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Sustainable Operation and Maintenance of Rural Water Supplies: Are we moving in the right direction?

The sustainability of rural water supplies is affected by a wide range of factors including policies, institutional issues, financing strategies, technology choice, technical quality, the environment, social factors, management models and supply chains. At the heart of sustainability is the need for effective operation and maintenance (O&M).

Too often in the past the emphasis has been placed on the operation and maintenance of single water points or systems. Village Level Operation and Maintenance (VLOM) and Village Level Operation and Management of Maintenance (VLOMM) arose from the desire to ensure that each community was able to manage the operation and maintenance of its own water supply. This project-focused approach commonly viewed poor rural communities as idealised and isolated entities. The fact that an estimated one third of handpumps in sub-Saharan Africa are not working at any given time indicates that this approach has not delivered satisfactory levels of sustainability. However, for donors and governments under pressure to spend money it is easier to adopt 'business as usual' rather than try new approaches. As a result, community management is promoted as a uniform strategy despite its limitations, supply chains remain largely unsustainable and the need for constant rehabilitation and replacement continues.

There is a critical need for a paradigm shift from the traditional project facility-based approach of the past to a programme service-based approach. Table 1 compares the project approach and the programme approach in relation to seven 'sustainability factors'. Focusing on 'programmes' rather than 'projects', and 'services' rather than 'facilities', presents an excellent opportunity to enhance the sustainability of water provision to rural communities in low-income countries. The programme approach is built on partnerships between central government, donors, regional and local government, non-governmental organisations, community-based organisations and ultimately, individual members of rural communities. Since most sub-Saharan African countries have adopted decentralisation policies, local Government institutions have the primary responsibility for service delivery. However, such an approach will be successful only if local government institutions acquire sufficient capacity and resources to be able to deliver, and if corruption at all levels can be minimised.

The most fundamental way in which a programme differs from a project is that it has an indefinite timeframe and consequently there are no arbitrary time limits that drive the planning and implementation process. A programme is built on permanent partnerships and consequently there is no requirement for 'exit-strategies' or 'handovers'. This is crucially important in terms of sustainable water provision since it is now increasingly accepted that community-managed water supplies require ongoing support from an appropriate institution. Water supply is a service, just as healthcare is a service, and any service requires ongoing management. The focus on the facility or static infrastructure (which it is hoped that the users will keep going somehow) detracts from the importance of managing and maintaining a water service, which is a dynamic process. The delivery of a service also implies a longer-term view, which recognises the fundamental human right of access to safe water. This means that governments should not abrogate all responsibility for service provision to the rural poor, but should play a key role in service delivery through appropriate support, including effective regulation.

The service approach means that users pay for water rather than for O&M of a single facility. By paying for a water service they are paying for the delivery of water on a sustainable basis. This service must, therefore, include monitoring and regulation to ensure that safe and adequate water is provided at affordable cost, and should also include the cost of asset replacement. As part of a programme service-based approach the potential need for subsidy for such activities must be recognised, especially for poorer communities and households. Consequently, appropriate subsidy strategies need to be developed, whether using public funds, private funds, or cross-subsidies.

By focusing on a water service, the emphasis is on the continuous provision of safe drinking water. This facilitates wider technology choice and promotes the upgradability of systems to improve service levels, rather than accepting that water has been provided and that's the end of the matter, as is the case in the facility-based project approach. Flexible technology, which can be upgraded over time, can respond to the needs and demands of the community, as well as to environmental changes such as depletion of water resources, which should be monitored as part of the service provided. Where possible, communities should be given the choice of whether to be service-provider supported by a regulator, or whether they would prefer a private sector service-provider. Perhaps the most important advantage is that the delivery of a water service is an indefinite process, and consequently, a path of supported sustainability involving all key stakeholders must be developed and followed.

Sustainability factor	*Project*	*Programme*
Policy context	The influence on policy is minimized by the time-frame of the project	There is potential to develop advocacy strategies to influence long-term policy and strategy change
Management and institutional arrangements	Projects are often donor-driven and implemented by NGOs / consultants who leave the area after a finite period	Local government and sustainable institutions in partnership with the private sector take the key roles
Community and social aspects	The need for a project 'handover' transfers all O&M responsibility to users with little or no external support	Sustainable partnerships can be developed over time and ongoing institutional support provided to communities Communities are given choice to be or not be service-provider
Financial issues	Time-bound budgetary requirements limit sustainable financing mechanisms Users pay for maintenance and upkeep of a single facility only	Budgetary allocations can be made for institutional support for communities and long-term incremental strategies Users pay for water service which includes the cost of asset replacement for which subsidy may be available
Technology	Technology choice often remains rigid with a finite lifespan and there is no time to investigate longer-term solutions	Allocations for research and development can investigate alternative technologies A flexible approach to technology is adopted allowing it be upgraded over time and respond to environmental changes
Environment	Initial environmental assessments may be conducted during construction but there is no follow-up	Long-term strategies can be put in place to monitor water resources and environmental issues
Supply chains	The need for an exit strategy has led to the idea of a 'seed fund' for private spare parts supply – this has not worked Maintenance and repair focused on the specific facilities	Incremental strategies can be developed to encourage spares supply by linking with other programme activities Maintenance and repair are inherent components of water service

***Table 1**: Advantages of programme service-based approach over project facility-based approach*

Despite growing awareness of the need to adopt a more holistic approach to sustained operation and maintenance, much too little has changed on the ground. Many donors and governments continue to focus on installing facilities (e.g. handpumps), ignore the need to support operation and maintenance, and replicate ineffective approaches to supply chain development. Unless this changes we will be quoting similar operational failure rates for many years to come

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