



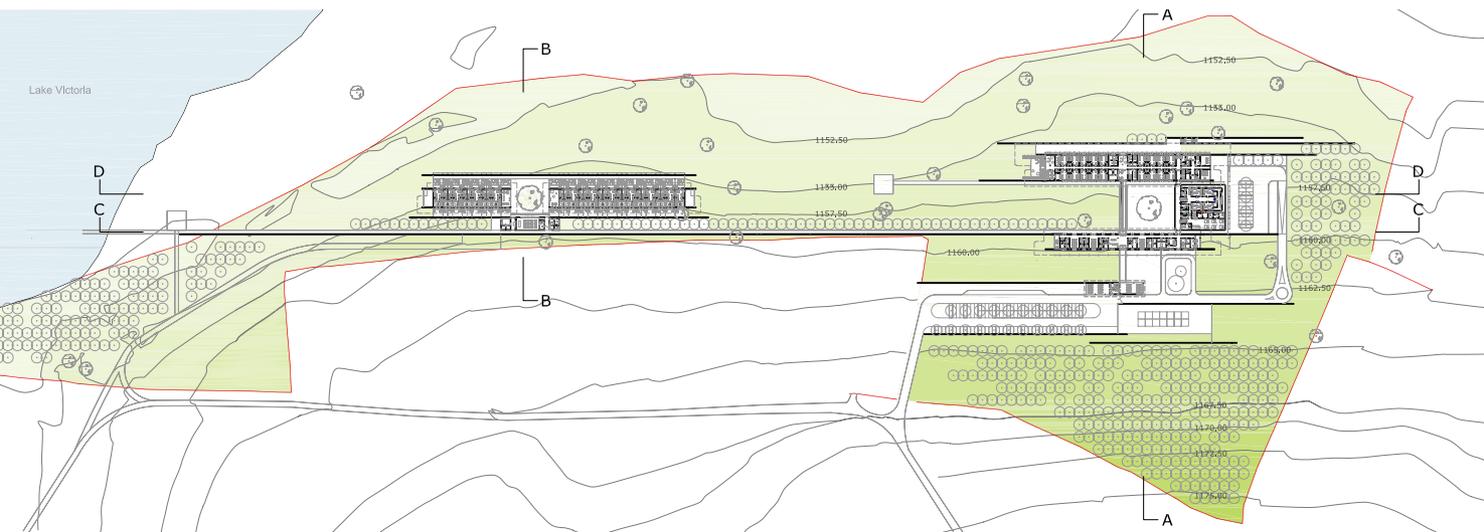
LEFT. Renzo Piano and Gino Strada lay the first stone of Emergency's new hospital for paediatric surgery overlooking Lake Victoria in Entebbe, Uganda.

On the 10th of February in Entebbe, Uganda, Gino Strada and Renzo Piano, along with the President of the Republic of Uganda, Yoweri Museveni, and the Minister for Health, Jane Ruth Aceng, laid the first stone of Emergency's new project: a Centre of excellence in Paediatric Surgery that will be built next to Lake Victoria, 35 km from the capital Kampala. Mapei will also play an active role in this important project and two of the company's highly qualified engineers, Elisa Portigliatti and Marco Cattuzzo, were also present at the inauguration ceremony.

The need for a centre specialised in Paediatric Surgery, to serve Uganda and nearby countries, was highlighted by the African Ministers for Health from the member states of the ANME (the African Network of Medical Excellence), created thanks to an Emergency initiative in 2009 with the aim of developing health systems and networks in member states to bring free health care of excellence to Africa, a concrete way of declaring every person's right to receive free health care of the highest order. The hospital in Entebbe will be the second Centre of excellence in the network, following the opening of the Salam Centre for Cardiac Surgery in Khartoum, Sudan. In Uganda the infant mortality amongst the under-fives is 138 deaths for every thousand births. To guarantee free surgery in such a context is of absolute priority in order to help lower the infant mortality rate in Uganda and the

MAPEI WITH RENZO PIANO AND EMERGENCY IN UGANDA

MAPEI: PARTNERS IN A PAEDIATRIC SURGERY PROJECT AS PART OF THE DEVELOPMENT OF A HEALTH NETWORK OF EXCELLENCE IN AFRICA



ABOVE. The general layout of the complex.

surrounding countries.

"Millions of children die every year simply because they have no access to medical care. A lack of resources? Too little concern for the suffering of part of the population? A lack of responsibility from the governments? Whatever the reason, the question is always the same: should we just carry on tolerating this scandal, or should we make every effort possible to save, or improve, the lives of millions of human beings?" explained Gino Strada. The Ugandan government decided to take an active part in the project by donating the plot of land where the centre

is to be built.

Renzo Piano Building Workshop designed the hospital in collaboration with Tamassociati, structural design was carried out by Milan Ingegneria and the plant layout and systems were designed by Prisma Engineering.

"When Gino Strada asked me to take part in Emergency's new challenge I didn't have to think twice; I said yes straight away! This hospital will be a model for medical excellence, environmental sustainability, independence from external energy supplies and the harmonious distribution of space".



TO THE LEFT.

Renzo Piano with the President of the Republic of Uganda, Yoweri Museveni, during the ceremony to mark the laying of the first stone of the new hospital for paediatric surgery.

A MODEL FOR MEDICAL EXCELLENCE

The hospital will have 3 operating theatres and 78 beds and will also act as a training centre for young doctors and nurses. It will be made up of three buildings parallel to each other with large, flat roofs, the key elements of the project. The first one, a single-storey building and the smallest of the three, will be used as a welcome area. The others will have two storeys and will run alongside the courtyard, with operating theatres and intensive care units at basement level. The central courtyard will have a garden overlooked by corridors and rooms and will be enclosed on the western side by a building with the living quarters for the hospital staff.

The hospital will be built using the traditional pisé technique (rammed earth technique): a mixture of soil, sand, gravel and water rammed into wooden formwork, but in this case combined with binders of the latest generation, developed by Mapei, to make the structure more stable, safer and more durable. The large flat roofs, made from wooden beams and steel tie-rods, will protect the hospital from bad weather and the beating sun and will be used to support

THE HISTORY OF EMERGENCY



EMERGENCY
Life Support for Civilian War Victims

Emergency is a humanitarian association founded in Milan in 1994 and its mission is to bring help to civilian victims of war and poverty.

Since 1994 until today Emergency has intervened in 17 countries, building hospitals, operating theatres, rehabilitation centres, paediatric centres, first-aid units, health centres, a maternity centre and a heart-surgery centre. Following requests received from local authorities and other organisations, Emergency has also contributed to the refurbishment and supply of vital equipment for existing health centres. Since 1994, teams of Emergency personnel have brought help to more than 8 million people.

And it is because they understand the effects of war that, since it was first formed, Emergency has always been committed to promoting peace.

In 2008, along with several African countries, Emergency drew up their Manifesto for a medical system based on human rights to vindicate health care based on equality, quality and social responsibility. In September, 2010 Emergency published a document entitled "The world we want" as a way of sharing the ideas and values that inspire their work.

Emergency became a legally recognised NPO in 1998 and NGO in 1999. Since 2006, Emergency has been officially recognised as an NGO partner by the United Nations – Department of Public Information. Since 2015 it has been a member of *Economic and Social Council as an association with Special Consultative Status*.



5,000 m² of photovoltaic panels supplied by Enel Green Power.

"We will be using the earth's natural resources, water and sunlight, the ultimate goal of modernity" declared Piano. "Built on the banks of Lake Victoria, the centre will be surrounded by nature and woodland. The vegetation will form a horizon for the younger guests and the trees will be like a metaphor of the process of recovery".

MAPEI'S CONTRIBUTION: THE FRUIT OF RESEARCH

After more than 3 years of research work at the Corporate R&D laboratory in Milan, Mapei now has an innovative system available for Emergency, the team of designers from the RPBW (Renzo Piano Building Workshop) studio and the main contractors for them to build the new hospital structure using the pisé technique. This construction method, which is widely used all around the world, is an antique tradition based on compacting layer upon layer of locally-sourced soil in structures similar to formwork.

The development of the latest generation of binders, specifically formulated by Mapei Research, has allowed this centuries-old tradition to become more versatile and durable and, thanks to new innovations in the field of chemical products for the building industry, it is taking up a new role in major projects of today.

This intervention is part of Mapei's strategy to support projects based on solidarity and social responsibility by offering the company's technology and assistance from laboratory technicians, to help with research into innovative products that reflect the philosophy of the projects, and site engineers and technicians, to provide on-site assistance during the actual construction work.

Site preparation work has already commenced in a structure rented by Emergency in Maranello (Italy). Here, a life-size mock-up will be built (a wall more than 9 metres long), a kind of draft proposal of their "method statement" and a quality-control model to perfect construction work using the pisé technique. This will be an important preliminary phase for Mapei's Corporate R&D Laboratory and Technical Services-Major Projects Division and it will help them acquire all the useful information they will need to help organise the support work in Uganda during construction work.

ABOVE. The full-scale model of a wall of the building that has been built in Entebbe using the pisé technique.

TO THE LEFT AND BELOW. Scenes of the ceremony to mark the laying of the first stone.

TECHNICAL DATA

Emergency Children's Surgery Center, Entebbe (Uganda)

Client: Emergency

Architectural Design: Renzo Piano Building Workshop Architects in collaboration with Studio Tamassociati

Project Team: G. Grandi, P. Carrera, A. Peschiera, D. Piano, Z. Sawaya and D. Ardant; F. Cappellini, I. Corsaro, D. Lange and F. Terranova

Structural Design: Milan Ingegneria

Plant Systems Design: Prisma Engineering

Landscape Design: Franco and Simona Giorgetta

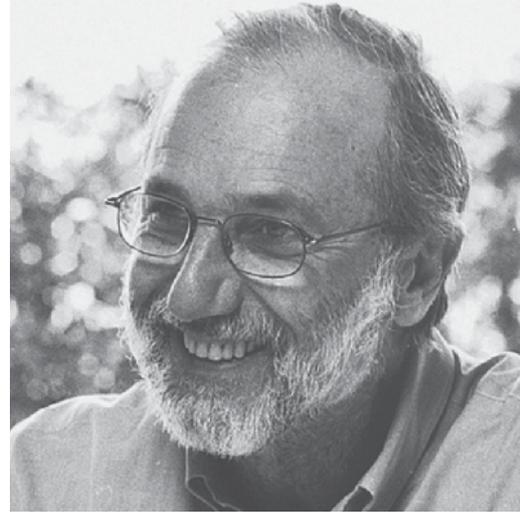
Partners and Sponsors: Ministry of Health of Uganda, Prosolidar Foundation, Renzo Piano Building Workshop, Studio Tamassociati, Milan Ingegneria, Agatos Energia, Duferdofin Nucor, Elettronica Santerno, Enel Green Power, Mapei Spa, Casalgrande Padana, Promozione Acciaio Foundation, Giugliano metal constructions, iGuzzini, Maspero Elevatori, Perin, Stahlbau Pichler, Vimar, Zintec, Salini-Impregilo and Terni Energia.





A hospital of excellence

and training centre in a building constructed with respect for local traditions



ON THIS PAGE. The architect Renzo Piano who, along with his Renzo Piano Building Workshop, is designing the new hospital in Entebbe.

THE PROJECT

Built in Entebbe, on the banks of Lake Victoria around 35 km from the city of Kampala, Emergency's new Paediatric Hospital will not only be a hospital structure of excellence, it will also be a place that enriches the entire area. Apart from providing invaluable medical services for the local population, it will also be a training centre for doctors and nurses who, thanks to this opportunity to follow highly specialised courses directly in the hospital, will no longer have to leave their homes or go abroad to specialise. The paediatric centre will give medical and paramedic staff the possibility to treat and operate on patients using equipment and instruments comparable to those found in the most advanced structures in the western world. The building is impressive for its functional layout, attention to its surroundings and energy efficiency and the use of local resources and building techniques, and aims at becoming a model of architecture for the entire region.

The complex will be built in a large park following the natural formation of the ground, which slopes gently towards the lake, and will be divided into three parallel wings.

The first wing, a single-storey building and the smallest of the three, will form the entrance and welcome area to the hospital. The other two wings will be larger, with a ground floor and a basement, and will be next to the main block which will be home for the operating theatres and the intensive care unit.

The south wing will house the doctors' studios, the pharmacy and the departments where clinical exams will be performed. On the ground floor of the north wing there will be rooms for

the patients, as well as two recreation rooms and areas where the children can meet and play together, while in the basement there will be classrooms to train the medical personnel, the administration offices and the canteen.

When designing the hospital a lot of thought went into the internal garden, at the centre of which there will be a large tree. Footpaths will run through the garden and it will be overlooked by the corridors and rooms used by the patients, illuminated by the natural light entering through ceiling-high windows.

The hospital complex will have an autonomous electrical energy supply: the roof will be made up of a suspended, load-bearing framework that will be used to support 5,000 m² of photovoltaic panels donated by Enel Greenpower, with the capacity to generate 400 kW of energy. And to finish it all off: a large curtain, the distinctive symbol of the structure, will protect the spaces and help keep them cool.

THE PISE TECHNIQUE AND MAPEI INTERVENTION

Natural soil is one of the most antique construction materials used in many parts of the world, from Africa to Central and Latin America and from Asia to Oceania. Rather than using materials and construction techniques unfamiliar to the local culture, Renzo Piano Building Workshop chose to construct the hospital according to local traditions, privileging the use of natural soil and the pisé technique.

This technique uses a compound of soil, sand, gravel and a little water which is then pressed into wooden formwork using special tools. Even though the soil guarantees a level of thermal inertia that helps maintain the temperature and level of humidity in the building constant, it is not particularly strong and is not very resistant to rain.

To overcome these problems tests were carried out on samples of soil sent from Entebbe to the R&D Laboratory in Milan. The laboratory tests used innovative chemical binders that improve the mechanical strength of the compound and the resistance of its surface. These technical improvements were applied to the construction materials used on site to build a portion of wall which was then closely monitored. Various minerals and oxides were added to the soil mixture to make areas of wall in different colours.



Renzo Piano Building Workshop