



Mass Shelter Capability (MASC) Project

Literature Review

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Table of Contents

Executive Summary	4
1. Introduction	5
2. Methodology and Approach	6
3. Organised Camps as a step change in EU shelter planning?.....	11
4. What does good look like? Existing Guidance on Planned Camps as a Shelter Option	15
5. Lessons-learned from past experiences in Mass Shelter	22
6.1. Capacities for Shelter Construction.....	23
6.2. Duration of Settlement	30
6.3. Social considerations associated with planned camps as shelters	33
6.4. Initiative and self-help of people.....	35
6.5. Participation of displaced people and support from host communities.....	37
6.6. Technical aspects in camp construction.....	40
6. Discussion and Conclusion	42
7. References	45
8. Annex	48

List of Figures

Figure 1: Example of search terms and keywords, systematic literature review	7
Figure 2: Six Options for Transitional Settlement (The Shelter Centre)	11
Figure 3: Conceptualisation of six options for transitional settlement.....	12
Figure 4: Statutory vs. “soft doctrine” guidance	17
Figure 5: Shelter settlement options and response scenarios (SPHERE).....	18
Figure 6: Comparison of SPHERE and UNHCR Standards	20
Figure 7: Overview about USAID response to 2010 Haiti earthquake	30
Figure 8: Full Sequence of Post-Disaster Shelter	32

List of Tables

Table 1: Results Overview, Systematic Literature Review.....	9
Table 2: Search terms and results, systematic literature review	48

Executive Summary

This report documents a literature review on shelter planning conducted in the context of the European Union Mass Shelter Capability (MASC) Project¹. The literature review is intended to form the baseline understanding of existing knowledge and research, in order to guide the development of mass shelter capability planning. Some of the key recommendations and open questions emerging from the review of literature are:

Recommendations

Scenarios, modelling and exercises: Building on an abundance of best-practice guidelines, stakeholders should consider scenario-based shelter modelling for both displaced and non-displaced communities, and conduct regular exercises to develop procedures.

Coordination: For the effective management of shelter contingencies, stakeholders need to identify and instigate coordination mechanisms (e.g. Memoranda of Understanding), which can effectively integrate potentially competing interests and responsibilities into collaborative contingency arrangements. Coordination is required not only among responders, but also with the insurance industry and third-sector organisations (e.g. in respect to support and aid distribution and volunteer coordination) and communities.

Infrastructure and resource management: Effective resource and logistics management and infrastructure capacity are of critical importance to successful shelter operations and should thus be considered carefully. This also includes *a priori* understanding of funding schemes and donation mechanisms that are available to response organisations and which may underpin the efficacy of shelter contingencies.

Autonomy/self-help capacity of the displaced: Responders should not underestimate the capacities of disaster-affected people to help themselves, but need to work towards maximising their autonomy. This includes building social capital among the displaced, and requires a balance in shelter operations, between efficiency (e.g. shelter-units available) and effectiveness (e.g. allowing families and neighbourhoods to shelter together).

Duration of settlement: Planned camps should be developed with a potential for long-term existence. Responders should not assume a fixed lifetime of camps, as experiences show that planned camps usually exist well beyond their initial planning horizon.

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Way Forward and Open Questions

Shelter Options and Scenarios: Which shelter options exist for displacement in a European context? Do the standard classifications from the humanitarian aid community (six displaced-population shelter options) need to be reconsidered, and what implications (legal, socio-economic, logistic, etc.) would they have in a European disaster scenario?

Behaviour and Decision-Making: How can shelter planning better respond to different behavioural profiles and decision-making processes of disaster-affected people? Which people are likely to seek government support, and in which form (e.g. support for shelter-in-place vs. use of planned camps)?

Participation: What capabilities need to be developed for an active participation and integration of volunteers into shelter operations? What can we learn from experiences across Europe and internationally?

Size: How can a good balance be found for camps sizes that account for both economy of scale in shelter logistics and habitability of camps?

1. Introduction

This document presents a summary report on the literature review for the Mass Shelter Capabilities Project (MASC). The objectives of this document are (1) to collect and review existing academic work relating to mass shelter, (2) to collect and review case study work relating to mass shelter and, (3) to synthesise common themes and considerations in order to identify possible recommendations. The summary report presented in this document is intended to be a knowledge source that facilitates discussion about capability constraints for mass sheltering capacity, both at the MASC Workshop 1, September 24th - 25th in Northampton, UK and more widely within the MASC Project. The review focuses on larger scale experiences and the evaluation of mass scenarios, not micro shelter issues or studies that looked at low-level, local and short term shelter issues. It is intended to form the baseline understanding of existing knowledge and research, in order to guide the development of mass shelter capability planning in a European natural hazards context.

The overarching planning scenario that guides the review of literature in this document is the provision of acceptable shelter for up to 10,000 people on a green field site, operational within 5 days of activation and maintained for a period of six weeks. To facilitate an identification of capabilities required for such a planning scenario, this document reviews recent case studies where large scale population displacement or homelessness has occurred and mass shelter structures were implemented by public authorities and non-governmental actors. Case studies evaluated for this literature review include the 2002 European floods (Czech Republic and Germany), 2005 Hurricane Katrina and Hurricane Rita (USA), 2007 Typhoon Krosa (China), 2007 California Wildfires (USA), 2008 Sichuan Earthquake (China), 2008 Hurricane Gustav (USA and Cuba), 2009 L'Aquila earthquake (Italy), 2010 Haiti earthquake (Haiti), 2011 Fukushima (Japan), and the ongoing Syrian Refugee Crisis.

The MASC Project is co-financed by the EU Civil Protection Mechanism (CPM) and aims at developing, through a series of workshops and expert gatherings guidelines for the development of scalable, modular and phased mass shelter capabilities. Accordingly, the review of case studies outlined above also builds on an identification, review and evaluation of previous EU projects, existing academic research and other literature relating to mass shelter. This includes previous EU Projects (such as Evacuation Responsiveness by Government Organisations (ERGO)), the Sphere Handbook, and other Government guidance and documentation (such as UK Evacuation and Shelter guidance). The literature review presented in this document was developed collaboratively, between May and September 2015, by Northumbria University and the United Nations University – Institute for Environment and Human Security (UNU-EHS).

The document is structured into seven sections. The next (3rd) section presents the methodology for the review of literature and case studies. It discusses the strategy through which documents included in the review were identified, and reflects on the shortcomings of and limitations of the chosen approach. The fourth section briefly discusses the context of planned camps as a sheltering option in the UK. It argues that planning for organised camps in mass evacuation scenarios marks a step change in EU civil protection planning. The fifth section presents an overview about existing best-practice guidance and knowledge on camp planning and management. It reviews guidelines and recommendations from a variety of different backgrounds and scales, both international and national, which together present a glimpse at the question of “what does good look like?” in shelter planning. The sixth section turns to case study literature and experience in past mass evacuation events from around the globe. It presents overarching themes and issues that proved to be of concern in various contexts, and thus helps to address some of the challenges in implementing existing guidance and best practice in post-disaster response. The last section synthesises key themes, summarises the main findings and presents a brief outlook and conclusion.

2. Methodology and Approach

This section discusses the methodology of the literature review. It aims at providing transparency about the approach taken to identify and evaluate relevant literature included in this summary report.

The literature review in this document applied both a systematic and non-systematic approach to identify relevant documents. The term systematic literature review refers to a structured search strategy in online databases for peer-reviewed academic literature. Whereas, non-systematic literature review, refers to the identification of documents through online searches that do not follow a strict methodology with keywords, but build on previous knowledge as well as on recommendations of experts and practitioners.

Literature reviewed for this report includes both academic and grey literature. A point of convergence between the documents reviewed is their focus on capabilities and the gaps as well as challenges in the implementation of existing guidelines and standards on mass shelter. The report targets literature concerned with shelter operations. It does not review systematically literature on post-disaster reconstruction, although this also includes references and information about shelter operations, and the constraints that emerge from their long-term existence.

The literature review started with a systematic search in the online databases Scopus© and Web of Knowledge©. To identify relevant literature, a series of search terms and keywords were identified to retrieve relevant documents from both databases. The logic of the search strategy is outlined in Figure 1. The search parameters were modified according to the different case studies outlined above (e.g. European floods, Hurricane Katrina, etc.), and specified some of the key parameters outlined in the planning scenario that guides the literature review and the MASC project. The particular keywords shown in Figure 1 are an example of how the systematic literature review was conducted, with keywords and search terms amended according to the particular case studies that were targeted.

Figure 1: Example of search terms and keywords, systematic literature review

Mass Shelter

TS= ("mass shelter" OR "emergency shelter*" OR "temporary shelter*" OR "mass care" OR "disaster shelter" OR "emergency accommodation")

Case Study

AND ("2002 European flood*" OR "2002 flood" etc....)

Parameters Planning Scenario

AND ("capabilit*" OR ability* OR capacity* OR competence)

AND ("five day*" OR "emergency" OR "rapid" OR "immediate" OR "aftermath")

LANGUAGE: (English) AND DOCUMENT TYPES: (Article)

The identification of peer-reviewed literature that reflects on capabilities, gaps and challenges in the operation of shelter facilities in past disaster contexts yielded some insights on existing academic knowledge on mass shelter. In general, the systematic literature review offered only a very limited number of studies that explicitly reflected on past experiences and best practice examples of capabilities of rapid shelter operations. Studies identified through the systematic literature review seemed to be concerned with broader issues and questions relating to post-disaster response and recovery, rather than explicitly with capabilities required for large-scale shelter operations within short time frames.

Within the case study literature identified through a systematic search in academic databases, there seemed to be a significant attention bias towards Hurricane Katrina, compared with the other disaster contexts of relevance to this literature review. The abundance of literature on Hurricane Katrina suggests that the discrepancy between expected disaster risk management capacity in the US; and the actual lack of response capabilities in the aftermath of Katrina spurred the interest of many researchers and is still subject to explanation attempts. Another aspect that emerged as a limitation of the systematic literature review was the terminological ambiguity of the studies under consideration. This concerned, in particular, a distinction between shelter and evacuation. While literature explicitly concerned with shelter operations seemed to be rather limited, studies exploring the prospects and limitations of evacuation strategies in disaster contexts seemed to be much more prevalent. Within the latter body of literature, issues relating to shelter are often considered as sub-aspects of broader discussions on evacuation routes, early-warning strategies and other evacuation related issues.

Table 1 exemplifies the limitations of the systematic literature review through databases of peer-reviewed literature². It shows the search parameters and results of systematic literature research within the Scopus© database (search conducted June 9th, 2015). It demonstrates that for most of the case studies of relevance to the MASC project, there is only a very limited number of documents that discuss shelter-related experience. As mentioned above, a notable exception is Hurricane Katrina, where there is much more available literature. However, the table also indicates that if search parameters for Hurricane Katrina were sharpened by limiting the search explicitly to shelter, rather than to evacuation and shelter, the number of relevant documents is reduced significantly.

²A version of Table 1 specifying search terms can be found in the Annex.

Table 1: ResultsOverview, Systematic Literature Review

Case Study	No. of Documents	Excluded due to lack of relevance	Remaining for review	Accessible through active accounts
2002 European Floods	6	2	4	3
Hurricane Katrina	44 (With inclusion of "evacuation": 171)	29	15	14
Hurricane Rita	26	6	20	16
Typhoon Krosa	1	1	0	0
California Wildfires	11	3	8	5
Sichuan/ Wenchuan Earthquake	4	1	3	2
Hurricane Gustav	7	1	6	6
L'aquila earthquake	3	0	3	3
Haiti earthquake	12	4	8	8
Fukushima	28	22	6	6
Syrian Refugee Crisis	22	22	0	0

Based on the limited insights gained from the identification of documents through a systematic literature review in peer-reviewed literature, the methodology was expanded to also include a non-systematic component. The non-systematic literature review was targeted at grey-literature, in particular. Grey literature refers to documents from various academic and non-academic sources that are published without being peer-reviewed to academic standards. For the purposes of this literature review, the expansion of the search strategy to a non-systematic identification of grey literature allowed for the consideration of mission-debriefs, policy evaluations and lessons-learned reports from public authorities, national and international relief organisations and other key stakeholders involved in post-disaster shelter operations.

The grey literature reviewed for this document was identified through a desktop-search, and was produced by a variety of different sources, including government and non-government agencies. Although attempts were made to check the objectivity, quality and accuracy of the documents, a consideration of grey literature will inherently be subject to potential biases. As documents are often produced by practitioners that are actively involved in shelter operations, often in the same ones that they discuss or review in after-action reports or debriefs, objectivity can be constrained. The lack of independent quality control of grey literature also means that other confounding factors, such as the political orientation of authors or their strategic interests, cannot systematically be controlled for. Despite these potential biases, grey literature was a very valuable source of information for this literature review, because it provided practice-oriented insights on shelter operations that would have not been possible to identify through academic literature.

The review of case studies and the experiences with shelter operations in previous post-disaster contexts can at best closely resemble, but never fully replicate, the planning scenario that guides the MASC project. Many of the case studies reviewed for this document take place in a developing world context, and thus differ significantly in actor constellation, socio-political context factors, and local capacities for shelter provision from the EU-focused planning assumption of the MASC project. Any synthesis of lessons learned from previous disaster contexts that is to inform the planning assumption of the MASC project is, therefore, constrained by these disparities. Accordingly, the recommendations derived from the evaluation of other case studies also need to be considered with a careful consideration of the differences that characterise those case studies.

The limitations of the methodology applied in this literature review concern, in particular, potential biases that stem from the specification of search terms and keywords, as well as the omission of documents that are not accessible through online databases or websites. The systematic literature review relies on the specification of search terms. This specification should ideally be informed by theoretical considerations, and should be tested through numerous iterations that vary between broad and inclusive specifications, on the one hand, and more narrow and precise keywords, on the other hand. Due to constraints in time and resources available for this project, this was only possible to a limited extent in the context of this study. Moreover, systematic literature reviews risk to omit important sources of knowledge that are not listed in online databases such as the Scopus® and Web of Knowledge®. A non-systematic literature search suffers from limitations that concern its selective focus on documents that are available as online reports. This might result in an

overrepresentation of viewpoints and experiences of organisations capable of producing online dissemination material.

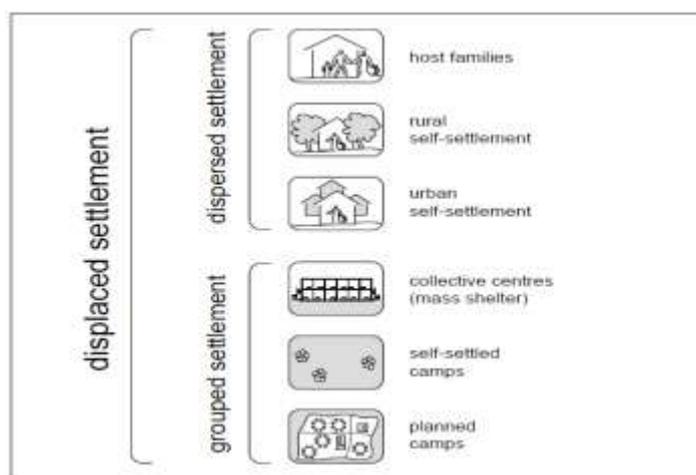
To mitigate potential biases stemming from the methodology applied in this project, expert knowledge was consulted to verify some of the most important findings from the literature review. The research team reached out to a leading international expert on shelter and transitional development to share and ground-test some of the main findings of this report and to verify that the literature consulted corresponds to some of the main sources of knowledge on shelter and mass evacuations developed and used by experts. This allowed for ground-testing the key results of the literature review, and helped to mitigate biases stemming from the methodology applied in this report.

3. Organised Camps as a step change in EU shelter planning?

This section briefly reflects on the broader context of the planning scenario that guides the MASC project, and the literature review outlined in this document. The aim of this section is to propose that planning for mass shelter in organised camps on a green field site marks a significant step change in European civil-protection thinking, planning and practice.

Existing guidance literature on emergency shelter conceptualises organised camps as one out of six available sheltering options for displaced populations following a crisis or disaster (Corsellis & Vitale, 2005).

Figure 2: Six Options for Transitional Settlement (The Shelter Centre)



Source: Corsellis and Vitale (2005: 68)

The six options for shelter arrangements differentiate between dispersed and grouped settlement, and further qualify between self-settled and planned settlements. A brief explanation of each of the six options is shown in Figure 2.

Figure 3: Conceptualisation of six options for transitional settlement

dispersed in host families: this option involves sheltering the displaced population within the households of local families, or on land or in properties owned by them.

dispersed in rural self-settlement: displaced families settle on land in a rural context owned collectively, rather than privately.

dispersed in urban self-settlement: displaced populations settle in an urban environment, occupying unclaimed properties or land, or settling informally.

grouped in collective centres (mass shelter): these are usually transit facilities located in pre-existing structures, such as community centres, town halls, gymnasiums, hotels, warehouses, disused factories, and unfinished buildings, where a large group of displaced people find shelter.

grouped in self-settled camps: a displaced community settles in a camp, independent of assistance from local government or the aid community.

grouped in planned camps: accommodation on purpose-built sites where a full services infrastructure is provided.

Source: Corsellis and Vitale (2005: 66)

The conceptualisation of six different shelter options in

Figure 3 should be read against the background of shelter provision in the context of humanitarian aid, often in a developing world context. It can serve as a valuable starting point for the conceptualisation of shelter options in a European context, and should be interpreted as a reference, rather than as a template that is applicable as a whole to shelter operations in EU countries. It highlights, in particular, that the planning scenario for the MASC Project is explicitly targeted at the last out of the six settlement options, the planned camp. The transitional settlement guidance stresses that this option of high-density settlement after disaster bears significant challenges and risks:

“Much of the existing literature on environmental issues is focused on the negative impacts of high-density grouped transitional settlement, such as planned camps, and ways to mitigate them. Perhaps the most important lesson to learn is that high-density settlement should be avoided whenever possible” (ibid: 56-57).

The caution with which practitioner guidance documents such as that of Corsellis and Vitale discuss planned camps as a shelter arrangement option is echoed in academic literature. In a seminal contribution to the academic discourse on emergency shelter and settlement, Quarantelli (1995: 48) highlighted that

“[i]n the typical disaster, certainly in most Western type societies, persons from impacted households who have to leave their homes, in the great majority of cases go to the homes of friends and relatives. This is one of the most established generalizations from the disaster literature. However, there can be catastrophic disasters where extensively inhabited areas are so devastated that there are few houses and apartments intact which the disaster survivors can go to after impact; in one sense, there are no or few friends and relatives who can provide intact shelter or housing.”

The quote from Quarantelli exemplifies that literature on large-scale displacement after disasters tends to favour exhausting all of the other five settlement options outlined in Figure 2 above, before resorting to planned camps as a shelter arrangement. However, the literature also acknowledges that planning scenarios like the one that guides the MASC project can become, at a certain scale and impact of disaster, an inevitable last resort. This insight was acknowledged only very recently in European civil protection planning, and in many ways is an emerging field that until now has received only very limited attention.

The vast majority of existing planning guidance on mass evacuations and shelter arrangements does not explicitly refer to planned camps on a green field as an option in emergency shelter provision. Taking a European perspective, the *Evacuation Responsiveness by Government Organisations (ERGO)* project report considers shelter arrangements as one out of six major themes in comprehensive planning for mass evacuations. Much in line with Quarantelli's assessment of preferred shelter options of disaster affected people, the ERGO guide refers to pre-existing facilities and structures as available shelter options in the immediate aftermath of a disaster:

“Sheltering locations – capacity: As a part of the evacuation plan, various safe locations are identified as potential places for sheltering. Across ERGO countries, local authorities (in coordination with the Red Cross) identify and operate shelters. Schools, community centres, public buildings, churches, indoor sports complexes, cinemas, theatres, gyms, farm houses, tourist homes and colleges were identified and used as sheltering locations.” (ERGO, 2011: 259)

The UK Government's Evacuation and Shelter Guidance provides only ambiguous advice for sheltering arrangements of concern for the MASC project. The guidance document effectively lacks clear recommendations on how to shelter evacuees and disaster-affected people for longer than 72h. The guidance states that

“[s]helter for days or weeks after an event may be necessary if it is not possible for evacuees to return home immediately. If homes have been damaged and are in need of repair, insurance companies will make an assessment and arrange suitable accommodation. But in some circumstances – if the property is undamaged but it is not safe to return home at once – evacuees may need help in finding accommodation.” Evacuation and Shelter Guidance (Cabinet Office, 2014: 38)

Planned camps for a large number of displaced people on a green field are effectively not acknowledged as a shelter option in this guidance. This lack of effective consideration of scenarios in which a large number of people need to be settled on a green field site is also reflected in current evacuation models. A case in point is a 2011 report on transportation needs for flood-induced evacuation in Lincolnshire and Norfolk (HR Wallingford, 2011). The document provides an analysis of road usage based on modelling exercises for different planning scenarios. Although shelter considerations are highlighted at various points in the document, no clear contingencies are laid out for mass shelter provision. Even in the “optimised” planning scenario, the document states that the



“[...] locations of shelters were not defined in this study since the client team wished to apply the strategy ‘save lives by ensuring everyone leaves the flooded area’ and not for everyone to go to a pre-dined location”(HR Wallingford, 2011: 8)

This explicit lack of consideration for shelter planning in evacuation models is surprising, as it seems to suggest that an effective shelter provision has little or no impact on the survival of disaster affected people. As Kolen & Helsloot (2012: 709) point out, in the Netherlands hard data on mortality rates in shelters within flood zones is indeed missing, so that loss of life is not taken as a measure to evaluate the effectiveness of evacuations. However, as the literature review below will show, case study evidence such as that from the New Orleans Superdome shelter during Hurricane Katrina suggests that shelter arrangements are critical determinants of protection and safety in disaster response. The disregard of shelter planning in evacuation models suggests that there is a need for scenario-based shelter modelling that can complement evacuation models that effectively ignore planning for the provision of shelter.

A rare exception to the oversight of shelter issues in formal guidance is the 2014 Response and Recovery Guide from the UK Government Coastal Flood Group (DEFRA, Cabinet Office, & DCLG, 2014). This document provides an overview of central UK government’s response to severe flooding in coastal areas, and outlines cooperation procedures for government support to local operational response. In its section on evacuation and shelter, the guidance outlines that National Resilience Planning Assumptions require the provision of temporary shelter for up to 150,000 people for up to five days, but acknowledges explicitly that “longer-term solutions” (p. 33) might be required in such a scenario. Building on this, the document provides guidance for “more sustainable and/or potentially longer term accommodation”, which, unlike pre-existing buildings, is “likely to have been purpose build or adapted specifically for the purpose and could accommodate people for a period of a few days to several weeks or even month” (p.35).

The guidance from the Coastal Flood Group is formulated in a way that allows for planned camps to be considered as a realistic shelter option in UK flood scenarios. This planning for organised camps, therefore, marks a significant step change in UK civil protection and emergency planning and practice, and could be considered as supporting the idea of planning for the last resort (or worst case scenario: Clarke, 2005). Its distinct character thus encourages the development of contingencies for all six transitional settlement and shelter options, including that of a planned camp. Building on this, it can be argued that lessons identified from previous deployments may offer insights into how improved planning for (e.g.) self-settled and non-organised shelter arrangements may reduce the likelihood that planned camps would become necessary. However, what should be remembered is that if this coastal flood scenario were to become manifest, then (as in the other actual disaster case-studies discussed in this literature review) all six shelter options will likely to be in operation simultaneously. Accordingly, planning activities need to be fully cognisant of the fact that the sheltering population (out with whatever formal planned camps are actually initiated) will also be drawing, concurrently, on the capacities and capabilities of the responding agencies and



organisations. In this sense, understanding the entirety of this coastal flood scenario undoubtedly provides a convincing justification for exploring effective planning arrangements for catastrophic-scale events. This underlines the timely and important contribution of the MASC project, as the development of contingencies for planned camps in a European context appears to be both essential and long overdue.

4. What does good look like? Existing Guidance on Planned Camps as a Shelter Option

This section briefly outlines a selection of existing guidance and recommendations on planned camps as a last resort in shelter provision. The objective of this section is to acknowledge that there is extensive guidance and best practice, which practitioners and policy-makers might want to consult when considering a planning scenario such as the one that guides work in the MASC project. Existing guidance will be signposted, rather than discussed and perpetuated in detail at this point. The selection of guidance documents discussed in this section is not comprehensive, but rather highlights selected contributions of particular relevance to the MASC project. The objective of the discussion will be on shedding light on the key differences and contexts of particular guiding documents. A reflection on these aspects provides the ground for a more detailed discussion of challenges and gaps in the next section, in particular relating to the question of why existing guidance often does not seem to be considered or implemented in post-disaster contexts.

The scope and difference of different sources of knowledge on planned shelter arrangements can be exemplified through the graphic shown in .





Figure 4. Existing guidance documents can be differentiated as to whether they outline statutory or non-statutory planning arrangements. As outlined in the section above, planning for an organised camp on a green field as a shelter option marks a step change in UK and to an extent European contingency planning. Best practice examples for such a planning scenario thus cannot be identified through a consideration of statutory guidance in the UK. Even non-statutory planning documents in the UK are, as shown above, not considerate of the planning scenario that guides the MASC project. Attention should therefore be drawn to so called “soft doctrine”, or recommendations of how an organised camp for up to 10,000 people on a green field might be planned for and implemented in the aftermath of a disaster.



Figure 4: Statutory vs. “soft doctrine” guidance



Source: Deeming and Easthope (2010)

Throughout guidance documents reviewed for this literature review, a variety of different terms and definitions are applied. This report does not review the different terms in detail, and also refrains from making the case for the usage of a particular term or definition over another, because its aim is to capture a variety of different approaches. Rather, some of the most important definitions are highlighted here to provide a basic understanding of the key terms that characterise this document. A shelter can be defined as *“a habitable covered living space providing a secure and healthy living environment with privacy and dignity.”* (Corsellis & Vitale, 2005: 11). International knowledge hubs on shelter such as the Shelter Centre, advocate for the use of the term transitional settlement. Transitional settlement refers to *“settlement and shelter resulting from conflict and natural disasters, ranging from emergency response to durable solutions.”* (ibid). A different definition of transitional settlement is considered in a recent report by DFID, which suggests that transitional resettlement refers to *“the processes populations displaced or affected by conflict or natural disasters achieve settlement and shelter throughout the period of their displacement, prior to beginning transitional reconstruction”* (DFID, UN, & Shelter Centre, 2014: 323). The term is thus broader than the shelter definition, and allows for a consideration of less-than-optimal shelter solutions, including informal settlements and self-settled arrangements. As the discussion of different experiences and case studies below will show, such self-settled solutions are often preferred by many displaced people as alternatives to planned camps as shelter provisions.

The six available shelter options outlined in the seminal contribution of (Corsellis & Vitale, 2005) are grouped in “dispersed settlement” and “grouped settlement”. Dispersed settlement, according to the “Shelter after Disaster” Guidelines, refers to “the three transitional settlement options of host families, rural self-settlement and urban self-settlement that are available to populations displaced by conflicts or natural disasters” (DFID et al., 2014: 309). Grouped settlement refers to “the three transitional settlement options of collective centres, self-settled camps and planned camps that are available to populations displaced by conflict or natural disasters” (ibid: 331). A more comprehensive collection of different terms and terminologies concerning shelter and displacement can be found in the guidelines and best-practice recommendations discussed below, and in (DFID et al., 2014), in particular.

Existing guidance on shelter operations can be differentiated into more foundational works, such as the SPHERE and UNHCR Standards and Guidelines, developed by large associations of governmental and non-governmental organisations and international organisations. These guidance documents are normative in nature, but it must be remembered that they are underpinned by humanitarian law. In addition to these, there are more specific guidance documents focused on the operational capabilities required for shelter development and construction, both on a national (e.g. ERGO) and international (Transitional Shelter, Shelter After Disaster, Shelter Cluster Toolkit) level.

Figure 5: Shelter settlement options and response scenarios (SPHERE)



Source: (SPHERE 2011: 245)

The 2010 Humanitarian Charter and Minimum Standards in Humanitarian Response (SPHERE) standards remain one of the most foundational and important guidelines for humanitarian relief operations. The guidelines include a technical chapter, spearheaded by the IFRC, on shelter, settlement and non-food items. It specifies a range of minimum standards, actions, indicators and guidance notes on essential aspects relating to shelter planning and operation. The SPHERE guidance is based on six core standards essential for all sectors, including shelter: people-centred humanitarian response, coordination and collaboration, assessment, design and response, performance, transparency and learning, and aid worker performance (SPHERE 2011: 52). The five minimum standards for shelter and settlement are strategic planning, settlement planning, covered living space, construction, environmental impact (ibid: 242). These standards provide a wide range of important considerations for shelter planning (ibid: 245). However, the focus of the guidance is

particularly on the “What” rather than on the “How”. The document outlines the basic reference against which shelter operations should be planned, but contains little information on how these standards can be best achieved by particular organisations in a local disaster context. For example, the chapter on shelter specifies a series of key actions and related guidance notes, but remains vague about how to actually implement these actions in a particular context. While this lack of consideration for particular contexts lies within the nature of the provision of standards, it means that authorities looking for knowledge on how to implement shelter operations need to consult different documents and guidelines.

A similarly foundational contribution to the development of best-practice standards and guidelines comes from the UNHCR’s 2007 Handbook for Emergencies (2007). The document is comparable to the SPHERE Handbook in providing standards and norms to be considered in shelter planning. Developed by the UNHCR, it represents a UN perspective, and is thus different from the non-governmental and civil society perspective represented by the SPHERE Handbook. The focus of the UNHCR guidance is distinctively international, and the standards are written with the specific scenario of international displacement. Resettlement, for example, is defined as a transition of refugees across an international border (UNHCR 2007: 45). The planning framework for emergency resettlement is set at five days by the UNHCR; and thus relates to the planning scenario of the MASC project, which also assumes a five day time corridor for the establishment of a shelter facility. In its section on camp coordination and camp management situations involving Internally Displaced People (IDP), the UNHCR Handbook closely resembles the SPHERE Standards; but seems less elaborate and therefore not as insightful to the MASC planning scenario than SPHERE. The principles of response for mass shelter remain consistent with SPHERE and other guidance documents, and share with them their character as objectives and best practices, rather than providing detailed guidance on how to derive and implement capacities needed for shelter establishment.

Figure 6: Comparison of SPHERE and UNHCR Standards

Comparison of Sphere standards and UNHCR standards		
	The Sphere Project 2010 Indicators	UNHCR 2007 standards
Minimum surface area of camp per person	45 m ² including infrastructure	45 m ² per person recommended (including garden); should not be less than 30 m ² per person (p. 210)
Minimum covered floor area per person	At least 3.5 m ² except in extreme circumstances (pp. 219–220)	3.5 m ² in warm climate or 4.5–5.5 m ² in cold climate or urban situations, including kitchens and bathing facilities (p. 221)
Firebreak		
Minimum distance between buildings	Planning guidance of 45 m ² per person including firebreaks (p. 217)	Minimum twice structure height, three to four times structure height if highly flammable (p. 219)
Minimum distance between blocks of clusters of dwellings	15 m	30 m per built-up 300 m (p. 219)

	The Sphere Project 2010 Indicators	UNHCR 2007 standards
Water supply		
Minimum quantity of water (litres per person per day)	15 (p. 63)	15–20 (p. 549)
People per tap-stand	Maximum 250 (p. 65)	1 tap per 200 people not further than 100 m (p. 549)
Distance from dwellings to taps	Maximum 500 m (p. 63)	Maximum 100 m or a few minutes' walk (p. 219)
Sanitation		
Maximum people per latrine	20 people (if sex segregated public toilets) (pp. 71–72)	In order of preference: (1) family (5–10 people) (2) 20 people (p. 549)
Distance from dwelling to toilet	Maximum 50 m (p. 71)	6–50 m (p. 549)
Minimum distance between latrines and soakaways and ground-water source	30 m (p. 74)	30 m (p. 269)
Distance from bottom of pit to water table	Minimum 1.5 m (p. 74)	Minimum 1.5 m (p. 269)
Refuse		
Distance from dwellings to refuse disposal	Less than 100 m to communal pit (p. 83)	
People per 100-litre refuse container		50 (p. 549)
People per 2m x 5m x 2m communal refuse pit	Maximum 10 families (p. 83)	500 (p. 549)

Source: (DFID et al. 2014: 190-191)

A comparison of the key standards and planning principles between SPHERE and the UNHCR Handbook is shown in Figure 6. It shows that the standards for shelter planning are largely consistent between both documents, and provides an indication of key figures and best-practice references.

Guidance documents with a more specific focus on the national planning context have also emerged in the context of recent collaborative research projects, e.g. in Europe. Here, the Evacuation Responsiveness by Government Organisations (ERGO) project developed a “Preparedness Toolkit for Europe” that provides guidelines and best-practice examples for evacuation and emergency response, and includes a specific chapter on shelter. The document outlines nine tasks related to shelter planning, including the development of an inter-organisational plan, an estimation of demand, the establishment of agreements with providers, supply organisations and the specification of ‘return’ plans (ERGO 2011: 81-91). Compared to more foundational guidelines like SPHERE or the UNHCR Handbook, the ERGO Toolkit is more specific in its information on how to plan and implement shelter operations. It thus goes beyond the question of what needs to be considered. This more operational focus of the toolkit is documented in the provision of a checklist for organisations and shelter stakeholders, which allows for a more detailed consideration of required planning capabilities.

Knowledge on shelter planning through a recent collaborative project on the national government level is also provided by the MEND Guide (MEND, 2014). The “Comprehensive Guide for Planning Mass Evacuations in National Disasters” is of particular relevance to the MASC project, because of its explicit focus on natural disaster contexts. Developed by the Camp Coordination and Camp Management Cluster (CCCM), the Pilot Document of the collaborative project provides information on cross-cutting themes and issues or relevance to evacuation planning, and also outlines a template for a Mass Evacuation Plan. Emergency Shelter and Relief is also considered in a separate chapter in the plan template. Compared to other planning documents, the guidance on shelter planning and provision in the MEND guide remains rather broad, however.

Seminal contributions to guidance literature on shelter planning and construction also come from individual non-governmental organisations. Of particular importance is the Shelter Centre, an international knowledge hub for shelter and transitional settlement. In a 2005 contribution, the Shelter Centre developed a comprehensive set of guidelines on transitional settlement. The work emerged in the context of a collaborative project with the University of Cambridge (Corsellis & Vitale 2005). The document “transitional settlement: displaced populations” outlines a well-structured best-practice guide on the entire planning and implementation processes of shelter operations, including on strategy, assessment requirements, labour needs, and construction. Importantly, the guidance document devotes an entire chapter to the planning and development of planned camps as a shelter option and is thus of particular interest in the context of the MASC project. It offers detailed information regarding criteria for site selection, transit planning, strategic planning issues and service facilities required for camps (Corsellis & Vitale 2005: 348 ff.)

A point of convergence between different guidelines and planning handbooks is their skepticism towards large scale planned settlements. Reasons for the wide-spread aversion for camps as a shelter option include security concerns, potential tensions with host communities, negative environmental implications and the creation of social vulnerabilities and dependencies. The UNHCR Handbook, for example, states explicitly that camps larger than 20,000 people should be avoided wherever possible (UNHCR 2007: 211). The “transitional shelter: displaced populations” guide by the Shelter Centre (Corsellis & Vitale, 2005) is explicit about its preference for self-settled shelter options, and lists a range of criteria that determine under which situations dispersed settlement, for example in planned camps, is acceptable. As the discussion of case study examples below will show, in reality decisions for planned camps are often led by very different considerations. This can include political interests or socio-political pressures, such as increasing pressure on the housing market. Moreover, the specific context of the MASC project might provide scope to reflect on the degree to which the disadvantages and shortcomings of planned camps as a shelter options can be mitigated or solved if sufficient resources and infrastructure are available to support their construction and maintenance by local authorities.

The context and target audience of the different reports and guidelines discussed in this section varies, and decision-makers might want to consider this context when choosing an appropriate guideline. Some of the documents, for example, explicitly focus on international settings, mostly in developing countries, and with a particular concern for international refugees and conflict-induced migration (Corsellis & Vitale 2005; UNHCR 2007). In these cases, the stakeholder landscape and the specific socio-economic and political context factors might be substantially different than in the context of a large scale internal displacement of residents due to an incidence of wide-area flooding in the UK, for example.

5. Lessons-learned from past experiences in Mass Shelter

This section discusses key lessons-learned from past experiences in mass shelter provision through organised camps. The objective of this section is to outline themes and issues that can inform the development of recommendations and best-practice guidelines for the preparation and implementation of the MASC planning scenario. The discussion of practical experiences and lessons-learned in this section contrasts with the review of best practice guidelines on shelter provision in Section 4 above. Drawing on the conceptual framing of different knowledge sources for the development of a contingency planning doctrine in .

Figure 4 above, the contrast between existing best practice guidelines in Section 4 and the discussion of actual practice in this section reflects the distinction between non-statutory guidance, “soft doctrine”, “good practice” and “lessons identified” in Figure 4 (above). A focus of the discussion in this section will thus be on the question of why existing best-practice guidance often does not seem to be used in practice when setting up emergency shelter after a disaster. Such a consideration might provide lessons-learned on how existing guidance on mass shelter might be better and more effectively used in the future.

6.1. Capacities for Shelter Construction

A reoccurring theme in many studies reviewed for this document related to the question of different types of capacities that are needed to plan for and implement shelter arrangements effectively. “Capacities” assumes a different meaning across these studies, ranging from social (social networks, livelihood strategies), organisational, technical and financial capacities required for the setting up of a planned camp.

Cooperation

Capacities for cooperation between stakeholders and organisations involved in the relief efforts are a critical factor for the success of any temporary shelter operation. In the aftermath of the 2008 Sichuan Earthquake, the IFRC distributed over 100,000 tents in the affected area in China. This provision of shelter capacity was only possible because of the sustained support and cooperation of other regional stakeholders, including the Iranian Red Crescent, which provided a majority of the tents that were distributed to survivor families (IFRC 2012: 4).

While in the case of large-scale disasters in developing countries, international aid agencies and humanitarian agencies from many different countries participate in government strategies to mitigate the most adverse effects of the disaster, the context for multi-stakeholder collaboration in European countries is more likely to concern cooperation between national government and non-government actors at various administrative scales. Just as the collaboration in multinational stakeholder networks, this cooperation can bear significant challenges and conflicts. This was observed, for example, in the case of the post-disaster response to the earthquake in l’Aquila, Italy, where regional and local response measures were quickly taken over by a central government driven focus on enforcing a hierarchical command and control approach to the disaster response (Alexander, 2010). The decision to evacuate the entire historic city centre of l’Aquila, for example, was not taken by the local authority, but by the National Department of Civil Protection, supported by the Armed Forces. As the detailed discussion of Alexander (2010) shows, such power relationships between local and national authorities can create tensions that undermine an effective and well-managed response to the disaster.



Coordination in the establishment of mass temporary shelters becomes particularly relevant if different organisations are involved in providing tents or other temporary structures that house affected people. This observation was made in the aftermath of the 2010 earthquake in Haiti, when different organisations established temporary shelters that had minor design variations. As Abrahams (2014: 33) points, out, these minor design variations drastically increase the need for different products and resources, increased left-over waste and the amount of material not useable for shelter development, and also undermined opportunities for cost-savings through joint purchasing and shipping. These constraints reveal the sensitivity of the costs and efforts related to shelter operations, and highlight the importance of effective (and preferably pre-existing) coordination structures, which integrate key stakeholders into an effective and successful provision of shelter capacity.

A successful example of multi-agency cooperation at the regional level, which included the set-up of local shelter facilities, was observed in the case of the 2007 California Wildfires. In its 2008 After Action Report, the County of San Diego drew a positive conclusion from the collaboration between various local stakeholders in the response to the fires:

“Continued cooperation among regional partners contributed to significant successes during the 2007 fires. These successes include an organised response from the OAEOC [Operational Area Emergency Operations Center]; multiple sources for evacuation and critical Internet-based disaster information; pre-mapping of evacuation routes using GIS technology; the use of WebEOC, a web-enabled crisis information management system, as a “virtual liaison;” military liaisons who provided a conduit to a variety of critical resources, such as aerial reconnaissance; the ability to coordinate and disseminate timely public information; and the establishment and operation of numerous shelters.” (Ekard, Tuck, & Lane 2007: VI)

Coordination mechanisms between organisations involved in the establishment and operation of shelter is also required for the structured registration and allocation of volunteers arriving at emergency shelters. This experience was made during the 2007 California Wildfires, when the abundance of spontaneous volunteers could have been handled more effectively during the incident. As the After Action Report (Ekard et al. 2007) outlines, the Red Cross had trained 2,400 volunteers for the assistance at shelters across San Diego County, but only 800 of these volunteers could actually be deployed, as shelter managers had difficulties in verifying their credentials to provide medical services (ibid: 46). The city assigned a full-time manager to facilitate the coordination of volunteers. The manager also conducted 30-minute training sessions with incoming groups of volunteers to make sure a minimum level of quality was delivered. Despite previous learning from the 2003 Fires in California, when an MoU (Memorandum of Understanding) was developed to designate Volunteer San Diego as the lead agency to coordinate spontaneous volunteers, volunteer management presented some challenges during the disaster response. As the After Action Report outlines, however, the MoU had not yet been signed during the 2007 fires, leaving room for improvement in the coordination of volunteers arriving at shelter facilities to offer help and assistance. This experience points to the implications that institutional constraints in crisis and risk management can have for the immediate disaster response – in this case, a stalled agreement undermined an effective use of volunteers.

Cooperation in disaster response and shelter operations also concerns voluntary organisations and minority groups. Following the wildfires in 2003, disaster response in San Diego was improved through increased capacity for communication. This was facilitated by a better collaboration of the local authorities with the San Diego County Association for the Deaf, which has led to the presence of a sign language interpreter at news conferences in 2007. A distinctive learning experience from the 2007 California Wildfires thus concerned the capacity to deploy additional bilingual and sign language staff, both in Emergency Operations Centres and at shelter facilities. Ideally, shelter facilities will have sufficient bilingual staff present, and will also be able to communicate instructions for the provision of shelter to people with disabilities, including those affecting their communication ability.

Training and Testing

The success in the provision of shelters after the 2007 California Wildfires points to the importance of effective preparation among the emergency planning community, and to the use of technology to support response operations. The County established 45 shelter facilities. The vast majority of them, however, were existing communal buildings such as schools. Two mega-shelters were established, one at the Qualcomm Stadium and one at the Del Mar Fairgrounds. With this reliance on pre-existing buildings, the capabilities required to develop and maintain shelters after the wildfires differ from those anticipated for the planning scenario of MASC, which assumes sheltering on a green field with no pre-existing building structure that could be used. Some indication can be found, however, that despite the reliance on pre-existing buildings, tents were also used as part of the shelter

arrangements during the California Wildfires. This concerned, in particular, the mega-shelter. The County After Action Report outlines, for example, that 100 tents were ordered for the mass shelter facility at the Qualcomm Stadium and the Fiesta Island Shelter on October 23rd (Ekard et al. 2007: xix).

Capacity for training responsible managers and clusters in advance of an event proved to be an important factor in the success of the management of the 2007 California Wildfires. Based on learning experience made since the 2003 Firestorms in California, training and testing capacity had been expanded significantly in San Diego County, and this was identified as a key to the successful and timely response to the wildfires in 2007. For shelter operations, representatives from the “Area Emergency Operation Centers”, clusters of emergency planning and response officials, had been trained as shelter managers. This training proved to be of decisive value during the response to the wildfires, and allowed also for a consideration of special needs shelter management, including for people with disabilities (Ekard et al. 2007; Kailes 2008).

Particularly involved in planning and preparing evacuation and shelter operations for wildfire incidents were, according to the After Action Report, Public Health, hospitals and clinics, volunteer agencies and special needs advocates. Together, their network facilitated a timely and effective response during the disaster. The city of San Diego managed to establish 45 shelters, special needs shelters, and three animal shelters.

Technology

Capacities for the use of remote-sensing and geospatial technology, in particular GIS, also proved as an important factor for the success of both disaster response and shelter operations during the 2007 wildfires. GIS technology was particularly important for evacuation and shelter planning, because it allowed to estimate how many people were evacuated, determine the required size of shelters appropriate for the local context, and to map the path of fires in the area. The After Action Report specifies that:

“[i]ncident geospatial information was used for a variety of purposes throughout the fires. Perimeter data was used to help determine evacuations; evacuation data was combined with demographic data to estimate the number of people evacuated, shelter sizes, and locations; the County Department of Environmental Health (DEH) used fire perimeter, evacuation data to identify hazardous materials in the path of the fires and used environmental health GIS layers to map and assess health issues in the area of active fire or power outages; evacuation boundaries were used to track repopulation of communities; government facilities data was overlaid with fire perimeters to determine potential impacts of services.” (San Diego After Action Report 2008: 15).

Such a good-practice example for estimating evacuation numbers and deriving numbers for the required capacity of shelter facilities might be an alternative to comprehensive databases of displaced people, as they are called for in some instances. For example, in the case of the 2010

earthquake in Haiti, Rahill et al. (2014: 89) stress the need for a comprehensive identification, registration and tracking of displaced people after disaster, ideally in a shared database. Reflecting on the challenging context of the immediate aftermath of the Haiti earthquake, the authors admit, however, that such comprehensive assessments were at least challenging, if not outright impossible after the disaster. In the UK, however, guidance from national government has allowed for a process of identifying vulnerable people which tries to balance responders' needs for identification of vulnerable people with data security and privacy concerns. Vulnerable people are usually registered on lists held by the local authorities and by utility providers. Rather than allowing for a broad access of various teams and departments to particular lists, access is controlled within local organisations through a focal point, for example the local authority's Social Care Team, who maintains a "list of lists", providing an overview about which information is held by whom, and that allows for targeting particular lists in case of an emergencies (Cabinet Office, 2008). This approach faces its own challenges and dysfunctionalities (Mellor, 2014). For example, a static list cannot capture the dynamic character of vulnerabilities in the community, where protection needs shift rapidly and list holders are therefore unlikely to be able to manage updating the respective lists in an adequate way. The reorganisation of health and social-care bureaucracies has also been suggested as a threat to organisational capacities in monitoring population vulnerabilities for civil protection purposes.

Technological approaches to facilitate shelter planning are also discussed by a recent study of Rakes, Deane, Rees, & Fetter (2013). Their study on post-disaster interim housing discusses a decision-support system for recommending housing alternatives to families affected by disaster. The decision-support system consists of a benchmark model and three heuristics that facilitate an efficient way to recommend temporary housing options to displaced people. The model, therefore, assists in the allocation of families to available shelter options. The authors claim that the benchmark model maximises benefits across all families by considering health, education, and social needs. It can be used as a planning tool that provides information on whether planned housing is sufficient and will meet the demands of the population. A distinct weakness of the model developed by Rakes et al., however, is its lack of consideration for socio-economic characteristics of affected families. This seems striking since socio-economic factors are critically shaping individual decision-making on whether to seek shelter or not (Wu, Lindell, & Prater, 2012).

Other

Capacities for the development and maintenance of planned camps as shelter after disaster depend critically on the size of the camps. The MASC planning scenario of a planned camp for 10,000 people, set up within 5 days after the disaster and operational for six weeks seems to be at the upper limits of camp sizes, compared to other case study experiences reviewed for the document. After the earthquake in L'Aquila, Italy, for example, the average camp size was significantly smaller. The Italian government seemed to have a different strategy to planned camps after disaster: Rather than building one big camp, a high number of smaller camp sites were developed. According to Alexander (2010: 326), about 22,000 people were sheltered in organised camps after the disaster, with a series of 171 tent camps built to host affected people.

An important factor for shelter planning strategies is the degree to which temporary shelter will be necessary not only for disaster affected communities and survivors, but also to government organisations and other critical service providers. Depending on the scale and magnitude of destruction after a disaster, organisational capacity to coordinate and implement relief operations might also be impaired. In other words, the logistical requirements of setting up planned camps can have significant implications for responding organisations' own business continuity. This phenomenon occurred, for example, after the 2008 Sichuan Earthquake, where UNICEF in a post-disaster report highlights how many buildings, including those that used to host government organisations in Qingchuan, were destroyed. As a consequence, a settlement camp had to be erected on farmland outside of the city that hosted not displaced people from the community, but the government departments and other public facilities that had lost their quarters to the earthquake (UNICEF, 2009). A similar experience characterised the post-disaster phase after the L'Aquila Earthquake in Italy, where Alexander (2010) observes that the university building of the small Italian town was badly damaged, thus, resulting in the institution moving parts of its operation to tents for several months (Alexander, 2010: 326).

In a review of the implementation of the SPHERE Standards in the response to the 2010 earthquake in Haiti, Guha-Sapir, Kirsch, Dooling, & Sirois (2011) indicate that camps were generally overcrowded.

Figure 7 provides an overview of some of the key figures relating to the shelter and evacuation response in Haiti. The table, together with supporting evidence from the report of Guha-Sapir et al., points out that six months after the earthquake, there was a significant discrepancy between transitional shelters for which funding had been secured (approx. 95000) and those shelters actually built by the aid community (approx. 5000). The authors identify problems with rubble removal and land rights as one of the main drivers of this unsatisfactory discrepancy. Their review of the Haiti experience, in particular findings relating to overcrowding of camps, suggest that planned camps should always consider a buffer capacity in case the number of displaced people seeking shelter exceeds planning assumptions.

Figure 7: Overview about USAID response to 2010 Haiti earthquake

INFORMATION	FIGURES	SOURCE
EQ affected population	Over 2 Million people affected	GOH
Destroyed or partially damaged houses	188,383 houses	GOH
Assessed Buildings	212,482 buildings, including 186,766 residences have been assessed by the Ministry of Public Works. 49% (104,681) Green 27% (58,418) Yellow 23% (49,383) Red	Ministry of Public Works (UNOPS) 26 July
Displaced people in settlement sites	1.5 Million people	GOH
People migrating from West Department	661,000 people (majority living with host families)	GOH
Spontaneous settlement sites	1,368 sites	DTM Analysis, 28 July
Camp management	Sites registered: 373 across affected area; Number of households: 190,518	IOM 12 July
Camp assessment and mitigation	146 sites have now been assessed for vulnerability to storms and flooding. The target is now 250. 71 have committed agencies to carry out mitigation.	IOM 28 July
Transitional shelter construction	6,868 transitional shelters constructed, housing more than 24,000 people. An additional 16,100 transitional shelters are already in country.	Shelter Cluster 26 July
Flash Appeal Funding	67% funded	Financial Tracking Service (FTS)

Source: (Guha-Sapir et al., 2011: 28)

6.2. Duration of Settlement

A common theme in much of the literature on post-disaster shelter operations reviewed for this document is the duration of settlement. The tenor of past experiences and case studies is that planned camps usually last much longer than initially anticipated by the camp builders, and that this resilience of camps can present major challenges to a reconstruction and rehabilitation after disaster. This is of particular relevance to situations where the type of disaster necessitates a long-term evacuation or even resettlement of displaced populations, as for example, in the case of the 2011 Fukushima Nuclear Incident in Japan. The finding sheds light on the planning scenario of the MASC project, which is explicit about the maximum time span of six weeks of transitional shelter, and raises questions as to whether this specific time frame will be realistic when implemented in practice.

At the heart of the tension between government planning for a short-term duration of emergency shelter on the one hand, and permanent camp structures, on the other hand, lies a problematic conceptual assumption of emergency planning arrangements, according to a study by Levine, Esnard, & Sapat (2007). The authors point out that the traditional emergency management paradigm assumes that recovery follows quickly after the immediate response measures. Indeed, the framing of the MASC planning scenario seems to reflect this assumption. Sheltering needs are anticipated for the response phase after a disaster, lasting up to six weeks from the event, after which a transition to recovery and a (physical) rebuild of affected communities is envisioned. Levine et al. (2007) challenge this assumption, pointing to the complexities that frame the transition between the response and recovery phase, including issues of social vulnerability, long-term displacement, disaster-driven land development and housing reconstruction processes, amongst others.

A similar point is made by Pinera & Boshier (2011), who review the SPHERE guidance with respect to its long-term sustainability. The authors argue that the SPHERE guidance is not adequate for the provision of long-term humanitarian assistance in complex emergencies. Analysing water supply in two war-prone regions in Eastern Chad, the authors argue that the SPHERE standards were too high to be upheld sustainably by the displaced population. The standards thus proved counterproductive, as they could only be upheld by complex water systems that could not be operated locally without external assistance. The study underlines that existing guidance literature, including the most seminal contributions (e.g. SPHERE), does not adequately account for long-term displacement of domestic populations (i.e. planned camps) impacted by extreme hazard events, up to and including catastrophic scale. As the discussion above has shown, European civil protection arrangements seem to suffer from the same shortcoming, providing ground for the work undertaken in the MASC project.

The tensions also point to the need to build contingencies for return in a short time frame. In a disaster scenario with significant infrastructure damage, for example through extended flooding, the ability of families to return without support might be significantly constrained. It might be impossible, for example, for displaced people to return to their homes by living in a caravan on their driveway. At the same time, significant infrastructure damage might lead authorities to have an interest in keeping families out of the affected area anyway, for example if there were to be petroleum or other toxic contamination near coastal refineries. Both scenarios suggest the need to engage fully with contingency planning for the facilitation of planned camps, as well as for the other five shelter options outlined above. Also, it may not be sensible to expect a planned camp to be in operation for only a short time, unless there are substantive contingencies for assisting the (particularly the vulnerable) camp population to find alternatives. This will be particularly relevant as other facilitators (such as insurance companies) only assist their clients and not everyone in need.

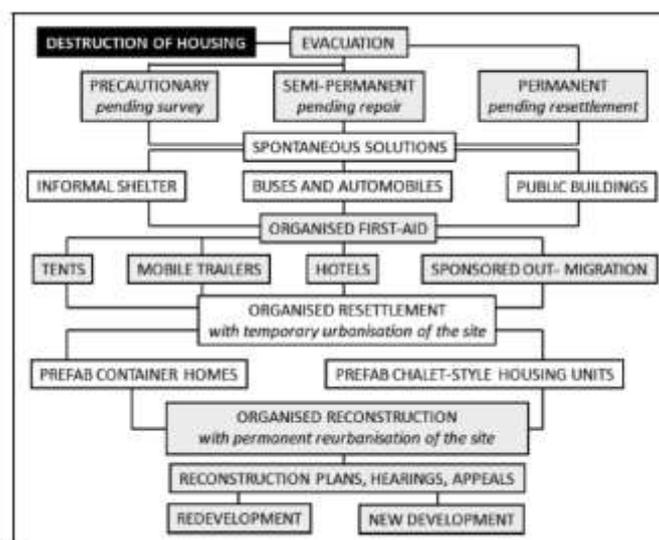
The study of Levine et al. (2007) observes that in the past displacement following natural hazards has been typically temporary and localised. The authors argue that there is therefore a general lack of literature that explores which capabilities are needed to address challenges emerging when large-

scale disasters result in long-term displacement and the need for resettlement. This broadening of the perspective brings housing and land development policy into the picture, and raises questions about the capacity of existing shelter planning strategies to account for the possibility of long term displacement. Hurricane Katrina, which rendered large parts of the city of New Orleans uninhabitable for a substantial amount of time, shed light on the limits of previous strategies of the Federal Emergency Management Agency (FEMA), which in the past has resorted to allowances for hotel stays or the provision of trailers and mobile homes. As Levine et al. (2007) point out, both strategies proved to be ineffective for more long-term shelter needs, as the first option can become very costly, while the second creates new vulnerabilities and puts people in harm's way if disaster strikes again.

While in most cases, shelter in organised camps is planned as a short-term solution for the immediate aftermath after a disaster (as shown for example by Levine et al. 2007), in some cases government interventions deliberately planned for a long-term existence of camps. In his review of the disaster response of the Italian government to the L'Aquila earthquake in 2009, Alexander (2010: 333) points out that *"the main thrust of central government policy was to keep people in tents for up to seven months and rehouse them in complexes of buildings that are too substantial to be regarded as transitional, but too unusual to be described as permanent rehousing"*.

Within six months of the earthquake, the government, through the CASE programme (Complessi Antisismici Sostenibili Ecocompatibili – for further information confer Calvi & Spaziante (2009)) set up 19 housing units with over 5,700 apartments, built with antiseismic design on greenfield locations. The distinction between both, the provision of tents as a improvised short-term solution, and the construction and maintenance of (permanent) transitional shelters can also be seen in the conceptual graphic in Figure 8.

Figure 8: Full Sequence of Post-Disaster Shelter



Source: Alexander (2010: 334)

The scale of permanent displacement of disaster affected people becomes particularly visible in cases of mega disasters such as the 2011 Fukushima Nuclear Accident or the 2010 earthquake in Haiti. A recent study on the disaster evacuation in Fukushima highlights that one year after the disaster, over 300,000 people remained displaced or had moved to permanent shelters:

“According to the official figure, the disaster displaced a total of 386,739 people, recorded at one week after the disaster.¹⁶ In March 2012, one year on from the disaster, the number was still as high as 344,290, which indicates that most of the evacuees had not yet returned to their home or resettled in permanent shelters.” (Hasegawa, 2013: 15)

Displacement on an even larger scale took place in response to the 2010 earthquake in Haiti. In a review of the US government’s response to the disaster, Guha-Sapir, Kirsch, Dooling, & Sirois (2011: 28) suggest that over 600,000 people migrated to rural areas from the capital Port-au-Prince after the disaster. In total, roughly 1.6 million people were displaced by the earthquake. One year after the disaster, the number of internally displaced people remained at approx. 520,000, 58% of which resided in 53 larger camp sites, according to the International Organisation for Migration (IOM DTP, 2011: 1).

These figures provide an indication of the severe challenges that can emerge if significant disasters and a lack of effective response necessitate a durable resettlement of large numbers of people. They point to the need to carefully consider the direct impacts of certain natural hazards such as flooding or earthquakes, and to evaluate cascading risks, e.g. related to technological or chemical hazards that emerge in the disaster area. They also underline the need for plausible planning-scenario-modelling of population movements that goes beyond mere evacuation modelling, and which plays an important role in informing contingency planning (HR Wallingford, 2011).

6.3. Social considerations associated with planned camps as shelters

A question closely related to the unexpected duration of camp settlements and transitional shelters is the social impact of shelter facilities. Social impact can refer to a variety of socio-economic, cultural and psychological aspects related to the consequences of sheltering for both, the people living within the camps and for the communities in which camps are hosted.

Social impacts of shelter facilities can be felt well beyond the immediate time and geographical scale of the displacement. Social impacts of temporary shelter might be significant even in the long run, when shelters are used well beyond their initially planned time span. Abrahams (2014), for example, suggests that informants involved in the Haiti temporary sheltering operations predicted a use of temporary shelter for up to 15 years, and thus well beyond their designed life span of 2-5 years. This continuous use of temporary shelter structures, which can be expected to deteriorate and offer decreasing safety and security to inhabitants unless proactively and regularly adapted/replaced, should be planned for as a source of increasing social conflict and tension among residents of temporary shelter facilities.

Levine et al. (2007) point out that post Katrina house and rental prices rose far from the destruction zone, which was caused by the influx of people seeking housing. In their study, the authors highlight the long-term social impacts that take shape when emergency or temporary housing evolves into long-term shelter. The decisions taken in the immediate aftermath of disaster can often unfold long-term implications, which can themselves then become resilient to change. It might happen, for example, that a large proportion of the displaced population decides not to return to the site of disaster but to resettle elsewhere, for example if affected land has become inhabitable due to the disaster. In such situations, raising demand for housing might trigger the rapid development of new housing capacities on vacant land in the urban fringe. Such housing can quickly become a significant factor in urban planning and development if it evolves into long-term housing that becomes “locked in” in the urban development pathway (Levin et al. 2007: 9).

The socially adverse dynamics related to displacement and the subsequent development of shelter options, both within planned camps and as self-settled alternative, show distinct parallels irrespective of the particular hazard or context. In an analysis of trailer siting after Hurricane Katrina, Aldrich & Crook (2013), for example, highlight that areas with low exposure to flood hazards chosen by the Federal Emergency Management Agency FEMA as locations for trailer parks were less willing than more flood-prone areas to accept these temporary shelter projects. The authors suggest that residents in these low-exposure areas were more strongly motivated to object to trailer siting than residents in topographically lower areas of the city (ibid: 619), but this explanation remains rather speculative and might overlook the unequal distribution of (social) capacities, often available in particular in more “well-off” neighbourhoods, to influence policy decisions.

Planned camps are often just a small driver of social problems associated with large-scale displacement. More important seem to be the large proportion of displaced people who seek shelter on their own, e.g. through renting accommodation on the market or by staying with family or friends. A usual consequence of this movement is increasing pressure on local housing markets, increased rental prices, a lack of affordable housing, aggravated social tensions and excessive demand on (urban) infrastructures. These aspects are highlighted, for example, in the National Resilience Plan 2014-2016 of the Government of Jordan, which evaluates the social implications of the continuing refugee crisis in the region (CCCM Cluster, 2014: 39).

A consideration of the social dynamics of shelter strategies reveals that planned camps should not be conceptualised merely on the basis of capacity considerations (e.g. how many people have to be sheltered in what time? what capacities are needed to set up the camp?). Rather, the question “Who is coming to planned camps?” is of critical importance for a successful and considerate shelter strategy. Case study evidence suggests that irrespective of the magnitude and scope of disaster or crisis, only a small minority of displaced people will seek planned camps as a shelter option. Evaluating the evacuation and shelter logistics of Hurricane Katrina and Rita, Wu, Lindell, & Prater (2012: 451) find that only 3% of evacuees went to a public shelter, while 61% stayed with friends and relatives, and 18% in hotels and motels. Their analysis reveals that public shelters were avoided, in

particular, by ethnically white people, who tended to be those with higher education and income. These results point to the importance of socio-economic variables and of social networks (family and friends) in terms of configuring household-scale decision-making relating to shelter options.

Disproportionally, public shelters will thus be used by socio-economically disadvantaged people and by those that lack functioning social networks or support structures. In the case of the 2007 California Wildfires, for example, Fu (2012) shows that retrofitting costs associated with shelter-in-place strategies propagated by the government were not affordable to poor communities. Effectively, poorer groups affected by the wildfires could thus not afford to shelter in place and had to migrate and seek alternative shelter options. It is, therefore, important to consider that even in the often chaotic immediate aftermath of disaster, planned camps will serve as a shelter option to particular groups within the community, only.

Abrahams also observes a “lottery effect” in the equitable construction of temporary shelters: In the aftermath of the Haiti earthquake, when a high influx of aid organisations and financial resources overburdened a structured and coordinated approach to the distribution shelters, a significant inequity in the provision of shelters was observed: communities served by organisations with well-funded resources for the provision of high quality shelters received top-of-the-line-shelters, while other communities who were served by organisations with fewer financial resources received far more basic shelters. In practice, the latter communities quickly demanded upgrades and the provision of shelters in comparable quality than those received by neighbouring communities. Comparable situations seem to be particularly prevalent in cases where non-experienced aid organisations and stakeholders come in and huge amounts of money and aid are initially available, e.g. after mega disasters (Abrahams 2014). The analysis raises questions about the social impacts of shelter provision, and the potential for social conflict and tensions between communities affected by disaster. Moreover, it hints to the importance of pre-planning expectations about what suitable shelter in a planned camp should look like in terms of minimum standards.

6.4. Initiative and self-help of people

One of the concerns with planned camps as a shelter option is their potential constraining effect on the capacity of displaced individuals and families to help themselves. Figures from across the case studies suggest that the majority of people displaced by disaster will organise shelter for themselves, e.g. by staying with friends and families, living in hotels or renting temporary accommodation elsewhere. Only a small percentage of people are actually submitting themselves to planned camps as a shelter strategy. For example, in a review of the response of the US government to the 2010 earthquake in Haiti, Guha-Sapir, Kirsch, Dooling, & Sirois (2011: 28) suggested in 2011 that 30% of the 661,000 people that migrated from the capital of Port-au-Prince in the immediate aftermath of the disaster are living with host families. In Lebanon, 57% of Syrian refugees live in apartments or houses, 25% in substandard buildings such as unfinished houses, 15% in informal settlements and only 3% in collective centres provided by public authorities (CCCM Cluster, 2014: 48). Such figures

speak to Quarantelli's 1995 argument, quoted above, that the willingness of disaster affected people to help themselves is among the most substantiated findings from the disaster literature. It raises questions as to whether shelter planning by local authorities should also focus on supporting the community in developing capacities for hosting displaced people in times of disaster. Even more important than the mere existence of technical and resource capacities for such host families seems to be a facilitation of a culture of help among local communities, which improves acceptance of displaced people, facilitates sheltering with host families, and can thus be of critical importance for relieving pressure on planned camps

In many cases, aid agencies and government organisations respond to this finding and favour an owner-based approach to shelter provision and to the reconstruction of damaged homes. This refers, in particular, to the allocation of financial aid in affected communities. Such an approach was implemented, for example, after the 2008 Sichuan Earthquake in China, where the IFRC distributed cash grants to more than 62,000 affected families in Mianzhu County in Deyang Prefecture (IFRC, 2012).

Planning strategies for shelter provision should acknowledge the self-help capacity of displaced populations. This can be done by conceptualising strategies in a way that they facilitate individual capacities, and support people in finding shelter and accommodation on their own. This point is made, amongst others, by Corsellis & Vitale (2005: 69), who argue that independence and the capacity for self-sustainment are among the most important factors that shape the decision of displaced people for a particular shelter option. While the author's point out that support for dispersed settlement from local authorities and the aid community can, therefore, be more practical and efficient than planning for grouped settlement, it can be argued that also group settlement planning should be guided by the goal of supporting agency of displaced people, wherever possible.

Considerations regarding the capacity of displaced people to help themselves are closely related to the discussion of social capital as a resource in shelter planning. In their study in shelter recovery in urban Haiti after the 2010 earthquake, Rahill, Ganapati, Clérismé, & Mukherji (2014: 90) argue that policy-makers should acknowledge and account for existing social capital of displaced populations more systematically. According to the authors, social networks and relationships can support, for example, the effective distribution of shelters and shelter-related resources (see also Aldrich, 2014). The study argues that a systematic documentation of community groups and their specific resources prior to disaster could serve as an effective tool for improving response measures. Building on more elaborate methodologies in social research, for example on social network analysis and mapping, might be an opportunity to expand even further the ideas for Rahill et al.

6.5. Participation of displaced people and support from host communities

An important aspect of shelter planning and management is the participation of displaced people in the establishment and maintenance of camps. Closely related to this theme of participation is the role of support from host communities, for example through volunteer work at shelters and camps. Both issues are of relevance in the literature reviewed for this document. In a 2014 case study report, the Camp Coordination and Camp Management Cluster highlighted the role of community participation as a key goal of any shelter operations (CCCM Cluster, 2014: vii). It provides a range of good practice examples of past experience with displacement situations where participation was actively supported by camp managers and public officials, and how this benefited the beneficiaries living in camps. For example, it discusses the role of organised camp committees in working with camp managers to identify gaps and challenges in service provision in refugee camps in Burundi, where the Congolese conflict has generated a camp population of about 22,000 people (CCCM Cluster, 2014: 1). The report also provides evidence for training exercises with host community leaders in Colombia, which were empowered by the Cluster to become shelter managers, who then helped address large scale displacement triggered by floods and conflict between 2011 and 2013.

The question of how to integrate volunteers in shelter operations and how to promote a culture of assistance among host communities is also addressed in the academic literature, for example by Michel (2007). In their study on post-Katrina volunteer help, the author finds that people who feel that their work can make a difference, who are better educated, and who have religious and organisational attendance are more likely to feel responsible for helping and volunteering in shelters after a disaster. The author also finds that a huge majority of people in the sample (90%+) felt that they had a responsibility to devote time to help others. However, only about 40% actually volunteered. Here, findings suggest that presence of children at home and organisational membership had significant effects on hours spent working at temporary shelters. These findings are interesting because they point to the importance of wider social context factors, such as population education levels, for shelter operations. This relates directly to issues discussed above, such as social capital, as it sheds light on the way in which education can act to strengthen social capital and cohesion, and thus facilitate disaster response in the long-run. In general, it points to the importance of social capital, and addresses important questions on how to promote volunteerism and a culture of help and assistance.

Differences exist among European countries with regard to the role of volunteer help in shelter operations. While in Germany, for example, there is a large basis of volunteers organised under the umbrella of the German Federal Agency for Technical Relief (THW), the UK lacks a comparable structure within its institutional architecture of civil protection. The THW organised about 80,000 registered volunteers under the authority of the federal Ministry of the Interior, and plays a crucial role in disaster response and emergency relief both within Germany and abroad. The lack of a comparable support of local authorities through organised volunteers in the UK can be seen as a capabilities gap in UK civil protection that should be addressed to improve local disaster response

capacity. In the UK, DEFRA has commissioned work in relation to the management of convergent volunteers in particular, with publication of guidelines reported as imminent at the time of this report's submission (Shaw, Smith, Heike, Harris, & Scully, 2015)

Participation in shelter operations also concerns the displaced and disaster affected people. In a recent study on shelter strategies and post-crisis reconstruction, Fan (2012) argues that community land mapping should be promoted as a strategy to foster participation of displaced people and to empower those living in informal settlements and shelters. Mapping these communities helps to make them visible to the donor and aid community, and supports their access to formal systems of support from local authorities and public authorities. The author also points out that participation of disaster affected people, both within and beyond the boundaries of planned camps, can help to develop more holistic response measures that target the needs of the affected population more effectively than strategies that are based on assumptions of the aid community, alone. The study provides evidence that the identification of beneficiaries for shelter support the 2010 earthquake in Haiti was narrowly focused on internally displaced people. Lacking effective participation of the population, support mechanisms thus excluded the needs of non-displaced people affected by the disaster. This led to a "camp-centric" response that undermined a promotion of shelter options other than camps (Fan, 2012: 77).

The challenges that can emerge from promoting community participation in shelter operations are highlighted by Janse & Van Der Flier,(2014). Their review of the disaster response delivered by the non-governmental organisation CORAID in response to the 2010 Haiti earthquake shows that participation of the disaster-affected population comes with trade-offs between efficiency and effectiveness of shelter operations. Efficiency, understood by the authors as the provision of shelters in time and on budget was higher for programmes in Haiti that incorporated only marginal elements of participatory decision making. However, the effectiveness of shelter operations, conceptualised in the study as the long-term impact of programmes and their success in facilitating transition and development was higher when there was community participation through committees and stakeholder groups. Finding the right balance between both dimensions closely relates to the discussion of "best" vs. "good" planning for shelters (Deeming and Easthope 2010) discussed above, and shown in .



Figure 4: Ultimately, authorities need to conceptualise what “best” and “good” mean. Most importantly, this will involve asking the question “best for whom?” and “good for whom?”.

Tradeoffs between efficiency and effectiveness are often driven by the particular context under which stakeholders in shelter operations operate. Janse & Van Der Flier (2014) argue that the NGO sector, which relies on funding from donors that often want to see quick results, is ill-equipped to support long-term disaster reconstruction and recovery. The authors identify the communication between NGOs and donors about the limits to efficiency in shelter and reconstruction programmes as an important step towards more sustainable shelter operations. In the context of the MASC project and its planning assumption, their study raises a question about the role of non-governmental stakeholders in camp establishment, which might be characterised by tensions



between well-functioning short-term support and challenges in long-term development needs, in particular if camps exist longer than the anticipated six week time frame.

6.6. Technical aspects in camp construction

An important technical consideration when planning for emergency shelter in the form of planned camps is the type of shelter that is established, and how this might have to change with an increasing duration of the camp. Case study evidence suggests that in the immediate aftermath of large scale disasters, government bodies and relief organisations usually rely on low-cost and maintenance solutions. These are usually tents, but can also take more basic forms, such as the provision of plastic sheets. Guha-Sapir et al. (2011) report that after the 2010 earthquake in Haiti, the US government, through USAID/OFDA distributed 277,000 tarps and 37,000 tents within the first two months after the event. Over time, as the relief efforts shifted from response to recovery measures, tents and plastic sheets were gradually replaced with more solid transitional shelters. As Abrahams (2014) shows, these transitional shelters provided better protection and safety, but presented a range of new challenges, amongst others with respect to emerging conflicts between communities that received t-shelters with differing quality and design.

For the MASC planning scenario, such considerations of long-term and transitional shelter challenges are not of immediate concern, as a potential planned camp is envisioned for only six weeks. However, as much of the literature reviewed for this report shows, a longer duration of the planned camp should at least be considered as a plausible contingency. Depending on the geographical context of the camp and the timing of the event, the need for more durable and solid shelter arrangements might quickly emerge. In the case of a significant UK flood scenario in the late autumn, a planned camp of tents might have to quickly be refurbished with shelter structures that allow for a housing of affected people during the winter. Indeed, the prospects of winter sheltering are already a great concern of many local communities in Europe that are currently struggling with the task of sheltering refugees and migrants, and who revert to “camp cities” in the lack of more desirable (or politically acceptable?) alternatives. Guidance for adequate winter sheltering options exist (e.g. Manfield & Corsellis, 2000), and depending on the regional climatic context, such guidance should be considered during the development of adequate shelter contingencies.

Knowledge on how to successfully develop and implement sustainable shelter designs is offered by Verderber, Glazer, & Dionisio (2011). The authors provide an example of a sustainable shelter design and building following Hurricane Katrina. Their article describes a collaborative project originating at a Creative Social Engagement Laboratory at Talune University’s School of Architecture. The initiative was led by architecture students, who worked in close collaboration with the New Orleans Mission, the city’s responsible agency for homeless people. The project team set out to design and build an environmentally friendly, LEED (Leadership in Energy and Environmental Design) certified shelter for homeless women with children. This highly successful experience encountered many of the

challenges and problems listed in foundational literature on shelter operations such as SPHERE and others: “labour and material shortages, dramatically escalating costs of building materials, labour costs, local regulations, insurance costs”. (ibid.: 62). Although the study remains rather abstract in explaining how these challenges were overcome, the article highlights the critical importance of effective coordination of key stakeholders, e.g. through weekly coordination meetings, and identifies a helpful culture of cooperation and a spirit among key stakeholders from policy, administration, private sector and academia as a key criterion for success. It should not be forgotten, however, that such innovative approaches to shelter design should always be cognisant of the considerable expertise that has already been developed in this regard by national and international experts in shelter provision.

The sustainability of shelter type and design can quickly become an important factor in the overall management approach to shelter facilities, in particular in cases where planned camps are developed by local authorities or governments. Evidence from shelter operations in Jordan in response to the ongoing Syrian Refugee Crisis suggests that environmental concerns emerged in the Zaatari Camp in Mafraq Governante, Jordan, when tents and plastic sheets were increasingly replaced by more solid pre-fabricated container shelters (CCCM Cluster, 2014: 41). This led to a build-up of used tents and plastic sheets, which became an increasing problem for camp residents and shelter managers. In response, rather than disposing of used tents, organisations involved in the provision of emergency shelters set-up a tent-recycling project that aimed at repairing and repackaging tents so that they could be reused for new arrivals at a later point in time. The Shelter Cluster estimated an overall saving of about 3,000,000 USD for about 5,000 recycled tents. The average cost saving effect of about 600 USD per tent significantly exceeds the estimated costs of about 3 USD per tent for the recycling operation, which included collection at the camp, inspection, repair and repackaging. The experience accumulated during this project indicates that an acknowledgement of environmental concerns in the technical operation of planned camps can bear significant benefits at very low costs and with a requirement for basic skills, only.

Abrahams (2014) reviews a wide range of capabilities for environmental sustainability of post-disaster recovery efforts after the 2010 Haiti earthquake. The author points to the challenges and lack of capacities in temporary shelter operations following the Haiti earthquake, and suggests that both perceptions and organisational structures were obstacles to a better incorporation of environmental sustainability in the shelter programming activities. The actual costs of temporary shelter provision in Haiti far exceeded the intended costs of about 1000-1500 USD per shelter. According to the study of Abrahams, the unexpectedly high costs for the provision of shelter were driven in part by a significant risk aversion on the side of the organisations and stakeholders that provided shelters. Their fear of an inadequate quality of provided shelters drove expectations for and realised building quality and costs of temporary shelters significantly. This experience closely relates to the question of winter shelter in planned camps, discussed above. It demonstrates that innovative solutions are not necessarily the most desirable, as there may be much greater benefit from developing contingencies through pre-event collaboration with the expert shelter community.

6. Discussion and Conclusion

This section synthesises the main issues and themes from the discussion above and draws some summary conclusions from the literature review.

The review of existing guidelines, best practice reports and case study experiences in mass shelter has underlined the importance of exploring the prospects and challenges of mass-scale shelter planning. The planning scenario of the MASC project, which anticipates a need to shelter up to 10,000 people within 5 days on a green field for up to six weeks, addresses an important capability gap in European civil protection planning. Existing guidance documents rarely acknowledge the need for planned camps as a shelter option, and thus routinely fail to provide effective contingencies for such shelter arrangements. Yet, as natural hazards are increasing in intensity and frequency in the context of climate change, planning for catastrophic events emerges as an urgent necessity in EU civil protection planning. The literature review in this document could only offer a glimpse at the abundance of guidelines and experiences on mass scale shelter, and should thus be read as a starting point for a more in-depth discussion of emerging issues that will need to be addressed by risk managers and civil protection officers across the EU.

An overarching theme that emerged from the literature review is the need to acknowledge the complexity of sheltering operations in the immediate aftermath of disasters. A synthesis of the literature suggests that the specific planning scenario that informs work in the MASC project might fail to grasp the complexities that are likely to be encountered on the ground once the abstract planning assumption actually materialises in the real world³. When considering a mass of 10,000 people to be hosted on a green field within 5 days for the duration of six weeks, it can be expected that local authorities and public sector agencies will simultaneously need to plan with, cater for and accommodate displaced people that choose to opt for self-settlement options. Non-planned camps are also likely to emerge in such a scenario, which will have effects on the construction and operation of planned camps.

There is an abundance of best-practice guidelines and planning tools for effective shelter planning and establishment from various national and international stakeholders. These guidelines provide an extensive overview about “what good looks like”, but are often not considered in disaster situations, where complex and rapid emergencies often trigger spontaneous and largely disorganised response measures. Moreover, they often refer to a context of humanitarian relief in developing countries. One of the challenges for the MASC project is thus to consider ways in which existing guidance can be transferred, and where needed, adapted to a European civil protection context. This includes, for example, considerations of whether there is a need to expand or revise the six shelter options that have emerged as accepted categories in the humanitarian aid sector. For example, in a European context the six options might have different legal, socio-economic and social implications than

³ Remember also that a hazard event will never exactly mirror the planning scenario

elsewhere in the world, and might thus require a different approach than those routinely outlined in existing shelter guidance documents.

Results from the literature review suggest that people displaced by disasters tend to avoid large organised camps whenever possible. The vast majority of people displaced by disaster will seek alternative shelter options, favouring self-settlement over organised settlement. Socio-economic factors crucially influence the capacity of individuals to choose from different shelter options. As a consequence, the population of a mass-shelter organised camp can be expected to disproportionately represent socio-economically disadvantaged groups within the affected communities.

Organised camps often exist much longer than previously anticipated. Planning scenarios for organised shelters should acknowledge that planned camps, as grouped settlements, are likely to require support from authorities well beyond the response phase of the disaster risk management cycle. At the same time, planning and exercising proved to be of critical importance for an effective and successful provision of emergency shelter after a disaster. Exercises can help to enable effective cooperation and collaboration between organisations and stakeholders involved in the establishment and maintenance of emergency shelters. It should be remembered, however, that these exercises should not focus purely on narrowly-defined planned-camp options, but should follow realistic scenarios that also include concurrently occurring population self-sheltering elements. It is only through developing such scenarios that the continuity of both shelter and wider civil and social-protection arrangements can be realistically assessed.

The literature review suggests that planned camps should not be conceptualised merely on the basis of capacity considerations. Questions concerning, for example, the overall amount of people that need sheltering, the timing of shelter needs after a disaster, and also the required capacities for the construction and maintenance of planned camps are important factors in contingency planning. However, at least of equal importance are considerations of the social dimensions of mass evacuation and shelter. For example, a careful consideration of which people will actually come to planned camps, and which ones not, will be an essential aspect in shelter planning that provides important insights for authorities.

The issue of peoples' participation in shelter planning and maintenance is closely related to the two themes of self-help capacity, on the one hand, and the particular characteristics of groups that refer to planned camps as a shelter option, on the other. Case study evidence discussed in the literature review suggests that participation of both, people living in organised camps and people that opted for a self-settled shelter option, including those that sheltered in place, are important to avoid camp-centric contingency planning. It has been shown that in cases where participation mechanisms were lacking, support of authorities for disaster-affected people tended to exclude the needs of non-displaced people. This undermined a holistic shelter planning strategy that accepted the likelihood that shelter options other than planned camps would be utilised. Shelter planning strategies should therefore acknowledge and account for the capacity of displaced people to help themselves. Group settlement planning, for example, in organised camps, should be guided by the strategic aim of

supporting and facilitating agency of displaced people whenever this is possible.

At the heart of many of the struggles and challenges encountered in the case studies reviewed for this document was a discovered tension between efficiency and effectiveness of shelter planning. This trade-off closely relates to questions of participation. Participatory shelter planning strategies that identified and acknowledged the needs of the displaced population seemed to be less efficient (provision of shelters in time and on budget), but more effective (the long-term impact of programmes and their success in facilitating transition and development). These tensions highlight that there might be differences between “best” and “good” shelter strategies, depending on the particular perspective. Sometimes, what is best for authorities as shelter providers constrained in time and capacity might not be what is best for the displaced population for facilitating a speedy recovery and reconstruction. Here, again, the complexity and ambivalence of shelter planning as a social response strategy to disaster becomes visible, and demands careful consideration of organisations responsible for shelter provision.

For decision-makers tasked with preparing effective planning strategies for a large scale displacement scenario, it is important to accept that displaced people might choose and implement a variety of shelter options outside the planned camps. The literature provides strong evidence that people try to avoid planned camps where possible, and that they tend to choose more autonomous sheltering options if available. Planners and decision-makers will undoubtedly, therefore, be tested by, but could also capitalise on the interconnectedness of the six different shelter options that are considered in existing shelter literature and guidelines.

Given the lessons identified in the case studies examined for this review, the development of capabilities to underpin the “last resort option” of planned camps should be considered as an essential contingency in terms of delivering an all-hazards encompassing European civil-protection practice. What is important, however, is that such planning should be considered positively, in the sense that it also has the potential to yield important capacities, insights and lessons that inform the development of capabilities for dealing efficiently and effectively with the full spectrum of shelter options.

7. References

- Abrahams, D. (2014). The barriers to environmental sustainability in post-disaster settings: a case study of transitional shelter implementation in Haiti. *Disasters*, 38(S1), S25–49.
- Aldrich, D. P., & Crook, K. (2013). Taking the high ground: FEMA trailer siting after hurricane katrina. *Public Administration Review*, 73(4), 613–622. doi:10.1111/puar.12071
- Aldrich, D. P. (2012). *Building Resilience: Social Capital in Post-Disaster Recovery*, Chicago, The University of Chicago Press.
- Alexander, D. E. (2010). The L'Aquila Earthquake of 6 April 2009 and Italian Government Policy on Disaster Response. *Journal of Natural Resources Policy Research*, 2(4), 325–342. doi:10.1080/19390459.2010.511450
- Cabinet Office. (2008). *Identifying People Who Are Vulnerable in a Crisis*. London: Cabinet Office.
- Cabinet Office. (2014). *Evacuation and shelter guidance*. London: UK Cabinet Office.
- Calvi, G. M., & Spaziante, V. (2009). Reconstruction between temporary and definitive: The CASE project. *Progettazione Sismica*, 3, 221–250.
- CCCM Cluster. (2014). *CCCM Case Studies*. Camp Coordination and Camp Management Cluster.
- Clarke, L. (2005). Worst Case Thinking. An Idea Whose Time Has Come. *Natural Hazards Observer*, XXIX, 1–3.
- Corsellis, T., & Vitale, A. (2005). *Transitional settlement: displaced populations*.
- DEFRA, Cabinet Office, & DCLG. (2014). *Government Coastal Flood Group : Response and recovery guide*. London: UK department for Environment, Food & Rural Affairs.
- DFID, UN, & Shelter Centre. (2014). *Shelter after disaster. Strategies for transitional settlement and reconstruction*. UK Department for International Development.
- Ekard, W., Tuck, H., & Lane, R. (2007). *2007 San Diego County Firestorms After Action Report*. EG&g Technical Services, Inc.
- ERGO. (2011). *Findings : Parts 4-6 Modelling the evacuation*. Birmingham: Aston Centre for Research into Safety and Security.
- Fan, L. (2012). Shelter strategies, humanitarian praxis and critical urban theory post-crisis reconstruction. *Disasters*, 36, 64–86. doi:10.1111/j.1467-7717.2012.01288.x

- Fu, A. S. (2012). The Facade of Safety in California's Shelter-In-Place Homes: History, Wildfire, and Social Consequence. *Critical Sociology*, 39(6), 833–849.
doi:10.1177/0896920512455936
- Guha-Sapir, D., Kirsch, T., Dooling, S., & Sirois, A. (2011). Independent Review of the U . S . Government Response to the Haiti Earthquake Independent Evaluation Team.
- Hasegawa, R. (2013). *Disaster Evacuation from Japan's 2011 Tsunami Disaster and the Fukushima Nuclear Accident*. Paris: Institut du développement durable et des relations internationales (IDDRI).
- HR Wallingford. (2011). *East Coast Flooding. The effective use of roads in Lincolnshire and Norfolk to evacuate people*.
- IFRC. (2012). *Emergency Appeal Final Report China : Sichuan earthquake*. International Federation of Red Cross and Red Crescent Societies.
- IOM DTP. (2011). *Displacement Tracking Matrix V2.0 Update*. Haiti Emergency Shelter and Camp Coordination Camp Management Cluster.
- Janse, H., & Van Der Flier, K. (2014). Cordaid's post-disaster shelter strategy in Haiti: Linking relief and development. *Open House International*, 39(3), 77–85.
- Kailes, J. I. (2008). *Southern California Wildfires After Action Report*. Center for Disability Issues and the Health Professions.
- Kolen, B., & Helsloot, I. (2012). Time needed to evacuate the Netherlands in the event of large-scale flooding: Strategies and consequences. *Disasters*, 36(4), 700–722.
doi:10.1111/j.1467-7717.2012.01278.x
- Levine, J. N., Esnard, a.-M., & Sapat, a. (2007). Population Displacement and Housing Dilemmas Due to Catastrophic Disasters. *Journal of Planning Literature*, 22(1), 3–15.
doi:10.1177/0885412207302277
- Manfield, P., & Corsellis, T. (2000). *Cold Climate Emergency Shelter Systems - A Research Project for Humanitarian Organisations*. Cambridge University Research Report.
- Mellor, D. (2014). Planning for the Needs of Vulnerable Adults in Emergencies. *Emergency Planning College Occasional Papers New Series*, (July).
- MEND. (2014). *The MEND Guide. Comprehensive Guide for Planning Mass Evacuations in Natural Disasters*. Camp Coordination and Camp Management Cluster.
- Michel, L. M. (2007). Personal Responsibility and Volunteering After a Natural Disaster: the Case of Hurricane Katrina. *Sociological Spectrum*, 27(6), 633–652.
doi:10.1080/02732170701533855
- Pinera, J. F., & Bosher, L. (2011). Sphere and sustainability : a matter of time. *The Journal of Humanitarian Assistance*, (January).

- Quarantelli, E. L. (1995). Patterns of sheltering and housing in US disasters. *Disaster Prevention and Management*, 4(3), 43–53. doi:10.1108/09653569510088069
- Rahill, G. J., Ganapati, N. E., Clérismé, J. C., & Mukherji, A. (2014). Shelter recovery in urban Haiti after the earthquake: the dual role of social capital. *Disasters*, 38(1), 73–93. doi:10.1111/disa.12051
- Rakes, T. R., Deane, J. K., Rees, L. P., & Fetter, G. M. (2013). A decision support system for post-disaster interim housing. *Decision Support Systems*, 66, 160–169. doi:10.1016/j.dss.2014.06.012
- Shaw, D., Smith, C. M., Heike, G., Harris, M., & Scully, J. (2015). *Involving convergent volunteers in the response and recovery to emergencies*. Published by the Department for Environment, Food and Rural Affairs (DEFRA), United Kingdom. Final report FD2666.
- SPHERE. (2011). *The Sphere Project. Humanitarian Charter and Minimum Standards in Humanitarian Response*. Rugby, UK: Practical Action Publishing.
- UNHCR. (2007). *Handbook for Emergencies*. Gene: United Nations High Commissioner for Refugees.
- UNICEF. (2009). *Sichuan Earthquake. One Year Report*. Beijing: UNICEF.
- Verderber, S., Glazer, B., & Dionisio, R. (2011). Leed and the design/build experience: A shelter for homeless families returning to post-Katrina New Orleans. *Archnet-IJAR*, 5(1), 55–72.
- Wu, H.-C., Lindell, M. K., & Prater, C. S. (2012). Logistics of hurricane evacuation in Hurricanes Katrina and Rita. *Transportation Research Part F: Traffic Psychology and Behaviour*, 15(4), 445–461. doi:10.1016/j.trf.2012.03.005

8. Annex

Table 2: Search terms and results, systematic literature review

Scopus© database (June 9th, 2015)

Case Study	Search Terms	No. of Documents	Excluded	Remaining for Review	Accessible through active accounts
2002 European Floods	(TITLE-ABS-KEY (((germany OR europe* OR czech* OR elbe OR danube) AND flood AND (evacu* OR shelter*))) AND LANGUAGE (english)) AND DOCTYPE (ar) AND SUBJAREA (mult OR arts OR busi OR deci OR econ OR psyc OR soci) AND PUBYEAR > 1999	6	2	4	3
Hurricane Katrina	(TITLE-ABS-KEY((hurricane* AND Katrina) AND (evacu* OR shelter*)) AND LANGUAGE(english)) AND DOCTYPE(ar) AND SUBJAREA(MULT OR ARTS OR BUSI OR DECI OR ECON OR PSYC OR SOCI) AND PUBYEAR > 1999 Comment: Search refined to narrow body of literature: Drop of “evacu*” to set focus more specifically on shelter, rather than on evacuation:	171	-	-	-
	(TITLE-ABS-KEY((hurricane* AND Katrina) AND (shelter*)) AND LANGUAGE(english)) AND DOCTYPE(ar) AND SUBJAREA(MULT OR ARTS OR BUSI OR DECI OR ECON OR PSYC OR SOCI) AND PUBYEAR > 1999	44	29	15	14
Hurricane Rita	History Search Terms (TITLE-ABS-KEY ((hurricane* AND rita) AND (evacu* OR shelter*)) AND LANGUAGE (english)) AND DOCTYPE (ar) AND SUBJAREA (mult OR arts OR busi OR deci OR econ OR psyc OR soci) AND PUBYEAR > 1999	26	6	20	16
Typhoon	(TITLE-ABS-KEY ((typhoon* AND krosa) AND (evacu* OR shelter*)) AND LANGUAGE (english))	1	1	0	0

Krosa	AND DOCTYPE (ar) AND SUBJAREA (mult OR arts OR busi OR deci OR econ OR psyc OR soci) AND PUBYEAR > 1999				
California Wildfires	(TITLE-ABS-KEY((california* AND (wildfire* OR "wild fire*"))) AND (evacu* OR shelter*)) AND LANGUAGE(english)) AND DOCTYPE(ar) AND SUBJAREA(MULT OR ARTS OR BUSI OR DECI OR ECON OR PSYC OR SOCI) AND PUBYEAR > 1999	11	3	8	5
Sichuan/ Wenchuan Earthquake	(TITLE-ABS-KEY (((sichuan OR wenchuan) AND earthquake) AND (evacu* OR shelter*)) AND LANGUAGE (english)) AND DOCTYPE (ar) AND SUBJAREA (mult OR arts OR busi OR deci OR econ OR psyc OR soci) AND PUBYEAR > 1999	4	1	3	2
Hurricane Gustav	(TITLE-ABS-KEY ((hurricane* AND gustav) AND (evacu* OR shelter*)) AND LANGUAGE (english)) AND DOCTYPE (ar) AND SUBJAREA (mult OR arts OR busi OR deci OR econ OR psyc OR soci) AND PUBYEAR > 1999	7	1	6	6
L'aquila earthquake	(TITLE-ABS-KEY (((aquila OR l'aquila) AND earthquake) AND (evacu* OR shelter*)) AND LANGUAGE (english)) AND DOCTYPE (ar) AND SUBJAREA (mult OR arts OR busi OR deci OR econ OR psyc OR soci) AND PUBYEAR > 1999	3	0	3	3
Haiti earthquake	(TITLE-ABS-KEY((haiti AND earthquake) AND (evacu* OR shelter*)) AND LANGUAGE(english)) AND DOCTYPE(ar) AND SUBJAREA(MULT OR ARTS OR BUSI OR DECI OR ECON OR PSYC OR SOCI) AND PUBYEAR > 1999	12	4	8	8
Fukushima	(TITLE-ABS-KEY((fukushima OR tohoku) AND (evacu* OR shelter*)) AND LANGUAGE(english)) AND DOCTYPE(ar) AND SUBJAREA(MULT OR ARTS OR BUSI OR DECI OR ECON OR PSYC OR SOCI) AND PUBYEAR > 1999	28	22	6	6
Syrian Refugee Crisis	(TITLE-ABS-KEY (((syria* OR iraq* OR turkey OR "middle east") AND (refug* OR crisis OR conflict) AND (evacu* OR shelter*))) AND LANGUAGE (english)) AND DOCTYPE (ar) AND SUBJAREA (mult OR arts OR busi OR deci OR econ OR psyc OR soci) AND PUBYEAR > 1999	22	22	0	0



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