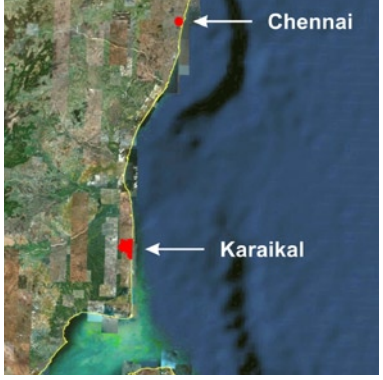
CASE STUDY SOCIAL HOUSING, OCTOBER 2008

Sustainable Reconstruction Initiative in Tsunami-affected Villages of Karaikal Pondicherry, India

Financed by Swiss Solidarity and Swiss Red Cross
Overall Responsibility by Swiss Red Cross
Implemented by Development Alternatives, India
Backstopping Services by Skat, Switzerland



PROJECT INFORMATION

Front page:
village of Kottucherrymedu

top:
the disaster and its implications

background:
popular and adequate design in a green environment

The disaster

The Earthquake of 26th December 2004 which took place in the Indian Ocean led to an upward movement of seafloor across a strip of 1'200km. This generated a series of tsunamis that sped across the Indian Ocean killing about 228'000 people in 14 countries. Giant waves hit the southern and eastern coastal areas of India causing extensive damage in the districts of Tamil Nadu and Pondicherry. There was considerable damage to lives, as well as destruction of houses, water sources, productive assets, and property.

The response

As an immediate response Swiss Red Cross supported a comprehensive relief operation by distributing food items, cooking sets and temporary shelters in Karaikal district of Pondicherry. Subsequently a study was undertaken to assess the feasibility of reconstruction initiatives. It formed the baseline for a proposal submitted by Swiss Red Cross to Swiss Solidarity requesting support of reconstruction and rehabilitation activities. The study pointed to a strategic direction enhancing the social, ecological, and technical potential of the target area for a visible long term impact.

The objective

The project objective went far beyond providing new houses. The goal was to reduce substantially the long term vulnerability of Tsunami-affected families by rebuilding and improving physical habitat conditions and community infrastructure. In addition, the reconstruction process was utilized as an opportunity for sustainable development to improve living conditions, quality of the built environment, water and sanitation. New livelihood opportunities were established and local capacities enhanced to boost the local small scale economy.

The ownership

Strong emphasis was laid on a participative approach at all levels. A Village Reconstruction Committee was constituted to represent the families in the planning, design of physical reconstruction and selection of technology process in an interactive manner. The project considered the needs of women, men and children in the family with regard to the use of the house both for living and livelihood activities thus creating ownership. Further, non-negotiable rules with respect to technical performance, social and environmental indicators were adhered to.






BUILDING DESIGN

top:
mass housing as a customized product

left:
sustainable construction technologies

The master plan

The project took consideration of the fact that any sustainable reconstruction initiative of the planned scope must be embedded in a regional master plan. This plan developed by the project is twofold. It addresses the macro level (primary influence area) as well as the micro level (hamlet level) with public infrastructure, livelihood perspectives and recreation. While the macro level has environmental and economical effect on the region and lies mainly in the hands of the Government, the activities at micro level have immediate bearing on the target villages of the project.

The green settlement

A new settlement takes many years to become a lively home base for inhabitants creating an environment that reflects their culture and lifestyle. To accelerate this process, the project took up the initiative of cultivating much greenery. Intensive participatory design sessions of the new landscape lead to an understanding of various kinds of open spaces and selection of plant species with the aim to plant 10 trees for each house built. A nursery managed by villagers provided the plants for the new settlements.

The dream house

House designs have been developed in an environmentally, socially and economically sustainable manner and incorporating structural safety features, affordability and technical feasibility. The standard house provided by the project is an earthquake, flood, and cyclone proof core unit. It is designed in a way that allows the house owners extensions in horizontal as well as vertical direction. and thus, building the house according to their own dreams. The design incorporates a rain water harvesting system for domestic use.

The eco-technology

Priority in technology selection was laid on environment friendly materials and construction technology. The project successfully introduced fly-ash block production by villagers or local SME's of the region. The design also incorporated the rat trap method of masonry that saves 25% bricks used in construction contributing to overall economy and providing ecological benefits. The houses were built by local contractors from the village itself or the district thus creating ownership and stimulating the local economy.

Publication by:

Skat Foundation
Vadianstr. 42
9000 St.Gallen, Switzerland
http://www.skat.ch
email: daniel.schwitter@skat.ch

Swiss Solidarity
www.swiss-solidarity.org

Postal account 10-15000-6
Swiss Solidarity
CH-1211 Geneva 8
Switzerland

Swiss Red Cross

Schweizerisches Rotes Kreuz
Rainmattstrasse 10
CH-3001 Bern
Switzerland

Development Alternatives

Development Alternatives
111/9-Z, Kishangarh
Vasant Kunj
New Delhi - 110070

skat Swiss Resource Centre and Consultancies for Development

Skat
Vadianstrasse 42
CH-9000 St.Gallen
Switzerland

PROJECT DATA

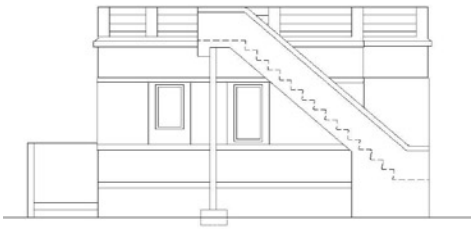
PROJECT SCOPE

Number of houses built:		909
Number of villages reconstructed:		3
Plot size 9.75 m x 7.70 m:	m^2	75
Built up house area, including toilet/bathroom:	m^2	33.38
Front- and rear veranda, external staircase:	m^2	9.84
Construction period:		2005 - 2008

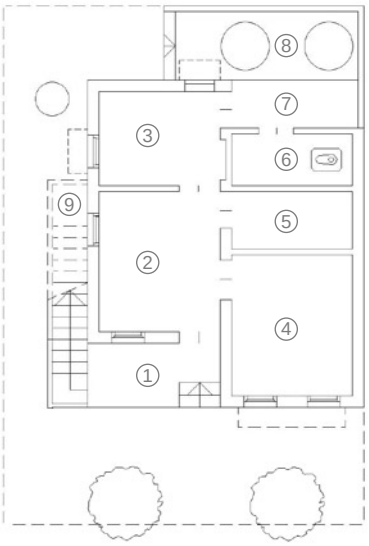
STANDARD CORE UNIT

front elevation

side elevation



ground view



Legend

1 entrance veranda
2 living room
3 kitchen
4 bed room
5 pooja room
6 bath / toilet
7 rear veranda
8 leach pit
9 staircase roof floor

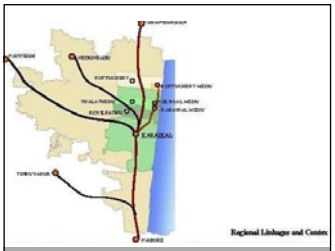
BUILDING COST AND MATERIALS USED

Overall costs (infrastructure works):	$	6'135'000.-
Cost per house:	$	6'154.-
Cost per m^2 (excl. verandas and staircase):	$	184.-
Cost per m^2 (incl. verandas and staircase):	$	142.-
Foundations (designed for two stories):		concrete
Walls:		fly ash blocks / bricks
Roof walkable, designed to accommodate 2nd floor:		concrete slab

The ecological response

Comprehensive Masterplan

Development of a master plan at regional level (macro) and village level (micro) including infrastructure, livelihood and future development



Macro level


Micro level

Community Spaces

Space for greens and recreation for all (men, women and youth) designed in a participatory process with the villagers

Materials and Technologies

Application of eco–friendly building materials (fly-ash blocks) produced by locals as well as economical technologies (rat trap bond)

Main Services

Individual roof water tank and rainwater harvesting, solar path lighting, storm-, grey-, and black water management

Green Environment

Shade trees along roads, on plazas, recreation areas, sports fields and in individual plots together with kitchen gardening