ABSTRACT

The latest natural disasters have proven that catastrophes – predictable or unpredictable – and the resulting emergency situations may occur all over the world, in developing as well as in developed countries. Nevertheless, due to the higher level of vulnerability most disasters affect hazard prone communities living in developing countries. In many cases, this results in a downward spiral increasing their vulnerability for future disasters. In addition, the unsustainable human behaviour contributes to the increasing number of climate related and man-made disaster.

Unfortunately, the international aid community still seems insufficiently prepared for these incidents. On one hand the cause can be found in the complexity characterising post-disaster shelter. On the other hand, the shelter sector remains disintegrated and lack a global approach for the material support of shelter interventions. As a result, the shelter solutions supplied are in many cases inadequate hampering the recovery of the affected population.

The aim of this thesis is to contribute to an integrated and more sustainable approach for the post-disaster shelter response. An integrated design approach is developed that tend to support the various shelter and settlement options and to sustains process from aid to sustainable development. The suggested approach relies on the design of adaptable, versatile and compatible construction systems and shelter kits. Based on a holistic research approach the feasibility of the presented concept and construction systems is investigated by means of literature review, field investigation, design based research, structural analysis calculations and experimental investigation – comprising laboratory tests and prototype field testing.