

## Post Disaster Reconstruction

Experience shows that it is extremely difficult to move fast from an emergency situation to reconstruction. 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 weeks after the phenomena that caused the emergency
- They should be reusable, either as the core unit for a new house or made of reusable materials
- They should be affordable

### The natural construction process

Experience shows that owner driven projects tend to be more successful than contractor built houses or guided constructions. People seek to resolve their situation after a catastrophe somehow, and if possible they start to build some type of shelter. Although every case is different and merits special considerations, most often the following actions are good options for reconstruction projects:

- Production of construction materials at local level
- Subsidize construction of a solid core shelter
- Support with advice in planning and training

### Small scale materials production

Reconstruction should not be just physical, in most cases it is the social and economic infrastructure that needs to be rebuilt. Projects should avoid imports and foster local production, buying from local producers and if needed, start local production. EcoSur promotes a range of ecologically and economically sound technologies that are well suited to micro-enterprise and some of them are suited for fast actions in emergency situations:

### Micro Concrete Roofing Tiles (MCR)



EcoSur has fostered this technology since 1984 and today more than 500,000 roofs in Latin America, Africa and Asia are covered with MCR. Raw materials are Cement, Sand and water, two workers produce up to 20m<sup>2</sup> of roofing per day. The product is long lasting and has shown good results in hurricanes and earthquakes. It creates a better room climate than most other options and its cost compares to cheap metal sheeting.

### Hollow concrete blocks

A traditional technology used in many countries, with cement, sand, gravel and water as raw materials. Efficient production needs electricity or gasoline as fuel. If there exists natural puzolana in the region (volcanoes) alternative binders can be produced to replace some of the cement.



### Ferrocement panels

Self supporting vertical panels made of ferrocement are specially well suited for fast action after a catastrophe. They can be produced everywhere, out of cement, sand, steel bars, chicken wire and water.

Structures made with those panels have extremely good behavior in earthquakes, they can be built fast. It is possible to produce and erect one small structure every day with the work of four skilled people and a small group of helpers every day after just four weeks of preparation time.



### The solid core shelter



Refugees from a catastrophe don't just need shelter from the climate, it is also shelter from thieves and intruders. Even a small core shelter will fulfill the most urgent needs, but it must be solid. The people have the opportunity to later turn it into a full house, step by step in a "natural construction process" or with a credit or a subsidy.



Assembly of ferrocement panels for a core shelter

### Advice in conception and planning

As much as "owner driven" must be the goal of the project, conceptual overall planning should be done before actions start. This can take many forms, but it must include a tight interaction between all stakeholders in order to avoid legal, political and social problems later on.



Thus, project strategy should focus upon integrated planning of the entire area and its buildings, be it a settlement or neighborhood, with equal weight given to ecological, social and economical considerations.

### Knowhow transfer and skills training

The construction trade in most southern countries suffers from a pronounced deficit in qualified



workers. Informal, and if possible formal education and training is an important part of success in reconstruction projects.

### Dry toilet

One of the most illogical uses of good drinking water is the flush toilet. Dry toilet systems could alleviate both the ecological and economic problems.

However, most commercially available "ready to install" toilet kits are clumsy, expensive and often clog up or break down. An EcoSur partner has eliminated all mechanical devices and has changed to a simple system. It is no more a dirty and unhygienic job to service the toilet; it has become a clean and socially acceptable procedure. The toilet has an unprecedented success in Namibia, where hundreds are in use and thousands are being built.



### EcoSur expertise

EcoSouth consultants have carried out technology transfer throughout Latin America and beyond - in Tajikistan, Bangladesh, Vietnam, Mozambique, Namibia, Sumatra. They can provide expertise about specific technologies and, integrated into multi-disciplinary teams, their experienced assessments can address the specific situation and local conditions in the conceptual and planning stages to ensure high resistance to disasters.