Assumptions and realities in water and sanitation programmes

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Water supply and sanitation programmes are based on many assumptions. Whilst there is much that is truth, the need to question them has never been stronger.

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Water supply and sanitation programmes are built on two major sets of assumptions. The first concerns the wide group of principles and strategies which have grown up over the last 20 years or more, as development agencies have attempted to generalize about good programme design. The second is our set of assumptions about how new facilities will be utilized, and the benefits to the users that will follow. There is a danger that these sets of assumptions remain unquestioned, despite evidence from the field that realities sometimes – or perhaps often – differ from these ideals.

In this issue of *Waterlines*, we question aspects of both these sets of assumptions, and urge programme staff and donors to do the same. It is only by questioning, observing, and modifying programme design, that sustained, beneficial impacts are likely to be achieved.

Table 1. The basic principles guiding today's programme designers

Principle/aspect	*Comment/explanation*
IMPACT	Maximum beneficial impact will be achieved through involving all stakeholders, and using right combination of W&S technologies with hygiene education
● **Stakeholders and the community**	Programmes should involve all stakeholders from the beginning, and enable communities to take as full as possible part in management. Women are key players in domestic water, sanitation, and hygiene; men often dominated development process in past. Both genders have key roles in maximizing impact of W&S programmes
● **Health**	Combination of water supply, sanitation (including excreta, wastewater & solid-waste disposal), and hygiene education gives best likelihood of impact in terms of health improvement
● **Technology**	Technology should be affordable, maintainable, culturally acceptable, and high quality
SUSTAINABILITY	Sustainability is built on motivation of the community, a well-designed and responsive maintenance system, effective revenue generation, and on-going support to communities by Government or NGO
● **Motivation**	A high degree of motivation is brought about through involvement and ownership, and through education and capacity-building
● **Maintenance**	Effective maintenance requires appropriate organizational structure, clear lines of communication (especially between community and technicians), transport, tools, spare parts, and funding
● **Funding**	The greater the extent to which the community can be involved in capital and recurrent funding, the more likely it is to have a sense of ownership and commitment. In practical terms, if the community does not pay for maintenance, no one will
● **Support**	Few community-based programmes will continue to function indefinitely without some support (encouragement, training, advice) from the external organization which supported initial implementation

Universal principles?

The first major set of assumptions concerns the basic principles — and the way these should be put into practice — which guide programme design nowadays, and which donors use to distinguish 'sound' from 'poor' programmes. These are summarized in Table 1 (below, left).

Principles into practice

While few would question the basic principles of Table 1, we believe that accepted wisdom about exactly how these principles should be turned into programme strategy should be questioned. For example, does the creation of a sense of ownership always require the community to carry out the physical work of construction – even where this may be both expensive, and result in a poorer quality outcome? Sally Sutton's article, which you can find on page 29, would suggest not. Local farmers in northern Ethiopia, questioned about the ownership of a hand-built earth dam, perceived it to belong to the organizing NGO, despite the huge amount of work they had invested in it.

Or must technology always be of the 'bamboo and mud-brick' level? We would argue that 'appropriate' technology should be of the quality and sophistication which people know they want, can afford, and can maintain – and sometimes this may be of a significantly higher level (in terms of design input, materials, cost, and quality) than so-called 'village' technology. In Uganda, a newly developed low-cost drilling rig uses state-of-the-art materials and sophisticated design methodologies to

produce equipment that can be operated and maintained by local contractors in a sustainable manner.

Sometimes it is hard for programmes in the field to keep up with the pace with which new development ideas emerge from the funding agencies and others – and are imposed on the projects that the donors support. Somehow the practitioners need to be able to take these new ideas on board, evaluate them, and adapt them to their local circumstances. Harder still, they need to explain to the funding agencies why they wish to deviate from the 'standard' approaches handed down. The funding agencies, in turn, need to be sensitive to the specifics of each programme they support.

Behind most of the broad principles and approaches proposed by the larger funding organizations and others, lie sound reasoning and wide experience. But the ways in which these principles should be put into practice depend very much on the local circumstances. Local culture, social structures, and economy; national and local government policies; the natural environment and infrastructure; and the dynamic situation in which development programmes operate — all should determine how programmes are designed and implemented. Programme staff in the field need to adapt general principles to particular situations, using their own local knowledge and expertise. There are no blueprints for achieving local ownership, women's participation, sustainable revenue generation, and all the other attributes of 'good' water and sanitation programmes.

Behaviour

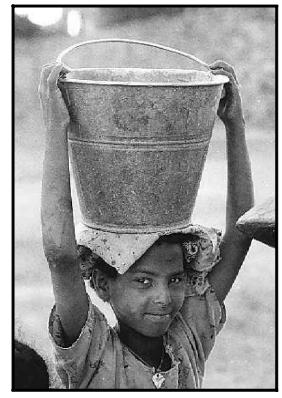
The second set of assumptions, illustrated in Table 2, concerns the utilization of water supply and sanitation infrastructure, as well as the uptake of the various messages contained in the programmes' education, training, and capacity-building components.

Because we assume that water supply and sanitation 'hardware' and 'software' will be used in particular ways, it is easy to assume that beneficial impacts will follow. New-found time will be used for beneficial purposes such as income generation, improved family care, better nutrition, or education, and health improvements will follow from increased usage of 'safe' water, use of latrines, and changed hygiene behaviour. Moreover, training and community capacity building will ensure the sustainability of programme impacts and the initiation of other community development activities.

In some cases, all these benefits do indeed follow, and success is achieved. In many others, they do not, and it may only be an external evaluation which reveals the limited impact of the programme.

Table 2 Common assumptions about programme utilization

Aspect	*Assumption*
Water consumption	Will increase to programme or national standard (20-5 l/person/day)
Water use	Over and above basic needs (drinking, cooking), water will be used for personal and home hygiene (bathing, clothes washing, cleaning utensils and home)
Water quality	Good at source, safe at point of consumption
Water users	All those within the appropriate administrative boundary will use the new source(s) provided for that 'community'
Maintenance of water source(s)	Users will report breakdown promptly Established repair system will operate efficiently Community will pay for necessary repairs
Time saved	Will be used productively – for benefit of women, children, and family
Latrines	Will be used by all
Latrine maintenance	Latrines will be kept clean Family will take appropriate action when pit fills Facilities for pit emptying/relocation exist Costs of emptying/relocation will be met by family
Hygiene behaviour	Extension/education programme will lead to sustained changes in behaviour
Health	Combination of increased usage of water for hygiene, other changes in hygiene behaviour, and universal latrine usage, will result in fewer water- and excreta-related infections
Wider development benefits	Capacity-building activities will promote other development initiatives in the community



Neil Cooper

Realities

Often **water consumption** increases as a result of improved access, but not up to the design figure used by the programme, or nationally; people (women) prefer to save time and energy rather than carry and use significantly greater quantities of water. **Water quality** is often adequate, even at untreated, but protected, sources; nevertheless, by the time that water is consumed, it has become heavily contaminated. Despite the establishment of water committees, the **maintenance** of water sources (especially communal handpumps) is often slow and inefficient, and community funds are inadequate or absent. **Latrine usage** may be far from

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voice box

DIY and development

I've finally fixed two leaking valves in our roof-tank. A simple job, which usually involves replacing two 15p washers. What could go wrong?

The tank is mounted in a dark attic, so it's hard to see what's going on. Nobody's looked at those valves in at least eight years, so it's unclear whether only washers need changing, or whether the whole valve must be replaced. Just changing the washer costs 15p but changing the whole unit means I spend eighty times as much. The components are stiff with limescale, so taking the unit apart may be difficult. Getting into the job, it turns out that the two valves require slightly different washers. The washers I'd bought worked fine for one of the valves, but not the other so, in the end, I needed to replace the whole valve on the second tank. Unfortunately, the plumbing in place is in copper, but new valve assemblies are made in plastic, so an adapter to join the two might be needed. I took a gamble and tried the joint without an adapter, and in fact the joint between plastic and metal seems reasonable. Two days later, I haven't seen a drop from the overflow pipe, so I may be finished. On the other hand, maybe not; I'll look again tonight.

What has all this got to do with development? Simply this: there are many tasks where we can't know what will work until we're three-quarters of the way through the job; even then, we may still spring a leak. When presented with the simple job of 'correcting leaking ball-valves', I couldn't tell what needed to be done, or how much capital outlay was required until the bulk of the work was finished. Builders and plumbers and electricians know this, especially when working with existing systems; they are always evasive (with good reason!) about the time and money required to complete a job.

Don't misunderstand me: I still believe that careful study and planning limits loss, and makes work go better and quicker. Before I started the work, I read my DIY manual on ball-valves; during the job I was careful about where I put tools. But no amount of planning could tell me what washer was needed, and whether it was available until I was three-quarters of the way through the job. If anybody had asked me to put together a 'logical framework' for this task, all of my 'intermediate indicators' would have been wrong, although the 'end-goal' of stopping the leak would be OK. If we know that even very simple repairs are not always predictable, perhaps we need a little humility and faith in thinking about 'Objectively Verifiable Indicators' for planning complex water, sanitation and hygiene projects. Perhaps the pendulum has swung too far from action to rational planning; while we should plan what we can, we must be open, honest and clear about the uncertainties of doing anything in the real world…and still have a go.

Pete Kolsky

Our research in Central America shows a major deterioration of water quality between source and home. Most organizations appear to turn a blind eye to this issue.

complete; for various reasons, in different circumstances, children, women, and men may object to their use. Education, training, and capacity building may result in short-term changes in people's behaviour but, after a few years, interest in being involved with **committees,** making **financial contributions**, and sustaining changes in **hygiene behaviour** wanes.

Our research in Central America, supporting that carried out elsewhere, has shown a major deterioration of water quality between source and home. Most organizations appear to turn a blind eye to this issue, either ignoring it altogether, or assuming that it is of limited health significance.

Most programmes and funding bodies fail to recognize the necessity for continuing long-term support to communities, committees and caretakers responsible for system maintenance.

Objectives

All water and sanitation programmes should have a clear statement of objectives, determined jointly by all stakeholders, and phrased in terms of how users/consumers will actually use or benefit from water and sanitation infrastructure. Components of such a statement would include, for example:

- bring about daily consumption of water of 20 litres per person; and
- achieve water quality at the point of consumption of no more than 10 faecal coliforms per 100ml.

Note the focus on the end-use, or the consumer. It is not enough to have as an objective the supply of 20 litres per person, at source. Supply-phrased objectives incorporate the (frequently wrong) assumption that if we supply water of good quality, (a) it will be used in the quantity we supply, and (b) the quality will be preserved up to the point of use. Consumer-phrased objectives also incorporate assumptions – the assumptions that if people utilize greater quantities of water, of good quality, there is the potential for improvement of health. These examples form only two out of around 20 specific statements which we propose in various articles referenced in the Resources guide on page 33.

The point of such statements is not so much to propose specific targets for universal use, but rather to propose forms of words which each programme should adapt to its own circumstances. The aim is to devise objectives which can be used readily for internal programme monitoring, as well as external evaluations. Wherever possible, the wording focuses on the user/consumer, and involves absolute measures, rather than comparative indicators which necessarily involve baseline data (which is often missing, or expensive to obtain).

Monitoring and evaluation

But how many programmes actually monitor any or all of the many factors which determine impact and sustainability? In our experience, few programmes measure actual water consumption, and what water is used for; few measure water quality at point of consumption (though water quality is sometimes measured at source); and so on. Where these factors are measured, much can be learned which can influence how programmes are implemented. Mark Trigg's article, beginning on page 21, demonstrates this very clearly.

Monitoring takes time, and costs money. But, more importantly, monitoring demands that programme staff analyse, learn, and adapt. The aim is to have 'learning projects' in which objectives are flexible, as are the means of achieving them. Success is achieved through experience and consultation and, above all, the willingness to learn. Is such a level of monitoring and responsiveness a luxury that water supply and sanitation programmes cannot afford? We would argue that a programme which fails to learn and adapt is less likely to achieve its objectives, no matter how realistic they seemed at the outset. Effective monitoring is not about collecting data for the sake of it, rather it is about collecting the information that counts, and having the commitment and resources to act upon it. This may require programme managers to be less office-bound and less focused on day-to-day operational matters, and more concerned with real impact. It is far preferable that programmes learn through their own monitoring, than that they have to wait for external evaluations before learning and changing.

Crispin Hughes/Panos Pictures

'Success is achieved through experience and consultation and, above all, the willingness to learn. Is such a level of monitoring and responsiveness a luxury that water supply and sanitation programmes cannot afford?'

On page 6 Alice Henry writes of how one project's design evolved through a flexible and participative process of joint learning. Joy Morgan, whose article you will find on page 10, shows how participative evaluation has led to changes in programme design in Kampala's squatter settlements.

Avoiding error

We hope that these 'theme' articles encourage programme staff to observe the realities which occur on their 'patch', and to modify programme design (both 'hardware' and 'software') accordingly. By observing and questioning — and through better programme design — they will achieve greater impact and sustainability. The combination of appropriate, user-focused programme objectives, and the local adaptation of internationally recognized principles, can avoid two possible errors: assuming, without observing, how people actually utilize water and sanitation systems; and assuming uncritically that universal solutions to development problems exist. ■

By observing and questioning — and through better programme design — programme staff will achieve greater impact and sustainability.

Coming up in the January 2000 issue

Vision 21

In an edition co-ordinated with Belinda Calaguas — Advocacy Officer at WaterAid — ***Waterlines*** will focus on Vision 21, the Vision for Water for People for the twenty-first century.

Vision 21 is concerned with water supply, environmental sanitation and hygiene. It forms part of the World Vision for Water for Life and the Environment for the 21st Century which will be presented at the World Water Forum and Ministerial Conference to be held in The Hague between 17 and 22 March 2000. Vision 21 sets the goal of a Basic Water, Sanitation and Hygiene Requirement, and targets universal access to safe water and adequate sanitation by 2025. Writers discuss the core points and essence of the Vision, and the advocacy agenda to achieving targets is assessed.

about the authors

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