

A creative solution for fast, durable and affordable reconstruction after the Haiti earthquake 2010

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, the chances of achieving a return to a comfortable situation are small for many. 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. The goal of turning the provisional structure into a solid one becomes unattainable for many.

Provisional Shelters

In the aftermath of the disaster in Port au Prince, most of the International donor community decided to concentrate on provisional shelters with imported materials. In the first two years some 110,000 such structures were put up, mostly with timber or metal frames and panels of different kind. They usually have a floor space of 18m² with a medium cost of USD 4,226; most were built more than one year after the disaster. Only few funds were destined to solid structures (8,4% new houses and 12,4% repair) and 79,2% to provisional shelters, that are likely to deteriorate soon. (data by Cerfas / FICR, 2012).

A different approach

A few weeks after the earthquake, a fact finding team from the EcoSur network found that there exist severe limitations on the availability of local raw materials. In the wider area of the affected towns there is no sand, no gravel and no rocks of good quality, no clay to be used for bricks or adobe, no wood.

Local production of hollow concrete blocks is mostly of low quality, as well as the concrete used in reinforced structures. Construction skills are deficient, buildings show multiple errors in structural design and in the building process. The team decided on a revolutionary approach: combine the antagonistic terms “solid, fast and low cost” into one type of shelter.

Solid, fast, low cost

The solution chosen 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.

The action started with the buildup of a small production unit based on a new interpretation of an old technology. The only equipment needed is simple metal frames, a concrete mixer and hand tools, however at this moment none of that was available in Haiti and it had to be imported. Meanwhile the installations were prepared and upon arrival of the equipment production was able to start within a few days. While most projects waited for their imported materials, the EcoSur team of Nicaraguan technicians and their local trainees started almost immediately with the erection of solid core units made of small ferrocement panels.

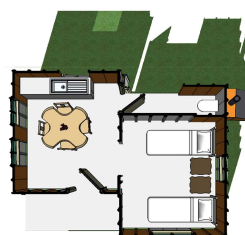
MODELES



MODELE GAMMA Surface: 22.4m²



Ambiances:
Chambre 1
Service Sanitaire



Ambiances:
Salle/ Cuisine
Chambre 1
Service Sanitaire



MODELE DELTA Surface: 12.3m

The design of the shelter is similar to that of other projects, one room with a veranda, and an “Otji type” dry toilet. The house can easily be added on with any material. While this structure is not larger than other shelters, it is safer and long lasting, the solid construction with concrete tie beams and a hurricane safe roof also improves safety from violence, theft and fire.

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Local production of ferrocement panels

The production yard is simple, the concrete mixer is the only tool that needs power, everything else is done by hand. Five trained workers produce the panels for one house and its toilet stall in two days. The production could be doubled or tripled by simply producing more moulds and train more workers.



Simple test methods assure the quality of the panels

After a few weeks the trainees can assemble the housing units on their own, two trainees with two helpers from the beneficiaries finish a house in ten days.



More workshops were established in Jacmel for an EU-financed local NGO and in Port au Prince for the UNDP, a two level building is planned in a central place of town. A Cuban member of the EcoSur team is building a middle-class housing development in the Dominican Republic using the same technologies and UN-habitat has included the ferrocement experience in their new publication "Going green".



Lessons learned

Haiti is not an easy ground for development work and progress is extremely slow on all fronts. Within this somber picture, the EcoSur actions have progressed well, even under adverse circumstances the concept is successful.

Local production can be set up within days, if a metal-working shop is available to produce the simple metal moulds. Training locals is easy as the technology does not require great knowledge or skills. Planning is easy, the elements can be added to each other and tied with a ring beam as foundation and another one on top. Disaster resistance is high and the total cost is comparably low. As a fact, the total cost per m2 in Haiti was no higher than the average cost of the provisional shelters built by the international community.

Emergency shelters often come too late, because no preparations were made, 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 would be possible if organizational and infrastructural scenarios have been prepared beforehand ! EcoSur has developed such concepts.

The **ECOSUR SOUTH** network offers cooperation in planning and implementation, in establishing comprehensive know-how transfer, feasibility studies, scientific knowledge appropriation, technical training and business skills.

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