

HIPPO WATER ROLLERS IN SOUTH SUDAN



A case study of a typical Hippo Water Roller Project.

DOCUMENTED BY:
GRANT GIBBS
WARRICK GIBBS



Carrying heavy buckets of water on her head is both back-breaking and unjust.



The most common means of transporting water to their homes is with used 25 litre containers.



Even young children have to help carry heavy plastic cans of water home every day of their lives ...



Lack of infrastructure has created opportunities for income generating businesses collecting and selling water.

LOCATION

Maleng-Agok near Rumbek, South Sudan.

STATUS QUO

South Sudan has no piped water on tap anywhere!

The water table is very high, about 10 - 15 meters below ground level, so finding water is not difficult; however, there is no water infrastructure!

Most water is accessed from manual borehole pumps and then carried home in 25 litre containers.

SITE VISIT

During preparations for the successful referendum to separate South Sudan from the rest of the country, we travelled to Rumbek in South Sudan. We went to evaluate what impact the Hippo Water Rollers had made on the community of Maleng-Agok after 8 months of use.





FRONT

INSPIRED BY AN OXFAM POSTCARD IN AUSTRALIA

Alfinah showed me how easy it is for her to use her "hippo roller" to collect water, compared to the traditional way of carrying heavy water containers. Alfinah told me that she used to walk for six hours every day, carrying three 10-litre containers, to collect water from a well. She said the trip exhausted her and she had to stop several times along the way to rest. Now with her hippo roller she can collect 80 litres of water in one trip. She says it's easier, quicker and not as back-breaking.

Maureen Bathgate
Oxfam Australia

GIVE WATER | SAVE LIVES



Photo: Cedric Nunn/OxfamAUS

BACK

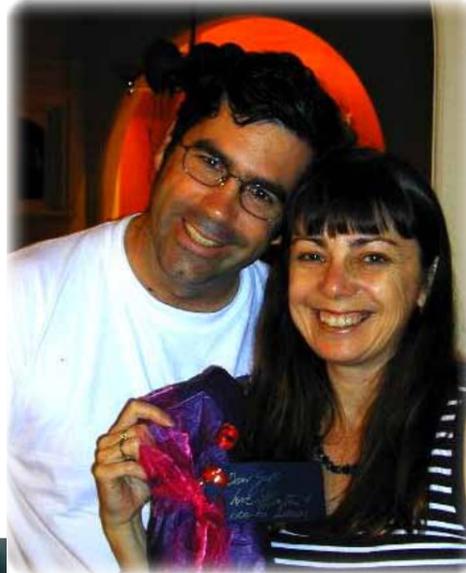
A - Eli Magok Manyol (Lakes States Minister for Agriculture and Forestry) and Thomas Maker (on right) at the entrance to Thomas' family huts.

B - Martin and Denise O'Dea, from Sydney, Australia.

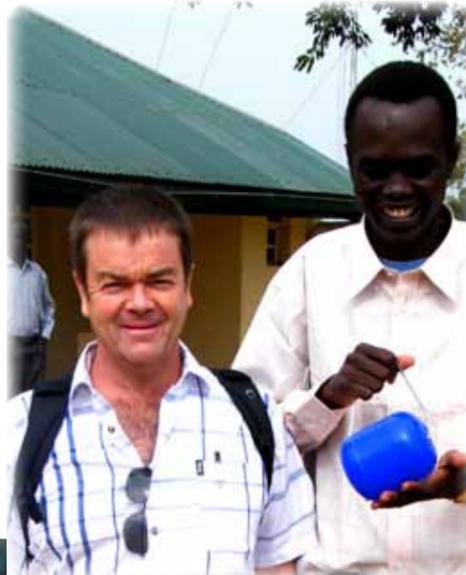
C - Grant Gibbs, Hippo Water Roller Project founder, with Thomas Maker.



A



B



C

HIPPO ROLLER PROJECT STATISTICS

During the past 17 years, 32 000 Hippo Rollers have been distributed in at least 16 countries including South Sudan.

A minimum of 250 000 people (8 per household) have already benefitted from this technology.

HOW THE SOUTH SUDAN PROJECT STARTED

Martin O'Dea was inspired by an Oxfam postcard he came across in Australia and introduced the Hippo roller to Thomas Maker, a Sudanese refugee living and working in Australia as a medical scientist.

Thomas was convinced of the usefulness and value the rollers would bring to his people.

The Hippo rollers were ordered from Imvubu Projects in South Africa, manufactured, shipped and delivered to Maleng-Agok.

Even the shipping container was paid for so that it could remain at Maleng-Agok. Martin provided architectural drawings to convert the container into a medical clinic.

DONATION OF HIPPO WATER ROLLERS

In April 2010, a shipping container loaded with 175 Hippo Water Rollers, arrived in Maleng-Agok. These had been sponsored by some generous donors from Sydney, Australia, who wish to remain anonymous.

The Hippo Water Rollers were handed out under the supervision of the Lakes States Minister for Agriculture and Forestry, Eli Magok, along with the local chief and other senior government officials.

Cost to the donors was approximately USD33, 000 covering both the cost of rollers and the shipping container plus delivery of the rollers right up to Maleng-Agok.



MANUFACTURING PROCESS

Hippo Water Roller drums and screw caps are manufactured using a rotation moulding process whereby LLDPE (Linear Low Density Polyethylene) is melted inside the mould while rotating in all directions.

The drum is manufactured in one piece with no joins. This creates a slightly flexible but durable enough container which is able to withstand rough and difficult terrain surfaces and conditions.

BRANDING

The drum and screw cap can be colour coded to match donor/sponsor branding and a personalised logo can be added to the screw cap.



The Hippo roller mould is filled with LLDPE powder & then moved into the oven while rotating in all directions.



Logo's are printed in plastic, not ink, using a special technique.

They are applied to the mould and permanently blended with the screw cap material during the heating process.



After being heated in the oven the moulds are then cooled while still rotating, after which the completed drum is removed.





Packing & transportation of Hippo rollers in a refurbished and branded shipping container from South Africa.



BENEFITTING COMMUNITY

Thomas' family live in a rural community called Maleng-Agok near Rumbek which is centrally located in South Sudan. Maleng-Agok is very typical of most rural communities and has approximately 20,000 inhabitants with 7 to 10 members per household.

Community leaders and government officials from GOSS (Government of South Sudan) held meetings in Juba, the new capital of South Sudan, to decide how to go about distributing the sponsored Hippo Water Rollers.

It was decided to give 30 of the rollers free of charge to some of the more elderly community members and the rest were sold at \$40 each.

These contributions will be used to convert the shipping container into a medical clinic for the benefit of all, and also serves to promote a sense of ownership and value resulting in a longer life-span of the roller.



Maleng-Agok community leaders proudly displaying their Hippo roller container in South Sudan.



Planned conversion of the shipping container into a medical clinic. Design & drawings by Martin O'Dea.



SITE VISIT & EVALUATION - DECEMBER 2010

In December 2010, eight months after the handover, my son Warrick and I travelled to Maleng-Agok in South Sudan to see first-hand the impact the Hippo rollers had made on the community. This trip was made possible through more generosity from the same Australian donors.

Thomas our host, flew back from Australia and very kindly met us in Juba taking good care of us. We all flew on to Rumbek together. Timing was important as there is only one flight a week between Rumbek and Juba.

We arrived on the 1st of December to an incredibly warm reception under the "Arrivals tree" including many government officials and community leaders. We were treated like royalty!

After checking in to surprisingly comfortable accommodation at the Palm Tree Hotel, owned by an interesting gentlemen from Norway, we met again with the Lakes States Minister for Agriculture and Forestry, Mr. Eli Magok Manyol. The Minister expressed his sincere appreciation for the donation of Hippo rollers and we discussed the potential for expanding the project.

The Hippo Water Roller is clearly the most appropriate technology for South Sudan and the new government emphasised that they would like local production to take place in Maleng-Agok which is fairly central to South Sudan.

Local production would help to reduce the "landed cost" of the Hippo rollers in South Sudan and would help to stimulate further economic activities.

1. Arriving in Rumbek, South Sudan - The airport has no tarmac, in fact there is only 40km of tarmac in the whole of South Sudan.

2. The lack of infrastructure was evident from the first day of arrival in Rumbek with our luggage being delivered off the back of a pickup. However we were still made to feel like royalty by the welcoming party of government officials and community leaders.

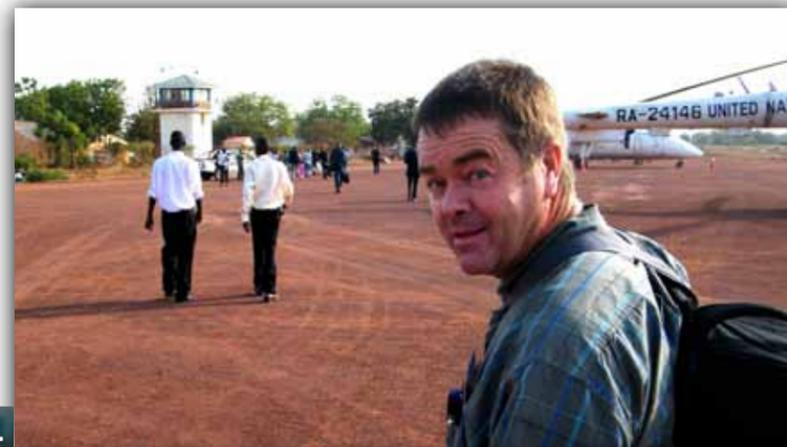
3. Main road from Rumbek to Juba, which is about 340km away, but will take about 9 hours to drive; 4 x 4 vehicles are a crucial mode of transport due to poor quality roads.

4. The Palm Tree Hotel, which has 165 airconditioned rooms, a gym and even a swimming pool.

A CLEAR DEMAND FOR MORE HIPPO ROLLERS

The following day we had the honour of meeting with the Lakes State Governor, Mr. Chol Tong Mayay, who again articulated his governments gratitude and earnest desire to expand the Hippo roller project. Clearly the Hippo Water Roller had made a very positive impact on the people of South Sudan.

We then spent a lot of time travelling to rural villages including Maleng-Agok to experience for ourselves the living conditions and issues relating to water collection. We were also able to interview recipients of Hippo rollers and gain their perspective on the value of the Hippo Water Rollers.



“Maleng-Agok is a community centre in Rumbek East County. It is 16 km East of Rumbek town; the capital of Lakes State. Maleng-Agok has an approximate population of 20,000 and more in the surrounding villages.

This growing population of rural Maleng-Agok requires basic services such as clean drinking water, roads, warehouses, medical clinics and much more.

The Hippo Water Rollers have proved to be very popular and useful to the people of rural Maleng-Agok in South Sudan. This was tested during the pilot project when

175 Hippo rollers were brought to Maleng-Agok early in 2010.

In rural South Sudan, there is no tap water in the homes. Women carry heavy loads of water on their heads from far away water points. This changed with the Hippo Water rollers. People just roll them from water points to their homes much more easily.

Manufacturing Hippo rollers in Maleng-Agok will reduce the landed cost due to local affordable labour. There is also the larger market of the whole South Sudan which is a 95% rural.

Maleng-Agok is also central in respect to South Sudan; therefore transport costs to other locations will be kept to a minimum.

The land on which Hippo water Roller plant will be situated will be leased at a negligible cost.

All these factors will make the price of the Hippo Water Roller more affordable to the people of South Sudan and will enable government to focus on other equally important needs.”

Minister Eli Magok Manyol

Lakes States Minister for Agriculture and Forestry, Mr. Eli Magok Manyol, is also the chairperson of the ‘Maleng-Agok Community Development Fund’.



Meeting with the Governor of Lakes State, Mr Chol Tong Mayay, who expressed his governments strong desire to expand Hippo Roller projects in South Sudan.



WATER SUPPLY

A - A typical water collection point in South Sudan - manual borehole & pump.

B - The general rule of thumb is: if a child is strong enough to operate the borehole pump, they are able to cope with a Hippo Water Roller.

C - A welcoming site of the Hippo Water Rollers in use at the Maleng-Agok water collection point.

D - Males, young & old, are proud to be seen collecting water for their household with a Hippo roller.

E - The rollers appeared to be in good condition after 8 months of use in Maleng-Agok.



HIPPO WATER ROLLERS HAVE SIGNIFICANTLY IMPROVED ACCESS TO WATER.

The water table is very high; between 10 and 15 meters below the ground. To install a borehole with a storage tank on a stand will cost in the region of USD30,000. We found that the most common water points consist of a manual pump which served the locally surrounding huts.

The foundation of the borehole was designed so that the runoff water would be channelled to an area where cattle could freely drink. It appears that UNICEF and Oxfam are both active in the water sector, installing boreholes throughout South Sudan. There are many other NGO's helping with this too.

Thomas believes that there are a number of multinational companies that are looking to invest in Southern Sudan and their corporate social investment divisions may be interested in supporting the project, especially if we can include branding on the rollers for them.



POSITIVE OUTCOMES

Apart from the obvious benefits, three new positive outcomes were identified:

1. Boosting Local Businesses - Clay brick manufacturers said that their production rate had almost doubled because they were able to spend less time and effort collecting water which was good for business
2. Social Events - The Hippo roller now formed an integral part of any social event or gathering and was often loaned out for the purpose of being able to make more water available - rather like a status symbol.
3. Personal Dignity - Possibly the most striking and unexpected benefit was how young girls (age 14) felt that they could now look like "city-girls". Carrying heavy loads of water on their heads makes it impossible to braid their hair and even causes hair-loss. Now they could make themselves look more attractive and stand a much better chance of meeting a partner.

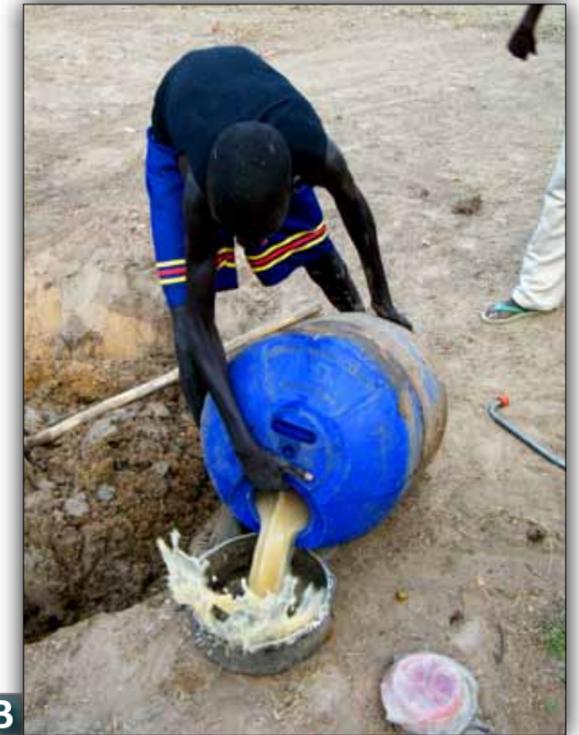
A & B - This brick-making entrepreneur says his production has doubled because he can get a lot more water in much less time. - "More water means more bricks"

C - Social gatherings require water & therefore the Hippo roller becomes a tool for such events as weddings & other celebratory events

D - This girl spends a lot less time collecting water and instead is learning & taking part in social activities.



A



B



C

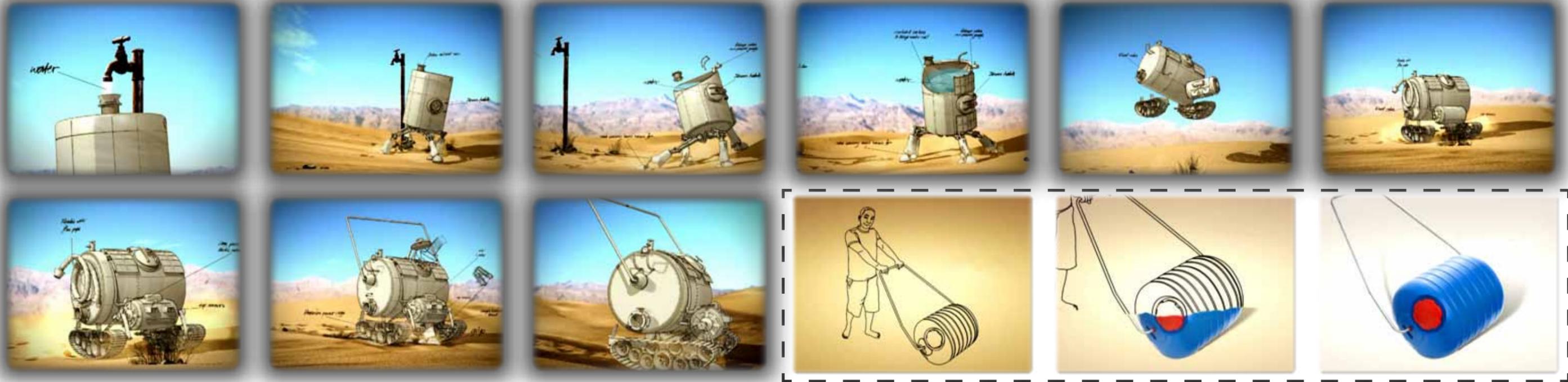


D

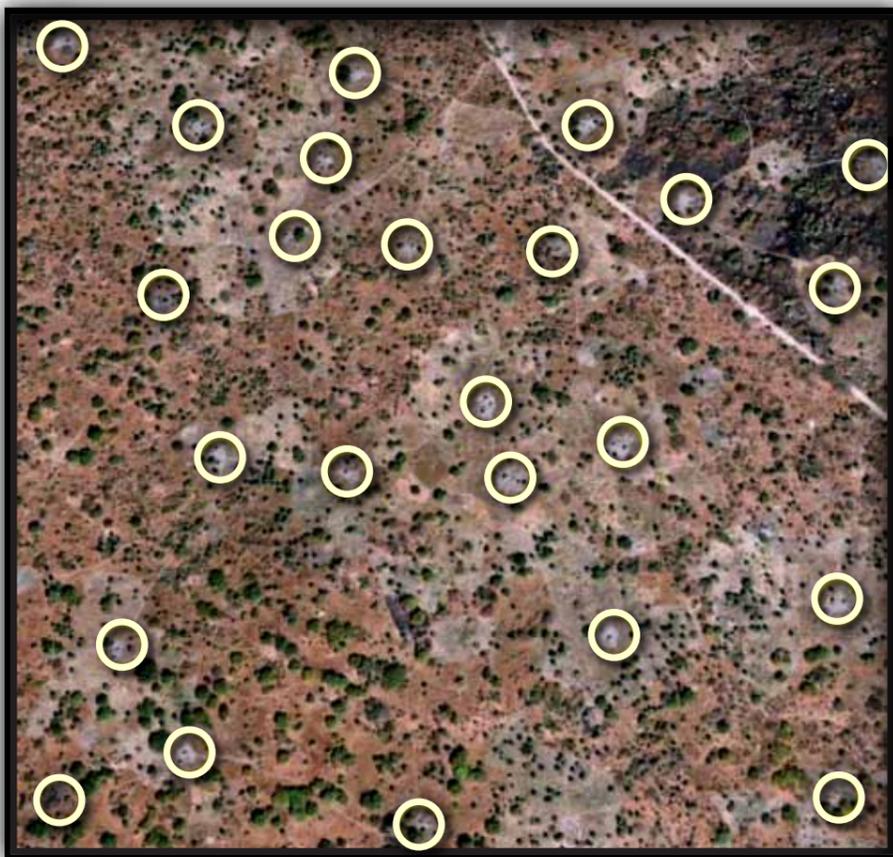


Abeny Maker Mabor (age 14) feels empowered by the Hippo roller because she can now become an educated "city girl".





APPROPRIATE TECHNOLOGY: HIGH-TECHNOLOGY SOLUTIONS ARE NOT ALWAYS AS APPROPRIATE AS LOW-TECHNOLOGY SOLUTIONS



MALENG-AGOK

Aerial view of widely spread rural Huts - circled in white.



The Hippo roller becomes a hygienic water storage container for the entire household.

When you see how rural and spread out the homes are, it's easy to understand why it would be so difficult and costly to install piped water all over South Sudan. For this reason, the Hippo Water Roller has immediate benefits as an appropriate technology for this region.

Currently, women and children are faced with the burden of having to fetch and carry water every day of their lives which is extremely tedious and taxing.

Most water points in South Sudan are manual boreholes which have to be pumped up and down to extract water from below. What we found as a general rule of thumb is if a child was strong enough to operate a pump then they were able to manage a full roller of water.

At home, which typically consists of a number of grass roofed mud huts bunched together in a small enclosure, the roller is positioned upright under a tree to keep the water cool. One roller is used by a number of families in the enclosure.

Water is scooped out of the drum using a cup or poured into a smaller bucket. The rounded edge makes it easier to tilt the drum over while pouring. The screw cap keeps the dust out and provides some form of hygienic storage of the water inside.

The Hippo roller is not a permanent solution, but will buy time for government to address other important needs of the country.





HIPPO WATER ROLLER

Collecting water for the families of Maleng-Agok is much easier now with their Hippo Water Rollers.

Future Growth

One option for the supply of Hippo Water Rollers for South Sudan, is to continue to import complete Hippo Water Rollers. This option has very high shipping costs resulting in a high 'landed cost'. A second potentially more economical alternative would be to set up a local production facility and import raw materials for local production of the drum much more cost effectively.

Maleng-Agok is centrally located in South Sudan for countrywide distribution of Hippo rollers. Depending on available funds and demand for Hippo rollers, additional manufacturing plants could be setup at distant locations to reduce local transportation costs and to provide backup manufacturing facilities in the event of breakdowns.

Summary

There is no question that the Hippo Water Roller project has made a positive impact and significant contribution to the people of South Sudan.

Government, community leaders and the local population have expressed their sincere desire to expand the project and include local production in Maleng-Agok.

Positioned close enough to Rumbek, this will become wonderful story of opportunity and growth from a genuinely rural community in Central Africa.

The Hippo Water Roller brings much more than improved access to water!





Mobile manufacturing plant installed into 20-foot shipping container.



The container is modified to allow sufficient space to operate the machine.

The mobile plant can be setup in Maleng-Agok and each new container of raw materials can be converted into workshops, temporary storage and staff quarters.

The site would be able to grow as new containers arrive. The illustration shows a typical layout of a manufacturing compound.

Hippo Water Roller drums and screw caps can be manufactured on-site and then distributed throughout South Sudan from there.

A new container of raw materials every two months will provide sufficient raw materials to match the manufacturing capacity of 500 to 600 units each month.

Suggested layout of a local compound using modified 20-foot shipping containers.

