



Projects library of the specialized group for construction

PUBLIC BUILDINGS

Project	7F-7769.01 - Asbestos Rehabilitation Project, Zimbabwe
Project name:	ROOF REHABILITATION OF VARIOUS STRUCTURES IN 4 DIFFERENT LOCATIONS OF MASVINGO, ZAKA AND HARARE DISTRICTS

Country	Zimbabwe
Region/town	Harare, Masvingo, Zaka
GIS data (WGS 84)	
Project type	Asbestos Rehabilitation
Typology	Individual Structures and Community Sheds
Approach	Contracted construction
Beneficiaries	Rural communities, Hospital staff and patients
Climate	hot, medium dry
Special constraint	Protection against released asbestos fibres
start / end of project	20 Aug – 24 Oct 2014
Country GNP	600 USD/cap (est. 2013)



Partners, stakeholders

Organization IO/NGO partners	Rural Irrigation Management Committees, Hospital Managements
GO partners	Ministry of Irrigation

Context

Initial Situation	Asbestos containing sheeting as roofing material on various structures of SDC financed / co-financed projects
Goals, Beneficiaries	Replace all asbestos containing products with non-asbestos products of similar form, shape and appearance; safe disposal of asbestos material
Implementations/Results	Work carried out by local building contractor in complying with international safety standards and regulations incl. SUVA Fact sheet 33064, UK Control of asbestos Regulation 2012, Australian Work Health and Safety Act 2011, etc.

Approach

General Situation

Between July 2011 and June 2013, the International Water Management Institute (IWMI) was mandated by SDC/RC (Regional Office Pretoria) for the rehabilitation of two small-scale irrigation schemes in Masvingo Province. IWMI, in-turn, sub-contracted private companies for construction/rehabilitation of houses, storage sheds and latrines. During an EDA audit in August 2012, it was noted that asbestos had been used for the roofing of some of the buildings. Auditors recommended to remove the asbestos material professionally, dispose of it safely and to replace it with non-asbestos material. In July 2014 pursuant to this recommendation a SDC/HA Construction Consultant was mandated to carry out a survey of all SDC financed construction projects. The survey revealed that asbestos was used in the following four projects



- 7F-07769: IWMI - Rehabilitation of 2 small irrigation schemes in Rupike and in Fuve Pantanai
- 7F-03667: Solidarmed – Staff houses of Musiso Mission Hospital
- 7F-03668: SACI – ART Newlands Clinic, Harare

The extent of the works comprised the replacement of asbestos roof sheeting on all SDC financed / co-financed structures.

The use of asbestos containing material was prohibited in Switzerland in 1982. SDC/HA adopted this ban for their projects in 2006.

Given this, SCO Harare has decided to replace the asbestos containing sheeting with non-asbestos material and in turn to dispose safely all asbestos material.

Approach

Following the visit of the SDC Construction Consultant in July 2014 a local contractor was mandated to prepare a Bill of Quantities (BoQ) for the planned roof rehabilitation works. The BoQ formed the basis for the preparation of a) the tender documents and b) the builder's contract.

A Project Agreement was prepared and signed by all respective stakeholders.

Three construction companies were invited to bid for the contract from Harare and Masvingo respectively. The capacities and capabilities of all three were known as they worked for SDC on previous occasions. Following tender evaluation the contract was awarded to the construction company "Conduit Investments (Pvt) Ltd, Harare.

An Agreement with the original asbestos sheeting manufacturer "TURNALL" in Harare was signed committing them to accept against receipt and dispose of all asbestos material removed by the contractor from the various objects in question. (This company also happened to be the manufacturer of non-asbestos products.)

After several days delay the non-asbestos sheeting was finally delivered and construction started on the site of SACI – Newlands Clinic in Harare. The sequence of the roofing projects to be implemented was 1. SACI – Newlands Clinic, 2. Fuve Panganai, 3. Musiso Mission Hospital and 4. Rupike. Meanwhile on 25 Sep 2014 the builders started with the brickwork on the weather enclosure of the community shed at Rupike.

After a total of just over 4 weeks construction the works on all 4 sites was inspected and declared practically complete and a respective certificate of practical completion was issued. The amount of \$ 6'381.25 being 10% of the final contract amount is being retained by SDC for the duration of the 12 months defects liability period.

An exception of the above was made for one of the project sites where all the works except the replacement of the cranked (curved) ridge capping was completed. After much delay the delivery of the non-asbestos replacement ridges by "TURNALL" is due in early November 2014 when the temporarily installed asbestos capping will be finally replaced by the contractor and disposed of. For the meantime the item was included in the list of defects yet to be rectified by the contractor.

Problems/Constraints

Health and Safety

Prior to setting out the works the contractor was instructed in the necessary safety precautions to be taken in handling asbestos containing material. He was issued with several copies of written guidance released by UK Health and Safety Executive (publication sheet 14 a *Removing asbestos cement (AC) sheets, gutters, etc.* (<http://www.hse.gov.uk/pubns/guidance/a14.pdf>)). These were to be distributed to the site supervisor and site foremen.

The contractor was further provided with personal protection equipment (PPE) imported from CH. The PPE consisted of 50 disposable coveralls and 50 disposable respiration masks FFP3. The removal process and hence the application of the health and safety measures were monitored daily.

On completion of the works and prior to release of final payment the contractor submitted to SDC written confirmation by the sheet manufacturer TURNALL of the receipt of 10.5 tons of Asbestos material for disposal.



Challenges

- Although Zimbabwe's asbestos mines are currently not operational due to ownership disputes, asbestos is still widely used and indeed constitutes one of the country's export commodities. Therefore the project implementation took place in a delicate political context.
- The project was carried in largely poor rural settings where a corrugated sheet presents a very desirable commodity to the people. The sensitivity to the dangers and the risks of asbestos related health problems is little if at all developed. The security against disappearance of any sheeting material regardless of asbestos or non-asbestos content created a constant worry.
- In the case of the SACI Newlands Clinic, the director Prof. Lüthy against the agreement authorized his staff officially to take possession of the removed and stored asbestos material resulting in a delicate stand-off with the contractor. When trying to leave the site with the material destined to be disposed of the gates remained locked. Only after leaving the material behind was he allowed exiting the site.
- The production and the timely availability of the required non-asbestos sheeting products from the local Company TURNALL was unreliable and required constant pressure. Many a delay was incurred making efficient time planning difficult.

Financial Aspects

A) Assessment and Backstopping	(Budget figure only)	CHF	21'000.00
B) Preparation work (procurement of protection equipment in CH)	CHF	606.50	
C) Construction works (1700 m2 roofing + brickwork)	USD 62'500.00		
	Variation Order 01 (gate Rupike)	USD	862.50
	Variation Order 02 (ramp Rupike)	USD	450.00
	Total (Xchg rate USD / CHF: 0.96)	USD	63'812.50
		CHF	61'100.00
D) Local Consultant (preparation of BoQ)	USD 1'231.67	CHF	1'180.00
E) Swiss Construction Expert for 2 months	(Budget Figure only)	CHF	30'000.00
F) International Transports and Flights	(Budget Figure only)	CHF	4'000.00
	PROVISIONAL TOTAL COST	CHF	117'886.50

Some impressions



Asbestos Removal



Weather enclosure Rupike (cranked ridge yet to be completed)



Irrigation Management Committee Fuve Panganai

Nearly there...

For further information

Involved SHA construction group consultants	R. Ivan Hauri
Other involved SHA consultants (assessment)	U. Salzmann
Author / Contact:	R. Ivan Hauri
Recommended books/reports:	- SUVA Factsheet 33064 - publication sheet 14 a <i>Removing asbestos cement (AC) sheets, gutters, etc.</i> http://www.hse.gov.uk/pubns/guidance/a14.pdf