India: Making Government Funding Work Harder

A WaterAid report
written by
William Gunyon

WaterAid

SUMMARY

This report examines the evidence of two case studies from India – community based rural sanitation, and handpump maintenance – to suggest appropriate ways for the government to use its resources to achieve results in the water and sanitation sector, and assesses the implications for rural communities and NGOs.

Coverage of safe water and sanitation through cost-effective and sustainable services would be improved by:

- **Government giving greater emphasis to programmes of education and training, and the funding of new water projects, than to high capital subsidy of latrines and provision of handpump maintenance**
- **Unlocking the capacity and resources of communities to maintain village water facilities**
- **Offering families an informed and affordable choice of sanitation facilities, coupled with greater access to micro-credit**
- **Using the relative strengths of existing local institutions to complement each other's work.**

The case studies also show that:

- **NGO networks enable members to share experiences and to have a stronger voice when negotiating with government**
- **Government officials, NGO staff, and community members are strongly influenced by seeing actual examples of successful work in the field.**

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

The first in the series, *WAMMA: Empowerment in Practice*, assesses a collaborative partnership between the Tanzanian Government and WaterAid.

The second, *Hitosa Water Supply: A People's Project,* assesses a community managed gravity scheme providing water to more than 60,000 people in 31 communities.

Cover Photo: WaterAid/Caroline Penn

WaterAid
Prince Consort House
27-29 Albert Embankment
London SE1 7UB

Telephone: 0171 793 4500
Fax: 0171 793 4545
Email: wateraid@compuserve.com

Charity Reg No 288701

Published by WaterAid,
London. September 1998
ISBN 0 9513466 4 4

INDIA: Making Government Funding Work Harder

Two case studies suggesting more effective use of government resources for water and sanitation.

A WaterAid Report

Written by William Gunyon

Edited by Julie Jarman

September 1998

INDIA: Making Government Funding Work Harder

Two case studies suggesting more effective use of government resources for water and sanitation.

Contents

At the time of writing the Indian Rupee was trading at approximately Rs 65 to the UK pound and Rs 40 to the US dollar.

In this report the term NGO (Non-Governmental Organisation) refers to voluntary organisations specialising in social development work in poor communities. NGOs supported by WaterAid are also described as 'partners' and are identified in the report by their acronyms rather than full titles.

Introduction

WaterAid has been supporting water and sanitation projects in India since 1985. In 1992 it opened a South India Office in Tiruchirapalli in Tamilnadu. An annual budget of £0.5 million currently supports projects run by over 100 NGOs in five states – Andhra Pradesh, Karnataka, Maharashtra, Orissa and Tamilnadu.

Project work reflects WaterAid's overall strategy, integrating water supply, sanitation, and hygiene education, and introducing appropriate technologies within a framework of community management. These broad principles are applied by WaterAid South India Office (WASIO) in its work with predominantly poor communities in rural areas, and in the particular context of India where:

- there is a history of pressure on drinking water supplies in rural areas stretching back to the 'Green Revolution' of the 1970s. A move to safer water sources for drinking water has led to dependence on tubewells. The continued demands of industry and agriculture are now driving tubewell depths to the limit of handpump operation
- despite the consistent endeavours of government and multilateral agencies, rural water and sanitation targets remain elusive
- there is a mature and extensive NGO sector with a good record of community development
- there is an economy of extremes, in which a city of post-industrial aspirations such as Bangalore can co-exist with subsistence farming villages, somehow bound together by a well-established but evolving democracy.

SOCIAL INDICATORS

In India

918.6m population

300m people are below the poverty line

Under-five child mortality is 115 per 1,000 live births

80 per cent of children suffer from waterborne disease each year

28 per cent of child deaths are caused by diarrhoea and dehydration

In the five states in which WaterAid supports projects:

64 per cent of the rural population do not have access to safe drinking water

86 per cent of the rural population do not have access to adequate sanitation

Sources: Government of India 1991 Census; UNICEF *1997 State of the World's Children;* WaterAid Country Strategy

In partnership with NGOs, WaterAid aims to influence government and major donors by establishing sustainable and cost-effective models of operation which, given appropriate support, can be reproduced on a wider scale.

The case studies

The case studies in this report – sanitation in Tamilnadu and handpump maintenance in Andhra Pradesh – reflect major themes of WaterAid-supported programmes in South India. There are sharp contrasts between the two projects. One seeks to change personal behaviour, the other to change people's perception of what owning community assets entails. Both seek to influence government policy, one by establishing new models and ways of working, the other by working with government towards handing over responsibility to communities.

This report identifies the essential factors which resulted in change in each project, and the issues which unify them. Common elements within two such contrasting projects provide useful pointers in developing ideas about effective relationships between communities, NGOs and government. In particular, the case studies suggest ways for government funding to focus on supporting community-based initiatives in order to accelerate coverage of safe water and sanitation, rather than on high capital subsidy of latrines and the provision of handpump maintenance services.

DECENTRALISATION IN RURAL INDIA

India is a Federal Republic divided into 25 states. States are normally sub-divided into 20 to 30 districts each comprising approximately 50 *mandals* (blocks) of approximately 50 villages.

A powerful central administration with authority concentrated in the District Collector was a colonial legacy. Despite the influence of Gandhian thought, independent India proved to be in no great hurry to revive traditional village government *(Panchayat Raj)*.

Recently the Government of India has introduced more decentralised structures. A 1993 constitutional amendment specified that *panchayats* must be set up in every village and have appropriate tax-levying powers. Women must make up 33 per cent of the membership of elected councils, whose many areas of responsibility include drinking water and sanitation. Local elections are now held throughout India, and the village *sarpanch* (*panchayat* president) has become an important local figure.

However, major decisions about handover of financial and administrative responsibilities are still pending and the tax base in rural areas is minimal. The real strength of the village *panchayat* lies in lobbying *mandal* and district officials. The structure is now firmly in place, and the *panchayats* have the potential for a degree of self-government.

1. Sanitation in Tamilnadu

Much of rural Tamilnadu is semi-arid, creating difficulties for sustaining both adequate livelihoods and water supplies. Despite the poverty of the area, WaterAid and its partners have succeeded in stimulating widespread demand for safe sanitation. In 1995-6 there was little progress with only 460 latrines constructed. Two years on there has been a fifteenfold increase with over 7,100 latrines built in 1997-8, and partner NGOs are besieging WaterAid for extra funding to meet a spiralling demand. A wide range of latrine designs and costs has successfully challenged the government stereotype of one standard model. WaterAid's work has stimulated some important initiatives by the state government.

- **How have WaterAid's partners made such rapid progress in a difficult field of work?**

- **What has caused the transformation in government attitudes?**

Based on the findings of an evaluation conducted in 1996 WaterAid in South India decided to improve its sanitation and hygiene education work. Most partner NGOs had little knowledge of the main issues, no staff capacity, and no materials. For most poor communities sanitation was a very low priority, and the efforts of government agencies had unintentionally fostered a widespread perception of latrines as luxury items.

Subsidy levels

WaterAid had been promoting latrines with a flat rate subsidy of Rs 650 (as compared to the usual government subsidy of Rs 2,000), and communities were suspicious that they were being offered a cheap second-rate product. In an attempt to change this misconception WaterAid decided to look at subsidy and design in a totally new way, realising that even poor people vary widely in their ability and willingness to pay. In such circumstances, a flat rate subsidy approach was inappropriate, and a more innovative approach to financing and latrine design was required.

Persuading partners

Three major factors helped persuade NGO partners to improve their sanitation work. Firstly, several WaterAid papers stimulated debate on hygiene education. Once they realised the essential facts of disease transmission, key individuals became convinced that making villagers fully aware of the links between poor hygiene and disease would increase demand for improved sanitation.

Secondly, in 1996 WaterAid played a major role in establishing an informal and inclusive network of organisations in Tamilnadu interested in rural water supply and sanitation. WaterAid publishes regular newsletters and initiates workshops and seminars. Some NGOs have become 'centres of excellence' in specific areas of work; they are then able to share information and experience through the network.

Finally, a year earlier SCOPE had successfully constructed six low-cost latrines in the village of Thaneerpandal; while SEVAI had researched the use of pre-fabricated wall panels, hollow bricks, and ferro-cement. Both

WaterAid/Caroline Penn

Two alternative WaterAid latrine designs.

WaterAid/Caroline Penn

GOVERNMENT LATRINE CONSTRUCTION: *A BUILDING WHICH HAPPENS TO BE A TOILET*

To encourage the development of safe sanitation in village communities, the Government of India subsidises latrine construction through its Central Rural Sanitation Programme (CRSP).

Whatever the village's geology or water supply situation, only one design is offered – a pour flush twin pit latrine with brick built superstructure. Materials and construction are controlled by government and no local labour is involved. For a poor family, the cost of this latrine would break down as:

Family contribution	Rs 500
Government subsidy	Rs 2,000
Total Cost	**Rs 2,500 (about £38)**

The government promotes the CRSP via state and district administration, or through its own national agencies such as CAPART which works through NGOs. Coverage has been disappointing as, due to the high level of subsidy, the government is only able to allot one or two latrines per village. Many of these latrines are not being used for their original purpose as there is no widespread hygiene education work, and the main motivating force for their construction is the high subsidy. Even if more support was forthcoming, extending this subsidy approach to every household in rural India would cost the government an estimated £4.5 billion.

Furthermore, the limited availability of such a high subsidy has tended to restrict beneficiaries to the more prominent members of society. Although the income qualification for subsidy has recently been reduced, the government programme, with its high specification model, is associated with the middle classes.

WATERAID LATRINE CONSTRUCTION: *A TOILET WHICH HAPPENS TO NEED WALLS*

AFFORDABILITY

Technology: there is no standard model or specification, apart from the water-seal principle – a variety of low-cost substructure designs are offered, usually costing around Rs 650. The most common model in Tamilnadu is the pour flush single pit, with space reserved for a second pit to be dug at a later stage. The householder is responsible for ensuring privacy in the form of walls, door and perhaps a roof (the superstructure). Design and cost flexibility at this stage reflects personal choice and circumstances, and can range from no cost to Rs 2,000.

Financing: WaterAid usually provides a basic subsidy of Rs 650, but with some variation (for example, in some communities NGOs have experimented with a community-led differential subsidy). Various forms of micro credit are increasingly being made available to individuals. This creative use of both credit and affordable latrine design has minimised or in some cases even eliminated subsidies.

DESIRABILITY

NGOs take responsibility for creating the demand for sanitation facilities in the community through hygiene education, and also for ensuring the marketing and supply of sanitary wares. The whole village is targeted, in conjunction with a project to improve the quality and the quantity of the water supply.

organisations were happy to show their work to others and by April 1996 a consensus began to emerge that it should be possible to bring down the cost of latrines to between Rs 1,000 to 1,500. Variety in design and cost would be part of the solution.

Persuading communities

The challenge was to devise a strategy for NGOs to stimulate enthusiasm for sanitation, but local feedback was initially discouraging. In most villages there was little understanding of the link between poor hygiene and disease. People were both shy and superstitious about discussing matters like open defecation, and NGOs had made few attempts to provide positive hygiene education. Without an example to see, villagers suspected that low-cost latrines were inferior to the government model, perhaps bringing smells and flies into the home.

NGOs based their work with communities on their own 'conversion' to the merits of improved sanitation:

- **Hygiene education** was targeted initially at the whole village through entertainment like the Tamil *Kattabommai* puppet shows. This was followed by group meetings and house visits by health workers or trained village volunteers using visual aids

- **Influence by example.** The most likely 'customers' were addressed – villages situated near an NGO's field centre, and members of water and sanitation committees and women's groups. Once such core people were convinced, peer pressure took over.

Yet many villagers remained unconvinced. In August 1996, WaterAid held the first of three hygiene education workshops for NGO leaders and health workers at which more key messages were identified:

- continual poor health is an economic drain on family resources. Even the poorest households have little faith in government hospitals, opting instead for private treatment. This can cost the average family Rs 1,500 a year, taking into account fees, medicines, transport, and lost wages

- open defecation is degrading, especially for women and adolescents

- shortage of land means there is increasing pressure for traditional defecation fields to be used for agriculture.

WaterAid/Ravinder Reddy

Traditional puppet shows are used to put across serious hygiene messages in an accessible and entertaining way.

HAZARDS OF OPEN DEFECATION

Hazards are many and varied. Obliged to wait until nightfall for any element of privacy, villagers encounter anything from insects to vehicles, as they make their way to unlit defecation fields.

A 12-year-old girl in the village of Kulakudi carried a stick to ward off the pigs attracted by the fresh deposits. One night her stick disturbed a snake. It attacked her and despite the best efforts of the nearest hospital, she died.

A 40-year-old woman from the village of Poonampalayam was killed by a speeding milk van as she defecated. Angry villagers blocked subsequent deliveries. The strength of feeling aroused in the community helped the local NGO to demonstrate the usefulness of the sanitation project.

The combination of arguments proved effective. Soon latrine masons were a familiar sight in villages. Latrine coverage of close to 100 per cent is now common.

An important concern was how to include the poorest households, unable to afford even a low-cost hollow brick or prefabricated panel latrine superstructure. In the event many of these families rose to the challenge creatively using the same skills and materials as for house building: thatch of water reed, coconut, and bamboo, as well as waste materials like gunny bags and bicycle scrap.

CREDIT SCHEME FOR LATRINES

SCOPE, based in Musiri, near Tiruchirapalli, operates the following credit scheme:

- WaterAid provides a revolving loan of Rs 100,000 to SCOPE
- SCOPE lends up to Rs 20,000 to individual village *sangams* (committees) which make regular repayments over 10 months
- the village *sangam* considers applications from households and administers loans, taking responsibility for repayment through personal passbooks. Only poor families are eligible. The maximum loan is Rs 650.

Three months after starting this scheme demand proved so great that SCOPE sought a further Rs 60,000 from the local People's Bank (formed by a federation of 38 self-help groups), which makes limited investments in schemes for special needs. A typical latrine with hollow brick superstructure and bath extension purchased under this scheme would cost:

WaterAid subsidy for substructure	Rs 650	
Village *sangam* loan	Rs 650	(interest free loan)
Peoples' Bank loan	Rs 100	(commercial loan)
Family contribution	Rs 100	
Total Cost	**Rs 1,500**	

Using the latrines

As rates of construction increased, WaterAid began to ask whether families were using their latrines properly, and whether they were sustaining good hygiene practices. There were worrying precedents: in the village of Kadathanpatti where government had built latrines as part of a housing project for *harijans**, villagers had ripped out the porcelain latrine pans, and used them to keep the rain off their cooking stove chimneys.

In March 1997 SCOPE conducted a study of four villages in Musiri which had attained high latrine coverage. Results were reasonably encouraging, with almost 100 per cent usage amongst young women and teenage girls, and a good level by women and children in general. But the study revealed significant differences between men and women and between age groups. Factors related to men's low use were that men spend most of their time in the fields, and had not been targeted for hygiene education. Other important factors were people's previous experience of facilities in schools, the availability of water, and the distance it had to be carried to use in the pour flush latrines. SCOPE's findings influenced the efforts of NGO health workers and WaterAid's strategy in general. For example, men are now a specific target audience for hygiene education.

The production line

Success brought the NGOs a new challenge – meeting burgeoning demand. Knowing the frustrations of bureaucracy and impersonal service experienced with the national government scheme, they were determined to localise the production and delivery of sanitary ware.

Local people are trained as masons and in the production of low-cost mud blocks, hollow bricks and ferro-cement moulds for pit covers and latrine walls. Production draws wherever possible on local materials, and is based either in small-scale latrine manufacturing businesses, or in NGO field centres. A good example is SEVAI's Rural Technology Centre which is a 'centre of excellence' for training, design, and sanitary ware production. Opened in 1996 with support from WaterAid and UNICEF, it employs 25 local youths and women, and has become self-supporting through sales of products used in its 10 latrine designs.

Local credit schemes for latrine construction seek to involve familiar financial institutions in what is an increasingly important feature of sanitation delivery. Innovative schemes are being developed, and poor families are keen to take out loans to upgrade their original low-cost 'thatch' latrines into permanent structures. When offered a choice in superstructure construction, families initially spend only what they can afford, and can carry out incremental improvements later.

By placing equal emphasis on both demand and supply, NGOs enabled WaterAid to support latrine construction for 36,000 people in 97-98. Average subsidy was Rs 650, a third of the government figure.

* Harijans are also known as Scheduled Castes and are in the lowest rung of the Indian caste system.

Influencing government

This success presented WaterAid with an opportunity to influence government policy on hygiene education and latrine subsidy. Through the NGO network, meetings were held with the Tamilnadu Ministry of Rural Development, CAPART (the government agency funding Indian NGOs), UNICEF and UNDP.

Initially government officials were confused: the network was asking for a reduction, rather than an increase, in subsidy per latrine. Negotiations took time, but significant changes have been agreed:

- the **Ministry of Rural Development** has agreed to fund different models of latrines and to vary their subsidy level. Under the central rural sanitation programme (CRSP) the state government is offering to pay 50 per cent of the costs of a latrine, up to a maximum subsidy of Rs 2,000. Early signs are showing a good uptake with many latrines being constructed for Rs 1,000 – 1,400. This means that the government share is Rs 500 – 700, and will enable three or more times the number of latrines to be constructed than under the original government scheme. The ministry has also ordered latrine use surveys as an important element of monitoring
- **CAPART** has agreed to fund projects through WaterAid's partner NGOs, and for them to allocate the Rs 2,000 subsidy per latrine in the following way:

subsidy for latrine construction	Rs 650
hygiene education and awareness generation	Rs 400
environmental sanitation	Rs 950

- **UNICEF** is diverting funds away from subsidy towards supporting skills training, and initiatives like SEVAI's Rural Technology Centre.

There has also been progress in hygiene education. In February 1997 the state government set up a committee of senior civil servants, UNICEF, NGO, and WaterAid representatives. The committee compared the economic benefits of preventive health care with the spiralling costs of the state's curative infrastructure. A month later the government announced major new policies:

For communities: A new Human Resource Development (HRD) Department with an annual budget of Rs 570 million (£8.7 million), to promote community management

WATERAID'S COUNTRY REPRESENTATIVE

WaterAid/Ravinder Reddy

Mr. Paramasivan, WaterAid's Country Representative (centre).

For WaterAid's South India Representative, the sanitation situation has been transformed. Besieged by NGOs seeking more funds for latrine construction, hygiene education staff and training materials, he recalls vividly that until very recently sanitation was low priority:

'Our NGOs found it terribly difficult to accept the idea of such a low subsidy. It was so different from the government scheme. They felt there were enough problems in trying to introduce sanitation without creating what they saw as unnecessary financial obstacles. I was a rather unwelcome visitor to their meetings in early 1996!

A latrine costing Rs 2,500 has always seemed a nonsense to me. I was brought up in a poor village near the coast. People built their *houses* for less than that. I knew that local skills and materials would come to the fore, if only we could create the demand.

The combination of hygiene education and the willingness of our partners to engage with new ideas and share experiences has done the trick. Having fallen well short of our targets for two years, we have now reached our annual target of latrines in six months. So now I have the opposite problem; when I see NGO representatives coming, I want to hide like a snail from their demands for extra funds!'

of water and sanitation, with training at district, *mandal*, and village levels. Each district will have an 'HRD Cell' with NGO representatives. The new department has started hygiene education and sanitation training for *panchayat* leaders, government schoolteachers and selected members of community and women's groups.

For schools*:*

- Headteachers are being encouraged to include hygiene education in the curriculum, by using local primary healthcare staff, or engaging NGOs to train teachers.
- A programme to provide schools with hygiene education, training, safe water, urinals and latrines, funded as part of the new HRD budget.

These initiatives are already working. In Tiruchirapalli District SCOPE is launching a project with 20 primary and middle schools: urinals and latrine blocks will be provided, and two health educators will teach a syllabus of 14 lessons in hygiene practice.

Sanitation: key instruments of change

The following factors have been instrumental in leading to the positive changes outlined in the case study.

NGO networking

- The NGO network enabled the enthusiasm and positive field experience of a few members to grow into a general movement and provided a forum for debate and experience exchange
- The network provided a strong unified voice for negotiation with government and other agencies
- WaterAid and the NGOs were prepared to put time into developing it
- The informal structure helped make it inclusive
- The sharing of experiences and successes instilled confidence in new NGOs and encouraged them to start similar work.

Hygiene education

- Hygiene education was the main catalyst for change in persuading NGO leaders of the importance of sanitation, and in creating demand in the villages for latrine construction
- The hygiene education work of the NGOs is based on specific realities and problems identified by individual communities
- From its former status as an afterthought in WaterAid-funded projects, hygiene education has become the *entry point* for community-based, integrated water projects.

Affordability

- NGOs built on existing small-scale credit institutions to gradually develop credit systems for sanitation
- Experimentation reduced the cost of latrines to affordable levels.

Marketing

- The commercial marketing technique of providing informed and affordable choice helped trigger latrine construction. Project activities could be labelled in conventional retail marketing terms: design, pricing, promotion, production, delivery and credit.
- Supplying safe sanitation has become a thriving cottage industry. Training local institutions and people to exploit this business opportunity provided the efficient delivery of goods, and expanded local employment opportunities
- By contrast, earlier government attempts to promote sanitation involved impersonal, unreliable and expensive outside interventions.

Changes in government attitude

Factors which helped to create changes in attitude were:

- Showing key government staff work in the field. This had a big impact
- Providing cheaper, alternative models, which still met high standards, helped convince officials of the need for change
- The reputation of the NGOs in the network was sufficiently strong and respected to gain access to government policy makers.

2. Handpump Maintenance in Andhra Pradesh

The district of Visakhapatnam in Andhra Pradesh contains some of Southern India's poorest rural areas. Government services do not easily penetrate this landscape of single room mud-brick and thatch dwellings, with tribal villages connected to the outside world only by footpaths. This is a region of daunting social problems, many linked to water shortage.

Yet in one area of 14 *mandals* (approximately 700 villages) over 660,000 people now benefit from a life-saving service: all drinking water handpumps are properly maintained and average breakdown time has been reduced from three months to three days. This service was developed through a collaboration between government, NGOs and communities. It signals acceptance by district government of the potential for community-based handpump maintenance.

- **How has this level of service been achieved?**
- **How does the collaboration with district government work?**
- **How have communities come to accept maintenance responsibilities?**
- **Is the system sustainable in the long run?**

During the 1980s, the UN Drinking Water and Sanitation Decade, the Government of India provided tubewells and handpumps throughout Visakhapatnam. The handpump chosen, the India Mark II, needs regular maintenance and from the beginning of the decade UNICEF established a maintenance scheme. One government mechanic was employed per *mandal*, responsible for around 120 handpumps. A supporting infrastructure of toolkits, spare parts, and back-up vehicles was put in place. The whole scheme was funded by the state government; but by the early 1990s it had ceased to deliver even basic service standards.

The initial budget was never increased to cope with the rapidly expanding number of tubewells, and mechanics found themselves trying, and failing, to maintain 300 – 400 handpumps each. These problems were aggravated by misuse of vehicles, spares and tools. As a result:

- regular, preventive maintenance was not carried out
- broken handpumps remained idle for an average of three months, and sometimes up to 12 months
- government mechanics were abusing their position by soliciting payments
- the poorest and most isolated villages were completely neglected
- women were forced to revert to collecting water from distant and dirty traditional sources, despite access often leading to disputes with landowners.

THE INDIA MARK II HANDPUMP

The India Mark II is a robust and reliable lever-action deep-well pump which must be installed correctly and used properly. If nuts and bolts are not tightened regularly, the chain greased, and the washers checked, it becomes awkward to use, and expensive parts are damaged. Replacing valves or pipes necessitates the heavy work of lifting out the main cylinder. So mechanics must be properly trained, equipped with a good toolkit (costing about Rs 6,500), and have access to genuine spare parts.

WaterAid/Ravinder Reddy

Origins of the handpump maintenance project

Visakhapatnam district has an unusually strong and close-knit network of 43 NGOs, called Viswasamakya*. The network was formed in 1989 to strengthen relationships with local government and other bodies, and improve development programmes by sharing experience and training.

In 1992 women's groups from villages with tubewells alerted Oxfam (India) Trust to what were fast becoming serious drinking-water problems. Oxfam engaged the Hyderabad-based Training and Development Centre (TDC), and following a series of meetings 15 members of Viswasamakya each agreed to take responsibility for one *mandal (*with one of the 14 *mandals* covered by two NGOs*)*, reflecting the government maintenance structure.

It quickly became clear that the immediate need was for a properly functioning infrastructure for handpump maintenance, and that the main agent in this process was to be the 'community mechanic', a local person willing to learn handpump maintenance skills and to serve the neighbourhood for little financial reward. By mid-1993, initial candidates had been selected, and TDC was conducting training in Hyderabad.

In many parts of India government staff are hostile to community mechanics having access to village handpumps, fearing they will provide poor quality repairs. It was essential therefore to get government permission. Progress was painfully slow, but by the end of 1994 a basic understanding was reached with district officials:

- community mechanics were allowed access to handpumps and, to gain experience, were permitted to accompany government mechanics in their daily work
- each community mechanic was equipped with a toolkit, purchased by Oxfam and the government
- the spare parts required would be supplied free from government stores.

Longer-term organisation

At the outset both district officials and Viswasamakya assumed that, in the long-term, government and community maintenance would be kept strictly separate. There was little precedent for closer collaboration and the NGOs took the view that communities should maintain and manage the handpumps independently. Viswasamakya decided, however, that a full operational partnership with government was the only way to restore all handpumps in the district within a reasonable timeframe, given their poor overall condition. A combined team of TDC, Oxfam and Viswasamakya therefore drew up a radical collaborative model for all 14 *mandals* under which community mechanics would be integrated into the government system for a transitional period until communities were ready to pay them directly.

* In this report 'Viswasamakya' is used to describe the drinking water network of 15 NGOs; strictly speaking the term covers the full membership of 43 NGOs.

Implementing this initiative greatly increased the support required, and in April 1995 WaterAid agreed to help by providing extra technical support, and by advising on organisational structures (such as village committees) and on the negotiation of institutional arrangements with the district government. Additional financial support was also given by WaterAid and Oxfam. In 1995, a three-year budget of Rs 3.54 million (£54,500) was set. Save the Children Fund made a single donation to the project in 1996. TDC were appointed to manage the project and to act as the point of accountability between donors and Viswasamakya members.

TDC faced an immediate problem that many government employees were unenthusiastic about working with the community mechanics. Concerns about job security and demarcation arose. Loss of unofficial payments that would result from developing a comprehensive service was also a serious cause of discontent. TDC encouraged community mechanics to put as much effort into establishing good working relationships as into the maintenance itself, and this proved invaluable – not least in warding off confrontation with one of India's many strong engineering unions. In the event government mechanics raised their own standards and gained job satisfaction from providing a service which users appreciate rather than resent.

Agreement with government

Viswasamakya wanted a written agreement with the district government to give formal support to the collaborative model drawn up by the NGOs. The network drafted a document and so began a period of patiently and persistently trying to persuade senior district officials – the Collector, the Chief Executive Officer, the Superintendent Engineer, and the Project Director of the Rural Development Administration – that the new structure had many benefits. After initial caution, all four key officials became extremely supportive of Viswasamakya's proposals.

THE COMMUNITY MECHANIC

Mr. A. V. Ramana is 38 and married with two children. Unable to progress in his formal education because of his family's poverty, he worked for six years as a fitter in a sugar factory. In 1987 an NGO called SVDS started working in his village, forming *sangams* and thrift groups. He became a volunteer adult education teacher, and SVDS paid him Rs 100 a month.

'In 1993, SVDS told me about a training camp on handpump maintenance to be held at TDC. I went along and became very interested in the work, as mechanics really help provide water to the poor. I started repairing pumps in 1994 alongside the government mechanic, and became a full-time mechanic the year after.

I am happy working as a mechanic because, by carrying out repairs immediately, I am helping my community. I am respected wherever I go, and the community views me as a specialist who does not demand extra money.

In the first year I worked all day every day. During the second year, the only pumps needing repairs were those I had not already dealt with, and I worked for between 22 and 26 days a month. At the moment, the number of repairs has fallen again and I work about 16-18 days a month.'

WaterAid/Ravinder Reddy

Mr Ramana (far right) carries out repairs to a handpump assisted by another trained mechanic and a local villager.

CHANGING ROLES DURING TRANSITION FROM GOVERNMENT TO COMMUNITY HANDPUMP MAINTENANCE

	Before the project	During the project	After the project
Communities	• Report handpump faults to government	• Organise water and sanitation (WASAN) committees • Collect household contributions • Select volunteer pump caretakers • Liaise with *panchayats* • Monitor handpump condition and report faults to NGOs • WASAN committees use and manage community spares bank	• The village community formally becomes responsible for the management of the handpumps • WASAN committees manage on a day to day basis • Report faults to self-employed community mechanics • Pay mechanics to repair handpump • Manage community spares bank ensuring government replaces spares
NGOs	—	• As a network negotiate with district government • Liaise with mandal government depts • Mobilise communities to participate in representing their needs and in formulating plans • Employ and train community mechanics • Train voluntary handpump caretakers • Train WASAN committees in using and managing community spares banks • Report monthly to government depts	—
District/State Government	• Totally responsible for maintenance • Employ mechanics • Provide spares • Maintain and repair handpumps	• Government mechanics work with community mechanics • Fund part of community mechanics' wages via the NGOs • Establish a system of community spares banks • Replace spares used from the community spares banks	• Government budget for handpump maintenance fully transferred to the village committee • Provide spares to community spares banks • Train handpump caretakers
Small scale private sector	—	—	• Self employed community mechanics repair handpumps, paid by the job by water and sanitation committees
Donors (Oxfam and WaterAid)	—	• Fund project management, training, and technical assistance via TDC (the NGO acting as project manager)	—

A pilot agreement was reached in December 1995 which included the essentials of an integrated operation for 1996, with renewal envisaged in early 1997:

- two community mechanics to supplement the work of the government mechanic in each *mandal* – reducing the average number of handpumps per mechanic to around 120
- each NGO setting up a bank of spare parts in its *mandal* to cover temporary shortages of government supplies, with donors paying for initial stocks. Spares used to be replaced by government free of charge
- community mechanics paid a nominal wage of Rs 700 per month (government mechanics receive between Rs 2,000 and 5,000 per month), reflecting their role somewhere between village volunteer and employee, and the expectation that this would be on top of income earned in other ways.

The community mechanics' wages were to be funded in full by donors and government in the first year, 50 per cent in the second year, and phased out altogether thereafter. The balance was to be met progressively by communities, either by a salary or on a piece rate basis. Under the agreement the government undertook in seven of the 14 *mandals,* to pay NGOs Rs 20,000 per *mandal* in 1996, to reimburse the wages and overheads for the community mechanics during the transition to community management.

Introducing community management

With the agreement in place, TDC was able to establish community management, primarily by setting up village water and sanitation committees. Their principal responsibilities were:

- to select volunteer pump caretakers to carry out preventive maintenance and make sure villagers used the handpumps correctly
- to create a sound financial base, through regular household contributions, to enable the committee to take full responsibility for maintenance in the long-term.

WaterAid/Caroline Penn

Sirumbayer (left) volunteered to be trained as a handpump caretaker. She now has all the necessary training and tools to carry out maintenance and repairs to ensure water keeps flowing from the village handpump.

A real difficulty was trying to persuade communities that it was in their own interest to accept responsibility for maintaining their handpumps, even though they had been financed, constructed, and theoretically maintained by state government and UN agencies. The best approach was to tap into the growing culture of self-help stimulated by NGO thrift and credit schemes, in which women were the predominant participants. In establishing the water and sanitation committees, NGOs drew on existing organisations and recently elected *panchayat* representatives. Clear evidence of improved maintenance standards also helped and training sessions for volunteer pump caretakers were set up.

Persuading committees to establish their own funding base proved more of a challenge. Many NGOs gave this responsibility to a specific member of staff, who pointed out to villagers that community maintenance would be more efficient than the previous unreliable government service, and cheaper because it involved no unofficial payments. The levels of contribution were kept very low so that all could afford to pay. A common approach was to seek a monthly contribution of Rs 10 per family, falling to Rs 2 when the balance held by the committee exceeded Rs 3,000.

Consolidation

The project gained momentum. By the end of 1996 administrative procedures were in place in all 14 *mandals*, community mechanics had been trained and started work, and all the spares banks were functioning well. Standards of maintenance quickly rose, strengthening efforts to develop water and sanitation committees.

The progress of village communities appears unstoppable. There are nearly 400 water and sanitation committees, many of which benefit from strong relationships with *panchayats*. Over 50 have raised more than Rs 1,000. In 1996 and 1997 an average of 2,000 handpumps a year received attention.

The wages of community mechanics are progressively being met by communities on a piece rate basis. Mechanics charge communities a set rate of Rs 25 for each above ground repair, and Rs 75 for a below ground one. The project has worked with the community mechanics in three batches, and since January 1998 the first batch have earned around Rs 800 a month (their updated nominal wage) in payments direct from the community; the second batch have earned roughly half this amount, with the donors funding the other half; and the final batch are still receiving all their wage from the donors (the government no longer pays a contribution towards these costs). It is now expected that direct community payment of mechanics will replace all wages within 18 months.

Although the original formal agreement has not been renewed, the government is very positive about the project. Collaboration with government mechanics continues, and the government continues to provide replacement spare parts to community spares banks.

Summary

The project has made deep inroads into improving Visakhapatnam's handpumps, and rigorous reporting of repairs carried out has transformed the district government's knowledge of its tubewells in the 14 *mandals* covered.

The government now accepts that the community has a major role to play in handpump maintenance. Relationships between government, NGO staff, and communities are much closer, for example, government officials attend caretaker training sessions and use NGO manuals and visual aids.

The project has successfully demonstrated the establishment of an effective community management infrastructure, and a functioning maintenance system for handpumps with good service standards.

WaterAid believes that the experience in Visakhapatnam highlights the usefulness of an NGO role in the transition from a government-led to a community-led handpump maintenance service.

Handpump maintenance: key instruments of change

The following factors have been instrumental in leading to the positive changes outlined in the case study.

NGO networking

- The structure of Viswasamakya was appropriate for integration into local government administration. In particular:
  - each NGO covered one *mandal*
  - common procedures applied across the network
- Wide coverage (14 *mandals)* added weight to negotiations with district officials
- Particular characteristics of Viswasamakya which contributed to success include:
  - strong mutual support in responding to difficulties
  - clarity of shared vision
  - group stability: in contrast to high turnover of government officials there has been no change in group membership, or in NGO leaders
- The independent project manager (from TDC) facilitated tasks acknowledged as not being well suited to a group, such as:
  - coordinating a group of strong NGOs over a lengthy period
  - financial accountability
  - building relationships with government mechanics.

Quality of maintenance

- The quality of work and speed of response by community mechanics were major factors in improving maintenance
- Mechanics are rigorously selected, trained and monitored. Typically, 30 per cent of candidates attending the initial Hyderabad course are rejected, while those selected undergo constant assessment by the NGOs. By contrast, government mechanics are employed on the basis of casual piecework experience, and have no formal training
- Proper tools and spares have proved essential. At a crucial juncture of rapid expansion in 1996, for instance, WaterAid financed 21 extra toolkits.

Training in the community

- During 1996-7, 2,870 caretakers were trained
- Despite pressure for new tubewells, this project has adhered strictly to its maintenance agenda. Raising awareness in the community through training can do more to change attitudes than funding of capital projects.

Changes in government attitude

- Senior government staff acknowledged the reality of the maintenance problem, and were keen to improve the standard of service
- From the beginning, the project put in considerable time and effort to establish good working relationships with government mechanics
- One of the benefits of the project has been that the day-to-day co-operation of NGO and government staff has led to greater mutual understanding
- High service standards pre-empted government criticism; indeed, government officials are unanimous in their praise of the community mechanics.

3. Making government funding work harder: the developing model

Both the case studies demonstrate the effectiveness of the familiar building-blocks of community management: affordable technologies, local skills and materials, village-level committees. They also suggest that poor communities in India can fund their own sanitation facilities and the operation and maintenance of their water systems.

- **What are the implications for the best use of government funding?**

Community management is firmly established as the foundation of efforts to improve the quality of people's lives in the developing world. Its slogans have entered the language of development, and its principles have been adopted by governments and multilateral agencies. In its eighth Five-Year Plan, the Government of India talks of 'harnessing community-development efforts to enable people themselves to bring about the solution of their own problems.'

The experiences described in this report highlight a recurrent limitation of community management. However effective its capacity to plan, implement and manage its own projects, a community often needs to depend on government financial support through grant, subsidy, or maintenance funding. The case studies suggest how this dependence could be reduced, and government resources used more effectively.

Sanitation: Retargeting government subsidy

The bureaucratic and unimaginative use of government subsidy created the preconceptions about latrines which proved such major obstacles to NGOs in the early stages of their sanitation work in Tamilnadu. The government's high subsidy for latrine construction has not led to good latrine coverage. The subsidy – rather than a genuine wish for a latrine – was often the main motivation for building, and therefore some government-funded latrines are not being used for their original purpose.

Taking into account the costs of hygiene education and sanitation promotion WaterAid has demonstrated a model that would halve the costs of a latrine to government, and thus double potential coverage rates:

Cost to government of single latrine under the CRSP programme

Construction subsidy	Rs 2,000
Awareness training	Rs 50
Overheads and admin	Rs 1,580
TOTAL	**Rs 3,630**

Cost to WaterAid of a typical single latrine

Construction subsidy	Rs 650
Hygiene education	Rs 1,014
General promotion work	Rs 220
TOTAL	**Rs 1,884**

Subsidy is an essential element when targeting the very poorest (possibly through communities themselves determining eligibility). But for a large proportion of the rural population subsidy of construction costs could be reduced and viewed as a secondary rather than a primary source of finance, enabling government funding to be redirected towards hygiene education and sanitation promotion. Evidence that this will work includes:

- the popularity of recent NGO offers of micro-credit for sanitation, and the resourceful methods of loan repayment demonstrated by borrowers.

- the interest expressed even by the poorest families in upgrading original low-cost latrines through loans, which suggests that the original construction could have used a greater loan component and a reduced subsidy.

In Tamilnadu the state government has changed its policies and resource allocation to reflect these ideas; early indications are positive, with good uptake of the new cost-sharing latrine subsidy.

For better off rural households the construction of latrines and other sanitation facilities can be sustained without subsidy. Evidence for this is provided by the success of Rural Sanitary Marts (RSM), developed by UNICEF in 1991. These not-for-profit retail operations bring sanitary wares closer to users at affordable prices. The three RSMs established by SEVAI in Tamilnadu, with the support of WaterAid and UNICEF, are now financially self-supporting and demonstrate that:

- people from outside project areas are purchasing latrines, materials and services without subsidy

- the market forces which underpin these business operations are stronger than forces generated by offers of subsidies.

BORROWING, BATHROOMS, AND BANANAS

Nearly all the households in the village of Katukulam decided to construct latrines with a bath extension which, at a cost of about Rs 1,500, necessitated taking out loans. The idea of using dirty bath-water on small kitchen-gardens has proved a blessing in more ways than one. One villager sold enough pumpkins to repay her loan within a year. More typically, families sell bananas and keep other vegetables for their own use. The benefits are multiple – economic, nutritional, and sustainable.

WaterAid/Caroline Penn

Bananas grown from wastewater being auctioned.

Handpump maintenance: Retargeting government funding

In Visakhapatnam, the government was using scarce resources to fund an inefficient service which was unable to deliver an acceptable level of handpump maintenance. The case study has shown that there is good potential for handpump maintenance to be funded and organised at village level.

An issue here is whether handpump maintenance costs can be contained at a level which the community can afford. Although the budget set by the state has proved inadequate, it does not follow that a higher budget is necessary. Management by water and sanitation committees exerts downward pressure on costs through:

- regular preventive maintenance
- high quality repair work
- correct operation by users
- cheaper distribution of spares from local stores.

The statement of the community mechanic provides typical evidence that the condition of handpumps in the Viswasamakya area is gradually improving through higher maintenance standards. WaterAid estimates that the average annual maintenance cost per handpump will fall to as little as Rs 200 (the state budget in Andhra Pradesh is Rs 600), including all spares and labour costs. Assuming an average of 20 families per pump, the cost to each family would be Rs 10 per annum.

Another method of containing costs is to increase the scale of voluntary work that local people are prepared to carry out. This could be achieved by upgrading caretakers' skills; their duties would remain voluntary, motivated by earning the respect of their neighbours. Only the most complex repairs would require paid assistance from self-employed mechanics.

Such an approach is already proving feasible. A third of the community mechanics are already receiving the equivalent of their nominal wage, directly from the village water and sanitation committees, another third are receiving half. Indications are that self-employed community mechanics will be paid solely by the communities within around 18 months. In this model the role of government mechanics increasingly may be supervision, stores management and reporting. They could also receive additional training in masonry, pipe-laying and electric pump maintenance.

It is difficult to move immediately from a situation where government has responsibility for handpump maintenance and communities are not allowed to be involved at all, to one in which communities take total responsibility. Such a shift requires both time and training. WaterAid's experience in Visakhapatnam is an example of a possible transitional model.

Once villages are organising and financing maintenance themselves, government funds could be channelled increasingly towards the considerable requirement for training village caretakers and into the capital costs of new projects.

4. Implications for coverage

This final chapter examines the lessons of the case studies for accelerating progress towards national targets for safe water and sanitation.

- **What are the implications for the roles of the various actors?**
- **To what extent do these roles reflect their comparative advantages?**
- **What shifts in attitude will be needed?**

Government

The experiences analysed in these case studies demonstrate that government funding, when appropriately targeted, can be very effective in improving access to safe water and sanitation. But some government funding in the rural water and sanitation sector in India is inappropriately targeted and, therefore, largely ineffective.

WaterAid's work in Tamilnadu demonstrates that the large government subsidies offered for the capital cost of latrines are unnecessary, and can be counterproductive. Except for the very poorest rural dwellers, subsidy of construction costs could be reduced substantially as in the new initiatives of the Tamilnadu state government. The new initiatives also mark the acceptance by government that a single model of latrine is inappropriate, and that a variety of models and technologies should be available.

Whilst NGOs are best suited to household and village-level mobilisation and hygiene education, government resources would be best used in large scale campaigns such as radio promotion of latrines. Spending on training, education, and communication has the potential to reach every person in a given area, whereas direct works reach only chosen beneficiaries. Decreasing per capita costs of communication technologies creates the potential for universal coverage of safe sanitation messages.

Funding is required to promote hygiene behaviour change and to support local marketing of a variety of latrines; and this is where government could be the catalyst for widespread change. Government could contribute directly, as they are doing in establishing the new Tamilnadu state Human Resource Development Department, or indirectly by funding NGOs to undertake hygiene education and promote latrines.

In Andhra Pradesh WaterAid's work demonstrates that, given training, communities can organise and manage handpump maintenance effectively, and meet the labour costs of that maintenance. In contrast, government has been unable to provide an adequate maintenance service, and the very patchy service it does provide is significantly more expensive than community-managed services. Government-funded handpump maintenance is not only ineffective, but probably unnecessary. Government needs to accept that communities have both the right and the ability to maintain village handpumps, with the accompanying implications for community ownership of a government-funded resource.

Government resources, both financial and human, would be better directed in the short-term at facilitating the transition from government to community management by funding training for pump mechanics, village caretakers and water committees, along the line of the Viswasamakya model. The long-

term aim would be to redirect government funds into the creation of new water sources, an area where government has a successful record of achievement.

Communities

If government resources were retargeted in the ways suggested, most of the burden of financing sanitation and maintaining water facilities would be carried at household and village level. Much has been achieved in involving communities with project management, but would this financial commitment be a step too far? It would necessitate:

- competent village water and sanitation committees
- sustainable community water funds to pay for operation and maintenance
- willingness of both families and local institutions to extend the use of micro-credit to household sanitation improvements.

The case studies demonstrate that communities can achieve these aims when offered support in:

- promoting a sense of community ownership of local water resources
- managing community water funds: collection methods; the accumulation of significant balances; sanctions against defaulting households
- interaction with local institutions, especially co-operative banks and micro-credit schemes
- developing good relationships with *panchayats*
- training in management and technical skills
- subsidies for the poorest families, for whom even sympathetic micro-credit may be difficult.

The suggested change in the role of communities makes new and heavy demands on them: to make cash contributions; take out loans; provide labour and materials; spend time and effort on management; and provide and reward community volunteers. Communities need to accept responsibility for areas of work that they have previously seen as belonging to government. But of all the actors involved, communities have the most to gain from change.

NGOs

NGOs played a pivotal role in areas critical to the success of the case study projects. Their ability to promote new ideas to communities was based on trust built up through close and long-term links at family and village level. Developing new approaches can be too radical or risky for government, but NGOs are well placed to experiment and to identify innovative and effective solutions such as the transition from government to community-led handpump maintenance.

HIGH QUALITY NGOS

The success of the projects in Andhra Pradesh and Tamilnadu depended on close relationships between NGOs and village communities, built up over many years. This was a crucial factor in stimulating change. The quality of NGO partners is fostered by WaterAid's careful selection criteria, which require evidence of successful community organisation. Typical characteristics include:

- a strong ethic of hard work, social concern and moral principles
- a relatively high concentration of staff active in a small area
- charismatic leaders who are trusted and significant figures in the community.

In both case studies, the NGO networks played an important role. They facilitated the sharing of ideas and experience, and also provided a powerful platform from which to negotiate with government. In effect, NGOs took the role of representing village communities and negotiating on their behalf.

NGOs have also changed their attitudes in the course of the projects. They accepted that it was possible to reduce the cost of latrines whilst retaining an adequate standard, and that a much lower level of latrine subsidy need not be a barrier to promoting safe sanitation. Hygiene education and sanitation became the starting point for community-based integrated water projects, and were acknowledged to be as important as water supply in achieving improvements in health.

Small scale private sector

The case studies suggest new and expanded roles for the small scale private sector. It has the dynamism and flexibility to respond to growing demand for latrines and the local production of sanitary ware.

Self-employed mechanics, paid by piece rate, will increasingly be needed for community-led handpump maintenance.

Donors

Donors need to be prepared to fund the networking costs of NGOs, and to help facilitate NGOs to research and develop new methods and techniques. They also need to fund activities with qualitative targets, rather than always expecting to monitor outputs quantitatively.

Donors should support work involving a variety of partners and actors, and explore the potential of micro-credit for community development projects. Most importantly, they should accept that community development is a dynamic, not a static, model which will differ from place to place, and change over time.

WaterAid/Caroline Penn

At the Sevai Rural Technology Centre in Sirugamani, a latrine wall is built using a cement panel incorporating waste materials like coconut shells and bottles which let light into the latrine.

Conclusion

Government's strengths lie in creating policies to enable universal water and sanitation coverage. Such policies need to be consistently applied across government departments and throughout the different layers of government. Evidence from the case studies suggests that if Government shifts its resources away from funding the high capital subsidy of latrines and the provision of handpump maintenance services, towards supporting a community based one, then there is potential for a vast improvement in water and sanitation services. Available resources should be used to facilitate communities to maintain their water systems, fund new water systems, promote sanitation through education and communication campaigns, and offer flexible subsidy and a greater variety of latrines.

Government needs to liaise closely with NGOs, and where possible fund them to mobilise communities and undertake hygiene education. This will maximise the contribution that NGOs make through their close working relationships with communities. A broader environment of awareness will strengthen the possibility of replication into neighbouring areas through peer pressure.

The case studies demonstrate the comparative advantages of the various actors. Through rationalising their roles, their strengths would complement each other, making the most effective use of the resources available to the sector, with the accompanying positive implications for coverage.

Through its well developed NGO sector, distinctive village communities, and the sheer scale of the task, India is well-placed to explore whether vast numbers of small, low income communities will inevitably remain dependent on massive agencies of government, or whether the imaginative use of government funds can enable communities to secure their own development.

Acknowledgements *Staff of WaterAid and its many partner organisations have provided extensive assistance in the preparation of this report . Special thanks are due to WaterAid's Country Representative, Mr. S. Paramasivan, Mr. Y. Narasimhaiah, Principal of the Training and Development Centre, Hyderabad, the member NGOs of the Viswasamakya network, WASIO's partners in Tamilnadu, and all the communities involved in this work.*

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

Oxfam (India) Trust is the Indian office of the well-known UK charity. It has a long history of development work with poor communities in the sub-continent. The regional office working with WaterAid on the Visakhapatnam project is based in Hyderabad.

INDIA: Making Government Funding Work Harder is the third in a series of reports which analyse WaterAid's experience in integrated water, sanitation and hygiene education projects in developing countries.

The 1997 celebrations of the 50th anniversary of India's independence were tempered by anxieties over the ever-widening divide between a booming urban middle class and the seemingly entrenched poverty of its rural communities.

Such concerns reflect the mixed performance of social programmes: significant progress in areas such as immunisation and life expectancy is offset by difficulties in bringing safe water and sanitation to rural areas.

This report examines the evidence of two case studies to suggest the most appropriate way for government to use its resources to achieve results in the rural water and sanitation sector, and assesses the implications for communities and NGOs.

WaterAid
Prince Consort House
27–29 Albert Embankment
London SE1 7UB

Tel: 0171 793 4500
Fax: 0171 793 4545

Email: wateraid@compuserve.com

Charity Reg No 288701

William Gunyon is a volunteer for WaterAid and other development agencies and has a background in the financial services industry.

ISBN: 0 9513466 4 4