

In order to be able to assess the feasibility and present a comprehensive action plan with budget, a fact finding mission could be made immediately. We can draw on different partners in several countries and could start implementation within days of decisions taken.

All equipment offered is available on stock for rapid dispatch by air or sea. Key personnel has between 10 and 30 years of experience with disaster prevention and post-disaster reconstruction, whether earthquakes, tsunamis, hurricanes, inundations or wars, as well as the permanent disaster of poverty. They are used to working in difficult situations, and while their main languages are English and Spanish, some can draw upon French, German or Russian.

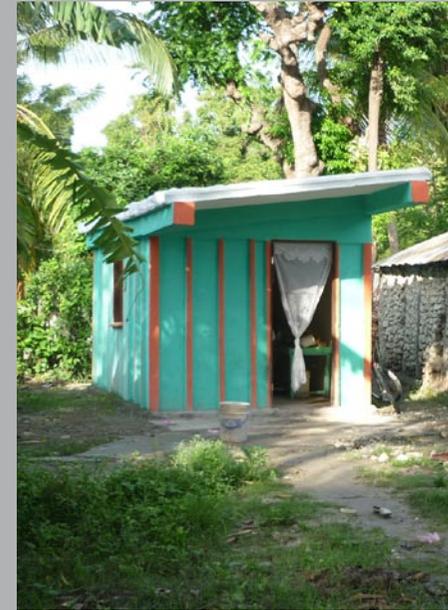
Based upon exploratory analysis, technical and social parameters have been established, and recommended options are presented in a catalog with the respective costs and timespan for implementation.

Local teams can be trained in the technologies and their applications. Moreover, complete knowhow transfer can be provided to include project designs and setups, organizational and administrative training, as well as postgraduate courses for engineers and architects.

The middle and long term options for livelihood opportunities are always considered as well as regional and urban planning.



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## Creative solutions for fast, durable and affordable reconstruction Setting the base for disaster mitigation

We focus on combining disaster reconstruction with preparation for the mitigation of the next disaster which unfortunately is expected to happen.

We propose a novel solution to provide solid and durable emergency shelters within days of a catastrophe, shelters that actually are the core of a new house at affordable cost. Instead of spending money, time and efforts on distributing tents and plastic sheets, we can start almost immediately with the erection of core units made of small ferrocement panels. It is a technology used in house construction in several countries, a system that actually gives a pleasing appearance in addition to its technical and financial advantages.

Situation at the time of the emergency Experience shows that it is extremely difficult to move fast from an emergency situation to reconstruction. The transition phase between them generally takes several months and often years. During this time the social and economic situation of the distressed population worsens step by step. The situation of living in a shelter that does not provide security for life and goods prevents people from going about their normal activities, including going to work and earning an income.

- Temporary installations should not just provide shelter from the climate, but also security and a reasonable degree of privacy.
- They should be available within days or few weeks after the emergency
- They should be the core around which in the future a full house can develop.
- They should be affordable

We offer cooperation in planning and implementing the program or project, including full know-how transfer to governments, civil society organizations and private industry to plan and implement programs and projects.



## Reconstruction in Haiti

Contrary to most reconstruction projects in Haiti, we have started with local production of construction materials!

It is well known that provisional shelters tend to turn into permanent shanty towns, and the panorama in Haiti definitely points in that way.

The fact finding mission composed of two architects and an engineer with accumulated experience of 50 years working in disaster-reconstruction quickly recognized that the lack of suitable materials and technologies will be the major technical obstacle to reconstruction, apart from the fact that the political and administrative setup will not permit actions in the short and medium terms in the heavily populated areas of the city.

Thus, an alternative setup was presented to the donors, consisting in:

- building up decentralized production centers for construction materials
- Educating local personnel to produce walling and roofing elements
- Establish a construction unit which builds core houses, start a dual education program for masons.
- The first action to be established in a regional center where earthquake refugees were resettling
- Later establish actions in other towns, including the city of Port-au-Prince

Several donors financed different parts of the program and up to nine specialists from different countries (mostly Latin Americans) are contributing in Haiti, additional to the technical and organizational support from headquarters.

Haiti is not an easy ground for development work and progress is extremely slow on all fronts. Within this somber picture, our actions have progressed well, we are among the very few projects who have produced solid shelter 18 months after the earthquake. Even most large projects importing provisional shelter have not made more progress than our project.

Haiti is a success – story for our approach, even under extremely adverse circumstances the concept is successful, more than others !



## Disaster mitigation

Emergency shelters often come too late, because no preparations were made before the emergency, in spite of the fact that many of those situations are recurring (hurricanes, floods) on regular intervals. Large allocations of funds are spent on temporary actions that will not resolve the problem, just to gain some time while the search for solutions is pursued.

Immediate reconstruction in an emergency situation is possible if organizational and infrastructural scenarios have been prepared beforehand!

Emergency shelters should be produced beforehand and stored at a place from where they can be dispatched. Personnel for logistical support and technicians to assemble the units have to be trained and periodically retrained. The shelter units must be easy to transport and easy to store over prolonged periods of time, therefore metals, timber and other organic materials are not suitable. Concrete has some of those advantages; however the panels must be lightweight.

The solution we present is made of Ferro cement panels produced on site and assembled by hand. They are visually attractive and relatively light weight, but solid. The energy consumption for production, transport and building (embodied energy) is lower than any other solid and fast solution. The buildings have high resistance against earthquakes and strong winds and are not degraded by water (floods). The concrete walling elements and roofing tiles can be stored outside during years without suffering damage. As other cement based structures, they do not insulate well against cold or heat.

The unit consists of a number of elements that can be assembled in different ways to accommodate the specific size and conditions of the plot. From start on it is possible to take into account the plans for the future extension.

The price per m<sup>2</sup> of building is likely to be lower than that of a conventional solid construction, but of course it is much faster.

## The task is to establish a production workshop to produce wall panels and roofing tiles

The ideal scenario is to have a stockpile of elements ready and a group of trained builders. Mobile production units are available in Central and South America and can be transported to any site in short time span

Local production starts within days of the arrival of the equipment, no electricity is needed. Cement, sand and steel rods can usually be purchased locally. The first elements can be used within less than one week if additives are used, or within two to three weeks without additives. Training is fast and after a couple of days the team reaches normal production speed.

At the same time the construction brigades are trained, ideally every team consists of one mason and four helpers from the beneficiaries.

