



## **Ngora town water supply**

*Margaret Shackleton and Adrian Johnson, Uganda*

NGORA IS A TOWN of some 22,000 inhabitants in north east Uganda. During the colonial period, it was the centre of extensive missionary activity, a heritage which has left it with a remarkable number of medical and educational institutions including 8 schools, 2 colleges of further education and 2 hospitals.

A further inheritance from that period was a water supply system, built in the 1950s, which was then an example of the state of the art. Originally, water was drawn from a small reservoir behind a low earthen embankment, but this was later abandoned in favour of an intake on the Agu River, in fact a connecting channel between two large freshwater lakes. From this intake, water was pumped some 12 kms to a treatment works at Kobuku, built on the slopes of a granite intrusion, which towers over the town. These works provided for aeration, clarification, coarse and fine filtration and chlorination before the water was put into storage. From the treated water storage tanks, water was distributed to the various institutions and to public standpoints in the town.

During the insurgency period in this part of Uganda, these works were put out of operation and various parts were vandalised at a time when no funds were available for their repair. More recently, the pumping main which was constructed originally alongside the Agu-Ngora road, became damaged by construction traffic engaged on repairing this road.

In 1996, Vision Terudo (VT), a local non-governmental organisation set up to provide training in health, hygiene and water related issues, approached Christian Engineers in Development (CED) for assistance in rehabilitating the works. In the following year CED mounted a project appraisal. The resulting report (CED 1997) recommended, as Phase 1, the rehabilitation of the former scheme, sufficient to restore an urgently needed basic supply to the people of Ngora, followed by extensions in Phases 2 & 3 to match increasing demands from the growing population and from rising expectations of service.

This report was used to raise funds from the National Lottery Charities Board (NLCB), the Department for International Development (DfID) and the Beatrice Laing Foundation, sufficient for Phase 1 of the work to proceed. To permit this to happen, a Memorandum of Understanding (MoU) was signed by CED with the Department for Water Development (DWD), Kumi District Local Government (KLG) and VT setting out the respective roles of these parties in the then proposed works.

### **Rehabilitation**

A schematic layout of the scheme is presented in Figure 1. The rehabilitation of the water supply works commenced late in 1998, following the arrival on site of CED's Project Manager. Replacement pumps, a standby generator and a supply of ductile iron pipes for the rising main, plus a variety of tools and fittings not available in Uganda, were procured in the U.K., all other materials being procured locally. Meanwhile further investigations were undertaken as to the details of the remedial work required.

A new intake has now been provided on the Agu River and, following the arrival of new pumping equipment on site, a new pump house constructed. All known breaches to the rising main have been repaired. At the treatment works all pipework and valves have been overhauled or replaced as necessary and cracks in the various tanks have been sealed. The coarse filter media has been washed and the fine filter media replaced.

After extensive consultations with the potential beneficiaries, sites were selected for new tap stands, served from the existing distribution ring main, which would equitably serve the people of Ngora. To promote a sense of ownership of these tap stands, the people were asked to choose the form of construction and to pay for the materials used. The type selected consists of a small kiosk, affording a degree of security and protection from the elements for the attendants and their equipment. The water meter and all controls are located within the kiosk but the water is delivered via pipes extending through the wall to a hard standing immediately adjacent. Any spilt water is drained to a nearby soak-a-way.

Meanwhile arrangements were made with the DWD borehole maintenance team for the existing boreholes within the town to be renovated and re-commissioned. These boreholes, several of which had been sunk by UNICEF in a previous attempt to address the water supply problem of Ngora, do provide a useful adjunct to the pumped supplies. However Ngora, like much of Uganda, is underlain by the Basement Complex which has poor potential for the retention of groundwater. Therefore the yields from these boreholes are insufficient to justify the installation of power driven pumps - some boreholes dry up completely during the dry season.

### **Community management**

During the progress of the work, a new Water Statute (Uganda Government, 1995) came into force in Uganda

which not only had a significant effect on the relationships between the parties to the MoU but also laid down in some detail how the new system should be managed by the community.

This Water Statute, requires that the community surrounding each point of water, borehole or tapstand, form themselves into a Water Users Group (WUG), and that this Group then elect from their number a Water and Sanitation Committee (WSC) to manage their source. In turn the members of the WSCs elect the member of a Water Users Association (WUA) in whom responsibility for the overall management of the scheme is to be entrusted. The WUA has the power to appoint an agent to carry out the day to day operational management of the scheme. At present it is intended that VT should fill this role.

Operation of the tap stand kiosks, on the other hand will be devolved to the WSCs. Under this arrangement each WSC own and operate their own kiosk, employing their own attendant(s). The WUA will sell water to each WSC at a rate sufficiently below the rate charged to consumers so as to generate a margin from which the WSC will firstly pay the kiosk attendant(s) and then accumulate a surplus for maintenance of the kiosk and the fittings therein. An

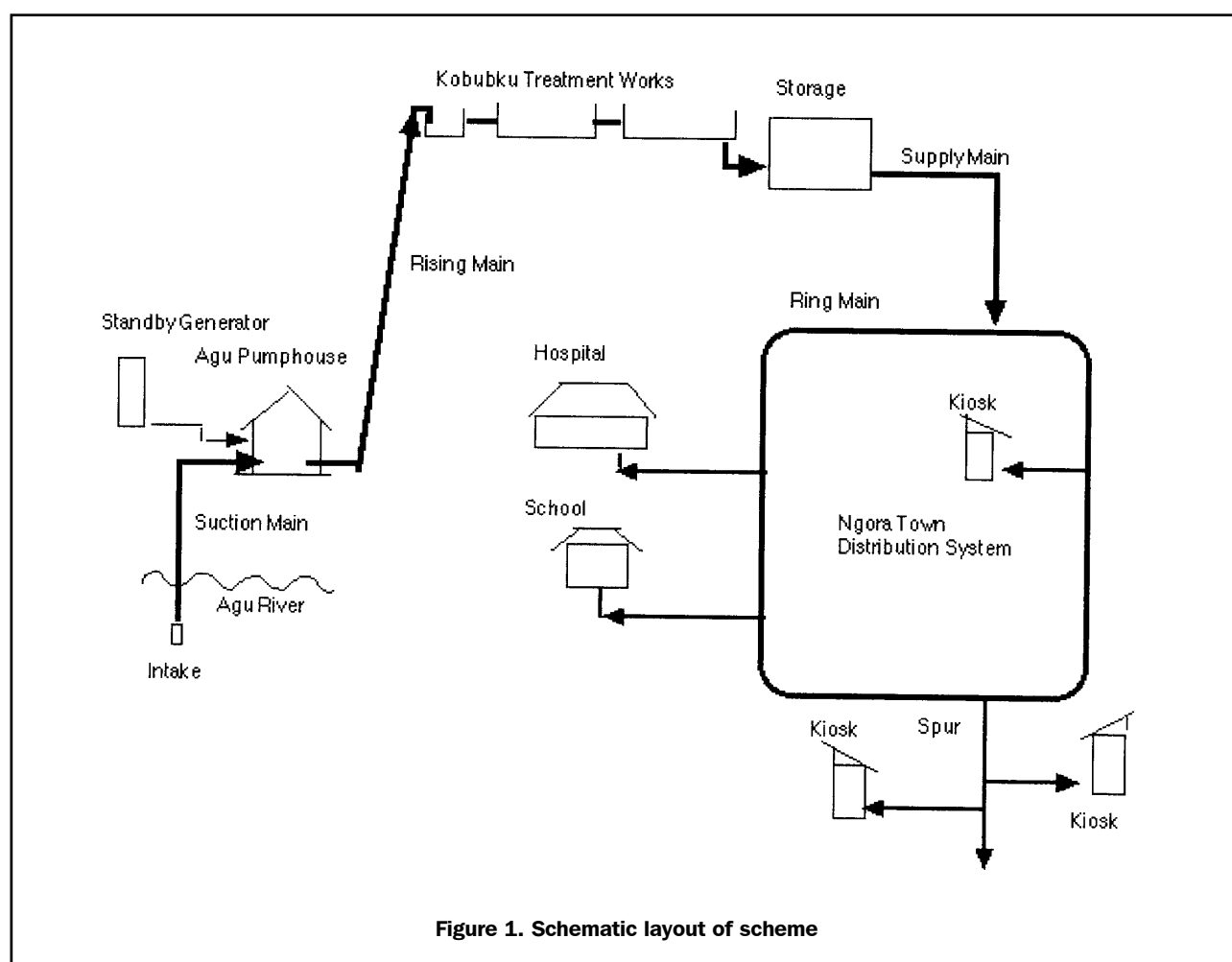
overview of the management structure is presented in Figure 2.

### Training

Training of the membership of these management bodies is integral to the project. This has been carried out mainly in the form of guided workshops in which the members were encouraged to anticipate the difficulties and problems which they are likely to encounter in their new roles and collectively to seek appropriate solutions. Topics which have been addressed in this way include:

- the water supply system
- possible technical problems
- the role of women in water management
- recruitment and job descriptions
- financial management & cash flow
- use of the facility & health issues
- constitution for WSCs & WUA
- monitoring of performance

Following public advertisement, the WUA has recently recruited an Urban Water Officer to have general oversight



of the scheme, and also a Billing Officer. Despite the declared willingness of the WUA to exercise a degree of "positive discrimination" in favour of women applicants, no applications were received from women and the posts have been filled by men. Their duties are now being defined and appropriate training provided. Fortunately, the man who held the post of Water Works Foreman when the works were last operational, is still living in Ngora and is prepared to take that role again. It will be his responsibility to train his successor.

The operators of the pumps and standby generator have received training on this equipment from the local agents for this equipment in Kampala. In due course, these same agents will provide a source of spare parts for the equipment as and when these are required.

VT intends to train the kiosk attendants in basic health and hygiene rules pertaining to water, and thus to use the kiosks as learning points for the population at large.

### Monitoring of performance

Overall monitoring to ensure continued satisfactory performance is the responsibility of DWD. To enable them

to fulfil this role, all other players have an obligation to provide basic data on the performance of the scheme.

VT, as technical managers, will provide data on the volumes of water pumped, the power consumed and other consumables used and thus the total cost of supply. This will enable records to be kept of such parameters as pump efficiency and water leakage.

The WSCs will confirm the volume of water supplied and compare this with the volume charged to customers and the funds collected. These data will permit an assessment of the performance of each WSC.

DWD will themselves monitor water quality, using their facility at Soroti.

In conjunction with the District Medical Officer's office, the WUA will collect, from the local health institutions, data on water related disease in Ngora for comparison with the baseline data already collected, and to plot trends. They will also collate data from the other bodies to present an overall picture of the performance of the scheme. Once the Minister of Natural Resources is satisfied with the performance of the scheme, he is able, under the Water Statute, to reconstitute the Water Users Association as a legally autonomous Water Users Authority.

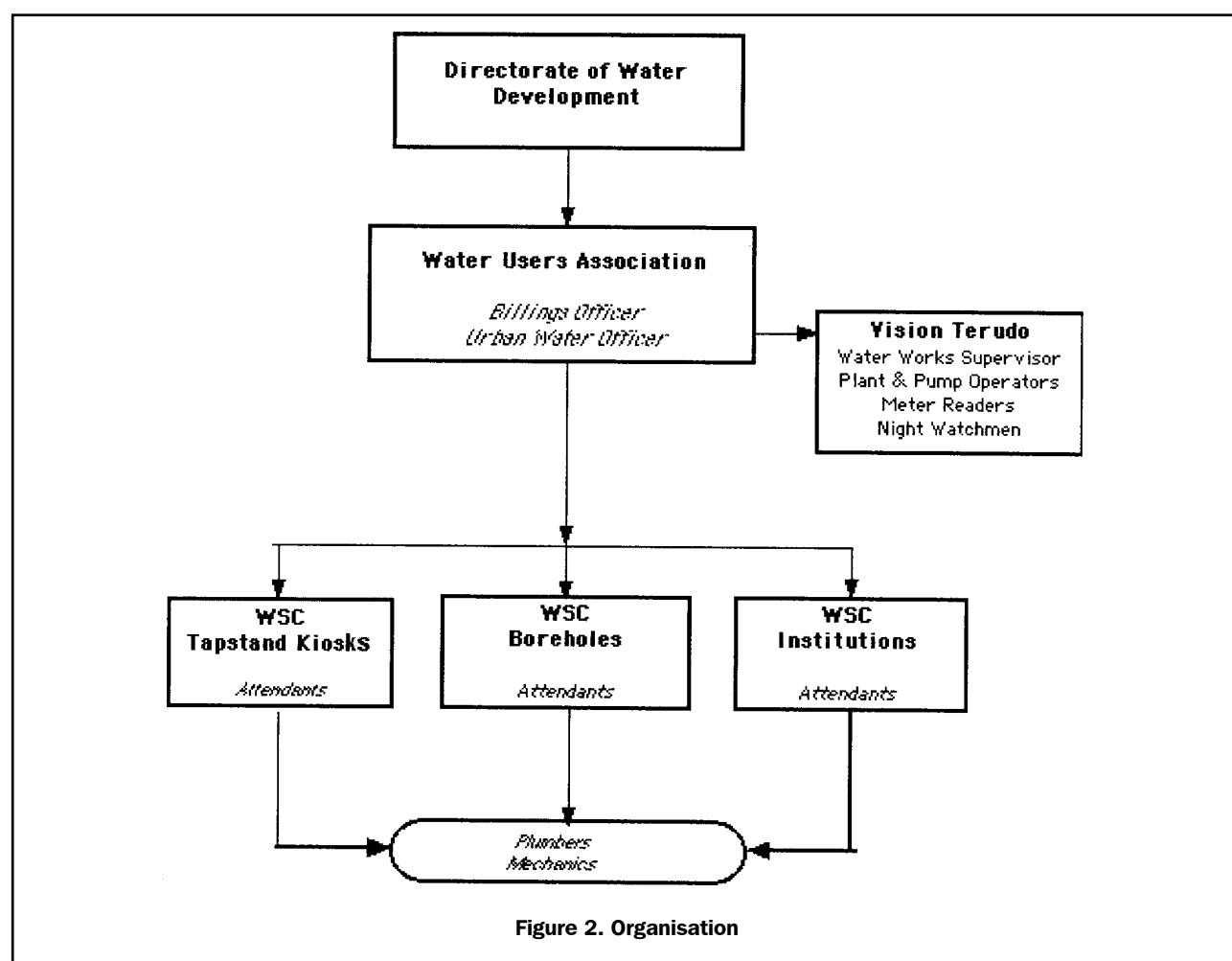


Figure 2. Organisation

## Benefits

The benefits of the scheme are expected to be manifold:

- Firstly, a supply of wholesome potable water, albeit initially in limited quantity, is expected to be reflected in a marked reduction in water related disease.
- The release of the womenfolk of Ngora from the drudgery of collecting water from remote sources, often waiting in line for many hours for their turn to use the source, will empower them to take a more active role in their society than is currently possible. In particular, the girls will have more time and energy to pursue their education.
- Others, who currently rely on water vendors, will receive their water at a much lower rate, freeing resources for other uses.
- The experience of operating and managing their own water supply scheme within the town will help to build the confidence of the inhabitants and so enable them to undertake other ventures for their common benefit.

## Acknowledgements

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## References

CHRISTIAN ENGINEERS IN DEVELOPMENT, 1997 -  
“The Rehabilitation of Ngora Town Water Supply -  
Technical Appraisal Report”.  
UGANDA GOVERNMENT 1995, “Statute No. 9, The  
Water Statute 1995”.

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MARGARET SHACKLETON, formerly CED Project  
Manager, Ngora Town Water Supply Project, P.O. Box  
152, Kumi, Uganda.

ADRIAN JOHNSON, Senior Engineer,  
Montgomery Watson, Terriers House, 201 Amersham  
Road, High Wycombe, U.K. (carried out Technical  
Appraisal)

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