount of financial, human, and machinery resources, then it may negatively affect other portions of a reconstruction strategy.

In both Turkey and Japan (following the 1995 Kobe earthquake), large investments in temporary housing were at the expense of permanent housing programs, with Turkey having to seek additional funding for permanent housing from the World Bank (Johnson 2007b, 451-452). For this reason, a number of NGOs in Haiti chose to move directly from the provision of temporary shelters to permanent housing (Ritchie and Tierney 2011, S495).

Unit Design

Temporary housing must provide fire protection, sanitation and adequate protection from climatic conditions. It must also match local living conditions. After the 1976 Friuli, Italy earthquake, beneficiaries refused the temporary housing they were offered because it was not suitable for the climatic conditions (Johnson 2007b, 448, 452-453). Similarly, units in Colombia were nicknamed “microwave ovens” due to metal roofs unsuited to the tropical climate (Johnson *et al.* 2006, 376).

Location

Securing suitable locations for temporary housing can be very problematic, particularly on private land or where land tenure is unclear. A major logistical challenge in Haiti was the acquisition and availability of land for temporary housing and questions surrounding land ownership (Ritchie and Tierney 2011, S498-S499). It is preferable to locate temporary housing close to disaster-affected areas so that neighborhood ties and access to services can be maintained, but it is often much quicker and easier to locate temporary housing in periphery areas (Johnson 2007b, 453).

Service Delivery

If housing is located in periphery areas, either transportation or additional services must be provided. These include schools, medical clinics, shops, cafes, religious buildings, post

offices, and so on. In Haiti, however, these decisions were motivated more by donor requirements than by location and need (Johnson 2007b, 453; Ritchie and Tierney 2011, S494).

Social Networks

Affected families can benefit greatly from supportive social networks, so it may be necessary to provide social spaces and organized activities to allow people to meet together. After the Kobe earthquake, increased rates of suicide and depression among temporarily housed populations were linked to loneliness and isolation (Johnson 2007b, 445, 454).

Institutional Support

Families that lack a clear and feasible plan for permanent housing suffer psychologically more from a disaster, so ensuring that there is institutional support to help families secure permanent housing is crucial. Families in Mexico, for instance, tolerated temporary housing better because they were aware of their options for obtaining permanent housing (Johnson 2007b, 454).

Long-term Use

Temporary housing is always inhabited for longer than intended. Low-income and vulnerable populations, particularly renters, are often left out of permanent housing programs and choose to stay in temporary housing (Ritchie and Tierney 2011, S491). It may also be occupied by new migrants to an area unable to afford permanent housing, or used as a second home or storage unit. Long-term use of temporary housing can create huge problems for the governments involved, which must choose whether to continue providing services (Johnson 2007b, 454). In Colombia, temporary housing projects that were not vacated became urban slums, resulting in overcrowding, pollution, and marked increases in violent and sex-related crime (Johnson *et al.* 2006, 376).

Other Outcomes

Other outcomes for temporary housing units can also be problematic. Disposal of units present logistical challenges, but if they are to be recycled for future use, refurbishing and storage costs can be prohibitive. Housing sites may also be polluted and need significant cleanup, as in Turkey, where concrete slab foundations and various other debris remained after the removal of units (Johnson 2007b, 455; Johnson 2007a, 49).

Greater Impact on Vulnerable Populations

Vulnerable populations are hardest hit by loss of housing due to earthquakes. Temporary housing programs must prioritize needs of vulnerable populations and their access to subsequent permanent housing, despite post-earthquake rent increases or disputes involving ownership and land tenure (Wu and Lindell 2004, 77; Ritchie and Tierney 2011, S490).

Lack of Community Participation

Community participation in temporary housing is key, particularly when recovery efforts are dominated by outside aid providers, as in the case of Haiti (Ritchie and Tierney 2011, S503). Unfortunately, however, participation is rarely adequately incorporated, with most programs failing to empower, or even consult with, beneficiaries (Arslan and Ünlü 2008, 7; Davidson *et al.* 2007, 113).

Given the myriad of issues associated with post-earthquake temporary housing, it is clear that the development of a good program is very complicated. Successful development is key, however, as “the ways in which temporary housing is organized will affect the recovery prospects of individuals, families, and communities” (Ritchie and Tierney 2011, S489).

Mitigating Temporary Housing Issues through Strategic Planning:

Although specific pre-planned programs cannot be made prior to a major earthquake, strategic planning for temporary housing post-disaster can ensure optimal outcomes for both affected individuals and organizations administering the programs. If problems can be mitigated at the beginning of a program, temporary housing can be an efficient and practical way to house people quickly and temporarily until permanent housing can be obtained (Johnson 2007a, 50). The preparation of pre-impact plans for temporary housing can provide local officials with time to consider how activities undertaken during the immediate aftermath will affect long-term recovery, as well as increasing the efficiency and quality of post-impact decisions (Wu and Lindell 2004, 63; See Appendix). Recent experience in Pakistan, Sri Lanka and Indonesia has proven that strategic planning improved temporary housing outcomes (Da Silva 2007, 30). Thus, governments, NGOs and multilateral agencies would all be wise to engage in pre-impact strategic planning.

Strategic Planning Best Practices:

As mentioned above, strategic planning for post-earthquake temporary housing cannot be detailed, “cookie-cutter” type programs, as circumstances will differ according to the location, context, and magnitude of the earthquake (Wu and Lindell 2004, 75). A comprehensive strategic plan that can be adapted to each individual situation is key to providing the best outcomes for victims. Governments will need to engage in the most comprehensive and detailed planning. Governmental strategic planning should address or incorporate each of the following elements:

Organizational Plan

- Overall reconstruction strategy, from immediate relief to long-term reconstruction and development (Arslan and Ünlü2008, 8; Johnson 2007b, 456)

- Hierarchy of public and/or private departments or agencies to be mobilized, and sharing of risks and responsibilities between them
- Department or agency specifically responsible for temporary housing
- Sources of financing, definition of financial authorization and control mechanisms
- Procurement and management policies, and their implementation (Johnson *et al.* 2006, 370)
- Plans for engaging UN Shelter Clusters and NGOs working on temporary housing, and departments responsible for doing so (Da Silva 2007, 30; Arslan and Ünlü 2008, 8)
- Guidelines for selection of victims eligible for temporary housing (Johnson *et al.* 2006, 370)
- Incorporation of disaster risk reduction and mitigation strategies (Wu and Lindell 2004, 65)

Consideration of Context

- Social, economic and climatic conditions
- Type of housing most appropriate (Johnson 2007b, 456)
- Culturally appropriate living arrangements (Da Silva 2007, 17; Ritchie and Tierney 2011, S490)

Vulnerable Populations

- Identification of likely vulnerable populations, such as renters (Johnson 2007b, 456)
- Needs of vulnerable populations; prevention of bias towards those with more resources (Rawal and Nair 2001, 3)

Community Participation

- Stakeholder roles and communication with stakeholders (Wu and Lindell 2004, 66)
- Beneficiary involvement in design decisions, materials selection and preparation, construction, and financing (Davidson *et al.* 2007, 102)

Location

- Number of displaced residents
- Configuration and functionality of site
- Infrastructure available at site
- Proximity to original neighborhoods and services or accessibility (Forouzandeh *et al.* 2008, 3-4)
- Land tenure or ownership and payment for use (Johnson 2007b, 453)
- Clearing and readying sites for temporary housing (Johnson *et al.* 2006, 369; Wu and Lindell 2004, 65)

Design and Materials

- Degree to which local suppliers and locally available materials will be used
- Identification of suppliers and materials that can facilitate quick and cost-effective delivery (Johnson 2007b, 456, Johnson 2007a, 50)
- Type of housing to be provided and construction method (Johnson *et al.* 2006, 370)
- Habitability—weatherproof, temperature, ventilation, light, privacy, space, cooking, water and sanitation, vector control, safety, security, structurally sound (Da Silva 2007, 29)
- Meet local living standards (Johnson 2007a, 50; Da Silva 2007, 27)
- Durability—scope to repair, maintain and upgrade shelters incrementally
- Adaptability—potential for tailoring a shelter to meet individual needs, or for adding onto a core to provide a permanent house (Da Silva 2007, 29; MICA Environmental Design 2011)

Services Provided

- “Hard services”—water, sanitation, kitchens, laundry facilities, electricity, waste removal, etc.

- “Soft services”—medical and psychological aid, employment opportunities, education, childcare, security, etc. (Johnson *et al* 2006, 370; Johnson 2007a, 43-46)
- Community and social meeting spaces, including marketplaces and spaces for entertainment (Forouzandeh *et al.* 2008, 7; MICA Environmental Design 2011)
- Information dissemination and support for transition to permanent housing (Johnson 2007b, 454; Wu and Lindell 2004, 66)

Long-Term Outcomes

- Time frame for decommissioning of units and plan for remaining occupants (Johnson *et al.* 2006, 369)
- Unit outcomes—rental, sale, recycling, reuse, storage (Johnson 2007b, 456)
- Transition of temporary housing sites into neighborhoods incorporated in and serviced by local cities and communities (MICA Environmental Design 2011)
- Clean-up of sites if units are removed (Johnson 2007a, 50)

Strategic planning for NGOs and IGOs will be less extensive than that undertaken by governments; however, this type of planning is still crucial, particularly in instances where governmental institutions are lacking capacity. Specifically, NGOs/IGOs should consider their overall reconstruction strategy and how temporary housing fits into that strategy. They should plan how a temporary program will be managed, to what degree they will engage with government and other agencies, and who will be primarily responsible for liaising with other entities. Though NGOs/IGOs will not be able to analyze individual social, economic, and climatic contexts prior to a disaster, they should consider how this analysis will be carried out quickly and thoroughly post-disaster, including staff responsibilities and questions to be answered. NGOs/IGOs should clarify to what extent they will include community participation

in their programs, how stakeholders are likely to be involved, and whether vulnerable groups will receive special attention.

Local government is likely to take the lead role in location, design and materials, services and long-term outcomes of temporary housing. NGOs and IGOs can consider their roles in each of these elements, however. Parallel plans should be developed for housing programs to be located close to impact areas and those to be located in periphery areas. Various types of temporary housing designs should be considered, with a number of preferred options selected corresponding to varying types of climate, living standards, and cultural requirements. Preferred housing designs should incorporate the Sphere standards, where possible, and be adaptable to local contexts. The temporary housing units designed by the MICA project are a good example of this. Sources for temporary housing should also be identified, to facilitate quick delivery. NGOs and IGOs should assess what types of services they are capable of providing alongside housing units, and on what scale, as well as how services will be incorporated into programs. Service capacity should be clearly articulated to all stakeholders at the outset of a housing program. Finally, while NGOs and IGOs are unlikely to be responsible for long-term outcomes of temporary housing, it is essential that they plan for long-term sustainability of housing units (including maintenance and adaptability), mitigation of site pollution, and successful transfer of housing programs to local government entities.

Governments, NGOs and IGOs involved in strategic planning for temporary housing should all incorporate monitoring and evaluation into their plans. First, plans should be made for monitoring program performance during implementation. Second, evaluation of program performance after the completion of the temporary housing program should also be planned.

Finally, the strategic plan itself will need to be evaluated and modified as necessary to be ready for future eventualities.

Conclusion:

After the 1997 Northridge earthquake in Los Angeles, many public officials said that they knew what their responsibilities were and what needed to be done because they had resolved these issues during the strategic planning process (Wu and Lindell 2004, 64). This process is crucial for governments of earthquake-prone areas, as well as NGOs and IGOs who anticipate working in earthquake response. Although the provision of temporary housing after earthquakes is fraught with difficulty, thorough strategic plans in each of these cases can mitigate the challenges most commonly encountered. The 2010 Haiti earthquake is an extreme example of post-earthquake housing need; however, sound strategic plans at the government, NGO, and IGO level may have prevented, or at least lessened, the appalling conditions of the tent camps in which so many Haitians still live.

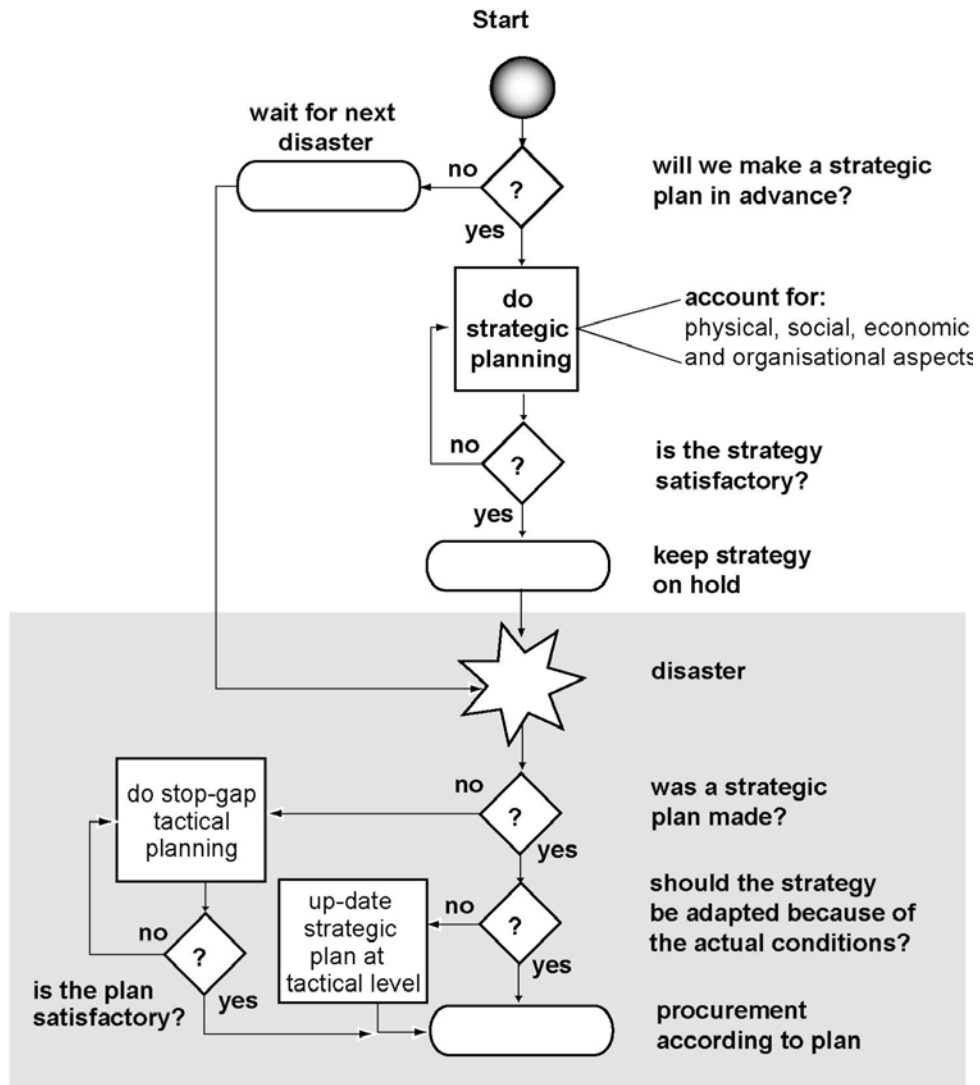
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Appendix

Figure 1 The decision-making sequence for strategic planning or tactical planning for post-disaster reconstruction



(Johnson 2007b, 438)