

A standard model for health facilities in remote areas in Sudan



Architectural Rendering of Health Facility

Mirco Fiumana is an architect who provided his professional collaboration to Italian Cooperation (IC) to design health centres and accommodation facilities for health workers under the EU-funded health programmes in Eastern Sudan. His contribution was essential to define a model, now utilized in Gedaref, Kassala and Red Sea States, which in the future IC hopes to be introduced in the entire Sudan. This conversation with him displays the long path the project took to finally provide health facilities used by people today in remote areas of Sudan.

"Since the beginning, with Italian Cooperation, we concentrated our efforts in creating typologies of buildings based on: flexibility of building modules, budget control, simplification in construction phases and future maintenance phase, and mainly creating a comfortable environment for

both staff and patients" explained Fiumana. *"Our analysis was based on the following considerations: how to contain the costs; how to simplify the execution; how to reduce running costs and maintenance; and most importantly to re-introduce the theory of 'Genius Loci' " locally. This concept refers to a way of designing and building that falls in harmony with the local environment and climate conditions, where the spirit of the place should always be adapted to the local context. Sudan is a sub-Saharan country, where the temperature can reach up to 50 degrees with low humidity. In any case a positive point is the constant presence of the wind or breeze. "The wind travels from north to south for one half of the year and then switched direction during the other half. Buildings were traditionally built considering this element. Then, with the introduction of the electricity, air conditioning, and to the influence of "international style" this knowledge has been, in part, forgotten. Sudan is near to the equator line, which means that the sun at mid-day is almost vertical in the sky, leaving northern and southern elevations of the buildings barely affected by direct sun irradiation. Based on the above evaluations we designed buildings which are mainly rectangular, with the long sides facing north and south, and located all openings on these two sides. This criteria was adopted to implement the natural ventilation and to avoid direct sun irradiation on the openings, such as doors*



The Health Center realized in Heleba - Gedaref State

and windows". To maximize the money value and to simplify the execution of the works he added: "A regular shape and a layout based on a subsequent of square, rectangular modules were the key to face



The veranda at the Maternity Ward of Mafasa Hospital - Gedaref State

the local architectural requirements: where each module is a room, which can be used for medical purposes either accommodation. Moreover, I'd like to add that each room-module has a direct entrance and two opposite windows. The entrance is through a veranda area (common and practically used in the local culture). This veranda is probably the central part of each building, since in this area the activities are various (waiting, resting, first screening, and cooking). In terms of future expansion we've asked Fiumana if those units are designed to allow vertical extensions "We decided, since the beginning, to build at one level only. Since staircases may be hard to be used by some. The majority of the buildings are located in remote areas, where there is no problem of space".

Considering the fact that Sudan has a very wide area it was impossible to plan a delivery of construction materials to remote areas, therefore IC had to use the materials locally available.

"Minimizing the transportation and sourcing local material and manpower, was also an opportunity to assist the local economy and to decrease the environmental impact created by transportation. In terms of adjustments or maintenance, it is easier to deal with local materials and companies." He added: "Our buildings are planned with a long life span with low maintenance costs, and able to be handled in the future by the local community which is utilizing these buildings, since the mission of Italian Cooperation is to start, settle, implement, run the social activities, then to hand it all over to the local users and operators". Remembering his experience in Sudan, Mirco Fiumana likes to highlight how "The completed buildings were very much well done and as per design! Culturally Sudanese are used to add decorative elements in buildings, cars and trucks. For example, the veranda in front of the building, which was supposed to be a simple steel structure with corrugated steel sheets above, but the local contractors added decorative panels!". "I am proud of all types of health facilities we've created. But I love the staff accommodations the most. I am sure the staff will like it, and it will encourage them to give their best at work!" which is in sync with the mission of the Italian Cooperation.

A brief bio of Mirco Fiumana

"Our ultimate goal is to design buildings and environments that work, inspire people and transform communities, through careful evaluation of relevant opportunities. Inspired ideas will drive a good design to something that is extraordinary, challenging, and completely unique." This is the concept that inspired architect Mirco Fiumana and his team to realize projects in Sudan. "I moved to Khartoum in 2010, by chance. I met a businessman who introduced me to this Country. I found it beautiful and with great potential. That's why I came" explained Fiumana. He holds a Master degree in Architecture from Ferrara University, in Italy.

With his experience in design and hands-on approach to every endeavour, he is familiar with every step of the architectural process, from concept design up to detailed projects. After working in Italy from 2004, to 2008, he then moved to the UAE to focus on internal luxurious finishes. He also gained experience throughout Europe, Africa and the Middle-East. He directed projects in Khartoum, Sudan, driven by a will to provide the best possible service and design. He currently directs projects from Dubai, where he based his own company. Years of comprehensive international experience in architectural design, together with a design concept in a manner that is feasible, economical, contemporary, elegant and rationalized for an easy built-up process made him the ideal figure for Italian Cooperation to collaborate with.



Architect Mirco Fiumana

The work to make a Health Center functional



Gedaref: Sara Himad in Academy Health Science Laboratory -AHS- installing microscopes

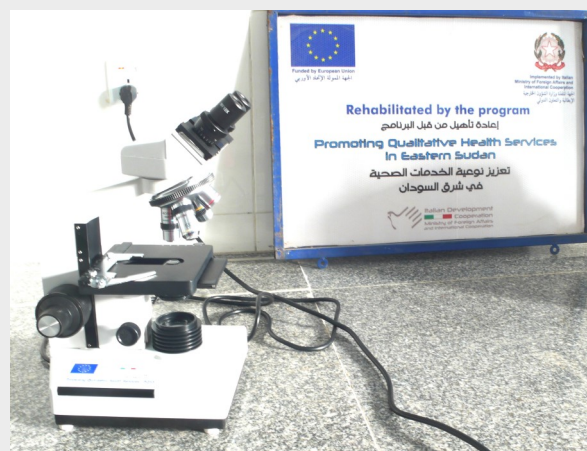
The procurement office is the active entity inside the Italian Cooperation, facilitating the work between the Headquarters in Khartoum with the States where the EU Health Programmes are taking place. Francesco Torresani, the Programme Manager Assistant and Sarah Himad the Technical Consultant both work within the EU Programmes while taking up different roles. Being the Manager Assistant, Torresani's duties alternate between analysing the technical specifications of the necessary requested instruments, checking their availability in the local market in addition to providing an estimation of their costs. Sarah on the other hand, utilizes her expertise as a bio-medical engineer to verify proposals received by different providers and check their compatibility with the technical specification requested by the IC. She is also responsible for the installation

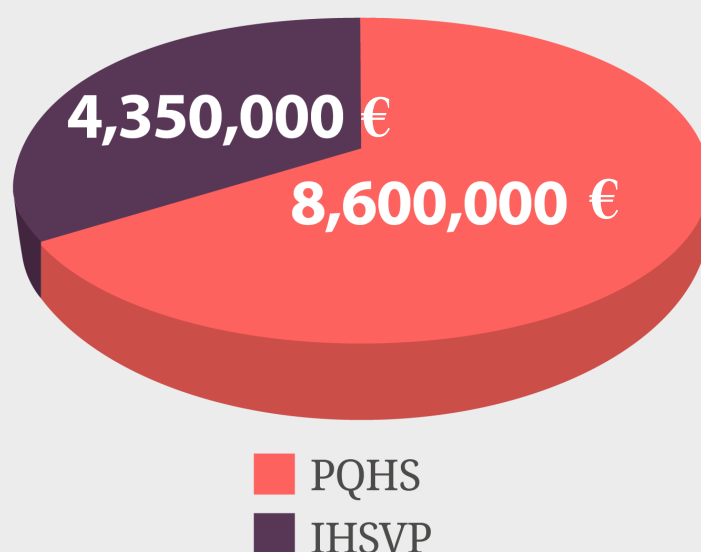
and instruction on use to the beneficiaries.

Procurement planning of medical equipment is a team process that involves both IC management and health officers in the field, regarding her role in this process, Sarah Himad states *"I am responsible for the assessment of medical equipment and furniture at each step of the procurement process, taking into consideration the influencing factors that are often present in targeted locations including the availability of electrical power, the level of expertise of staff who would be operating the machines in addition to the general surrounding conditions"*. Reaching remote rural areas, especially in the rainy season is only one of the struggles that face the procurement team, another is finding the sought-after equipment with the specified quality: *"there are difficulties in locating reliable suppliers and products that meet both IC standards and prevailing conditions in the involved localities ; in addition to the common obstacles faced during the execution and transportation of the equipment and furniture to site"* asserted Sarah, *"At the end we do manage to overcome these struggles and ensure the application of the IC standards; by closely investigating suppliers and products and even have suppliers import materials specifically for us when necessary"*. Following the delivery of the equipment, the procurement team must guarantee that the delivered machines continue to function properly *"Maintenance is more complicated than procurement. We start with running an inspection of the faulty equipment to have an estimation of the malfunction, the spare parts needed and the cost. These parts must be sourced; this is then followed by the repairing process, in which a specific protocol for each device must be followed"*. Since this process requires a team of medical engineers and technicians to cover IC targeted areas, the cooperation has out-sourced its maintenance service by hiring a company to ensure the up-keep of its equipment in the five targeted hospitals in Red Sea state. This phase doesn't only aim at repairing the machines but to also give the local technicians and staff the necessary training enabling them to carry the maintenance on their own.

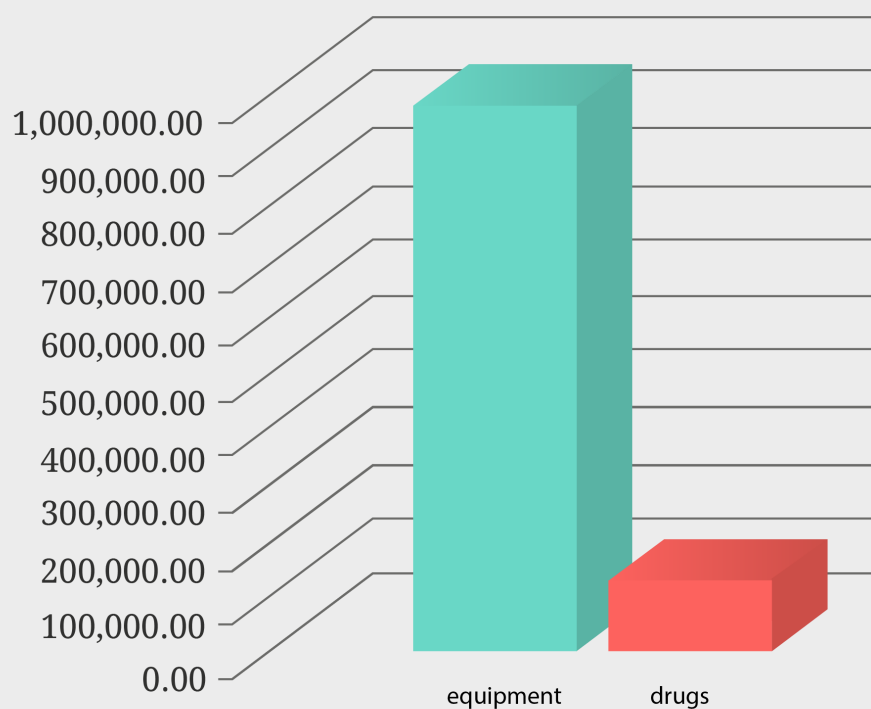
"Making a difference for my country, though the main satisfaction continues to be the opportunity to work with highly qualified staff to face new challenges and yet manage to get the desired results." A satisfaction that is shared by the IC in the procurement of its EU health programmes.

A microscope in AHS Lab provided by IC through PQHS program





The three years budget of the two EU funded Health Programmes: Promoting Qualitative Health Status in Eastern Sudan - PQHS - and Improve Health Status of Vulnerable People in Eastern Sudan - IHSVP



Both spending of EU Health Programmes on Procurement since the start of programme (PQHS started in January 2014 while IHSVP in January 2015) until May 2016

The visit of the Italian Ambassador in Kassala



The Italian Ambassador, Mr. Fabrizio Lobasso, with the State Minister of Health of Kassala, Mr. Khidir Eljak Elbeshir

Kassala State has a historical link with Italy: it has fallen twice in the past century to the Italian occupation. “The Short Twentieth century” is now over and Italy has created new different ties with this region. The recent visit of the Italian Ambassador, Fabrizio Lobasso, in mid-June comes as a step to strengthen this historical connection. The Italian Cooperation, in fact, has been working in Kassala State since 2007 with Local authorities and communities in order to foster development and alleviate poverty, through the improvement of the health system.

The Italian Cooperation is carrying out two health programmes in Kassala funded by the European Union. During his visit, the Italian Ambassador, Fabrizio Lobasso, met several Commissioners in the area and important representatives of the local government.

Among them was the State Minister of Health, Mr. Khidir Eljak Elbeshir. The Minister expressed to him his deep appreciation for the important job the IC is doing in the health sector in the region. “We are satisfied to have contributed to make a project come true. The right to health should be accessible to everyone, we can’t forget this universal principle” said the Italian Ambassador. Here IC, through the EU programmes, is supporting three localities: River Atbara, Telkok and Hamashkoreeb. Each locality has its own peculiarity. River Atbara can be defined as an agricultural community, which is a non-migratory condition, while both Telkok and Hamashkoreeb can be defined as pastoralists, which mean a seminomadic condition. In each of them, IC and Ministry of Health, have selected Hospitals, Health Centres and Health Units to be directly supported, adopting a global approach. IC has fully endorsed the priorities and objectives of State Ministry of Health to ensure accessibility to health services at a peripheral level and reduction of maternal and child mortality. Improving the access to health services in rural area means that people don’t have to endure long distances to solve health problems, it means creating a working health district where the peripheral level is an essential part of it, it also means equal chances of survival to everyone.

The institutional visit to Hamashkoreeb, by Mr. Fabrizio Lobasso, has witnessed deep interest toward the local communities. Here, a very religious community is installed since the foundation of an important Quranic School. In Hamashkoreeb IC did several interventions in the health sector starting from the rehabilitation of the local health administration offices, the drug store, the maternity ward and the staff accommodation for both women and men. Beyond the civil works IC organized several training sessions for drugstore keepers and for midwives. The nice and warm welcome showed to our Ambassador makes IC stronger to continue to work in this direction, for the people of Sudan.



The Italian Ambassador, Mr. Fabrizio Lobasso, and IC staff, Valerio Pastori, at the maternity ward of the Hamashkoreeb Hospital

Red Sea

- 1 FHC - Ahmed Gasim - Port Sudan
- 2 LHA Offices - Ahmed Gasim - Port Sudan
- 3 FHC - Omer Ibn Elkhatab - Port Sudan
- 4 FHC - Dar El Salam - Port Sudan
- 5 Tagadom Hospital - Port Sudan
- 6 FHC - Samara - Swakin
- 7 FHC - Tambook - Swakin
- 8 FHC - Elgit - Sinkat
- 9 FHC - Arkaweet - Sinkat
- 10 Sinkat Hospital - Sinkat
- 11 LHA Offices+Drug Store - Sinkat

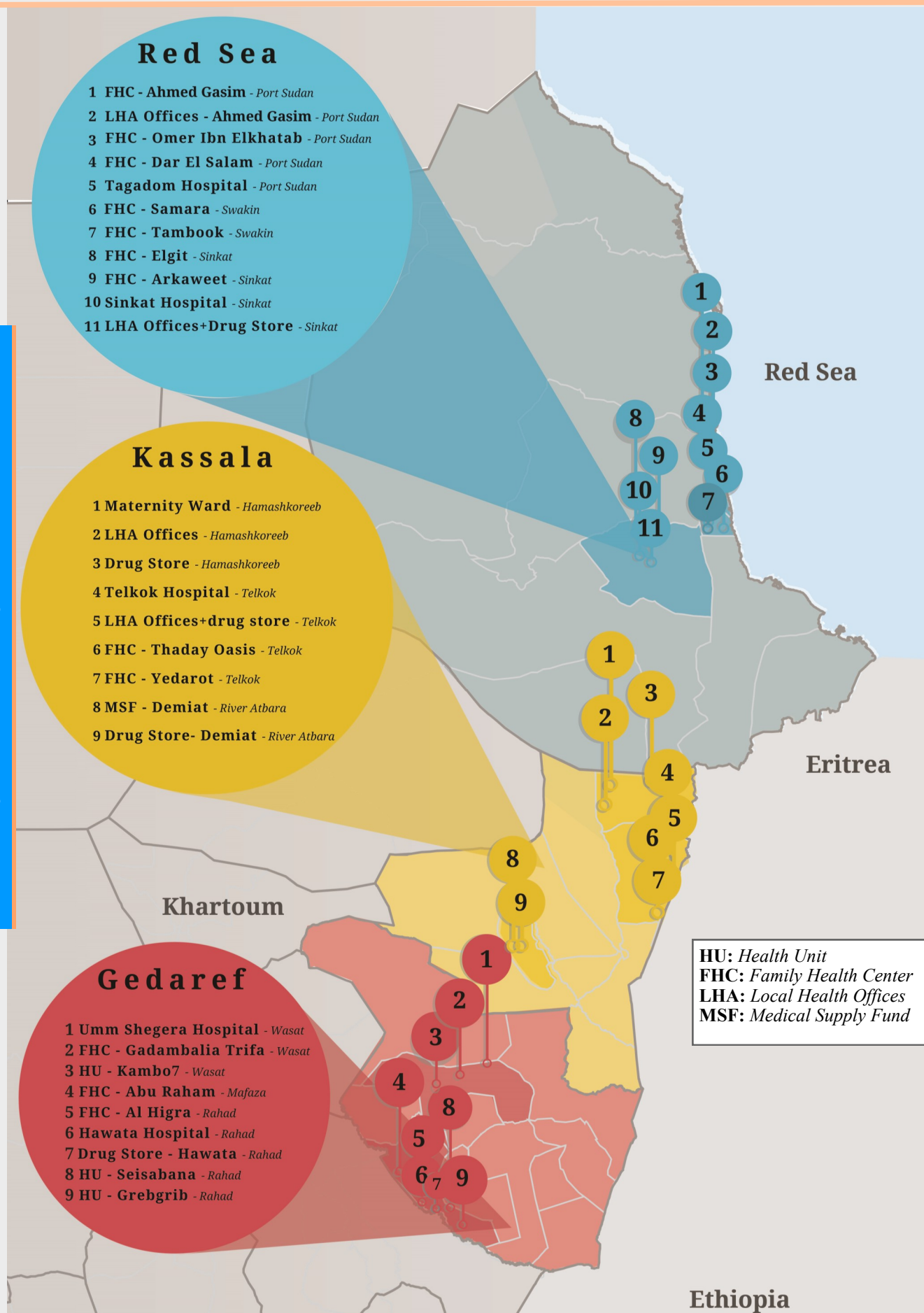
Kassala

- 1 Maternity Ward - Hamashkoreeb
- 2 LHA Offices - Hamashkoreeb
- 3 Drug Store - Hamashkoreeb
- 4 Telkok Hospital - Telkok
- 5 LHA Offices+drug store - Telkok
- 6 FHC - Thaday Oasis - Telkok
- 7 FHC - Yedarot - Telkok
- 8 MSF - Demiat - River Atbara
- 9 Drug Store- Demiat - River Atbara

Gedaref

- 1 Umm Shegera Hospital - Wasat
- 2 FHC - Gadambalia Trifa - Wasat
- 3 HU - Kambo7 - Wasat
- 4 FHC - Abu Raham - Mafaza
- 5 FHC - Al Higma - Rahad
- 6 Hawata Hospital - Rahad
- 7 Drug Store - Hawata - Rahad
- 8 HU - Seisabana - Rahad
- 9 HU - Grebgrib - Rahad

HU: Health Unit
FHC: Family Health Center
LHA: Local Health Offices
MSF: Medical Supply Fund

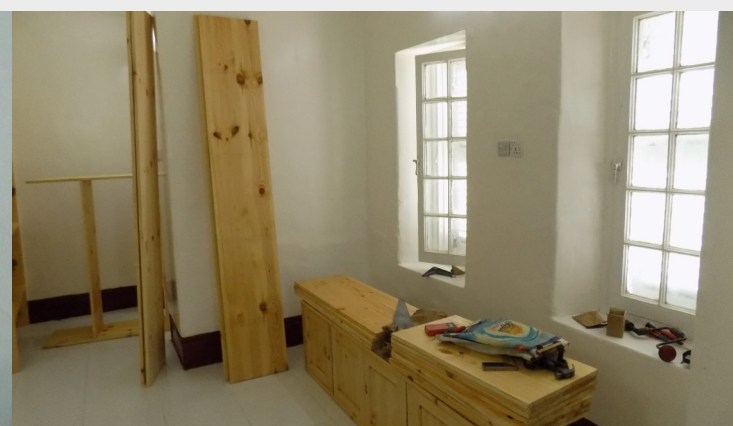
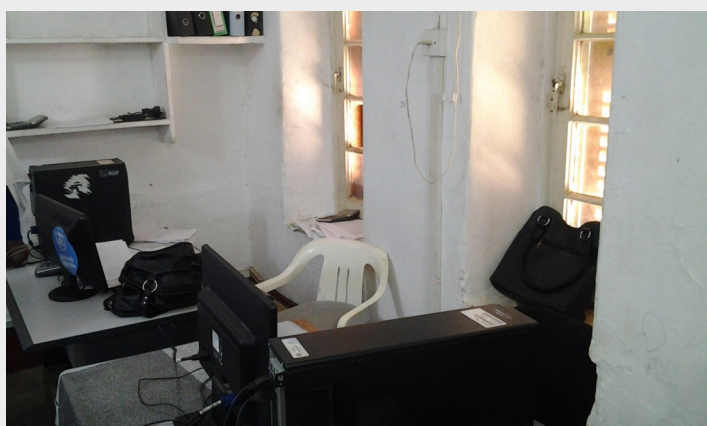




**Health Awareness in Gadamblia Village
Gedaref State**



**Telkook: Rehabilitation and refurbishment of the Local Health Administration Offices
Kassala State**



**Port Sudan: Rehabilitation and refurbishment of the Health Information System Office
Red Sea State**

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