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**TRANSFORMATION TOWARDS SUSTAINABLE
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Using results based financing and adaptive programming to improve water service delivery in rural Tanzania

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The Government of Tanzania, through the Ministry of Water and Irrigation and with financial support from DFID Tanzania established a 'Payment by Results' scheme (PbR) to create a performance based incentive program to engage local and national government actors to improve water service delivery and sustainability across rural Tanzania. The programme combined a frequently challenged results based financing model with an innovative adaptive programming approach to drive improvements in data and information management systems, updating and reporting mechanisms and operations and maintenance approaches. The PbR has just completed its second year and has already had a significant impact on update reporting rates, data integrity and quality, levels of local government engagement and inter-ministerial co-operation.

WSDP and MoWI commitment to improving rural water supply

Water Sector Development Programme (WSDP)

The Government of Tanzania has placed high priority on delivering results in the water and sanitation sector. The government has a 20 year Water Sector Development Programme (WSDP), which aims to achieve universal access to water supply in urban areas and cover at least 90% of the population with access to water in rural area by 2025. Since the launch of WSDP, funding for the water sector in Tanzania has quadrupled to US\$1.3 billion for Phase One of WSDP (2007-14) with Phase Two (2014-19) estimates substantially increased to US\$3.3 billion; possibly the largest national water and sanitation programme being implemented in Africa today. The WSDP I Rural WASH Component had US\$ 434 million for implementation in 168 LGAs. Investments in WSDP have resulted in progress in policy development and implementation, and a well-established institutional framework. Results from Phase I of WSDP show that investments in this sector over seven years from 2007 to March 2015 has resulted in about 20 million people in rural areas gaining access to improved water sources, 551,806 households have gained access to improved sanitation and 171 schools achieved the target students to improved latrine ratio.

While overall progress in terms of achievements was good, the lack of robust routine data and information management systems to inform planning and budgeting remained a significant challenge. A large amount of data was being collected but quality remained a major issue and data was rarely used for operational planning or budgeting. The innovative GIS-based Water Point Mapping System (WPMS) was developed in 2012 to provide the status of rural water infrastructure across the country (<http://wpm.maji.go.tz/>). However, despite a significant investment of effort and resources to establish a meaningful baseline inventory, the quality of baseline data remained low and the issue of establishing a cost-effective updating mechanism remained a significant challenge.

Payment by Results (PbR)

As one of the support elements of the WSDP, DFID Tanzania proposed the use of a results-based component, a Payment by Results scheme. The programme focuses on providing additional incentives to Local Government Authorities (LGA's) in Tanzania to accelerate progress towards more effective delivery

of results, and on incentivising a renewed focus on the maintenance of rural water supply infrastructures. PbR deliverables were tied to Ministry of Water & Irrigation (MoWI) strategic milestones around coverage and access to improved water supply, and to the creation of an effective network of Community Management Organisations (CMO's) responsible for the operation and maintenance of water supply infrastructure. The PbR therefore focused specifically on the improvement of data quality and reporting, since the accuracy of this data would be the cornerstone of future performance measurements and the related disbursements. The PbR was made available to 181 of the 185 LGA's in Tanzania, with four urban authorities choosing to opt out of the programme.

PbR and the need for an adaptive programming approach

In order to implement PbR both the Ministry of Water and Irrigation (MoWI) and DFID were aware of the need to be cognisant of the complexities of the Tanzanian rural water sector, and so examined the potential benefits of adopting an adaptive programming approach as a means to accommodate this complexity.

Understanding the complexity of WASH systems

The challenge within the WASH sector is that we are dealing with very complex problems within hugely complex operating environments populated by equally complex agents (stakeholders). In such highly adaptive social systems the multitude of interactions occurring between agents across each level of the system hierarchy are constantly in a state of feedback and reactive and adaptive flux, producing a diverse set of emergent behaviours that when observed as a whole, 'becomes not only more than, but very different, from the sum of its parts' (Miller & Page 2007, Anderson 1972). This non-linear emergence is what makes complex systems so difficult to predict from a behavioural point of view and is what has inadvertently led to the dependency on the simplified reductionist approaches historically adopted within the development sector.

The equilibrium that is so frequently sought in conventional development approaches is widely agreed not to exist in such complex adaptive systems as are found in the WASH sector. There is no equilibrium to achieve. Instead the system is seen to be constantly shifting and changing in response to local and system-wide influences and perturbations, and so we need an approach that allows for trial and error and the ability to learn and adapt quickly to the constant changes within the system. Traditionally, development actors have sought to find singular solutions to complex problems, rather than focusing on creating a flexible operating environment within which agents and processes can adapt and evolve on a natural trajectory towards more optimised behaviour. The principle here is one of 'Framed Adaptation' the focus of which is the creation of a framework within the enabling environment, within which processes can best adapt and evolve to work within the context, skill base and resource base available.

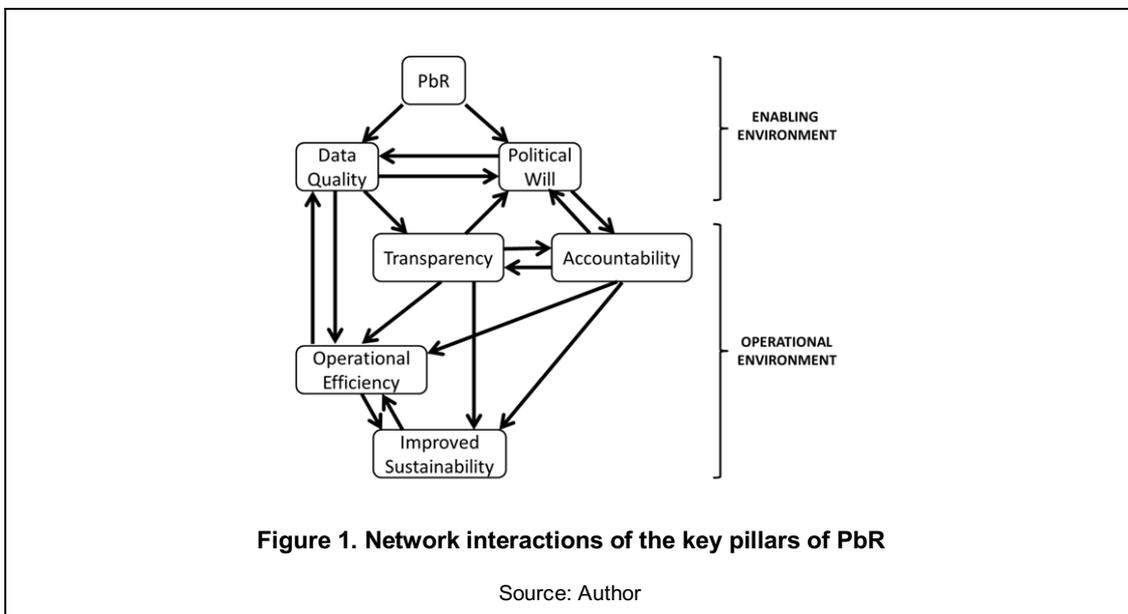
The understanding was therefore that, by adopting a more adaptive form of programming, in which plans and processes are constantly assessed, reviewed, and then adjusted, it is possible to develop processes and procedures that react and evolve to changes that occur. This approach creates development processes that are better equipped to deliver sustainable outcomes in complex dynamic operating environments such as the Tanzania rural water sector.

Following this type of adaptive approach allows us to grow systems that are more resilient, have high levels of embedded redundancy and flexibility, as well as in-built feedback mechanisms that allow processes and procedures within the system to adapt and evolve organically in response to emerging issues. These are the fundamental principles behind adaptive programming and when done correctly this mirrors the ecology-based thinking that more closely resembles growing system components rather than building them. This has huge benefits particularly in relation to stakeholder (agent) engagement and participation, and context specific design, which will in turn lead to more positive system behaviour and emergent outcomes.

The principle was therefore that the performance based financing would provide a framework of incentives across the local government network to facilitate engagement and to nurture commitment to the improvement of systems and processes, while the adaptive programming approach would provide the necessary flexibility to learn and adjust processes in response to the behaviour of the system and its stakeholders.

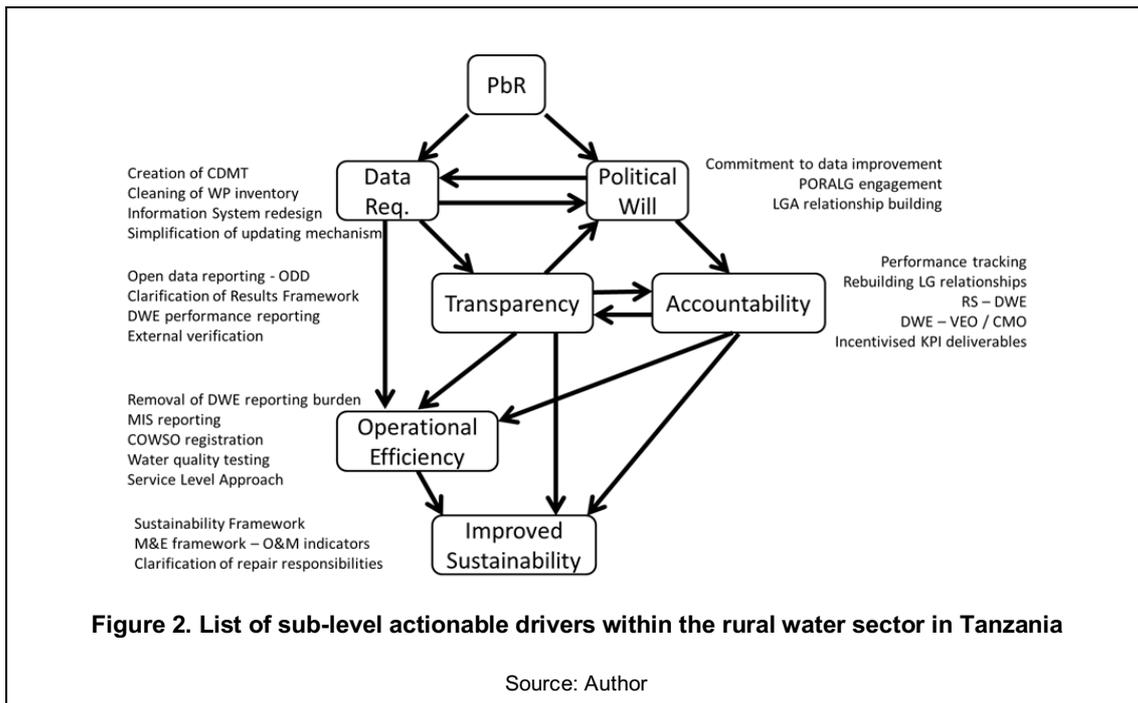
Unravelling the mechanics of the Tanzanian rural water sector

For the adaptive approach of the PbR program to succeed in the Tanzanian rural water context, it was important for MoWI and DFID to identify the key drivers that would most influence change within the sector. Reviews of various processes and systems within the Ministry and the broader rural water sector, highlighted two key ‘pillars’ that were identified as being essential foundations to success in the program, namely the improvement of data systems (and the poor quality of water point related data), and the engagement of government to increase the level of political will to address rural water point sustainability issues. These may sound like fairly obvious and universal issues to address, but in the context of the Tanzanian rural water sector generally, and the PbR program specifically, these two points of focus opened up a whole spectrum of other areas of influence and knock on effects that allowed the PbR program to have a significant impact on the evolution of the system. In a basic causal loop diagram of how these two ‘pillar’ processes interact to influence the desired end goal of improved sustainability, we see that as elements of the enabling environment, they are critical in nurturing the development of the greater transparency, accountability and operational efficiency that were lacking within the sector. So by committing investment to the rural water sector DFID motivated the government to address long term sustainability issues, improving both performance and accountability in the process. Equally, by incentivising LGA’s to improve data quality, PbR helped improve transparency and raised operational efficiency.



Understanding these drivers allowed DFID and the Ministry of Water and Irrigation (MoWI) to look at a number of actionable drivers within each of these elements, that would in turn foster greater levels of co-operation and therefore adaptation across the various levels of the sector hierarchy (Ministry, Zone, Region, District, Ward, Village).

If we look at these factors from the enabling and operating environment perspective we can see how these elements interact across the two environments to create the foundations for a more positive, co-operative and operationally efficient service delivery system.



Enabling environment

Cultural – the primary issue was the crisis of data, namely a lack of data culture, expertise and procedural structure. DFID knew that without improving the data quality and reporting, effective operations and maintenance of water infrastructure was impossible and so engaging government to establish the requisite level of political will for change was paramount.

Political will – reciprocally, this was key to establishing a commitment to improving data. It also fostered the establishment of the Central Data Management Team (CDMT) within the MoWI, tasked with managing the improvement of data, and the embedding of Technical Assistance within the RWSD. Finally for water point sustainability to improve the political engagement of the President’s Office for Regional Administration and Local Government (PORALG) needed to occur, so that Local Government Authority (LGA) co-operation could be obtained. This has helped foster increased accountability within government, which in turn has laid the platform for greater transparency of process and a more self-policing culture within the rural water sector.

Financial model – PbR is based on incentive based payments to drive improvements to reporting frequency, data quality and ultimately O&M as outputs. As a financing scheme its primary impact has been in nurturing government engagement and not in directly incentivising output. This was a surprise to many but it fits very neatly into the CAS narrative of influencing the enabling environment to drive positive change to internal processes and behaviour within the system. This is a very clear example of ‘Framed Adaptation’.

Operating environment

Procedural framework – the creation of the CDMT and the engagement of senior management within MoWI has led to wholesale changes in the procedural structure for data reporting and management, approaches to Community Management, Community Owned Water Supply Organisations (COWSO) engagement and registration, the restructuring of the M&E framework to include a new set of O&M indicators, and the release of a restructured Sustainability Framework outlining a co-operative approach to future sustainability of water service delivery.

Process framework – this involved the simplification and reduction of LGA reporting and inventory management processes to help District Water Engineers to manage processes more efficiently. It also effected the introduction of water quality testing criteria at a national level and the restructuring of reporting indicators to reflect a service level approach rather than the traditional ‘access to water’ paradigm that misrepresents the actual level of service received by users.

Management framework – the direct support of management processes through the establishment of a technical advisor dedicated to fulltime RWSD management support that has directly led to sector wide performance monitoring across the whole of the RWSD.

Capacity framework – the restructuring of processes to fit low capacity and resources of MoWI and local government staff, with a focus on a change in approach to understanding the system as a whole rather than a series of detached non-interacting components. This has helped agents within every tier of the system better understand how their direct actions influence the broader outcomes of the system, thereby positively influencing behaviour.

Programme effectiveness and progress to date

Two years on, and it is still a little early to really see the impact of the changes at a system level, but the start of the influence of the adaptive programming approach is already self-evident. Some of the positive developments and progress made to date include:

Local government reporting: The stripping down and simplification of reporting requirements has led to an increase in the response rates of LGA's in submitting their monthly water point inventory status updates, from 26% to 99% in the first year of the CDMT being operational and this has been consistently maintained over 95% for over eighteen consecutive months.

Completeness of inventory: An additional benefit that arose from the changes made at process level was that almost 30,000 water points that were missing from the national inventory have been recovered along with their full set of indicators and geo-referencing. Interestingly, these changes are largely by-products of broader procedural changes around the need to use this data for transparent reporting, and the requirement to openly account for data that is reported, both of which have had positive feedback effects on data quality improvement and political commitment to the process.

Focus on Operations & Maintenance (O&M): In addition to this, the restructuring of the M&E and Sustainability frameworks has led to the roll out of additional O&M indicators that for the first time will be part of a single monthly status report from DWE's that will allow local and national government to track service level instead of just measuring access to water.

Local government accountability: In addition to this, the re-establishment of severed links between the MoWI and the regional and LGA administrations has started to create a better management and accountability structure across all tiers of governance, and this is now being expanded to include village level executive officers and community management organisations. The kickbacks from this should be increased co-operation between tiers of government, improved reporting and accuracy of data, and greater accountability as communities are given the ability to manage their own resources better and are provided with an audience for their issues and feedback. Once these processes become embedded we should start to see changes in the way water points are managed, which should in turn influence sustainability levels over time.

Inter-ministerial co-operation: On the national level, improved co-operation through the burgeoning inter-ministerial relationships that exist between MoWI, PORALG and other periphery ministries such as the Ministry of Lands and the National Bureau of Statistics has helped streamline procedural and process level changes across local government. The feedback from these changes (seen through improved reporting and data quality, increased communication between stakeholder groups and improvements in transparency and accountability within government) all serve to further strengthen inter-governmental relations, because positive outcomes breed further positive enforcing behaviour, which in turn increase the likelihood of further positive outcomes at an emergent level.

Planned developments for Phase 3 of PbR

Focus on data quality improvements

Following the cleaning of the national water point inventory, and the resolution of local government reporting issues, the focus now shifts to data quality improvements and to greater levels of verification and validation of data accuracy. Key to this will be the strengthening of links between LGA's and Community Management Organisations (CMO's) and Community Owned Water Supply Organisations (COWSO's).

DWE – CMO/COWSO links: MoWI and PORALG will work closely together to establish closer links between district and community level representatives to work collaboratively to improve reporting accuracy and O&M.

COWSO registration: CMO's will be engaged with a new registration methodology to increase the number of registered COWSO's in the country.

Increase of coverage: MoWI will focus on delivering service coverage to all identified remaining communities that have no current access to an improved water supply.

Focus on O&M improvements: The community management model will be reviewed for efficacy along with the unit cost of water for each community and the CMO reporting process.

Roll out of revised WPMS system architecture: The release of the CDMT Support Tool (CST) will coincide with the restructuring of the MoWI system architecture to make the CST, WPMS, MoWI Management Information System (MIS) and Water Open Data Dashboard (ODD) interoperable.

Shift to service delivery indicators: A move away from the ‘access paradigm’ towards a broader set of indicators focused on measuring the actual levels and quality of service delivery rather than just whether water infrastructure is in place. This is necessary because, while service level thinking was at the foundation of the design and planning of the PbR program, the data collected and used at local government level is still very much rooted in the ‘access paradigm’.

Conclusions and lessons learned

By adopting an adaptive programming approach MoWI and DFID have been able to constantly assess and review processes to learn what is working and what is not, and then to feed back this understanding back into the programme in the form of adapted methodologies or redesigned processes. This process has also allowed both parties to make some broader observations about the impact of the programme and the identification of the true drivers of change.

What has been an interesting side effect of this approach is that while financial incentives have been a key driver in garnering political engagement in high level government structures, they have proven less of a driver at local government level than the internal governmental pressure that has been driven by increased levels of transparency and accountability within government. So the interconnectedness and feedback mechanisms that exist within the enabling environment are already becoming self-evident, even though the way that they are operating is not the way that was originally foreseen.

What has become clear is that the adaptive programming approach does expedite learning on what does and does not work programmatically. It also provides a clearer insight into exactly why processes work because the constant review and reiteration of the process provides a dynamic picture of how the system is functioning. Interestingly, the combination of the performance based financing and the adaptive programming approach together has altered the way that each component would have worked in isolation. The financing mechanism has provided the operational freedom and the political space for the adaptive approach to work in the best possible way, and the adaptive programming has provided the feedback necessary to learn and adapt the performance measurement and disbursement system to best promote positive change within the sector.

The next eighteen months of the PbR will really show whether this innovative programmatic approach can produce real lasting improvements within the sector.

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