

## A DISASTER MANAGEMENT & RECONSTRUCTION PROCESS PROTOCOL FOR THE AEC/ FM INDUSTRY

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### **Abstract**

*This paper introduces a customizable process management tool to improve the efficiency and effectiveness of the reconstruction process of the built environment following a major disaster. The protocol aims to provide a coordinated, consistent and transparent management framework for all stakeholders acting at various points throughout the disaster management and reconstruction lifecycle. It provides a 'map' of the activities that need to be undertaken following a systematic approach to the acquisition of knowledge regarding the extent of the damage caused by the disaster, it harnesses best practice construction techniques in order to propose suitable plans for the redevelopment of the built environment (housing, infrastructure, schools, etc), and protects against potential at-risk ecosystems. It will provide guidance on all the necessary processes that should be undertaken, and be able to be customisable for the effective management of reconstruction for a particular disaster type of natural disaster (i.e. tsunami, earthquake, cyclone etc). Its approach will effectively address technology diffusion and transfer issues, informing knowledge transfer and vocational and professional training needs. The protocol is presented, and its contribution to disaster management is discussed.*

**Keywords:** disaster reconstruction, disaster management, process management

### **INTRODUCTION**

Recent events such as the Chinese Earthquake, the Burmese cyclone, the Indian Ocean tsunami, hurricane Katrina and the Pakistan-Kashmir earthquake revealed both a lack of preparedness and a delay in commencing reconstruction. Tens of thousands are still living in temporary shelters more than one year on (Lloyd-Jones, 2006). International relief agencies are geared to a quick response in terms of humanitarian aid, and it is generally accepted that they perform well. However, they have no coordinated strategy for dealing with longer-term development (Barakat & Strand, 1995). Once the immediate aftermath in humanitarian relief has been completed and the media presence dwindles, it seems, interest in disasters all but fades. Thus, there appears to be an alarming 'gap' between humanitarian aid and long-term reconstruction (Lloyd-Jones, 2006).

Responses in aid following a disaster can be both immense and alarming in terms of assistance and finance (Drabek & McEntire, 2003). The colossal number of international aid organizations (including governments, the United Nations (UN), World Bank, nongovernment organizations (NGOs) etc) should share tasks and resources, but there is no clear cut responsibility due to the crossing of jurisdictional boundaries and absence of standardization (Auf der Heide, 1989). What is more, the scarcity of information, the lack of a clear dialogue and communication of relief effort and information, the challenges of managing resources, the excessive response in aid and the emergence of new norms, each place additional strain on the affected community (Auf der Heide, 1989; Wenger, 1992;

<sup>1</sup> It must be noted that the projectory surrounding a disaster is potentially vast. It can span countries, covers both natural (tsunami, earthquake, hurricane, etc) and manmade (war, terrorism, bomb, etc) disaster types (although current research suggests that all disasters are manmade), involving both governments and NGOs. For the purpose of this paper, a major disaster has been defined as the result of an ecological breakdown in the relations between man and the environment on a scale that the stricken community needs extraordinary efforts and assistance to cope with both humanitarian relief and reconstruction, often with international aid.

Twigg, 2004). According to Coate et al (2006), a strategy that promotes sustainable economic growth for communities is vital, ensuring that recovery is structured and facilitated in a way that is inclusive for those who are vulnerable. Further, the 'strategy' must also be accountable to its donors. Transparency is vital to prohibit corruption and to ensure the appropriate distribution of funds (Twigg, 2004). According to Lloyd-Jones (2006), international agencies are focused on short-term spending largely due to political pressures, and fail to support the long-term reconstruction cost, which usually accounts for around 80% of the total cost of the disaster (TRN, 2005). A report commissioned by the International Federation of Red Cross and Red Crescent Societies, evaluating its response during the first few weeks after the Indian Ocean tsunami, highlights this 'gap.' The report concluded that the organization had so much money that it entered areas – like house building on a massive scale – that was outside its usual mandate and was subsequently poorly handed (Development Today, 2006). It states that the funds available '...though useful,' were '...in large measure in the wrong hands' and quotes a UN officer as saying: 'depending on how you look at it, you can say this has been the best-funded emergency in the world – or the most expensive humanitarian response in history' (Development Today, 2006). Notably for the UK, Hencke (2006) recently reported that millions of taxpayers' aid money destined to help the victims of the Indian Ocean Tsunami is still stuck in bank accounts more than one year on. The UK's Department for International Development (DIFID) has subsequently asked all organizations to account for the money or to return the funds to Britain so that they can be reallocated. Thus, the 'Mind the Gap! Post-Disaster Reconstruction and the Transition from Humanitarian Relief' (Lloyd-Jones, 2006) report identified an alarming gap between the provision of humanitarian relief and the commencement of the long-term reconstruction of the built environment. Issues such as funding, coordination, communication, stakeholder integration, aseismic design, best practice construction techniques etc were brought to bear – issues that have long been addressed in the AEC/FM industry. This paper describes the development of a protocol, a transparent process framework, which aims to address this 'gap,' supporting reconstruction efforts in a manner that appeases both victims and its donors.

#### **AEC/FM CONTRIBUTION TO DISASTER MANAGEMENT**

A colossal amount of research has already been undertaken to identify best practice in construction (for briefing see Barrett and Stanley, 1999; for requirements capture see Carmicheal & Cooper, 1998; for design see Lawson, 1989; for process management see Process Protocol, 2006; etc). However, what remains to be addressed is an integrated best practice construction approach within the short-term relief operation – hence the need for a reconstruction protocol is pertinent – addressing issues such as culture, livelihood transformation, economy development, sociological, demographic, political and educational issues etc. These issues will be discussed herewith.

Construction industry integration within disaster management has in the past largely been overlooked (Spence & Kelman, 2004). Input by construction professions has primarily focused on topics such as fire safety, tall building design and egress considerations in the preparedness of future disasters. However, some advances have been made in recent years to incorporate the roles of construction professionals. In March 2006, the CIB (International Council for Research and Innovation in Building and Construction) established Task Group (TG63) 'Disasters and the Built Environment' which sets out to stimulate ideas for future research by exploring the range of perspectives from which the construction industry is able to contribute towards improved resilience to disruptive events. An integrated construction approach for improved reconstruction can only be achieved through the engagement of

construction professionals to address issues of design, construction, corruption, coordination and communication; of which the industry is aptly rehearsed.

Excessive money is usually spent on emergency shelter to the detriment of permanent reconstruction, costing as much as one-third of the cost of the permanent dwelling (ALNAP, 2005). Temporary units may be acceptable for short periods, in good weather conditions and in urban areas, but cannot fulfill people's need for a sustained period (Ghafory-Ashtiany, 1999). Overall evaluation of disasters has concluded that temporary settlement not only creates social and economic problems, but also prolongs the reconstruction period (Development Today, 2006). Many agencies resorted to mass installing prefabricated units as a means to address the long-term accommodation need. Often, however, they are generally not compatible to users' lifestyles. Following the worst Iranian earthquake in 1990, many left these so called 'modern' homes only to use them as storage or animal sheds and repaired their damage houses for their living spaces (Ghafory-Ashtiany, 1999). This waste of valuable resources can be attributed to not consulting the survivors in the briefing process for a design that better reflects their needs and culture. The briefing process is a tried and tested means to counter this problem in the construction industry (Barrett & Stanley, 1999), and needs to be integrated into disaster management. Further, construction professionals should be consulted to ensure that new facilities are aseismic, in that they preclude potential disasters (Ghafory-Ashtiany, 1999).

Due consideration must be given to legal and statutory issues relating to land ownership and resettlement (Oxfam International, 2005). Ownership deeds and titles are rare in Developing Countries, are often registered to people whom have passed away, and/ or public records have been damaged or destroyed by the events of the disaster (Williams, 2005). This loss of evidence represents a serious threat and a challenge to agencies seeking to recover the property of the displaced. Those affected are often prone to land grabs and expropriation. In some instances, resettlement is the only solution to avoid devastation from future disasters. If the new site is not chosen carefully, it can have a huge knock-on effect in terms of both livelihood and lifestyle (Ghafory-Ashtiany, 1999). Following the Indian Ocean tsunami, for instance, a building exclusion zone of 100-200m, measured from the mean high-water mark, was decreed in Sri Lanka. Critics noticed that this zone affected a large number of poor fishing communities and small businesses whose lives revolve around the sea, but the same constraints did not seem to always apply to the tourist industry. Not only does this raise social and corruption issues, but re-siting usually omits advice from construction professionals whom can advise on local geology, seismotectonic, seismicity and geotechnic issues in the reconstruction of new settlements (Quarantelli, 1994).

The protocol must also foster local labour and materials in the reconstruction process, as they form an important stimulus to the recovery of the local economy (ALNAP, 2005). Those affected by the disaster are eager, and should be encouraged, to help rebuild the devastated area, but under the direct supervision of certified engineers (Ghafory-Ashtiany, 1999). Professional skills and expertise in the built environment are usually a scarce resource in Developing Countries, particularly in remote regions (Ghafory-Ashtiany, 1999). Building codes may also be inappropriate or out-of-date, and where standard exists, they may not be enforced. Thus, the opportunity to construct improved facilities that are resilient to future disasters is pertinent. In addition, local participatory engagement in the reconstruction process also serves as a training platform, and is particularly apt if those affected cannot return to their original livelihood (Twigg, 2004). The materials chosen must also be of appropriate quality and be environmentally sound. Consideration must be given to the

remoteness of the area and availability of technical people. Again, sustainability issues have been well rehearsed in the construction sector (for example see BEQUEST, 1996), and need to be translated to disaster reconstruction programmes.

Due to intense public interest and scrutiny over how aid efforts have been distributed, there is an immediate need for accountability and transparency (Overseas Development Institute, 2005). Barakat and Strand (1995) reported that aid can be politically motivated leading to NGOs questioning the value of their work. In addition, LNGOs (local non-governmental organizations) are often restricted from seeking funding (McEntire, 1999). LNGOs play an important role especially in light of the local knowledge they are able to provide. They have a greater understanding of the affected area, the people, and the situation on the ground. They also have the capacity to ensure that the indigenous population is listened to during the recovery. LNGOs and small NGOs are eager to help but are not often coordinated. In some instances, they have helped families to build houses on land that is owned by others, in restricted building zones and/ or a larger house than the community norm, which has led to jealousy and conflict (Coate et al, 2006). The construction industry, frequently badged as fragmented, has sought to adopt process improvement initiatives. The lessons learnt from the Process Protocol (Kagioglou et al, 1998), for example, could help alleviate process coordination and communication issues in disaster management, and to engage with small organizations.

### **THE PROTOCOL**

Therefore, a more coordinated and structured approach to reconstruction following a major disaster is needed to help manage an environmentally sound reconstruction and rehabilitation programme, and to avoid the waste of valuable resources through inefficiency or even corruption. This paper presents a transparent and sustainable disaster reconstruction process management tool according to core principles of: empowering communities through peoplecentred and participatory processes by coordinating international/ national/ local relief effort through identifying roles and responsibilities; and establishing clear regulatory control by ensuring fiscal transparency and maintaining effective monitoring. It is anticipated that it will provide a systematic approach to the acquisition of knowledge regarding the extent of the damage caused by the disaster, harness best practice construction techniques in order to propose suitable plans for redevelopment of the built environment (housing, infrastructure, schools, etc) and protect against potential at-risk ecosystems. It will provide transparency for all the necessary processes that should be undertaken, and be able to be customised for the effective management of reconstruction for a particular disaster type (i.e. tsunami, earthquake, flooding, etc). Its approach will effectively address technology diffusion and transfer issues.

In short, by amassing existing and new knowledge into a customizable process management tool, it will direct participatory reconstruction of the built environment in a manner that is accountable for both recipients and donors whilst raising standards of sustainable construction through employing locally available materials, techniques and labour.

### **DEVELOPMENT**

A series of literature reviews were undertaken investigating current disaster management practice. In addition, a number of interviews were undertaken with key experts in the areas of construction, disaster management and process management. The interviews served to

identify the key issues to be considered in relation to disaster management and subsequent reconstruction. The interviews were analysed for activities that related to disaster management. These were highlighted and subsequently reviewed and clustered into activities that would be undertaken during the Disaster Management and Reconstruction lifecycle. The identified high level activities are contained within Figure 1.

Accountability • Politics  
Assessment • Preparedness  
Governance • Prioritisation  
Health and Safety • Process Management  
Human Resource Management • Programme Management  
Information Communication Technology • Project Management  
Management • Reconstruction  
Knowledge Management • Regulatory Issues  
Land Use • Resource Management  
Liability • Response and Recovery  
Lifecycle Management • Risk Management  
  
Media Management • Social Issues.  
Organisational Learning • Stakeholder Management  
(Procurement, Logistics and Finance) • Standards  
Planning • Terminology

**Fig. 1.** *The identified high level activities associated with Disaster Management and Reconstruction*

A number of these activities are included in best practice management systems. Activities such as project management and resource management are well established and documented. Typically a framework is developed for these activities that outline the process for their execution. Depending on their nature, activities can be consistent throughout a process or alter according to phase. Activities were also identified that were specific to disaster management and reconstruction. Preparedness is a specific activity that attempts to pre-empt and reduce the affects of potential disasters. Assessment is another specific activity that attempts to collect information in a disaster's aftermath to enable correct short and long term decision making. After the assessment phases, a prioritisation exercise occurs that feeds into a strategic overview that helps to support the development of a model for reconstruction. The findings from the expert interviews suggested that the whole disaster lifecycle needs to be considered. Many of the issues that arose such as, co-ordination, transparency, consistency, continuous improvement and knowledge management are also issues that the construction industry faces and were previously considered during the development of the GDCPP. Therefore, it was felt that the GDCPP could be adapted to form a suitable framework for a disaster management and reconstruction process.

The high level activities in Figure 1 were initially grouped according to issue or theme. Each theme was then populated with further levels of detail which were arranged in a hierarchy of three levels. They were presented for feedback to the interviewees who suggested that the key issues had been identified. The issues were then contextualised in terms of the phase sequence in which they would be undertaken, see Figure 2.

- **Phase 0 Disaster Preparedness:** Encourages the early consideration of all the issues that need to be undertaken during the occurrence of a disaster.
- **Phase 1, Pre Event Planning:** Further refines the planning of the issues considered in Phase 0 to ensure a suitable level of disaster preparedness.
- **Phase 2, Preliminary Assessment:** Reviews the preparations that have taken place and implements disaster management systems to gain an initial assessment of the ground conditions.
- **Phase 3, Detailed Assessment:** Develops to a further level of detail the assessment exercise initiated in Phase 2.
- **Phase 4, Prioritisation:** After assessment exercise actions and resources are prioritised.
- **Phase 5, Prepare Strategic Overview:** Prioritised actions are considered and collated to prepare the strategic overview.
- **Phase 6, Strategic Overview:** Provides an accurate overview of the disaster and subsequent consequences to enable strategic decision making to occur.
- **Phase 7, Reconstruction Information:** Assembles and initiates work on potential reconstruction solutions.
- **Phase 8, Reconstruction:** Undertakes the activities associated with Reconstruction.
- **Phase 9, Ongoing Review:** Undertakes the management of the reconstructed solutions over their lifecycle.

*Fig. 2. The phase sequence of the key issues of Disaster Management and Reconstruction*

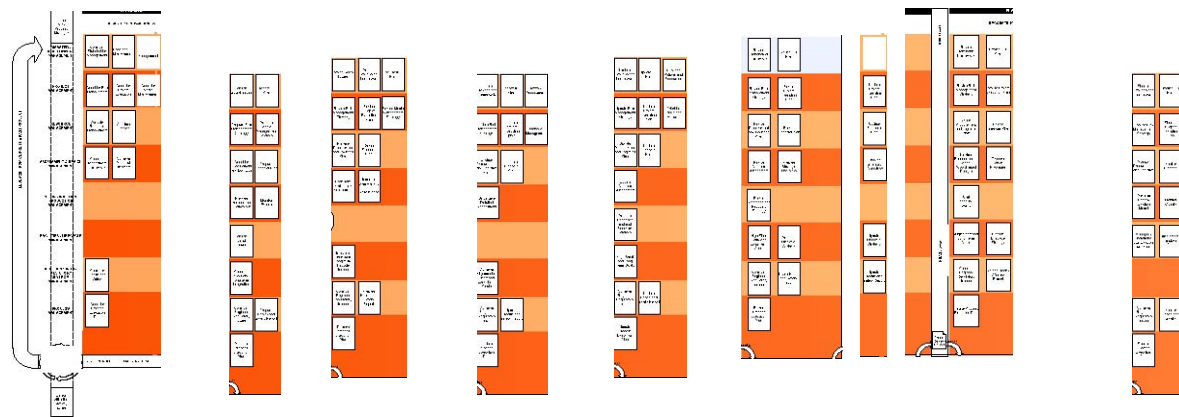
Once the phases had been developed, the activity streams / zones that the processes would reside in were developed, see Figure 3.

- **Disaster / Development Management** Acts on behalf of the stakeholders to ensure that management of the disaster and subsequent development are undertaken in the most effective fashion.
- **Project Management** Once a project occurs this activity zone undertakes all required project management activities, such as risk management, media management and ensures all project tools are selected and implemented correctly.
- **Resource Management** Deals with all aspects of logistics, procurement and financial issues.
- **Assessment and Design Management** Undertakes aftermath assessments that feed into future designs.
- **Reconstruction / Production Management** Considers all aspects of reconstruction activity.
- **Lifecycle Management** Considers all aspects of integrating the short term and long term issues.
- **Health, Safety, Statutory and Legal Management** Considers all aspects of health care, safety, governance, liability and accountability.
- **Process Management** Ensures that all the activities are carried out in the correct sequence and to the appropriate standard.

*Fig. 3. The activity clustering of the key issues of Disaster Management and Reconstruction*

Once the phasing and activity clustering had been agreed upon, the content was translated onto a high level Process Map, see Figure 4.





**Fig. 4. High Level Draft Disaster Management and Reconstruction Process**

The provisional high-level generic process map will have to be validated, through defining the sub processes and testing on a live case study. Research is currently being undertaken to explore activity boundaries, content, terminology, barriers to acceptance and contextualisation. The protocol will serve to provoke discussion and thought. It is envisaged that the high level process will form one element of a suite of disaster management tools.

#### **DISCUSSION**

The protocol presented in this paper aims to address the distinct but recognisably-linked agendas of international development and humanitarian relief from, and management of, natural disasters. The current focus of the international community in terms of disaster management is on:

- a) achieving better co-ordination of the immediate humanitarian relief effort following major disasters through the UN 'cluster' system, and
- b) following the Hyogo Agreement of 2005, on measures to achieve disaster risk reduction in vulnerable countries and regions.

Recognising the importance of both of these priorities, and that the destructive consequences of major natural hazards cannot be avoided (and, indeed, have shown signs of increasing frequency possibly due to global climate change), the proposed protocol focuses on the importance of achieving sustainable long-term recovery from the disasters and on planning and managing the recovery effort to 'build back better'. International development is currently concerned with achieving the eight Millennium Development Goals. Foremost among these is the aim of eradicating extreme poverty and hunger. Although poverty can be measured in numerous ways; the international community now follows the World Bank's definition of extreme poverty as living on less than one US\$ per day and poverty as less than \$2 a day (World Bank, 2007); poverty is associated with the lack of material resources such as food, safe drinking water and shelter, and access to social resources such as education, health care, and social status essential for an acceptable level of well-being and life. The built environment is essential in providing a number of physiological and safety needs. In the context of shelter, there are clear links with livelihoods, health, education, security, social and family stability. Housing tenure and land rights are key issues for the poor. Buildings act as a

social centre for family and friends, a source of pride and cultural identity, and a resource of both political and economic importance. Where houses are built and how settlements are developed has an impact on how people can gain access to livelihoods and basic services and can constrain or facilitate the achievement of other Development Goals along with poverty reduction – those concerned with health, education and environmental sustainability, for example.

Disasters have a far greater impact on the built environment of developing countries than industrialized ones. According to the World Bank, losses due to natural disasters are 20 times greater in developing countries than in developed states (World Bank, 2007). Tens of thousands of disaster victims are still living in temporary accommodation after the Indian Ocean Tsunami several years on (Lloyd-Jones, 2006), and the subsequent impact on physiological and safety needs cannot be underestimated. The loss of a home, a workplace or an entire community, constitutes not just a physical deprivation, but also a loss of dignity, identity and privacy. It can cause psychological trauma, challenges perceptions of cultural identity, disrupts social structures and accepted social behaviour, poses a threat to security, and has a significant negative economic impact (Barakat, 2003). In turn, reconstruction can enhance communities' capacities by strengthening their physical, emotional and practical abilities to resist disaster and facilitate reconciliation; improving institutional resources and informal social relations; increasing pride and self-esteem through participatory and stakeholder programming; and enabling disaster-affected people to look forward and invest in the future; and to help alleviate poverty.

This paper argues that permanent reconstruction should be a more prominent element in post-disaster programming than is currently the case to aid the eradication of poverty. According to Barakat (2003), there is no agency devoted to reconstruction, and very few of the major NGOs working in relief would claim to specialize in rebuilding. Construction industry integration within disaster management has in the past largely been overlooked (Spence & Kelman, 2004). Where reconstruction programmes are attempted, the particular challenges that they pose tend to be underestimated; planning is often poor and coordination between agencies difficult (Lloyd-Jones, 2006). Opportunities to enhance post-disaster recovery efforts or to introduce mitigation measures are usually overlooked, and little or no distinction is made between the provision of physical shelters and the provision of homes. Lack of experience leads to assessments that do not provide the relevant information, and projects that are impractical and appropriate neither to what beneficiaries need, nor to what they want. As a result, reconstruction projects are often unsustainable; at best, houses are remodelled by their occupants; at worst, they are simply rejected and abandoned.

Why, if built environment destruction is such a major consequence of disasters is its reconstruction such a poor relation in the relief aid enterprise? Part of the answer lies in the way that assistance is understood, funded and organized. Reconstruction is usually construed as a developmental responsibility rather than a humanitarian concern, and consequently tends to be low on the humanitarian agenda. Arguably, there is a clear humanitarian imperative to provide victims of disaster with basic shelter, in the same sense as there is a humanitarian imperative to ensure access to water, sanitation, food and healthcare. The humanitarian justification for reconstruction is more problematic. Reconstruction looks like development business: it deliberately sets out to re-establish lost assets, or even to provide better, more robust accommodation than existed prior to the disaster event. It aims, not just to alleviate an immediate threat, but to restore or improve a disaster affected individual's situation over the longer term. Unlike other relief items such as food aid or medicine, housing is a significant

long-term asset; in Africa, the average cost of a house is 12.5 times an average annual income (Barakat, 2003). For example, housing's status as property typically involves more obvious questions of ownership and legal entitlement, which are perhaps less important in other areas of relief.

This conceptual distinction is one of the reasons why the actual implementation of reconstruction programmes tends to be so peculiarly difficult. In the immediate aftermath of an emergency, this may not be available. The urgent need to do something within a short space of time is not conducive to good, sustainable reconstruction, nor is the tendency of donors to set short timeframes for the disbursement of emergency funds. Reconstruction is often planned and implemented rapidly, and in isolation from their political, economic or social environment. Local skills, preferences and needs tend to be marginalised for the sake of speed, and little effort is made to document the philosophies, methods and processes underpinning housing reconstruction. Why should relief agencies contemplate reconstruction at all? Why not meet the need for shelter through temporary provision, and leave more permanent solutions to the developmental sector, private businesses or the government, once the immediate, acute disaster phase has passed? The problem remains, however, that a natural disaster is a major economic and social 'shock', one that exposes the extreme vulnerability of poor communities through loss of lives, homes and livelihoods, but one which the normal framework of development policies and programmes is not geared up to. So, although additional development assistance may be made available for reconstruction (or frequently diverted from other sources), this has not been planned for and tends to follow on the humanitarian relief phase in a more or less haphazard way.

A more coordinated and structured approach to reconstruction following a major disaster is needed to help manage an environmentally sound reconstruction and rehabilitation programme, and to avoid the potentially huge waste of valuable resources and development opportunities through inefficiency, corruption and poor planning and co-ordination. The protocol presented aims to develop a 'build back better toolkit' according to core principles of:

- empowering communities through people-centred and participatory processes
- coordinating international/ national/ local relief effort through identifying roles and responsibilities; and
- establishing clear regulatory control by ensuring fiscal transparency and maintaining effective monitoring.

Continued research to validate and test the framework is currently underway.

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#### **REFERENCES**

Alexander, B., Chan-Halbrecht, C. & Salim, W. (2006) Sustainable Livelihood Considerations for Disaster Risk Management: Implications for Implementation of the Government of Indonesia Tsunami Recovery Plan. *Journal of Disaster Prevention & Management*, 15(1), 31-50. ALNAP (2005) Tsunami Evaluation Coalition <http://www.alnap.org/tec> Auf der Heide, E. (1989) *Disaster Response: Principles & Preparation & Coordination*. The CV Mosby Company, St Louis, MO.

Barakat, S. & Strand, A. (1995) Rehabilitation & Reconstruction of Afghanistan: A Challenge for Afghans, NGOs and the UN. *Journal of Disaster Prevention & Management*, 4(1), 21-26. Barakat, S. (2003) Housing Reconstruction after Conflict & Disaster. *Humanitarian Network Paper*, 43. Christian Aid (2006) *The Climate of Poverty: Facts, Fears & Hope* <http://www.christian-aid.org.uk>. Coate, B., Handmer, J. & Choong, W. (2006) Taking Care of People & Communities: Rebuilding Livelihoods Through NGOs & the Informal Economy in Southern Thailand. *Journal of Disaster Prevention & Management*, 15(1), 135-145. *Development Today* (2006) Post-Tsunami Evaluation of Red Cross: Too Much Money in the Wrong Hands. *Bulletin* 16(4), 31<sup>st</sup> March. Drabek, T. E. & McEntire, D. A. (2003) Emergent Phenomena & the Sociology of Disaster: Lessons, Trends & Opportunities from the Recent Literature. *Journal of Disaster Prevention & Management*, 12(2), 97-112. Fleming, A., Lee, A. (2006) *Designing to Bridge the Gap in Major Disaster Reconstruction: the Methodology*, London, RICS Ghafory-Ashtiany, M. (1999) Rescue Operation and Reconstruction of Recent Earthquakes in Iran. *Journal of Disaster Prevention & Management*, 8(1), 5-20.

Hencke, D. (2006) Britain Demands Return of Unspent Tsunami Aid. *The Guardian*, March. <sup>1<sup>st</sup></sup>  
<http://www.guardian.co.uk/tsunami/story/0,,1720264,00.html> IFRC (2005) *World Disasters Report*  
<http://www.ifrc.org> Kagioglou, M., Cooper, R., Aouad, G., Hinks, J., Sexton, M. and Sheath, D. (1998) *Final Report: Generic Design and Construction Process Protocol*. The University of Salford Lloyd-Jones, T. (2006) *Mind the Gap! Post-Disaster Reconstruction and the Transition from Humanitarian Relief*. London, RICS  
McEntire, D. A. (1999) Issues in Disaster Relief: Progress, Perpetual Problems & Prospective Solutions. *Journal of Disaster Prevention & Management*, 8(5), 351-361. Overseas Development Institute (2005) *ODI Annual Report*. ODI, Russell Press Ltd, Nottingham. Oxfam International (2005) *A Place to Stay, a Place to Live: Challenges in Providing Shelter in India, Indonesia & Sri Lanka after the Tsunami*. Oxford, Oxfam International.  
Quarantelli, E. L. (1994) *Future Disaster Trends & Policy Implications for Developing Countries*. Disaster Research Centre, University of Delaware, Newark. TRN (2005) *Review of Tsunami Recovery*. London, University College London. Twigg, J. (2004) *Disaster Risk Reduction: Mitigation & Preparedness in Development & Emergency Planning*. Overseas Development Institute Humanitarian Practice Network, London.  
UNISDR (2004) *Living with Risk: A Global View of Disaster Reduction Initiatives*. United Nations International Strategy for Disaster Reduction, Geneva. Wenger, D. (1992) *Emergent & Volunteer Behavior during Disaster: Research Findings & Planning Implications*. HRRC Publication 27P, Texas A&M University, Hazard Reduction Recovery Centre, Texas. World Bank (2007)

<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTPOVERTY/0,,contentMDK:20153855~menuPK:373757~pagePK:148956~piPK:216618~theSitePK:336992,00.html>