

Managing water supply and sanitation services to developing communities: key success factors

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Abstract A number of key success factors in the management of organisations responsible for the provision of water supply and sanitation services to developing communities have been identified as critical to the sustained success of such organisations. These factors have to receive specific and sustained attention from management. They should form the focus of management attention in addition to the many other important factors requiring management input.

The key success factors which are critical to ensure a sustained water supply and the provision of sanitation services to developing communities centre around two main areas, i.e. the credibility of the organisation with the community it serves and the creation of an organisation culture of focusing on service to the community, on income generation and on minimising of losses.

Keywords Developing countries; management strategy; sanitation services; water supply

Introduction

The provision of water supply and sanitation services to established (developed) communities is a service which is rendered and received without much interaction between supplier and consumer. The service is generally taken for granted and paid for. The only times when interaction does occur (mostly through the media) is when tariffs are increased or at times when the water does not smell or taste as it should.

Water supply to developing communities on the other hand is a task with many pitfalls and many problem areas. Inherent in these situations are problems such as non-payment for services, continuously changing circumstances, poor information and records, often poor quality of infrastructure, vandalism, etc. These problems result in great demands being made on the leadership, skills, time and endurance of management.

Under these conditions management needs to focus time and efforts on those aspects which are really critical to the survival of the organisation. These critical aspects are often different from the focus of management functioning under relatively stable circumstances.

A number of key success factors in the management of an organisation providing water services to developing communities have been identified as critical to the success of such an organisation. These factors have to receive specific and sustained attention from management. They should form the focus of management attention in addition to the many other important factors requiring management input. From the experience of the author the key success factors listed are vitally important. There may, however be other factors which could be equally or even more important under different conditions.

Key success factors

In the management of any organisation there are many important aspects that need to receive day-to-day attention from management. These aspects are similar for most organisations and have to do with the classical management functions of defining the mission and objectives of the organisation and developing and implementing strategies to achieve these objectives and the operational management aspects of planning, organising, leading and control.

In addition to the normal management functions that are essential for any organisation to be successful there are typically a number of specific aspects for a particular type of business or organisation operating under specific circumstances that should receive special attention to ensure the success of the organisation. If these aspects are not addressed properly, the success of the organisation will be in doubt in spite of the fact that all the textbook management functions are being performed well.

These management functions are termed *key success factors (KSFs)*. They are very specific to the type of organisation and the circumstances under which the organisation has to operate. KSFs are not always easy to identify and it may take some time for a management team to become aware of the vital importance of these specific factors and to devote the necessary attention to them. KSFs must form an integral part of the strategic plan of an organisation and special efforts and programmes must be developed and implemented to ensure that KSFs are realised.

The provision of water supply and sanitation services to developing communities is similar in many respects to provision of these services to developed and established communities. There are however a number of very important differences that have to be taken into account. These differences may be present to a greater or lesser extent, but it is important that management should assess the situation and be aware of the potential difficulties that could arise therefrom. Table 1 lists the type of differences that may exist between established and developing communities. Obviously, there are many developing communities where conditions may be similar to those in established communities but in the majority of these communities conditions are very much like those mentioned (Palmer Development Group, 1993; Palmer and Eberhard, 1995).

The differences mentioned in Table 1 indicate that the KSFs for an organisation providing water supply and sanitation services to developing communities could be very different to the KSFs of a similar organisation providing these services to developed communities. Obviously most of the normal management functions will be identical, e.g. sound financial control, proper human resources policies, etc.

In an organisation responsible for water supply and provision of sanitation services to developing communities the KSFs centre around two main areas:

- Developing credibility of the organisation with the community it serves, and
- The creation of a culture focussing on maximising income and minimising losses.

These areas are discussed in detail further on.

Developing credibility of the organisation with the community it serves

The success or otherwise of a supplier of water services to developing communities depends in the first place on the acceptance of the organisation by the community. If the organisation is not accepted by the community it can expect resistance, non-payment, vandalism and eventually failure. Acceptance of the organisation is the result of the organisation earning a certain level of credibility with the community. As the level of credibility improves it can be expected that acceptance will at some stage develop into passive support by the community and later on into active support.

The starting point for obtaining active community support is therefore for the organisation to build a credibility base with the community. The only way that a water services supplier can obtain credibility with the community it serves is by earning it. Credibility is not something that is obtained automatically when an organisation is established by proclamation or an act of parliament or even at the request of a community. Credibility is earned by the organisation providing a reliable service to the community at a cost that is perceived to be fair, by assisting the community in solving water related problems and generally if the organisation is perceived to act in the best interest of the community.

Table 1 Water supply differences between developed and developing communities

Developed communities	Developing communities
Well established operations, systems, community structures Customer base stable, established	Changing circumstances, uncertain community structures, changing expectations and requirements Customers base mobile, high rate of change Infrastructure well maintained, high standard Infrastructure often poorly maintained Small plants, unfavourable cost structures
Large treatment plants and systems, economy of scale Qualified engineers, technicians and operators available Good records of operations, maintenance Good financial, cost and income systems and records Good systems and records of water produced, sold and losses Good technical and maintenance support Access to consultants and other support structures to solve problems	Problems with recruiting and retaining qualified people Poor or non-existent records Poor financial systems and records No or poor systems and records of water sold and losses Poor and/or little technical support Limited or no access to consultants due to cost restrictions to solve problems

(Van Ryneveld 1994, 1995, Kerri 1995).

C.F. Schutte

The first and very important KSF to develop credibility is the critical area of service provision and support to the community by the organisation:

KSF 1 Creating an organisation-wide culture of service to customers

The typical organisation providing water and sanitation services has a rather bureaucratic structure with job descriptions defining what a person is allowed or not allowed to do. This often results in attitudes by management and employees that the organisation is doing its best and the community should therefore be thankful for the services it receives. These structures and attitudes often result in customers (consumers) being referred from one department to the next and in the end not receiving answers or attention to their problems. In an organisation driven by a service culture every employee or member of management has to attend to the needs of customers irrespective of the job description.

It is therefore a vital function of management to create a service culture in the whole organisation – including those sections that do not normally interact with customers. Everyone in the organisation should understand that he or she is in the service of the community as far as water supply and sanitation services are concerned. Special efforts are required by management to break down old bureaucratic attitudes and to develop a culture of service.

A service culture involves:

- Ensuring that all queries and complaints from customers are followed up and resolved. A system has to be developed that will provide timely follow up mechanisms and controls to ensure that problems are resolved. Every person in the organisation should be prepared to listen to customers and assist them to find the right person or section that could help.
- Implement a user-friendly tariff structure and billing and payment systems. Tariff structures are often based on sliding scales or penalties for excessive water use and may include fixed cost and other items. When the consumer does not understand such tariff structures or the reasons for items on the monthly bill, the perception may develop that the consumer is being cheated in some way. Consequently the credibility of the organisation suffers. It is furthermore extremely frustrating to the customer to receive a complicated bill which does not allow one to see clearly what each item means and from

where it is derived. The bill should be structured in such a way that there should be no doubt about any item. It is also very important that the facilities for payment of the bill should be easy to reach and customers be helped quickly.

- Effective communication with the customer. The typical form of communication with consumers is by means of a newsletter with the monthly bill. This is however not a very effective means of communication. Other avenues should also be explored such as the possibility of a regular radio programme on the local radio station, communication and projects through schools, etc. The purpose of such communication programmes should not only be to inform but also to obtain feedback from the customer and to listen to the customer.

Credibility is something that is earned over a period of time. This means that the organisation has to perform well on aspects that are important to the consumer over a period of time with a minimal number of mishaps. Credibility can be viewed as an imaginary bank account into which deposits are made by the organisation when it does the things expected from it such as those mentioned above (in addition to many other positive actions). On the other hand when the organisation performs badly on these critical issues (e.g. by not communicating properly on a disruption in supply) it represents a large withdrawal from the imaginary credibility bank account.

Viewed from another perspective it means that if the organisation has a very large balance in its credibility account with its consumers one incident representing a large withdrawal will not be disastrous. However a series of incidents might destroy its credibility. This means that consistency and continual efforts to maintain credibility is vital for an organisation to be successful on a sustained basis.

KSF 2 Ensuring reliability in the water supply

The main function of a water supply undertaking is the provision of water to its customers. The success or otherwise of such an organisation is determined by the reliability of such a supply. This means that water must be continually available with the minimum interruptions in supply and the monthly cost to the consumer must be in line with what the consumer perceives to be the value of the water used. When the water supplier does not meet these expectations for whatever reason its credibility suffers.

It will obviously not be possible for the water supplier to meet all these expectations all of the time, but credibility can be maintained if the supplier is perceived to act in the best interests of its consumers. For example, when disruptions do occur the community must be informed immediately about the reasons for the interruption, the expected duration thereof and alternative arrangements for water during the interruption. When a consumer receives a bill that is perceived to be unfair, the water supplier must investigate possible causes such as leaks and assist the consumer with repairs and arrangements for payment.

Ensuring a reliable water supply and sanitation service is dependent on a number of elements which have to be performed well by the organisation. These include all the technical functions of proper operation and optimisation of treatment plants and systems, water quality surveillance and maintenance of all physical elements in the water supply chain. Normally the operations and surveillance aspects receive the required support from management. The maintenance function, however often fails to attract its fair share of management support. Yet it is one of the most important elements to ensure a reliable water supply and reliable sanitation services (Müller and Van Blerk, 1998).

Maintenance is a rather unrewarding job since it is mainly an "unseen" job. Good maintenance cannot be seen – only poor maintenance becomes apparent after some time. The result is that maintenance is sometimes neglected as it is not always seen as a critical part of the key functions of an organisation. Maintenance is often neglected for a variety of

...funded) reasons, such as "a lack of funds" for tools and equipment or appointment of well qualified staff, etc. because the funds are needed for "urgent and more important" work. This is a very foolish approach since the result of poor maintenance is often replacement at a cost many times that of the maintenance itself.

Maintenance is an important function in all water supply and sanitation operations. However, in developing areas it assumes special importance for a variety of reasons. These include reasons such as poor quality of infrastructure installed under the previous dispensation, poor maintenance in the past, incomplete or non-existent inventories and records of maintenance requirements, etc. This means that the work load of maintenance staff in developing areas is often much larger than their counterparts in established areas, their resources and facilities are more restricted and they often have to work under more difficult circumstances.

Special support from management for the maintenance function of a water supply undertaking is therefore a critical element of the KSF for ensuring a reliable water supply. Management should accept the fact that a very high level of maintenance is essential to protect the large capital investment in treatment plant and distribution systems required to ensure a reliable water supply.

Management must therefore give special attention and support to the maintenance function to ensure sufficient resources for proper facilities, tools and equipment, for training and development of staff, for recognition and rewarding of excellent performance by maintenance staff.

KSF 3 Ensuring community involvement

One of the biggest problems for a service supplier in developing areas is the fact that the supplier is simply regarded as just that, i.e. the supplier of a service for which "Government" or the "Municipality" is responsible. The community very seldom regard themselves as co-owners of the water supply system or as co-decision makers in matters affecting water supply or provision of sanitation services to them. The result of such an attitude is often seen in acts of vandalism, in non-payment for services, in forcing open fire hydrants and in leaving taps open in public areas, etc.

It is therefore an important task of the service supplier to involve the community as a whole and community leaders in particular in decisions and in certain aspects of water supply in order to develop a feeling among the community that they are part of the whole system, that their voice and wishes determine the level of service that will be supplied, and that they are in fact co-owners of the system.

Management often thinks that community involvement means establishing water committees which are informed of policies and procedures and that these committee members must in turn inform the community or get feedback from them on particular issues. This level of involvement is certainly not enough to ensure that the community becomes co-owner of the system and contributes to the credibility of the organisation with the community.

What is required is that management should create special mechanisms to enable community involvement at a much deeper level. This means that community leaders (e.g. members of the water committee or similar structure) must be empowered to understand the cost structure for the provision of the services and how tariffs are derived therefrom. They must appreciate what the effects of non-payment are on the ability of the organisation to render services. They must appreciate the effects of water losses on costs, so that the community will assist to root out vandalism and report leaks in the system. This will only be achieved through special efforts and projects by management to effectively empower and involve people from the community.

The second area which is critical to the success and survival of an organisation providing water and sanitation services is that of implementing sound and focussed financial approaches and systems. Two further KSFs are identified in this area.

The creation of a culture focusing on maximising income and minimising losses

It is a simple fact that if consumers don't pay for water and sanitation services no supplier of such services will survive unless the cost is covered by a subsidy from government. In the case of very poor communities subsidies are often seen as the only solution. A subsidy often has the habit of starting out as temporary, then it becomes indispensable and eventually it becomes unaffordable to the provider of the subsidy. This results in drastic measures when subsidies are cut and hardships to the community. Subsidies should therefore be avoided as far as possible but when there is no other option subsidies must be applied with great care (Kerri 1995).

The financial survival of water and sanitation services suppliers (as for any other organisation) depends on the application of sound financial approaches, systems, controls and strict financial discipline. In the case of water services suppliers to developing communities these approaches and systems only are insufficient to ensure survival. They must be supplemented by approaches and systems aimed at two critical areas, i.e. firstly that of mobilising efforts to maximise collection of income due to the organisation and secondly that of minimising losses.

KSF 4 Create a culture and awareness of focussing on generation and collection of income

The generation and collection of income in a water services organisation is often seen as a function only of the financial section. The technical sections see their functions mainly as ensuring that water is available or sanitation services provided without recognising that they are the first line of income generation and collection.

Technical staff do not always realise that generation of income in the first place depends on properly functioning water meters for which they are responsible, that income is lost due to leaks in the system, that illegal connections means loss of income, that poor maintenance and interruptions in supply amounts to a large loss in revenue, etc.

Technical staff responsible for inspections, replacement and maintenance are as important in the contact with consumers and in the generation and collection of revenue as are meter readers, and staff in queries and payment sections.

It is therefore important for management to create a culture among everyone in the organisation to focus on income generation and collection. This means that the organisation as a whole and regional divisions or sections must operate as business centres and not as cost centres as is often the case in this type of organisation. Expenditure must be linked to the income generated as opposed to budgeting for expenditures independently of income generated and collected.

A bill which is not paid due to a query about an unexpected large consumption figure represents a loss of income if the query is not solved. This has to be done firstly by a technical person inspecting the meter or advising the consumer about repairing leaks in the home and secondly by the financial section to adjust the bill or agree with the customer on arrangements for payment.

KSF 5 Create a culture of cost consciousness and focus on minimisation of losses

The typical approach of a bureaucratic type of organisation is that it functions as a cost centre. This means expenditure is budgeted for and the approved budget is spent irrespective of what the income is. To be successful a water services organisation must operate as a business centre which means that expenditure must be linked to income. This requires that

the financial systems must support such an approach and furthermore that a culture of cost consciousness must be established throughout the organisation – with management leading by example (Bradley, 1994).

Such an approach requires that the cost structure of the organisation be reviewed and that both fixed and operational costs be categorised as controllable and non-controllable. Everyone in the organisation then has a task to assume responsibility for minimising expenditure on those items under their control. The idea is obviously not to minimise expenditure to the level where the operation of the organisation is affected but rather to minimise or eliminate avoidable expenditure. It is an important task of management to create a culture in the organisation where all costs are scrutinised and to establish systems to support such a culture.

The cost consciousness culture must focus on minimisation of avoidable expenditure on the one hand and on elimination of losses on the other hand. Losses in a water services organisation include a number of items such as water losses from the system, production losses due to plant failure or low staff productivity, revenue losses due to non-payment or non-functioning meters and losses due to vandalism where equipment has to be replaced or repaired.

Water losses can amount to substantial financial losses in a water supply undertaking. It is not uncommon for water losses of 30% or more to occur in the distribution system in developing areas. This may be due to poor infrastructure, to poor control of illegal connections, to poor records and systems with connections not recorded as users, to tampering with or bypassing of meters, to overflow of reservoirs, to vandalism and a variety of other causes.

In order to minimise water losses, or more correctly unaccounted-for-water, (i.e. water produced but not sold) a sustained programme is required aimed at all the elements contributing to water losses. This includes quantifying the problem by installation of bulk and other meters, it includes correlating the meter reading and billing system with connection records, it includes a replacement and maintenance programme to ensure all meters are in place and calibrated, it includes inspections to identify illegal connections, etc. It is evident that a major drive by different sections in the organisation is necessary to address the problem of water losses. Such a programme will only be successful if driven by management to the extent that a culture of loss prevention is established in the organisation.

Conclusions

In order for an organisation responsible for water supply and sanitation services in developing areas to be successful on a sustained basis, demands much more from its management and employees than classical textbook management inputs. The key success factors discussed in this paper give an indication of the additional efforts and inputs required from management of such an organisation to be successful.

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C.F. Schutte