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Strengthening WASH sector monitoring through the use of ICTs: experiences from Zimbabwe's Rural WASH Information Management System (RWIMS)

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A rural WASH database is under development in Zimbabwe where anecdotal information continues to be a major constraint to sector planning. Without a firm evidence base, the sector has not been able to institute policy changes and provide a framework through which interventions can be designed. Performance tracking, transparency and accountability remain weak without compelling cases based on credible information. This paper explores opportunities created by RWIMS, a mobile to web based database, which brought reforms in the management of sector information and attempted to address the practical issues that sector practioners grapple with in their quest to provide services that last. Specifically, it lays out the opportunities that the system has created in addressing a perennial national challenge of improving O&M of rural water points riding on the penetration of mobile technology in rural Zimbabwe.

Introduction

In recent years, Zimbabwe, once a model in the region, has faced a downturn in its economy. This has resulted in the near collapse of the Water, Sanitation and Hygiene (WASH) sector characterized by ageing infrastructure, poor functionality of water points and a reversal of gains made over years. Coverage levels, service quality, access and reliability have dropped significantly.

Without doubt, unavailability of sector information continues to be a major constraint to sector planning and equitable allocation of resources resulting in misdirection and wastage of resources and potential exacerbation of existing inequalities. Without a firm evidence base, the WASH sector has not been able to institute policy changes and provide a framework through which interventions can be designed in a coherent way. Performance tracking, transparency and accountability remain weak without compelling cases based on credible information. All this has contributed to poor WASH service delivery, contributing to increased morbidity and mortality from WASH related illnesses and loss of productive time.

In 2011, the Government of Zimbabwe, through the rebranded National Action Committee (NAC) developed a comprehensive roadmap for the WASH sector to guide sector recovery, transition and development efforts. One of its key priorities going forward was the resuscitation and strengthening of WASH governance structures from national through to village level. This gave birth to the development of RWIMS under the Rural WASH Sub-Sector. RWIMS is an online open access mobile to web-based application with capacity to capture, store, process and generate reports that can be used for strategic decision making, planning and governance of WASH services.

The development of RWIMS leveraged on the remarkable growth and penetration of the mobile technology in rural Sub-Saharan Africa. This development has had a huge impact in areas such as health behaviour change, crowd-sourced reporting and the provision of financial services to the previously underserved rural poor. Most of these applications have utilized basic phone technologies such as SMS with widest coverage. Increasingly, however, because of the expansion of network coverage of data services such as Edge, GPRS and 3G, it has become feasible to utilize highly efficient and cost-effective internet applications to conduct what would previously have been highly manual functions. Mobile-based data

collection services have been used fairly extensively over the past years. These services start at the simple with small pieces of information sent via SMS in code format, and rise in complexity to allow real-time collection of location and video information through tablets and iPads. The RWIMS solution took full advantage of these advances in ICT to champion reforms in management of WASH information as well as improving O & M of rural water supplies. To-date, RWIMS has successfully been deployed to five rural Provinces of the country and rolling out to the three remaining Provinces is currently underway and envisaged to be complete by June 2017. This will result in the establishment of real-time online databases for the 60 Rural Districts accessible through the sector website www.ncuwash.org

The RWIMS concept

RWIMS is a customized open access, mobile to web-based application used to capture, store, retrieve and analyse WASH data. It has the capacity to store geographic information which then can be used to produce WASH maps and reports for specific wards. The RWIMS solution was configured with five basic components with integrated functions. These components are RWIMS FieldForce, RWIMS Geodatabase, RWIMS Online, RWIMS SMS Notification and Response Service (RWIMS SNR) and RWIMS LiveCast. RWIMS FieldForce is a tool for field data collection and mapping using smart phones. This was developed to replace the previous paper based data collection system which was slow, to convey data to the central repository. RWIMS Geodatabase is the central repository of all the collected data with capacity to hold locational data. This database is web based and accessible to all. RWIMS Online is an internet based platform that allows for online retrieval, analysis, display and viewing of the geographic database. Anyone with user rights can access the database online irrespective of location. The RWIMS SNR component is a platform used to send alerts to service providers to trigger O&M service response. It connects users of WASH facilities at village level with O & M service providers via free SMS. It is also used to communicate updates to RWIMS Enumerators at Ward Level on any changes to the status of WASH facilities following breakdowns or repairs. RWIMS SNR is a critical component that completes the loop in practical utilization of the database to address practical O & M challenges that ensure sustainable service delivery. Lastly, the RWIMS LiveCast is a broadcast service that displays a self-updating dashboard of key indicators on rural WASH. The live dashboard is controlled by the national server and broadcasted to pre-set television sets at designated strategic locations. These five components work together in unison and one is a function of the other.

RWIMS deployment

In the spirit of creating lasting impact, the Information and Knowledge Management Taskforce (IKMT) executed capacity building interventions to transfer knowledge, skills and practices necessary to ensure system functionality and use. IKMT started by building the capacity of government officers at all levels using a cascading approach, through a series of training of trainers (ToT) workshops. This approach was aimed at institutionalising the capacity as well as strengthening lines of command from national right through to ward level. Cadres at each level were trained to proactively lead in transferring capacity to lower level structures. This enabled provincial and district structures to plan and execute RWIMS capacity building workshops and facilitate field data collection with minimal external input.

Field data collection was done by government extension staff working and residing in those wards. This strategy was adopted to ensure continuity in updating ward databases. Field data collection was done through a Village Based Consultative Inventory (VBCI) methodology using mobile gadgets. Key processes that led to field data collection included sensitisation and mobilisation of local leadership and communities, development of village based meeting schedules, field data collection and online data cleaning. Data cleaning involved checking for data completeness, consistency and correctness. The process of community sensitisation to data collection and cleaning was done over a period of twenty working days working with one extension worker per ward. To-date, a total of 1 060 wards and 23 167 villages have been enumerated and mapped. Data collection is guided by a set of eight data collection tools customised in the RWIMS FieldForce system, that is, the communal water form, household water form, institutional water form, village sanitation form, health institutions sanitation, schools sanitation, other institutions sanitation and village hygiene form.

Lessons from rolling out RWIMS

Given the extensive experience that has been gathered through the establishment of the system this section seeks to share tips on how such a system can be deployed effectively. It brings together those experiences, highlighting the tips for deploying a robust and sustainable information management system as identified during the roll out process across the five provinces.

1. Pre conditions for deployment

Assess readiness of the environment for system deployment

Diagnosis of the current practices to develop an understanding of the existing information management systems underuse by various sector stakeholders, establish gaps and justification for the new system. Identify and understand your deployment audience. It is good to know the distinct groups and their capabilities. You need to identify the level of control that each group has over the new system. Identify the deployment strategy. Will you run the new system independently or parallel with the existing systems? You need to understand for whom you are deploying the system, their current work practices, policies and level of change they are willing to tolerate and how the system will affect them.

Assess administrative structures and select the appropriate focal persons that will be targeted for local capacity building. These focal persons will be responsible for responding to both NAC business management and the stakeholders and user community information needs.

Orientation of stakeholders

Announce system deployment to all relevant structures from national to the lowest level to get their buy in. This includes putting in place a detailed work-plan as the exercise will definitely affect or disrupt other development endeavours. Furthermore, an information management system requires resources for deployment and sustenance. Resources for training and acquiring the expertise for running the system and support with the requisite resources is made possible with senior management involvement and seeing value and need for information. Top leadership will need to invest valuable time in articulating the WASH vision and determining how ICT will help with meeting and sustaining that vision.

Ensure leadership buy-in and championing of the system at all levels

Successful deployment of an effective information management system requires support from the top leadership. Implementation of RWIMS in Zimbabwe enjoyed senior level support at all the levels of government at inception. Senior public servants were involved and drove the process especially at sub-national level. Inception processes targeted senior political leadership that included Ministers of State at the Provincial level as well as senior civil servants amongst which were Provincial Administrators, District Administrators as well as Chief Executive Officers for the targeted Rural Local Authorities. While senior level support was visible during the inception process a disengagement from the process from there onwards is noticed. Senior level involvement should also be seen in the demand and use of information that is generated from the system. To date there is very little evidence to show continued involvement of the Political leadership at the level of Ministers of State. Demand for information at that level would trigger real time updating and maintenance of the system by all the Districts.

2. Implementation stage

Select appropriate trainers

Trainers and trainees should be selected carefully for effective transfer of key concepts. Remember that stakeholders may need training beyond that of learning how to work with your application. To avoid the pitfalls the project must be designed from the start for cascade-delivery such that the facilitators have an understanding of what the cascading process entails. WASH awareness and basic appreciation of Information Technology (IT) is a must for all trainers. This means that while WASH interventions use the integrated approach a deliberate effort should be made to include departments and line Ministries that work or engage more often with WASH interventions. Choosing competent trainers to deliver the second-stage training is absolutely critical. Ideally this should include practising presentation of the modules. That way, the initial trainer can give support and coaching and can also build up the confidence and knowledge of the second- stage trainers. Any mistakes can be made in a closed, "safe" environment. The key thing is that the delivery has to be consistent, regardless of province, district and who does it.

Another critical point to recognize is that this may be the first time that some users are working with smart phones and the system in particular which calls for more practical sessions by all participants during the hands-on component of the training. Instead of sampling Enumerators for the field demonstration, the field work should be organised in such a way that it gives each and every Enumerator under training an opportunity to administer one or more forms.

Develop sufficient capacity at all levels

Capacity development is an important part of deployment. In the case of Zimbabwe the cascade or train-the-trainer system was used. The strategy was good as it minimised cost and ensured capacity at all levels. However, planning and preparation is crucial when using the approach to avoid failure. It is possible, indeed likely, that the people you choose to receive and pass on the training will not themselves be natural trainers and specialists in WASH issues, so it is probable that the dilution rate will actually increase as the training is cascaded through the levels. Despite its advantages, the cascade model has a weakness of distorted messages transferred during the training, because they are passed down through many different levels of personnel. More time therefore needs to be dedicated to training of the trainers to avoid different interpretations of the same message. The cascade model requires a series of consecutive trainings for consistent skills and knowledge development. It is good to check on the process and outcome of each training to track if the trainers at the lowest level have internalised the messages.

Authorise the data that is in the system is of credible quality

At each level, there is need to constantly check the quality of data trickling into the system during the 20 days of data collection to assist enumerators with data cleaning. If the data that is produced by an information system is viewed as not reliable and credible the same data will not be used. Quality assurance of the data has to be embedded in the data collection system for example triangulation with primary data sources is key. All structures from micro level should endorse the data as credible. There must also be a deliberate effort to strengthen the community level structures to ensure accurate and credible data form primary sources.

Provide feedback to those supplying the data and information

Provide communities with feedback on the data collected through the various organised structures. If the information supplied is never heard of again, there may be no incentive for the same communities to contribute towards real time updating of the same data in case of any changes in status or so.

Develop a sustainability strategy

The plan should clearly define roles, responsibilities and accountability measures of stakeholders. This plan should be a live document and its effectiveness should be regularly evaluated and adjusted. When a sustainability strategy is developed budgeting for ICT development and strengthening (data collection gadgets, computers and internet connectivity) should be treated as an investment and not an expense.

As the strategic plan is developed and ensuing activities are identified and prioritized, estimated gains should be spelt out as returns through the adoption of a value analysis. The value addition brought about by the new system should be made clear to the policy makers, planners, enumerators and communities.

3. Post deployment

Use the information for O&M, reporting and accountability

Utilisation of data from the system is the yardstick of its success. The information gathered must be accessible and used at all levels. The information should not only be used for reporting purposes but to inform designing of interventions, learning and picking up best practices as well as holding stakeholders accountable. The information generated from the system can be used to access impact of interventions, direct and guide allocation of resources and improving legislative agenda on WASH issues.

Constantly adapt and adjust the system

The system needs to be constantly reviewed and evaluated for relevancy picking up on issues likely to threaten its continuity and sustainability post roll-out and to identify and take advantage of new growth opportunities; a chance to make RWIMS a more pro-active tool to rive sustainable development.

What Zimbabwe achieved

Deployment of RWIMS across 36 districts has presented Rural District Councils with opportunities to improve WASH service delivery while positioning themselves to tackle more systemic issues of governance, equity and inclusion. The following benefits have been realised to date:

1. Each RDC has a complete, robust, accurate and real time database which can be accessed at a click of a button, showing district-wide overview of WASH coverage and access issues. This has vastly improved RDCs' ability to accurately respond to specific needs of communities.
2. RDCs and development actors are more effective at needs prioritization and targeting of scarce resources based on reliable data and evidence, resulting in greater efficiency. Underlying patterns of inequitable distribution and exclusion in access to WASH services have become clearer through accurate mapping and can be more specifically targeted.
3. RWIMS has contributed to sustained functionality of WASH facilities through timely information about breakdowns and patterns of usage that hamper functionality, resulting in greater value for money from WASH investments.
4. RWIMS has contributed to transparency and accountability as communities and other WASH stakeholders engage meaningfully with local authorities during annual budget consultations, advocacy and other planning processes, based on data that are openly available to all.
5. RDCs now have a powerful basis for service level benchmarking, performance tracking and decision making on quality improvement.
6. Information is available at the click of a button which saves on time and resources especially on carrying out baselines. Scarce resources can be channeled towards identified pressing issues- treating exactly where it hurts.
7. It is also envisaged that the system will help the private sector in determining the demand for WASH products and as such will improve their product penetration in rural areas.

Key lessons

The RWIMS initiative has provided practical lessons to Zimbabwe and other developing nations intending to embark on developing similar solutions. Working with databases has not been easy. Firstly, there is risk of collecting huge amounts of data which may never be used resulting in wastage of resources and redundancy of database. Having a database is one thing and its utilization is another different thing. Since the deployment or RWIMS to 36 districts of Zimbabwe, there has been very little evidence of its utilization by sector partners. This is a result of many factors that include challenges with internet access particularly for potential users from rural areas. Secondly, navigating the database online requires good grasp of basic ICT knowledge and skills which are not universal. A great number of potential users find it difficult to perform simple procedures to retrieve, process, analyze data or produce reports. In order to address these challenges, a lot of resources are required to invest in capacity building of sector actors on a continuous basis. Such resources are scarce in Zimbabwe. The ultimate risk is for the database developing into a white elephant. Such signs have begun to manifest at all levels by the number of potential users regularly accessing RWIMS at all levels.

Opportunities for key sector reforms

The major potential for change brought by RWIMS is in the manner in which response to O & M needs of rural water supplies has been rendered. Currently, Zimbabwe is using a Community Based Management (CBM) model where O & M services are provided by Village Pump Mechanics (VPMS) with beneficiary communities meeting the cost through their local level water point fund.. O & M services are viewed as part of community service under this model. While this has its advantages, the model has proved unsustainable. VPMs have not found enough incentives to continue providing O & M services under CBM. Neither have private investors realised opportunities for business. As such spare parts for borehole maintenance, for example, are not available and accessible despite having huge market created by 60% water points that are non-functional at any given time.

The coming in of RWIMS presents opportunities for doing business differently. Firstly the quantum of business in O&M of water facilities can now be accurately quantified and mapped at any given time, good enough a carrot to lure public private partnerships in WASH based on sound business models.

Conclusions and recommendations

From the Zimbabwe experience it is evident that for a successful RWIMS deployment program there is need for a selected appropriate deployment strategy with a laid out schedule and deployment time table which is sensitive to the prevailing environment. A two way communication is vital between the primary source and the users of information to ensure sustainability. Therefore a structured process should be established through the sustainability plan to promote communication at all levels. There is need for a commitment at executive level with support from line managers who in turn will demand data input from enumerators. Investment in associated RWIMS hardware is necessary to ensure full utilization of the national database at all levels. Finally having data is one thing and its effective use is another thing. To ensure sustained use of RWIMS products, the system was linked to O & M of water points thus addressing the practical WASH needs of communities.

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References

AHMAD, T et al (2016) *Rural WASH Project in Zimbabwe: Monitoring and Feedback Mechanism for Accelerating progress*, Paper Submitted for 39th WEDC Conference, Kumasi, Ghana, 2016

Government of Zimbabwe and UNICEF (2012) *Improving Water, Sanitation, and Hygiene in Rural Areas of Zimbabwe: Strategic Concept Note and Programme Design*, June 2012-2016.

Jones, D (2013) *Mobile Solutions for WASH Services*, Paper Submitted for the 2013 IWA Development Conference

Mann B et al (2013) ICT and WASH Fall 2013: *A Synthesis of Conference Presentations for Mobile Technology in the Water, Sanitation and Hygiene Sector*, IWA Development Conference Report

Note

Disclaimer: the views expressed in this paper are those of the authors and do not necessarily reflect the views of government/organisations they work for.

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