

Hitosa Water Supply: A people's project

**A WaterAid report
written by
Trish Silkin**



SUMMARY

This report demonstrates that communities can successfully manage large-scale gravity water supply schemes.

In Hitosa, Ethiopia, 31 communities work together to operate and maintain 122 tapstands and 140km of pipeline. Each community has two representatives on the Water Management Board which manages the Water Administration Office, employing 74 staff. All ongoing costs of the scheme are met by the water tariff.

Hitosa has elements in common with other successful community managed schemes:

- A severe water problem and high community motivation
- The solution is appropriate to the level of community resources available for operation, maintenance and management
- A government policy environment enabling community management

The project did not require a high level of advisory input from WaterAid because Hitosa has the advantages of:

- Strong existing community institutions
- A high level of community resources, both financial and human
- Good urban–rural cooperation
- Higher than average levels of education
- Well-trained and experienced government project staff

'There's nothing peculiar about community management. It runs in the same way as any other system, with the same rules and regulations. The difference is that decisions get taken more quickly because we're all on the spot and we're as affected as anyone else by what happens to the water supply.'

Hitosa's Head of Finance

This is the second in a series of reports which analyse WaterAid's experience in supporting integrated water, sanitation and hygiene education projects in developing countries.

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Introduction

Hitosa has never experienced the famine or drought that seem to be permanently, if undeservedly, associated with the name of Ethiopia. Indeed, the fertile soil and high rainfall that Hitosa enjoys have made it one of the most productive and wealthiest *weredas* (districts) in the country, regularly producing bumper harvests that help to feed less well-endowed areas. Until recently, however, the vagaries of geography meant that Hitosa also suffered such an acute shortage of drinking water that some people had to walk up to 50km to fetch it.

Since 1996, more than 60,000 people living in 31 communities in Hitosa have been provided with water through a gravity water supply scheme that is the largest in Ethiopia. Water runs from two springs, through 140km of pipeline to 122 distribution points and more than 300 individual buildings.

The Hitosa scheme demonstrates the importance of partnership. In this undertaking, government, WaterAid and communities all had a role to play, and the scheme could not have succeeded without the contribution of all three. Government was responsible for designing and constructing the scheme, WaterAid provided

the bulk of the capital investment, and communities contributed cash and labour amounting to almost 20 per cent of the construction costs.

Hitosa also proves that large-scale does not necessarily mean complex. Gravity water supply schemes are simple to run and Hitosa is now fully under the management of a local Water Management Board made up of representatives of every community connected to the water supply. The Board supervises staff employed to operate the service. The water tariff and charges paid for private connections and repairs cover all the running costs of the service.

This case study does not seek to suggest that the Hitosa water service is universally replicable. Hitosa has some unusual features – in particular, it has a long history of social and economic investment, and levels of income and education are higher than the norm for rural Ethiopia. But Hitosa does challenge the convention that 'community management' in the Third World always means small-scale and shows that people without specialised skills, but with the necessary motivation and training, can run a large-scale service efficiently and effectively.

Why Hitosa has a water problem

ABOUT HITOSA

Hitosa is one of 20 *weredas* or districts in Arssi zone and one of 180 *weredas* in Oromiya region, one of nine regions forming the federal state.

Oromiya is Ethiopia's largest region at 350,000km² and its most populous at 18.7 million. Ninety per cent of the population lives in rural areas. With an Infant Mortality Rate of 118/1,000 live births, Oromiya lies sixth equal out of 12 regions and metropolitan centres; it lies fourth in terms of life expectancy at 49.2 years.

Hitosa has an area of 937km² and a total population of 174,630. Iteya (Hitosa's main town) lies on a tarmac road about 160km south-east of the federal capital, Addis Ababa, and 20km north-east of Asella, the capital of Arssi.

The population of Hitosa are all Oromo-speakers and are divided about 50:50 between Muslims and Orthodox Christians. They are predominantly crop producers who also own livestock.

Arssi is among the first surplus-producing zones in Ethiopia, and Hitosa is one of its most productive *weredas*. Hitosa has never experienced harvest failure, even in years of national food deficit.

Literacy in Hitosa at 37 per cent is above the national average of 33 per cent and the numbers of secondary school students in Hitosa is similarly high.



In 1992, when WaterAid agreed to assist people living in Hitosa *wereda* to build a water system that they could run themselves, they found a community ready and willing to respond to the challenge. The roots of their enthusiasm lay in six decades of water rationing. 'We even had to ration our children's drinking water' they said, 'and to bury our dead without washing their bodies.'

Hitosa's water problem dates from the 1930s when an Italian entrepreneur and an Ethiopian landowner went into partnership to exploit the farming potential of the area. Because these business partners needed workers for their venture, they moved people from where they were living near rivers and springs and settled them on lower, more fertile land.

Though this part of Hitosa receives good rains for farming, the main rivers that are its source of drinking and washing water flow around the district, rather than through it. Women now had to walk for several hours to

fetch water. Some, especially those living in the lowest lying areas, had to go so far that they could collect water only every few days.

The centre of the newly-settled area became the town of Iteya, the *wereda* capital. As Iteya grew, people tried to find a modern solution to their problem. In the 1960s, a tanker used to come 50km from the Awash River to sell water to the town. This gave some of Iteya's residents the idea of clubbing together to buy their own tanker. They managed to raise 25,000 Birr and to buy a second-hand one. Unfortunately, this regularly broke down, repair bills provoked arguments about money, someone ran off with the funds and in the end it was scrapped.

In the 1960s, the Swedish International Development Agency (SIDA) started to finance rural development in Arssi, the zone where Hitosa is situated, through a unit in the Ministry of Agriculture known as ARDU (the Arssi Rural Development Unit). During the 1970s, ARDU drilled to almost 300 metres in Hitosa trying to locate water, but failed to find it even at that depth.

Around the same time, the local farmers' cooperative found it had surplus funds in its account amounting to 40,000 Birr. They suggested to people in Iteya town that they jointly contact ARDU and ask them to build a pipeline from the Gonde River and to install public tapstands. With local funds of 55,000 Birr, technical assistance and 100,000 Birr from ARDU, and additional financing from SIDA, this was completed in 1979.

ARDU trained local people to repair the system and in this way the scheme ran reasonably well for a few years. No one was trained to manage the scheme, however, and after SIDA pulled out it was a struggle for local people to run it themselves. They raised money, but the technicians were poorly paid. One by one they left and gradually the pipeline and taps fell into disrepair.

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People stayed in the area because farming was good and in many respects they enjoyed a high standard of living. The single exception to this was the severe lack of water, which was also holding back Iteya's prosperity compared with that of neighbouring towns. By the 1990s, local people had almost despaired of finding a real and permanent solution to their problem.

Finding a solution to the problem

One legacy of the SIDA-ARDU collaboration was a cadre of well-trained and experienced government staff in Arssi. They believed that the best solution to Hitosa's water problem was to take the water by gravity from two springs in the mountains and to feed it through a network of pipes to Iteya and the surrounding villages. The resulting scheme would be simple to construct, and cheap to maintain and repair.

The scheme would supply water to 56,000 people living in 28 villages and three small towns through 140km of pipeline to 122 public tapstands as well as to individual buildings in towns. In 15 years time the population served by the network was expected to reach 71,000. This would make the pipeline bigger than any other similar scheme in Ethiopia.

The scheme would also be expensive and with investment costs of over £1 million it could not be built without external financing. WaterAid's Representative in Ethiopia was known to government staff through his previous work in Arssi, and the Department of Rural Infrastructure (ARDU's successor) approached him to ask for help in funding the scheme. WaterAid was keen to assist, largely because the organisation had a high opinion of the competence of government staff and officials in Arssi.

Though the scheme was technically simple, the length of the pipeline and the number of people, villages and towns to be served would make it complex to manage. Government and WaterAid needed to make as much investment in the 'software' of the scheme (the

BASIC FACTS ABOUT HITOSA WATER SUPPLY SCHEME

No. of people served by the scheme 1993-2008	56,000 – 71,000
Area in km ²	500
Spring capping	4
River crossings	19
Pipeline in km: main pipeline	33
Pipeline in km: distribution lines	109
Pressure breaks	5
Reservoir capacity/days supply	575m ³ (1 x 100m ³ + 1 x 50m ³ + 17 x 25m ³) / 1-2 days
Access roads in km	20

management systems) as in the 'hardware' (the pipe network and the tapstands).

Despite this potential complexity, all the parties involved opted for management by the community rather than by government. They had an example of a similar efficiently managed water service in the next-door *wereda* of Dodota. The Dodota scheme is also a community managed large-scale gravity scheme, which has a high profile, and is primarily maintained and managed by local women.

Involving the community

Given the acute shortage of water, local people's motivation to be involved in building the proposed scheme was high. Nevertheless, they had suffered a series of set backs in the past in trying to find a solution to the problem, and it was important that everyone understood exactly what the new scheme would involve. In particular, they would need to be equally motivated to manage the service once it was in operation.

Through experience, WaterAid has identified four conditions that need to be met for communities to manage water supply schemes successfully. The first of these is that lack of water should be a severe problem, to which the proposed technical solution offers the best or the only answer.

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As we have seen, shortage of water had been an acute problem of long-standing in Hitosa and other solutions had been tried and failed. The other three conditions are that:

- users must be involved from the outset of the project, through every stage and up to evaluation of the finished project
- there must be an organisation of users to run the completed scheme with local people being trained in management, as well as in maintenance and repair
- this local organisation cannot survive in isolation but must be linked to a wider network of government or non-government services

Thanks to the mutual respect and trust existing between WaterAid and government staff, WaterAid was able to encourage government to adopt an approach that would put these conditions in place.

which also enabled government to take the leading role in this project.

To execute the project, the government established a Project Coordination Office with staff assigned to Hitosa from the Zonal Natural Resources, Agriculture and Health Departments. As a body outside normal government structures, the Project Coordination Office enjoyed a higher level of independence in day-to-day decision making than is normal in government service. The Office's direct access to the resources provided by WaterAid further enhanced its autonomy.

This enabled the work to proceed more rapidly than would otherwise have been the case. Progress was maintained despite major restructuring of government institutions midway through the project when at least one of the government units involved disappeared. In fact, despite these disruptions, the project was accomplished within budget and ahead of time.

Government takes the lead

Good relations between government, the people of Hitosa and WaterAid were a particular strength of the project. They were based largely on the success of much of ARDU's earlier work

Effective collaboration

The good informal relations existing between government, communities and WaterAid encouraged effective collaboration between them and allowed each to fulfil its role

YEARLY ACTIVITY HITOSA WATER SUPPLY SCHEME JULY 1993-JUNE 1997¹

Activity	1993-4	1994-5	1995-6	1996-7	Total
Community funds for capital costs (Birr)	132,100	128,600	108,400	53,600	422,700
Community labour (person days)	4,481	21,925	17,304	6,343	50,054
of water points built	-	21	93	8	122
of villages connected	-	7	18	3	28
of towns connected	-	3	-	-	3
of private connections	-	28	127	96	251 ²
people trained	90	50	50	-	190
new employees	-	15	40	19	74
Price of water (1m ³)	-	75c	75c	1 Birr	1 Birr
Annual income (Birr)	-	33,500 ³	115,300	154,100	302,900
Annual expenditure (Birr)	-	7,600 ³	74,800	131,300	213,700

1 The Ethiopian financial year runs from 1 July to 30 June. Between 1993 and 1997 the rate of exchange changed from £1 = 7.5 Birr to £1 = 10 Birr.

2 In the six months to January 1998 the number of private connections had risen by a further 79 to 330

3 1 November 1994 – 30 June 1995

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productively. Formal coordination was organised through a Zonal Steering Committee with members from the government Zonal Departments represented in the Project Coordination Office and from the community, and with WaterAid's Representative in attendance.

This committee was the highest decision making body of the project and managed the Project Coordination Office. The committee met quarterly to review progress, to solve problems, and to make plans for the coming quarter. Annually, it reviewed the budget and plan for the past year and approved budgets and plans for the coming year. Below the Zonal Steering Committee there were *Wereda* and *Kebele* Committees so that a structure of coordination and a line of communication existed from the highest to the lowest levels of the project.

Organising the community

Work on the scheme began in 1993, and the first stage was for project staff to go from *Kebele* to *Kebele* convening meetings and explaining how the scheme would work. Once people were clear what would be involved and their commitment had been secured, local committees were formed to organise their participation.

The *Kebeles* provided the structure through which this could be done. First, each *Kebele* chose seven people to serve on a *Kebele* Water Committee. These people were responsible for collecting a 45 Birr contribution from each household, for making sure that every household in the *Kebele* contributed some days of labour to the project, and for protecting project property, equipment and staff when construction was under way in the *Kebele*.

Kebeles were free to choose the seven people who they thought would be most suitable to serve on the Committee, but within an agreed formula. WaterAid insisted that of the seven, four must be women because women bear the primary responsibility for collecting, storing

and using water. It went against local traditions for women's informal responsibilities to be transformed in this way into formal public duties and some *Kebeles* resisted the proposal, but every *Kebele* finally agreed. Women turned out to be among the most active participants in the project, both in terms of contributing cash and in providing labour.

From among their number *Kebele* Water Committees appointed a Chairman, Secretary and Treasurer. Despite their titles, these people were not all literate, their main qualifications being that they were respected, responsible and active members of the community. If the Committee needed to read a document or send a letter, a literate neighbour or relative was available to help them.

The *Kebele* Water Committees were replicated at district level by a *Wereda* Water Committee composed of an equal number of men and women representatives from the *Kebeles*. The *Wereda* Water Committee met quarterly to plan and to review progress in contributing finance and labour, and to encourage or pressurise *Kebeles* that were falling behind in their commitments. Members of the *Wereda* Water Committee represented the community on the Zonal Steering Committee, and these people had to be literate and numerate.

Participating in the work

Given the topography of the land and the length of the pipe network, technical considerations determined which *Kebeles* would be connected to the pipeline. There was little scope, therefore, for local involvement in the overall design of the scheme.

Within each *Kebele*, however, local people were involved in choosing the preferred location for the tapstands which the project aimed to build no more than 250 metres away from people's homes. When the scheme was still at the design stage, people were living in centralised villages to which they had been moved under the previous

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government's villagisation programme and, given this, tapstands were planned to be in central locations. With villagisation a thing of the past, however, people started to move back to their original, more dispersed, homesteads while construction was going on.

This meant that many of them now lived further away from the tapstand and during an evaluation of the scheme carried out by WaterAid in 1996, the distance they now had to walk provoked considerable criticism. Some residents complained that they had never been consulted as to where the tapstands should be and the evaluators concluded that the Project Coordination Office could have been more flexible in responding to the change in circumstances. Two years on, the contention appeared to have abated – the water was, after all, still much closer to home than it had ever been before.

Building the entire pipe network took three years during which time the *Kebele* Water Committees contributed around 450,000 Birr and around 50,000 days of labour. The latter mainly involved excavating the trenches, laying pipes and back-filling the trenches after the pipes were laid. Local people were also responsible for gathering local materials such as sand and gravel, and transporting them to the construction sites. Funds and labour together amounted to around 17 per cent of the original budget.

This type of community contribution for local development activity is a well established tradition in many parts of Ethiopia. Hitosa stood out, however, for the extent to which everyone was willing to work, especially

women, even during difficult times such as the fasting season of Ramadan, or in the main agricultural season (June to October) when the need to bring in the harvest normally brings all other activity to a halt. This was clear evidence not only of people's urgent need for water but also of their confidence that the scheme that they were building would finally bring a solution to their problem.

Training

All those working on the project had learned from the experience of the earlier piped water scheme that it was not enough simply to give local people technical training to repair the pipeline and taps, they also needed to be trained to manage the entire water supply service. Moreover, a properly established office with full-time staff would be needed to operate and maintain a scheme as large as Hitosa.

The project adopted an original approach to training and recruitment for the service. They started by inviting *Kebeles* to put forward young people for training while the scheme was being constructed. As with the Water Committees, women were particularly encouraged to come forward for training. Trainees were expected to have at least five years of schooling except in those *Kebeles* where few girls went to school, where this criterion was waived in favour of basic literacy. Since the more senior posts in the service would require considerably higher levels of education, some trainees were senior secondary school graduates.

In all, 190 young people were trained during the three years of construction, of whom well over half were women. The course consisted of a month's theoretical training in the main components of the work: technical, administration, finance, health education and sanitation. This was followed by a three to four month apprenticeship where trainees worked on the scheme and were paid at the same rate as other daily labourers. Selection for posts was based on performance during both the theoretical training and the

FINANCING OF HITOSA WATER SUPPLY SCHEME

Costs and cost sharing (1993-1996)

		Birr	£ Sterling	Per cent
Community	Cash	465,138	140,951	13
	Labour	155,045	46,983	4
Government	Staff	136,661	41,715	4
WaterAid	Cash		654,564	79
TOTAL			1,084,213	100

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apprenticeship. From the 190 trainees, 74 were chosen for employment, of whom 63 were women.

Shortly after assuming his post, the Head of the Water Administration Office was sent to the Arba Minch Water Technology Institute in southern Ethiopia for three months training in all aspects of community management of water supply schemes.



WaterAid/Jenny Matthews

Sugi Mohamed is 14-years-old and is happy to participate with other members of her community in digging trenches for pipes to carry safe water to tapstands in her village. 'I have no problem doing such hard work,' she says.

Hitosa's Water Scheme today

In November 1994, the Hitosa Water Supply Scheme began its operations. It was managed by a Water Management Board of *Kebele* Water Committee representatives and operated by a Water Administration Office staffed by graduates from the training courses. Although construction was not completed until 1996, the service was formally inaugurated by the President of the Oromiya Regional Council in April 1995 when all three towns and seven of the villages were connected to the supply.

The Water Administration Office

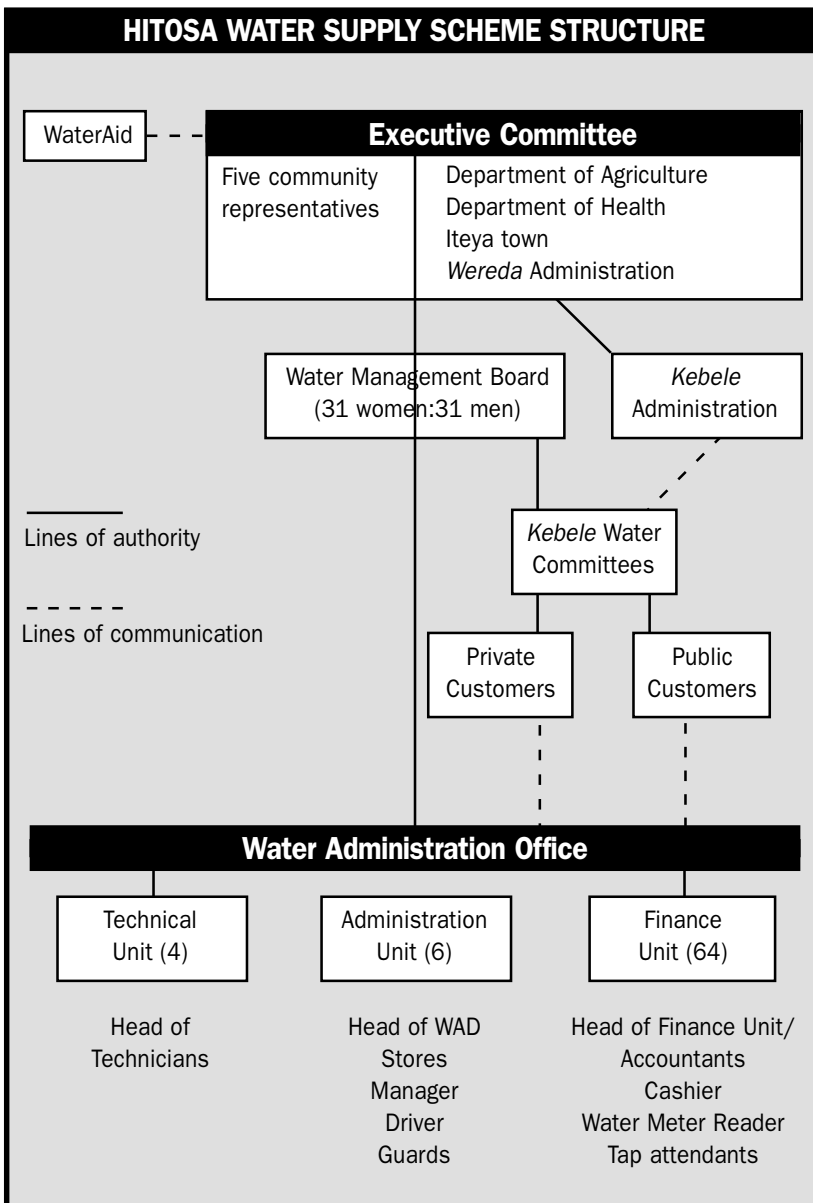
The Water Administration Office is the operational heart of the service. It is responsible for its day-to-day running, for all repairs and maintenance to the pipeline and tapstands, and for connecting new private customers to the supply. It operates out of small offices housed in a compound in Iteya provided by the *Kebele*. The service owns a pick-up and two motor-bikes which were given to the Office by WaterAid when construction was completed, as well as another pick-up and a lorry currently on loan to a different project.

Of the 74 staff employed in the Water Administration Office, 13 are based in Iteya, divided between Administration, Finance and Technical Units. All 13 have between eight and 12 years of schooling but, apart from two who have also done some short-term vocational training, none has had any training other than that provided under the project. The immediately most striking quality of these staff is their youth. The oldest employee is 32, their average age is 25, and for most this is their first job. These are literally Hitosa's children.

The Head of the Water Administration Office is also Head of the Administration Unit. Reporting directly to him are the stores-manager, a driver and three guards. Immediately under the Head of Finance are a cashier and a water meter reader. The Technical Unit has four technicians – the Unit Head and three others

Tap attendants

The remaining 61 staff are tap attendants, all of them women, who are formally within the Finance Unit. They live close to the tapstands for which they are responsible and they are the public's first point of contact with the service. The tapstands are opened in turn, some operating in the



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mornings from around seven to 12 and the others in the afternoons from one or two until five or six.

It was not easy to recruit women to be tap attendants in a society where people are conservative about matters of gender. Villagers were reluctant to put forward women for training and employment. If a job was going in the village, they argued, it ought to go to a man, the head of the household. Project staff countered that woman bore the brunt of water collecting, and were responsible for making sure that it was properly stored and used. Eventually every *Kebele* put women forward as trainees.

Most of the women are young and married with children. Only a handful have been employed before. They are paid 105 Birr a month, equivalent to the national minimum wage. Initially, they took 60 per cent of the takings from the water sales, but this meant that their income varied from month to month and they preferred to have something steady and reliable. The present system means that some tap attendants have to be temporarily laid off each year during the rainy season when water sales go down.

Water is sold for 1 Birr for 1m³ which at the tapstand translates into five cents for 40 litres. Most people collect water in 20 litre clay pots or jerrycans. Tap attendants also have books containing five cent vouchers so that the many customers who want to take only 20 litres at a time can buy a voucher which they keep and present when they return to take the second 20 litres. Similarly, a customer who wants to buy a large quantity of water – for example, for a wedding – and who needs to make several trips to the tapstand, can buy several vouchers at once. Each book, worth 50 Birr, contains 1,000 vouchers.

Every month the tap attendants deposit their takings and their empty voucher books with the Water Administration Office, and collect their salaries and new voucher books. Every tapstand has a meter which is checked monthly by the Office water meter reader and this acts

as a check against the sales reported and the monies deposited by the tap attendant. Tap attendants are allowed wastage of four per cent so that customers can wash out their containers before filling them.

Kebele Water Committees

The Water Committees selected at the start of the project are still in place, and members will continue to serve as long as they are able to work, and people are satisfied with the job that they are doing.

ABEBE AND YILMA

Abebe Negusse and Yilma Kebede are young men of 25 and 31, from Iteya and Hidibiro village respectively. Both are 12th grade graduates. Abebe's father is a tailor and Yilma's a farmer. Yilma himself owns land and farms in his home village.

The two of them are also the mainstays of the Water Administration Office, Abebe being the overall Head and Yilma the Finance Head. Both were very familiar with Hitosa's water problems having spent much of their childhood fetching water from distant rivers.

Abebe first learned that things might change for the better in 1992 when he was in 11th grade and was asked to be part of a welcoming ceremony for a British visitor from WaterAid. He liked the things she said but was sceptical about whether anything would really change. While he was in 12th grade, however, the start of the project was announced.

During this first year more visitors arrived from WaterAid, this time a group of British schoolchildren who were visiting the project as a way of learning about Ethiopia and its water problems. Abebe was impressed – if British people were this concerned about Hitosa's water problems, then perhaps he should be too. So, instead of applying to be a teacher or agricultural extension worker which is what he had had in mind, he applied to work on and to be trained by the project. He found he enjoyed it and he passed out first of the 190 trainees. In 1994, he was appointed Head of the Water Administration Office.

Yilma already knew he wanted to use his mathematical skills in a way that would be useful to his community. He had worked for six years as the accountant for a local farmers' cooperative and he saw the new project as a way of continuing to give service while also developing his own career. His enthusiasm for being involved in a scheme that solved Hitosa's water problems was heightened when he saw how rudely commercial water sellers treated their customers who were desperate for water. Yilma came second in the training and was duly appointed Head of Finance.

Yilma likes his present job. 'First, I'm providing my own people with a service. But I get a lot of job satisfaction in other ways – I like accountancy, and this is a good opportunity to use my skills, and moving to the Water Administration Office represents another stage in my career.'

WORKINESH GUDA

Workinesh Guda is 20-years-old and lives in Hatetulu village. She was selected by her community to be a tapstand attendant and has worked in the job for three years. She works from 8am to 6pm, five days per week. 'I have every Monday free – that is market day. People collect enough water on Sunday for two days because they are busy on Monday.'

'The community are very happy with the tapstands here,' says Workinesh. 'Sometimes if there is a special feast or celebration they ask me to turn the water on early, so I start work earlier. When the queues are short I sit in the shade and rest or do some sewing. I am happy with the work and the training, and everything works well. I haven't had to do any big repairs for three years.'



WaterAid/Jenny Matthews

With the transition to an operational service, the role of Water Committees has changed. Now they supervise the tap attendants and attempt to resolve any problems that arise in their work. They are also responsible for ensuring that the tapstands are not abused and that they are working properly. They report problems, damage or breakdowns to the Water Administration Office.

Under a programme of work starting in 1998, Water Committees will assume responsibility for health education and sanitation. During the 1996 evaluation of Hitosa, the evaluators noted that these activities were not well integrated with the water supply programme. They concluded that this was because water quantity was a far more urgent concern for most people than health education and sanitation which were given a low priority.

The Water Management Board

The Water Management Board is the highest decision making body of the scheme and the formal employer of the Water Administration Office. It is composed of 62 members: two representatives from each Water Committee, with equal numbers of women and men. Although WaterAid has withdrawn from active involvement in the scheme, WaterAid's Community Participation Specialist acts as an adviser to the Management Board.

When it was first set up, the Board met monthly so that every village and town could be directly involved in managing the service. This proved too unwieldy and it was also difficult for representatives from the more distant villages to attend every month. Eventually, the Board decided to delegate supervision of the Office to a nine-member Executive Committee, and it reconstituted itself as a general assembly.

Today the Board has two main roles. The first is to approve the annual budget and plan presented by the Heads of Administration and Finance. It does this in the last quarter of the financial year (April to June) and then meets quarterly to receive narrative and financial reports. The Board's second function is to provide relevant information to the Executive Committee and Water Administration Office on problems and conditions in the villages and towns covered by the service.

The Executive Committee

This is composed of five Board members and four local government officials (ex-officio members) who are representatives from the *wereda* administration, Iteya town council, and from the Departments of Health and Agriculture. The Water Department is not represented because it has no staff at *wereda* level.

The Executive Committee defines its role as being 'to ensure that the Water Administration Office is doing its job in

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guaranteeing water to everyone.' The Committee meets formally once a month, but members are in regular contact with the Office between meetings to bring to their attention problems that need sorting out and to help them resolve difficulties. The Executive Committee approves all extra budgetary expenditure, through the signature of one of the ex-officio members, and reports quarterly to the Board.

Building responsibility for the service

With construction of the water supply scheme complete and the Water Administration Office in operation there is a risk that communities will see their role as over. But if the Water Administration Office is to continue to give a good service, communities must feel a continuing sense of responsibility for the water supply. They are most likely to develop this if they trust the service, and this requires the Water Administration Office to be efficient and for the Water Management Board to run its affairs in an accountable and transparent way.

Efficiency and responsiveness

Customers' first point of contact with the service is through the tap attendants. Customers expect tap attendants to open the tapstands promptly, to be polite and helpful, to be willing to stay late if long queues mean that not everyone has collected their water when it is time to close. They must also be completely honest in handling money. So far, there have been few complaints and many compliments on their performance.

Similarly, customers expect the Water Administration Office to carry out repairs quickly and efficiently and this has been the case to date. The Office is accessible to most people, and it is easy for Committee members and even ordinary customers to go there to report problems. The Technical Unit is often able to do repairs within a few hours of being notified, thanks to a good reporting

system and adequate spares, equipment and means of transport. It also helps that Office staff know that when they go home at night they have to face their customers who are also their neighbours, or even their mothers and fathers.

Up to now, the Administration Office has been judged by its customers to be efficient and responsive. But the Office and the Board know that they cannot afford to be complacent and that their greatest challenges lie ahead as the physical structures of the system age and as costs inevitably increase. For this reason, the next phase of WaterAid support will see a concerted effort in training staff and Committee members in all aspects of management and financial planning.

Accountability and transparency

When there was no water, every village and town had an equal stake in constructing a system that would solve this problem. Now, everyone needs to feel that they have an equal stake in the service and that no *Kebele* is penalised by being further away from the Office in Iteya. Some villages have said that they are worried about how far they have to go to reach the Office, but the Board is in daily contact with all the users since it has members in every *Kebele*. Everybody covered by the service can check how diligent their representatives are in supervising tap attendants, in reporting breakdowns and in making sure that repairs are carried out quickly.

The financial systems used by the Administration Office are simple and open to scrutiny, starting from the methods of payment at the tapstand and up to the annual income and expenditure account. The paperwork used by the Finance Unit is in good order, and some of it decorates the walls of the Finance Head's office giving customers and others immediate visual information on the numbers of users since the service started, and on annual income and expenditure in the same period.

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Board members demonstrate a real grasp of the service's activity and finances, and budget approval and review is no mere rubber-stamping. They refused approval of the first draft of the 1997-1998 budget, for instance, because they felt that the estimate for the expected number of new private connections was wrong. They noted that the estimate was based on the total for the previous year and they asked the Office to revise it to take into account the rate of growth in the number of private customers who are increasing rapidly. Similarly, they noted that projected income from sales was based on an old tariff and they asked staff to revise it in line with a proposed increase.

The service stands or falls by whether its customers believe that it is being run honestly. From direct observation, users know that no personal gain has accrued to being on the Committee or Board. All Board members give their time free, and even pay from their own pockets to attend Board meetings. It is a good indicator of people's motivation to make the service work that so many are willing to do this.

Where evidence of malpractice is found, customers need to know that the problem will be dealt with promptly, efficiently and according to law. This has already been demonstrated when meter readings showed that over a period of months one tap attendant had 'borrowed' some 800 Birr. Oddly, in such cases Ethiopian law simply requires employees to repay the funds, if necessary in instalments. This procedure almost inevitably means that the offender continues in employment, at least until the debt is paid off. This is what happened in this case – though the miscreant has now 'retired' from the service.

Demonstrating responsibility

Two good indicators of whether people feel responsible for the service are that they accept the tariff and that they look after the network and are willing to pay for repairs. Without this, the Administration Office will be unable to maintain and repair the system or keep it in good order.

Accepting the tariff

The water tariff has sometimes been contentious. At the start of the service water cost 75c for 1m³, a rate that people considered reasonable. After two years the Board proposed to raise this to 1 Birr for 1m³. Even though this was still lower than the government charge of 1.30 Birr, it evoked considerable resistance and also some muttering about money going into people's pockets.

Board members live in close proximity to their customers and they cannot get away with simply issuing a formal notice of increase – they have to give a proper explanation as to why the increase is necessary. In this instance, the Board's main concern was to raise staff salaries which were low compared with equivalents in the public and private sectors. The Head of Administration, for example, received only 185 Birr a month whereas a new teacher earned 305 Birr, and agricultural incomes can go as high as 1,000 Birr a month. The Board planned to raise his salary to 250 Birr and the salaries of other staff by similar amounts.

The Board put it like this: 'These are your children who are running the service. If you don't agree to pay the higher price, we won't be able to increase their salaries and then the service will collapse. Which would you rather do – pay them to work and provide you with water or pay them to sit at home doing nothing? You have already worked so hard to get this water, why put that at risk now?' The proposed tariff increase went through.

Looking after the network

The physical structures of the water supply system are simple, consisting mainly of the pipeline network and of masonry tapstands on which the only moving parts are the taps and gate valves. The most common breakages are in the pipeline and the moving parts.

Pipes are buried to protect them from the elements and from accidental damage, but

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WaterAid/Jenny Matthews

Trained technicians (pictured here with members of the local community) are quickly called in to repair broken pipes, and the water supplies are not cut off for long.

damage occurs because people deliberately break them open to water animals – herders are the usual culprits. Tapstands tend to get damaged through negligence, mainly by customers handling the taps roughly or by children who play with the taps and gate valves.

Most repair charges are levied on the whole community where the damage occurs at cost. However, since damaged pipelines can cut off the water supply not only to the nearest village but also to neighbouring ones there is a standard 500 Birr charge for these repairs – a high rate that is intended to encourage communities to guard the network around their village and to instil the idea that they have a responsibility for the network as a whole, not just for their part of it.

The Water Management Board is certain that people will look after the water system and they contrast this with people's attitude towards government property. When the previous government fell, many Ethiopians expressed their hatred of it by looting and destroying government buildings. The present government is anxious to avoid any repetition: government members of the Executive Committee put it this way: 'People need to know that the system belongs to them. If they think it belongs to the government, they'll simply neglect it or worse, they'll destroy it.'

Maintaining links with government

As a community managed scheme, Hitosa is not seeking to circumvent government: the scheme was built by government and it is important that government officials continue to feel that they have a stake in its success. Despite major changes to the structures of government administration the scheme has been able to maintain its links to government.

One way of doing this is by operating within similar parameters to those in use in government run schemes. Hitosa operates along orthodox management lines, using the same systems and procedures as government run water supply services. The tariff charged is only slightly less than the government tariff, and the charges for connections and repairs are set in relation to government rates.

In addition, most of the Administration Office's financial record files, books and cards are provided by the Zonal Water Department. Unfortunately, this did enable a staff member of the Water Department to obstruct the smooth running of the service on one occasion by claiming that he had no voucher books in stock. Voucher books were rapidly discovered, however, after a strong letter was sent by the Water Management Board.

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The service also relies on government authorities where fraud or criminal damage is suspected, as the Water Management Board has no powers to impose legal sanctions in such cases. For example, when the tap attendant mentioned earlier took her unauthorised 'loan', only the *Kebele* administration had the power to enforce repayment. The fact that the Head of the *Wereda* Administration sits on the Executive Committee is helpful to the Management Board in securing the cooperation of the *Kebeles*.

Despite the occasional bureaucratic obstacle put up by officialdom, Hitosa enjoys enthusiastic support from the government officials who sit on the Executive Committee. In addition, there are good informal relations between the Water Administration Office and government staff in the Project Coordination Office which have proved beneficial to both. Project staff have now been transferred to work on a neighbouring pipeline and Hitosa has been able to lend them some of its vehicles. In return, they have loaned the Administration Office spares, many of which have to be imported, that they needed for urgent repair work, but which were out of stock.

Maintaining the scheme

In the financial year July 1996 to June 1997, the Office earned around 150,000 Birr (about £15,000). Just over 70 per cent of this came from water sales and nearly 20 per cent from charges for making private connections. Of the 70 per cent income from sales, about three-quarters came from 63,000 customers at the public tapstands and the remainder from 330 private customers. The Office spent around 130,000 Birr (£13,000) during the same period, two-thirds of it on salaries.

Water sales

Water sales fluctuate seasonally, going up in the dry season (October to March) and down during the rains (June to September). This is for a variety of factors. More water is bought during the dry season for animals as well as humans, rather than being collected from ponds and streams. This period also coincides with the wedding season which is in the first part of the year between harvest and Lent. Wedding celebrations generate a high demand for water for food preparation and to make *tella*, the local beer.

HITOSA WATER SUPPLY SCHEME: INCOME AND EXPENDITURE JULY 1996-JUNE 1997

Income		Expenditure	
Item	Birr	Item	Birr
Public water sales	85,229.65	Salaries	80,160.68
Private water sales	25,406.45	Office administration	9,653.57
Various charges for private connections	28,698.60	Per diems and transport	5,214.40
Miscellaneous (mainly charges for repairs)	14,798.91	Daily labourers	10,780.50
		Repairs to main pipeline	6,774.50
		Fuel and lubricants	7,866.46
		Vehicle maintenance	5,189.73
		Miscellaneous	5,627.99
TOTAL	154,133.60	TOTAL	131,268.63

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Sometimes, the number of customers is inflated by outsiders who come because they have no project, or their tapstand is temporarily out of order. During high seasons for sales long queues can form at the tapstands and this can lead to arguments. The level of opposition to outsiders using the service is surprisingly low, however. This is partly because there is reciprocity in the arrangement whereby people can use one another's tapstands. More than this, it indicates a changed attitude towards water: it has been transformed from a free but scarce good, into an abundant commodity which anyone can buy.

Water consumption

The reasons for fluctuations in water sales also make it difficult to estimate how much water individuals and households use. There is an additional difficulty with private customers as this category includes public buildings such as schools, clinics, churches, mosques and government offices as well as private dwellings. The 1996 evaluation (which was carried out early in the year, in other words during the high season for sales) calculated that each villager used between seven and 20 litres a day, and that each town-dweller used 19.

Private users were estimated to use 40 litres a day. The number of people using water at this rate is set to increase because the number of private connections is increasing rapidly. There were 28 in the first year of operation, 127 in June 1995 to July 1996, 96 in 1996 to 1997, and 79 in the first six months of the 1997 to 1998 financial year.

The design of the scheme assumed an individual consumption rate of 25 litres a day over a period of 15 years up to a maximum population of 71,000. The inclusion of more villages than planned in the original design, an ever increasing demand for private connections and consumption by animals as well as humans are likely to present the service with a crisis of availability well before that date.



WaterAid / Jenny Matthews

Safia Tenashu, who is pregnant with her second child, collects safe water from a tapstand just yards from her house. 'I moved here two years ago, and was very happy there were tapstands here. Before I was married, I lived in a lowland area where water was very scarce - we had to collect dirty water from ponds.'

The challenges that lie ahead

The Hitosa Water Supply Scheme challenges the orthodoxy that large-scale necessarily equates to complexity. To the contrary, it shows that gravity water supply schemes, even ones as extensive as this, are technically simple and can be operated by people without specialised skills. In all these respects, the Hitosa Water Supply Scheme has succeeded where earlier efforts to solve Hitosa's water problem failed.

Nevertheless, the scheme is still new and many challenges lie ahead of the Management Board and the Administration Office. The primary challenge is how to secure the long-term future of the scheme in the face of an ever increasing demand for water. Specifically, the questions to which they need to find answers are:

- How can they generate capital to reinvest in the network?
- How can they retain staff and attract new staff? How can they maintain the commitment of the Water Management Board and bring new members onto the Board?
- How should they respond to changes in government policy as they emerge?

Capital reinvestment

At present the scheme is new, breakdowns are few and minor, and repairs can be done promptly and cheaply. Inevitably over time, breakdowns will become more frequent and more expensive and eventually there will need to be a major overhaul of the pipeline. The increasing demand for water may also force the Management Board to look for ways of extending the scheme before originally anticipated in 2008. The scheme's present income more than covers its costs, but makes no provision for capital reinvestment.

The Ethiopian Government is still formulating policies for how capital is to be raised for building or renewing community assets. One option being considered is for communities and government to do this on a cost sharing basis. The Water Management Board is confident that, whatever is required, the people of Hitosa can be relied on to rise again to the challenge of providing funds and labour. The fact remains that WaterAid covered 80 per cent of the costs of the original scheme, the vast majority of which was spent on imported pipes, and no real alternative to external financing has yet been identified.

Maintaining people's commitment

All the present staff of the Water Administration Office experienced the previous water shortage first-hand. This was one of their main motivations for preferring employment in the scheme over other options. More than this, they helped to build the scheme with their own hands. All of this means that they are unusually committed to the scheme and its future.

Their commitment and their relative youth mean that they are not seeking high wages or salaries, but still their incomes are low compared with their counterparts in the public and private sectors. As the staff grow older, marry and have growing families to support, they may find that they can no longer afford to work for the scheme. Low salaries are also likely to pose problems in recruiting their replacements, especially as the motivation of new staff is unlikely to be as high as that of these early pioneers.

The members of the Water Management Board are all volunteers and similar considerations apply to them. Being a member of the Executive Committee in particular is extremely demanding as they are in almost daily contact with the

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Administration Office. As yet, no procedures have been elaborated for regular re-elections to the *Kebele* Water Committees or to the Management Board. At some point this will need to be done, or the commitment of the present members will be exhausted. Again, it may be difficult to find new people with the same high motivation as the present members.

Government policy

Although central Government is promoting community management, policies for community management and rural water supply schemes have still to be worked out in detail, and legislation has yet to be enacted. The policy making process so far has sought to include the opinions of a wide range of people and organisations, and the indications are that future policies and legislation will favour schemes like Hitosa. Because the scheme operates in a decentralised and uncertain policy and legal environment, unsympathetic officials have occasionally been able to hinder Administration Office staff in carrying out their work. It is possible that further constraints could be put on the scheme when the policies finally emerge.

The lessons learned from Hitosa

The salient feature of the Hitosa Water Scheme is the scale on which it operates. In this respect, it is very different from the usual community managed water supply scheme which typically is based on a single village of a few hundred people, served by one or two water points. To re-cap:

- The Hitosa Water Supply Scheme provides water through 140km of pipeline to a population of almost 65,000 people living in 31 settlements, and likely to rise to 71,000.
- It is run by a Water Management Board of 62 representatives of the users.
- It is operated by a Water Administration Office in which 74 staff are employed, all of whom are local people who were locally trained.

Three years after its formal inauguration in 1995 – a time when many water schemes are beginning to face serious operational problems and some are already out of service – Hitosa's physical and management structures are in good order. Why has Hitosa been successful where other schemes have failed, and can this success be repeated elsewhere?

Factors shared with other examples of successful community management

- **Severity of water problem and community motivation**

Hitosa suffered from an acute, long-standing shortage of water to which people had failed to find a satisfactory solution. People were highly motivated because they wanted to stay in such a good farming area, and every *Kebele* suffered, giving everyone an equal stake in finding a solution.

- **Solution appropriate to community resources for operation, maintenance and management**

Gravity water supply schemes require no mechanical power and are simple and cheap to run and maintain. The management system used by the scheme in Hitosa needs no special arrangements because it is based on existing systems used in government schemes. Considerable resources have been invested in involving and training local people in the management of the scheme.

- **Enabling government policy environment**

The political climate after 1991 favoured a community management approach. The new government was decentralising power to the regions, but most regional governments lacked the resources to set up *wereda* water offices. Central government recognised this as a constraint to effective devolution and was promoting community management as part of the solution. What this meant in practice had not been spelled out, but it gave people a mandate to proceed.

Factors specific to Hitosa

- **Strength of existing community institutions**

Well-established community institutions existed through which community management could be organised. Since the time of the previous government, people had been formed into *Kebeles*, or local associations of farmers or householders, through which all formal development activity took place. The *Kebele* structure had been resisted in some parts of Ethiopia but in Arssi, where it was associated with the removal of landowners, it had been accepted and worked well. Local people were accustomed to attending meetings and speaking up, to contributing labour and funds to community

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projects, and to taking positions of leadership in community activity. People's generally positive experience of the *Kebele* system combined with their rising living standards appears to have encouraged initiative and a positive attitude towards change.

• Extent of community resources

The financial and human resources required for such large-scale community management were available in Hitosa, thanks largely to SIDA-ARDU's social and economic investment over a period of more than two decades since the 1960s. Through agricultural research and inputs, construction of feeder roads and water supply systems, and development of markets, ARDU had boosted agricultural production in Hitosa. As a result, Hitosa is one of the most productive agricultural *weredas* in Ethiopia with farmers' incomes ranging between 2,500 and 9,500 Birr, or three to 10 times Ethiopia's average per capita GDP. Local market centres, moreover, would be able to supply many of the spares that the scheme would require.

• Rural-urban cooperation

Town and country were equally able to contribute financially and in terms of skills to finding a solution to the water problem. They had previously cooperated to do so as early as the 1970s when the Hitosa farmers' cooperative and the Iteya townspeople jointly approached ARDU to build the original Gonde-Iteya pipeline

• Educational level

Secondary school enrolment is high in Hitosa compared with Ethiopia as a whole, which means that a pool of people existed from which it was possible to recruit trainees to run the scheme. There are an unusually large number of secondary school students who come from the villages in Hitosa as well as from the towns. This is clearly advantageous in a scheme that gives equal attention to the problems and concerns of villagers and townspeople.

• Project staff

There was a cadre of well-trained and experienced government staff in Arssi, as a result of the SIDA-ARDU collaboration. Amongst these staff certain key individuals were important as they had a history of working on similar projects, in particular Dodota which provided something of a model. The WaterAid Country Representative had long-term links and a relationship of trust with many of the staff involved and this facilitated the development of a positive partnership.

Is Hitosa unique?

Hitosa has a level of social and economic development not commonly found in rural Ethiopia:

- It is located in an area which enjoys easy access to government services and to markets, and which has a history of using these facilities.
- Well-established community institutions exist.

HITOSA'S EDUCATION IN NATIONAL PERSPECTIVE

Location	Literacy and Grades 9-12 enrolment	
	% of population aged 10 and over that are literate	% of school age population for grades 9-12 enrolled in school
National	33	8.1
Oromiya	urban & rural	9.6
	urban	52.7
	rural	3.4
Arssi	urban & rural	10.6
	urban	56.7
	rural	4.5
Hitosa	urban & rural	16.4
	urban	60.3
	rural	9.6

Source: The 1994 Population and Housing Census of Ethiopia, Results for Oromiya Region, Vol 1: Part II

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- The villages and towns to be covered by the scheme have a history of contact and collaboration with one another.
- Income and educational levels are above average and relatively equitably distributed.

At the Regional level government staff in Arssi have an unusual degree of training and experience.

All these factors explain the speed and ease with which the project was implemented. A less well-resourced area would require far greater inputs from project staff in mobilising and strengthening the communities. Equally, had WaterAid's government partners been less well-trained and experienced, WaterAid would have needed to make more inputs into capacity building and staff training.

Conclusion

The Hitosa Water Supply Scheme challenges the orthodoxy that large-scale necessarily equates to complexity. To the contrary, Hitosa shows that gravity water supply schemes, even ones as extensive as this, are technically simple and can be operated, maintained and managed by people without specialised skills.

Yilma, Hitosa's Head of Finance, is no dew-eyed romantic on the subject of community management. 'There's nothing peculiar about community management' he says. 'It runs in the same way as any other system, with the same rules and regulations. The difference is that decisions get taken more quickly because we're all on the spot and we're as affected as anyone else by what happens to the water supply.'



WaterAid/Caroline Penn

Community participation is vital in a large-scale project like the one in Hitosa. Here technicians, together with members of the local community, help to lay pipes for the new water supply.

WaterAid is a charity which works with communities in Africa and Asia helping people to plan, build and maintain their own safe water and sanitation systems. WaterAid provides financial support and technical advice but it is local people who undertake the construction work and continue to service and manage their new systems on completion.

All projects use technologies that are low in cost, practical and easy to operate. Coupled with health education, real and lasting improvements can be made to the quality of people's lives.

Hitosa Water Supply: A people's project is the second in a series of reports which analyse WaterAid's experience in integrated water, sanitation and hygiene education projects in developing countries.

This report assesses a community managed gravity scheme providing water to more than 60,000 people living in 31 communities. The water runs through 140km of pipeline to 122 distribution points. Factors are identified which have enabled such a large-scale scheme to be successfully managed including those shared with other community managed schemes, and those specific to Hitosa.

The report challenges the orthodoxy that large-scale necessarily equates to complexity. Hitosa demonstrates that gravity water supply schemes, even ones as extensive as this, are technically simple and can be successfully operated, maintained and managed by people without specialised skills.

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