Type of Project: **Public building: Temporary Class Rooms Phases 1, 2 and 3**

Project name: **Erection of Temporary Classrooms, Repairs and Delivery of Furniture**

Country:	**Sri Lanka**
Region/town:	**Matara District**
Approach:	**Local Contractors**
Beneficiaries	**pupils/teachers**
Climate	**hot, monsoon**
Urban / rural	**urban**
Special constraint	**short deadlines**
Realization Year:	**2005-2006**
Budget Phase 1	**200'000 CHF**
Budget Phase 2	**78'500 CHF**
Budget Phase 3	**27'000 CHF**

Partners

Organization (donor)	SDC
IO/NGO partners	none
GO partners	Educational Department on Province Level

Context to project

Initial Situation	SDC selected 11 schools along the Coast line of Matara district which were partly or entirely damaged by Tsunami disaster so that they have to be reconstructed. Many of destroyed structures are located in declared Risk Zone, demanding for relocation of those schools.
Goals, Beneficiaries	The aim was to facilitate those schools with Temporary Class Rooms, various repairs and furniture for 2400 students to re-start school activities in a short time and continue until reconstruction or relocation takes place.
Implementations/Results	On the two phases, a total of **61 TCRooms** (phase 1: 39, phase 2: 22) were constructed in those affected schools and provided with 2400 unit of basic furniture (desks, chairs, blackboards) so that school activities could brought to normalize.

Reference data for construction of TCR

Standard Area of a Unit	6m x 6m	Number of units	61
Classes per blocks	2 to 8	Number of classes	61
Children/classes	+/- 40	Number of children	2400
Latrines/toilets	18	Other infrastructure	1 reading room 9 shower units
Total surface	2300 m2	Surface/child	0.96 m2
Costs TCR	141'700 CHF	Cost/child	59 CHF
		Cost/m2	61 CHF

Costs of 18 toilets	12'100 CHF
Costs other infrastructure	11'200 CHF

Total project cost Phase 1, 2 and 3		TCR incl. toilets	Furniture	Repairs/ upgrade	**Total**
	CHF	165'000	81'000	59'500	**305'500**

Approach to results

Initial Situation

The efforts had to be brought to the reopening of the damaged schools in a short time.

Approach

The needs of temporary class rooms, furniture and other facilities for each school were decided according to the data provided by school principals and verified on site by SDC Matara management and Construction unit. Divisional level authorities of Education Ministry were coordinated depending on the requirement. Wherever possible existing structures where rehabilitated, but mainly new constructions where executed.
Standardised complexes where set up: School blocks of 4 classes, latrines for pupils, school canteens wherever possible with water access.
Repairs on pupils homes with latrines and showers.
Reduced Bidding, selection of contractors (emergency situation).

Construction

Temporary Classrooms were built under certain conditions that they should be completed with in a very short period and should last until the permanen buildings are completed.
Assuming that the permanent buildings would be completed within one years time, and also, taking the "very short construction time" into account. the type of the structure and materials were decided, in consultation with th relevant local authorities.
Since most of the TCRs had to be built in the coastal belt of the area, a special attention was drawn towards the prevention of corrosion on steel structure, by painting all exposed joints & damaged sections. At high risk areas, color bonded ZnAl roofing sheets were used in Phase 2.
To with stand the wind force, the structure was reinforced with 6mm diameter GI cables and additional GI pipes as wind bracings where necessary.
In separating classrooms and as additional protection for the female students plywood partitions were used.
With all these constrains the completed classrooms were handed over to the principals with a one year construction guarantee by the contractor.

Problems/Constraints

Budget for Temporary class rooms, furniture and other facilities were limited. Limited space, school functioning during construction, made the work difficult and time taken. Demand for more facilities were higher. Available contractors not easy to get.

Lessons learned

Climate conditions (corrosion protection, strong winds) have to be considered, specially sheet thickness, fixing by hooks, correct welding on site difficult. Supervision of contractors has to be close.

Evaluation

After 1 year: repairs, upgrading necessary.
Use: longer than expected

Legal framework

Political attachment	Ministry of Education
Type of ownership	Handover to School Principals (Ministry of Education)

Construction information

cost repartition

Construction

Structure	Foundations	400mm long 63mm diameter GI pipe embedded in to 300mm X 300mm 400mm Grade 20 Concrete base and the 50mm diameter GI column inserted and bolted. The gap in between the 2 pipes was filled with cement grout.
	Walls	100mm thick cement block walls to an average height of 800mm with an exposed finish.
	Metal frame	The Main structure consisting with 32mm to 50mm diameter GI pipes welded to the roof frame work.
	Roof	Roof Frame work is done with 40mm diameter GI rafters and 32mm diameter purlins, bolted & welded as well. Gauge 30-32 Corrugated GI sheets used as roof covering. Special hooks recommended.
	Stabilization	6mm diameter GI cables with additional GI pipes used for wind bracings to withstand the possible wind forces.
Materials	Floor	50mm thick Grade 20 un vibrated mass concrete without rendering.
	Walls/partition walls	Cement blocks for the main walls and 12mm thick plywood sheets fixed to 25mm X 25mm box Iron frame for the internal partitions.
		Some open areas were covered with 50mm X 50mm welded mesh with lockable doors.
Watsan	Toilet/Latrines	Cement rendered concrete floor with squatting pans and 12.5mm diameter plastic bib taps for each unit.
		Wooden walls with 12.5mm thick timber planks and timber framed purlin roof with corrugated GI sheet covering.
	Showers	
Equipment	none	

Urban planning

Distance to :	Town/Villages	In suburb areas
	Public transport	Bus, tuk-tuk

For further information

Involved SHA	Urs Rudolf
Author / Contact:	Urs Rudolf ursrudolf@hotmail.com
Recommended Institutions:	
Recommended books/reports:	
Relevant other projects (links):	
Annex	technical drawings, photos