Report

Stock-outs of essential medicines in Tanzania

A political economy approach to analysing problems and identifying solutions

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Key messages

- Shortages of essential medicines in public health facilities are a major issue in Tanzania that has persisted despite increasing attention to these issues and numerous reform attempts and initiatives.

- Medicine stock-outs in Tanzania are the result of not only resource constraints and technical problems, but a series of political logics that allow and reinforce short-term policy making, weak oversight and a lack of meaningful accountability.

- Stock-outs are a major issue of concern to the public, health service providers and policy-makers. There are individuals at multiple levels of the system who are interested in resolving the issue but who face institutional and systemic barriers to doing so.

- Resolving the problem of stock-outs will not be achieved by any one single set of solutions, but rather the creation of the conditions in which a coalition of actors can work together on these issues.

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Abbreviations

ADDO	Accredited Drug Dispensing Outlets
AIDS	Acquired Immunodeficiency Syndrome
ARV	Anti-retrovirals
CCM	Chama Cha Mapinduzi (Party of the Revolution)
CHMT	Council Health Management Team
CHF	Community Health Fund
CSO	Community Support Organisation
CSSC	Christian Social Services Commission
DANIDA	Danish International Development Agency
DC	District Commissioner
DED	District Executive Director
DFID	(UK) Department for International Development
DHIS2	District Health Information System 2
DMO	District Medical Officer
e-LMIS	Electronic Logistics Management and Information System
GoT	Government of Tanzania
GIZ	German Society for International Cooperation
HFC	Health Facility Committee
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
HRH	Human Resources for Health
HSSP	Health Sector Strategic Plan
IHI	Ifakara Health Institute
ILS	Integrated Logistics System

LMU	Logistics Management Unit
MOFEA	Ministry of Finance and Economic Affairs
MOHSW	Ministry of Health and Social Welfare
MP	Member of Parliament (Bunge or National Assembly)
MSD	Medical Stores Department
NEMLT	National Essential Medicines List for Tanzania
NGO	Non-Government Organisation
NHIF	National Health Insurance Fund
NIMR	National Institute for Medical Research
ODI	Overseas Development Institute
OGP	Open Government Partnership
PADI	Tanzania Mission to the Poor and Disabled
PMO-RALG	Prime Minister's Office – Regional Administration and Local Government
PSS	Pharmaceutical Supply Section (at MOHSW)
RC	Regional Commissioner
RMO	Regional Medical Officer
SARA	Service Availability and Readiness Assessment
SMS	Short Message Service
STG	Standard Treatment Guidelines
TGPSH	Tanzanian-German Programme to Support Health
THAT	Tandabui Health Access Tanzania
TIKA	Tiba Kwa Kadi (urban health insurance scheme)
TPEHI	Tanzania Package of Essential Health Interventions
TZS	Tanzanian Shillings
UK	United Kingdom of Great Britain and Northern Ireland
UN	United Nations
USAID	United States Agency for International Development
VPP	Vertical Pooled Procurement
WHO	World Health Organisation

Executive summary

Shortages of essential medicines in public health facilities are a major issue in Tanzania. Despite increasing attention to these issues and numerous reform attempts and initiatives over the last decade, surveys of health facilities, health workers and the general population have found experiences of shortages are still common. A Twaweza survey conducted in 2013 found that 41% of patients were not able to get the medicines they need directly from a public health facility. Tanzanians often have to turn to private pharmacies and health facilities for medicines due to shortages at public facilities. In urban areas this usually means paying a premium for essential medicines that should be available for free or at a discount from public facilities, and in rural areas, where private facilities are fewer, it often means having to pay for transport and medicine costs or simply going without needed medicines.

Research undertaken by Twaweza and the Overseas Development Institute (ODI) in September 2013 identified a series of drivers behind continued medicine stock-outs with the aim of identifying strategies to address the problem. It takes an applied political economy analysis approach that involves using in-depth surveys of background literature and qualitative interviews with stakeholders at all levels of the system to identify the problem, analyse the factors contributing to the problem and map the key stakeholders and features of the Tanzanian context relevant to the issue.

A number of reforms have been enacted on medicine stock-outs in recent years, including improving medicine ordering and forecasting systems, improving co-ordination across relevant institutions, enhancing monitoring and data collection mechanisms, reforming budgeting and procurement mechanisms, improving medicine prescription practices and building on the role of the private sector. There have also been more general reforms, such as a major decentralisation that occurred in the early 2000s. Overall these changes have tended to focus on technical issues in the medicine supply chain, achieving incremental gains but not resolving the problem overall.

The headline finding of our research is that the problem of medicine stock-outs in Tanzania is the result of not only resource constraints and technical problems, but also a series of political logics that allow and reinforce short-term policy-making, weak oversight and a lack of meaningful accountability.

The prevailing political dynamics within Tanzania create incentives for short-termism in policy-making and an emphasis on immediate and highly visible policy impacts. These incentives create challenges for the long-term reforms needed to solve the issue of medicine stock-outs. Underlying these dynamics is the long domination of Tanzanian politics by the ruling Chama Cha Mapinduzi (CCM) and the increasing pressures it faces from both strengthening opposition parties and widening internal divisions. Political competition and the preservation of political power increasingly relies on the ability of the government to provide public goods with mass appeal, as well as giving representatives of the ruling party access to resources that can then be channelled to citizens. Within the health sector this has translated into an emphasis on expanding the construction of health facilities and while reforms have been acted on medicine stock-outs, as noted above, many have yet to show significant results, while others seem to have been formulated more as high-profile, and not necessarily effective, responses to negative media attention.

There is a general lack of oversight within the health sector as well as unclear lines of accountability, which facilitates the wastage of medicines and allows corruption to occur, including leakages of both funds and medicines. This is partly driven by a lack of adequate resources for oversight at the district level, but major drivers are also a culture within the civil service of not reporting malpractice and the intertwining of the institutions of the state and CCM resulting from the long history of single-party rule. These factors create conflicting loyalties and priorities while allowing protection for health workers involved in corruption and poor practices.

Major contributors to stock-outs include an absolute shortage of funds; human resources for health issues, including absolute shortages, skill deficits and urban concentration; and inefficiencies and malpractice in the supply chain exacerbated by a lack of reliable information on medicine needs and usage. Historically reforms have focused on these technical issues; however the problem is also clearly linked to the political drivers identified by this report.

Our research finds overall that there are high levels of public awareness of medicine stock-outs as a problem, although citizens were often not aware about the availability of specific drugs at local health facilities. Overall, medicine stock-outs seemed to be an issue which people were aware of and which concerned them. This suggests that information-based solutions will need to be carefully thought out if they are to have impact.

The accountability channels through which information might be translated into action were also found to be problematic. Cynicism about the potential for the medicine stock-out problem to be solved was common throughout the research, particularly in interviews with citizens and community leaders. Many interview respondents thought that MPs and Councillors could do little about the issue of stock-outs in practice and expectations of them at a local level focused on providing infrastructure and securing resources. Official mechanisms for public accountability of health facilities also appeared to be inactive in many areas or effectively co-opted by authorities, which is another element of the long history of one-party rule that has discouraged local collective action and bottom-up mobilisation. However, the research also found government officials and politicians at all levels that were intent on solving the problem of stock-outs. District officials and councillors were particularly interested in the idea of a system of citizen monitoring for medicine supplies, particularly if it was credible and could improve their oversight ability. Several promising local initiatives were also documented and could serve as models for experimentation elsewhere.

These political logics therefore allow and reinforce short-term policy-making, weak oversight and a lack of meaningful accountability, which combine with the issues of resource constraints and technical problems to create and exacerbate the problem of medicine stock-outs in Tanzania.

Greater transparency and improved data alone are unlikely to solve these problems without also addressing the question of who can effectively use that data to reduce stock-out problems. There are figures at the central, district and local levels who are interested in the issue of stock-outs, and so alliances and co-operation between these actors and citizen groups to overcome the institutional barriers they face appear to be one of the more promising avenues for addressing the problem.

Based on this analysis ODI and Twaweza have formulated four major strategies that have the potential to begin creating an environment in which medicine stock-outs may be tackled:

- Initiate campaigns to improve transparency of data on medicine supply and distribution at the facility-level
- Improve the accessibility of existing data and verify it independently
- Use the media to highlight success and relative performance as well as positive deviance
- Look for, connect and foster positive deviance from a variety of actors

The key to solving Tanzania's chronic stock-out problem is less likely to lie with any particular set of solutions, but more with creating the conditions in which a coalition of actors can work together on these issues. These recommendations are designed as potential and promising starting points for that longer-term process.

1 Introduction: The problem of medicine stock-outs in Tanzania

For many years, Tanzania has faced the huge challenge of ensuring that adequate essential medicines and supplies are available at public health facilities. Resolving this challenge will require more than technical solutions alone – it also requires changes in behaviour and incentives. This report aims to map some of the political economy dynamics that explain why stock-outs of essential medicines in Tanzania persist and to identify potential strategies and entry points which Twaweza and other civil society groups could usefully pursue. It summarises the findings from research conducted by the Overseas Development Institute (ODI), an independent international development think tank based in the UK, in collaboration with Twaweza, a civil society agency based in Tanzania that uses citizen-driven approaches to development and public accountability.

Medicine stock-outs are usually defined as occurring when a health facility temporarily does not have supplies of medicines it should have, according to national guidelines. Across low- and lower-middle income countries from 2007-2012, the average availability of selected essential medicines was 57% in public sector facilities and 65.1% in private facilities; these statistics highlight the extent to which this is a problem in many developing countries (UN, 2012: 60-61).[1] Stock-outs of medicines at public health facilities are likely to affect the poor most severely, including those in the informal sector, who are less able to access and afford alternatives that may be available to middle-class or wealthier families, such as buying medicines from private facilities.

In Tanzania the issue has recently received heightened attention from citizens, civil society groups and the government, and a small but growing number of studies are helping to illuminate it further. For instance, a study covering 923 public health facilities (hospitals, health centres and dispensaries) conducted by the Ifakara Health Institute in 2012 found high levels of stock-outs, with only 37% of public facilities on average being in stock for any given drug from a set of 14 essential tracer medicines. The study found considerable variation between districts and across medicine types, with somewhat better levels of availability in private facilities and urban areas (SARA, 2013).

Other studies have measured slightly different rates of stock-outs, which is as expected, given different sample sizes, numbers and types of tracer medicines, methodologies and time periods. For example, the government's District Health Information System 2 (DHIS2) indicates that only 28.6% of facilities sampled avoided stock-outs of 10 tracer commodities during a one-month period, May 2012. (MoHSW mid-term review, 2013). Research conducted by Twaweza at 114 health facilities in late 2012 found that 69% of those heading health facilities mentioned a lack of medicines as one of the top three problems they faced; 26% listed it as the main problem (Twaweza, 2013).[2] Overall, as acknowledged in the Ministry of Health and Social Welfare's Mid-term Review of the Health Sector Strategic Plan III (2009-2015), the general picture indicates continued low availability of essential medicines, with no clear trend towards improvement over the past few years. Given that reliable information and analysis on stock-outs remains relatively scarce, these studies have played an important role in bringing the issue to the attention of the public and policy-makers.

Evidence from surveys of the mass population also demonstrates the extent of medicine stock-outs. The 2012 Afrobarometer survey found that 88% of Tanzanians reported experiencing shortages of medicines and other medical supplies at a public health facility in the preceding year (Afrobarometer-REPOA, 2012). Research by

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[1] International comparison figures for medicine stock-outs are relatively rare, but figures for the availability of the WHO essential medicine list can serve as a proxy, although there are some discrepancies due to some countries not publically supplying some of the medicines on the list.

[2] This data was collected in face–to-face interviews during facility visits that were conducted October 2012 and January 2013 as part of the *Sauti za Wananchi* baseline survey.

Twaweza in 2013 found that 41% of patients reported that they were unable to get the medicines they needed directly from the health facility, although almost 99% of patients surveyed were eventually able to acquire the prescribed medicines from some source (Twaweza, 2013). This highlights the significant role played by alternative suppliers (such as private pharmacies and faith-based or NGO facilities) in mitigating the impact of stock-outs at public facilities. Private pharmacies tend to have better availability of essential medicines, although they are usually significantly more expensive than those available at public facilities, and quality assurance is a problem in some private facilities (USAID, 2011: 73). Along with their higher prices, limited availability of private outlets in rural areas is a major barrier to access by poor and vulnerable groups (GoT-DANIDA, 2009:35).

In recent years, the government has initiated several reforms aimed at addressing this critical problem; several of the policy recommendations from the Special Audit Report (2011) conducted by National Audit Office and a review of the medicine supply chain conducted by USAID (2013) are reported to be in the process of being addressed (see Section 3). The problem of medicine stock-outs is highly complex and there is increasing recognition that solutions require effective coordination between multiple stakeholders including the Ministry of Health and Social Welfare (MOHSW), the Medical Stores Department (MSD), the Ministry of Finance and Economic Affairs (MoFEA), local government authorities, health facilities (hospitals, health centres, dispensaries, etc.), civil society and patients. Recent efforts demonstrate some commitments to reform and offer encouraging potential for progress. At the same time, so far there is limited evidence of clear improvement in the overall situation.

In order to understand the feasibility of current reform proposals and the underlying drivers of essential medicine stock-outs, this report explores a number of questions: 1) Why have medicine stock-outs in Tanzania persisted in spite of ongoing reform efforts? 2) What can be done to address the problem, particularly for civil society or demand-side initiatives?

Our report builds upon existing work by providing an in-depth analysis of some of the overall political economy dynamics affecting medicine stock-outs, with a focus on issues of governance, transparency and accountability. We do not aim to provide a thorough analysis of the technical details of the various stages in the medicine supply chain (such as forecasting needs, budgetary processes, procurement, ordering, storage, prescription or distribution of medicines), as there has already been significant analysis of and attention to these issues (e.g. USAID, 2013). Instead, our approach seeks to identify the various factors that influence the behaviours and incentives of key individuals and institutions involved at different stages in the supply chain as well as the enabling environment surrounding reforms. Understanding the interplay of these factors within the broader governance context of Tanzania is likely to be critical to ensuring that solutions address the root of the problem.

The report is organized as follows: Section 2 describes the methodology used in the research. Section 3 provides a summary of recent reforms relevant to the availability of essential medicines. Section 4 comprises the main part of the report and analyses some of the key factors and political economy dynamics underlying the problem of stock-outs. Finally, the conclusion and some policy recommendations are found in Section 5.

2 Methodology

This research uses an applied political economy analysis approach that involves identifying the problem, analysing the factors contributing to the problem, mapping key stakeholders and features of the Tanzanian context relevant to the issue and identifying potential strategies to address the problem.[3]

This approach identifies key structural features surrounding the problem, including aspects of the context that may be relatively slow to change, as well as those with greater potential for change over the short to medium term. Within this context, the analysis then identifies relevant individuals and organisations, their motivations and the types of relationships and balance of power between them, in order to generate a list of potentially feasible policy solutions.

The general approach works through various stages, including identifying the nature of the problem to be addressed, diagnosing systemic features and key dynamics and incentives, and identifying policy options and feasible theories of change. These are summarised below:

- **Step 1** involved the identification of a 'problem' to be addressed in the analysis in order to narrow the scope of the research. The problems identified for this analysis in collaboration with Twaweza are: *how to overcome chronic stock-outs of essential medicines in Tanzania*, and *what are the entry points for a future transparency and accountability initiative*? An initial review of available literature and sector performance data identified areas of progress and the remaining challenges in addressing the issue of medicine stock-outs in Tanzania.
- **Step 2** involved the mapping of key systemic features of the Tanzanian context (e.g. political, economic, geographic, demographic, historical and socio-cultural) most relevant to the health sector and specifically to the problem of medicine stock-outs. These factors tend to change slowly and will be considered in terms of their potential constraints on possible solutions. Analysis also included a mapping of the institutions that help to determine what is possible in a given context and that give shape to the incentives of the players involved.
- **Step 3** involved the identification of key stakeholders (e.g. central and local government officials, hospitals/health service providers, citizens, drug suppliers) and analysis of their roles and their influence over medicine supply issues and health service provision in the context of the systemic features described above. This analysis drew primarily on fieldwork interviews.
- Finally, **Step 4** involved the identification of key factors affecting the problem of medicine stock-outs and also a range of practical strategies for addressing the problem, with an emphasis on viable entry points for Twaweza and other civil society organizations seeking to facilitate change.

The research methodology included a review of literature on the political economy of Tanzania and the issue of medicine stock-outs and three weeks of field research in Tanzania consisting of open-ended interviews with a variety of stakeholders involved in the planning, management and utilisation of essential medicines at the central and district level. At the central level, interviewees were drawn from institutions including the Ministry of Health and Social Welfare (MOHSW), the Medical Stores Department (MSD), National Assembly, associations representing private and faith-based facilities in the health sector, donor agencies (DFID, GIZ, DANIDA, and USAID's Deliver Program) and civil society groups (*Wajibika* project funded by USAID, Ifakara Health Institute, Sikika, Tanzania Mission for the Poor and Disabled – PADI, and Tandabui Health Access Tanzania – THAT). The research team also visited Iringa municipality (in the Iringa region) along with Mbeya (Mbeya region) and the Songea and Mbinga districts (in the region of Ruvuma) and conducted interviews with

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[3] See Harris (2013) for an overview of ODI's problem-driven framework for applied political economy analysis.

government officials and members of health committees at the regional, district/municipality, ward and village levels, along with staff at the MSD zonal medical warehouse. Other key respondents included health workers,

patients at public health facilities and members of the community at large. The field research was supplemented with research conducted in Mwanza for a separate project on health service delivery and local level accountability.

3 Recent history of reforms

As noted above, the issue of medicine stock-outs has received considerable attention from the public and policy-makers in recent years. An MP interviewed in the course of this research, for instance, noted that medicine availability is perceived as a critical issue that is usually mentioned at public meetings and forums. The issue has been debated in the National Assembly, particularly when the health sector budget is up for approval. The debate on medicine stock-outs also appears to have become more complex, to more accurately reflect the context and challenges. Interviewees reported that discussions in the National Assembly, which had previously focused on criticism of the MSD, have also begun to recognise the role of multiple stakeholders in contributing to stock-out problems and also solutions.

In response to pressures, the government has undertaken a series of commitments and reforms over the past several years. Some of these promising reform efforts, which are described in depth in this section, have focused on better forecasting of essential medicine needs, strengthening coordination between relevant institutions involved in medicine supply, improving budgeting and procurement efficiency, strengthening monitoring and information systems and strengthening the role of the private sector in helping to fill medicine supply gaps.

These recent initiatives demonstrate some political commitments to reform and offer some encouraging signs of progress; however, there is an ongoing lack of evidence of systemic improvement. During our interviews, it was reported that roughly 20 districts now claim to have largely resolved the problem of stock-outs, mainly concentrated in Dodoma and Singida, and average stock-out levels of certain drugs such as anti-retrovirals (ARVs) and vaccinations managed through vertical programmes, are reported to be relatively low across the country. Unfortunately, the general lack of transparency and reliable evidence on medicine availability makes it difficult to determine conclusively which reforms have been most effective, although there seems to be a gradual trend toward greater openness and availability of data in the health sector, which should begin to shed more light on these issues.

In this section, we briefly describe some of these reform efforts to date, before turning in Section 4 to an analysis of some of the underlying drivers that seem to shape medicine stock-outs and have implications for the performance and potential effectiveness of these reforms.

3.1 Improvements in medicine ordering and forecasting needs

One of the main changes starting in 2005-2007 was the gradual transition from a 'push' system, in which kits containing fixed quantities of medicines and supplies were delivered to health facilities on a regular schedule, to a 'pull' system, in which facilities order medicines through MOHSW's Integrated Logistics System (ILS) based on need. The ILS was intended to simplify the process of ordering medicines by creating a single set of procedures that allowed all types of health facilities to order medicines as they were needed and to capture the best of the previously diverse range of vertical systems for medicine distribution. The results of pilot studies by USAID found that the ILS was overwhelmingly preferred by health staff and that it was associated with a lower rate of stock-outs of tracer medicines overall (USAID, 2005). Despite the rolling out of the ILS across Tanzania, however, there have been concerns about the effectiveness of the system. The ordering and reporting mechanism has been criticized for being overly complex, with over 1,500 data points reported by facilities every quarter. Currently, only about half of facilities are submitting reports regularly, and there are concerns about the quality of the data: some facilities have been found to be duplicating data over successive quarters (USAID, 2013). Nevertheless, the transition is generally seen as an area of progress. Furthermore, the system provides one of the most comprehensive sources of information available on medicines, with reporting rates far higher than for the parallel paper system. The government's quantification initiative led by the National Institute of Medical

Research (NIMR) is another major effort that is underway.   Its aim is to better estimate the drug supply needs of the country in order to enable better forecasting.

3.2 Improved coordination across institutions

There has been growing recognition that both the problem of stock-outs and its solutions are dependent on multiple stakeholders involved in the supply chain. The formation of the Pharmaceutical Technical Working Group is regarded as an effective forum for bringing together different stakeholders such as MSD, MoHSW, MoFEA, PMO-RALG and donors to address different aspects of the issue. In recent years, there has been greater recognition among stakeholders in the Pharmaceutical Technical Working Group of the role that management and governance factors play in contributing to stock-outs and as a result, increasing attention is being paid to these issues, although some representatives of civil society note that the group's closed membership structure limits its potential for all voices to be heard. Better communication, especially between MoFEA, MoHSW, and MSD, is seen as a key challenge that has been improving and is helping to enable reform.

3.3 Enhanced monitoring and data collection

Another area of reform has been in the improvement of monitoring systems and the collection of better information to provide an informed understanding of stock-outs. . Increased attention is being devoted to improving monitoring and auditing practices at the district and health facility levels, and some encouraging models are emerging. The recent mid-term evaluation of the Health Sector Strategic Plan (HSPP III, 2013) has made improvements on previous years in the utilization of quantitative data for reporting on health indicators. There is room for better incorporation of supporting data in order to measure progress, however, particularly in the section on pharmaceuticals.

A substantial initiative to consolidate information on stock-outs and other health data is the upcoming launch of the e-LMIS data warehouse and the creation of a Logistics Management Unit (LMU) within MoHSW to manage the system. In response to the proliferation of multiple information systems serving different functions and monitoring different drugs (some of which were developed for different vertical programmes), the e-LMIS will feed in data from multiple sources to connect the different systems. For example, this will encompass the SMS 4 Life system, which incentivizes health workers to use mobile phones to report on weekly stock levels of anti-malarial drugs.[4] It will also connect to the new ILS Gateway system that is currently being rolled out; it uses a mobile phone reporting system to monitor information on medicine supplies, for instance when drugs are ordered, when they reach the DMO, when they reach MSD and when they are received by facilities. According to USAID reports, ILS Gateway is achieving much higher rates of reporting by health facilities than the traditional paper-based system, although the reporting process remains relatively time-consuming and complicated (USAID, 2013). A key question for the future will be the extent to which new information systems such as these are actually used to improve accountability and service delivery outcomes.

3.4 Reforms in budgeting and procurement

Complex budgetary and procurement systems have often been cited as major contributors to medicine stock-out problems in Tanzania. While these issues continue to present major challenges, recently there has been some progress toward reducing delays associated with these processes. For instance, in 2013-2014, the budget for essential medicines and supplies was disbursed earlier than in the past several years. There are also debates around making transfers to the MSD more transparent and allowing it to possess its own direct account for receiving funds from MOFEA, using similar systems to those in Uganda, in order to avoid delays associated with the approval process through MOHSW. In addition, it is hoped that delays in the medicine supply chain will reduce under a new front-loading mechanism that allows special fast-track procurement status for medicines.

Another reform area is the new Vertical Pooled Procurement (VPP) system, under which vertical programmes will manage the procurement of most drugs purchased rather than transferring funds to MSD to manage procurement. Reasons cited for the shift include the expectation that the system would reduce delays in

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[4] See http://malaria.novartis.com for more information on the SMS 4 Life system including a series of case studies analysing the programme.

procurement and that, as a large international buyer, the Global Fund is in an advantaged position to negotiate prices. Some questions and concerns have been raised about the justification for this change, however, including the way the new policy shifts away from the direction of building domestic procurement capacity in Tanzania.

3.5 Initiatives towards rational use of essential medicines

A series of reforms have been enacted with the aim of improving the use of medicines within the Tanzanian health sector and so limiting the problem of medicine stock-outs by reducing the waste of drugs through inaccurate diagnosis and prescription. These have included the development of the Tanzania Package of Essential Health Interventions (TPEHI) by MOHSW, the creation and regular updating of Standard Treatment Guidelines (STG) as part of the Comprehensive Council Health Planning Guidelines and the National Essential Medicines List for Tanzania (NEMLT). These, combined with training workshops and seminars for prescribers, are intended to ensure a rational use of medicines at appropriate levels of district council health facilities and the national hospital referral system. Features of the NEMLT have been adapted in the MSD catalogue and ILS, and many Hospital Therapeutic Committees have also developed essential medicine lists to suit their particular needs. MOHSW has issued standards by level of health facilities that indicate recommended laboratory and diagnostic equipment, reagents and appropriate guidelines for disease diagnosis and fulfillment of rational treatment.

3.6 Decentralisation

The decentralisation process that took place in Tanzania from 2000 onwards transferred formal authority in many areas to local government and altered the division of oversight responsibilities and duties between ministries in the central government. Before this process, the responsibility for the delivery of healthcare services to the population, including the supply of medicines, lay with the MOHSW. Previously, the provision of services was organized hierarchically from lower to higher national facilities under a national patient referral system. The decentralisation process created a new division of responsibility, with many functions being transferred to the PMO-RALG. While the decentralisation process was intended to improve the provision of public services by enhancing participation of local communities, in practice it has not been fully implemented. This is because central government ministries have been reluctant to allow local government significant autonomy, some institutional structures have militated against decentralisation in practice, and decision-making remains top-down, with many of the mechanisms intended to enhance citizen participation in decision-making moribund (see Mollel and Tollenaar, 2011). The impact of these dynamics on the distribution of medicines is explored in following sections.

The redistribution of responsibilities between different ministries has also altered the structures for medical service provision in a manner that has made some lines of accountability over medicine stock-outs unclear. The MOHSW retains responsibility over the training and deployment of health cadres, the national referral health facilities and vertical programmes which are mostly supported by multi-lateral and bilateral donors. The national medicine distribution network has been transformed into the autonomous agency, MSD, which is indirectly responsible to the MOHSW. Regional and council health facility managers, who are responsible for forecasting and ordering medicine supplies, are now directly answerable to PMO-RALG and only indirectly to MOHSW. Complications have also been created by the partial nature of decentralisation, with significant central authority operating through an increasing number of vertical programmes, donor health financing through the basket fund and, recently, the direct supply of essential medicines by MSD to all health facilities in the county.

3.7 Complementary role of the private sector

Private pharmacies are also playing a growing role in helping to fill some of the gaps in the capacity of public health institutions to meet demands for essential medicines. Studies indicate that private pharmacies tend to have more reliable supplies of essential medicines, although they are usually significantly more expensive than those sourced by MSD. Despite the limited capacity of local drug manufacturers in Tanzania, with only two major local suppliers, new systems that pre-qualify local suppliers have potential to help fill some of the gaps in the supply chain. Efforts from the government to expand the number of accredited drug dispensing outlets (ADDOs) are also supporting this goal. The goal of the ADDO programme, launched by MoHSW in 2002 with support from development partners, was to improve access to affordable, quality medicines in retail drug outlets

particularly in rural and peri-urban areas, which may have few registered pharmacies. While the rapid expansion of ADDOs from roughly 2,000 to over 4,000 outlets between 2010-2013 represents notable progress, some concerns have been raised in relation to supervision and compliance of these facilities with regulations (e.g. inadequate record keeping and the sale of unauthorized medicines) (MoHSW mid-term review, 2013).

Other approaches include the exploration of options for alternative suppliers to complement the role of MSD. The main effort underway here is the Christian Social Service Commission's (CSSC)proposal to create an alternative medical supplier that would be open to private and faith-based health facilities in addition to public facilities, and which could help serve as a back-up system in case of stock-outs at MSD. Another interesting approach has been adopted in Dodoma, using a franchise-type model in which regulated private facilities are allowed to operate on the premises of public facilities. There have also been some efforts to bring lessons learned from private sector management practices to the public sector and MSD, for instance through Coca-Cola and Accenture's consulting services to MSD.

In summary, there has been growing attention to research and data on stock-outs and there is evidence of higher levels of interest among key persons in MoHSW, MSD and parliament. At the same time, many stakeholders note the need for better availability of reliable information on stock-outs given that there are still many uncertainties surrounding the roots of the problem.

Overall, it is too early to judge the success of these reforms, many of which are still in their early stages. However, it may be helpful to question some of the key assumptions underlying the above reform efforts, particularly the core premise that stock-outs are primarily a problem of logistics and budgetary constraints, or that better information and stock management will automatically improve the situation. Evidence from other countries suggests that the introduction of new information management systems or new logistic systems alone will not be sufficient to address underlying problems of mismanagement and leakages of medicines, if reforms do not also address the motivations and behaviours that underlie the problem – in other words, why people and systems operate as they do, and the key relationships and power dynamics that influence medicine distribution (Wild and Cammack, 2012). To understand these dynamics further, the next section of this report examines some of the underlying drivers and the governance constraints that contribute to the persistence of medicine stock-outs.

4 Key dynamics behind continuing stock-outs

This section examines in depth some of the key factors contributing to the problem of persistent stock-outs of essential medicines and explores the way that these factors interact within the political economy context of Tanzania. The factors discussed include the political salience of medicine stock-outs, budgetary and funding issues, human resource shortages, inefficiencies in the supply chain and issues of monitoring and oversight.

Our analysis highlights the complex nature of this problem as one in which multiple constraints interact. For instance, broader political economy dynamics including a legacy of centralised, top-down authority and conflicting lines of accountability interact with budgetary and human resource constraints, implying that increased funding alone will not be sufficient to resolve stock-out issues. Technical reforms alone may not be enough to overcome these underlying accountability problems, which contribute to mismanagement in the supply of medicines. Moreover, there is a need for greater attention to be paid to issues of accountability and power dynamics at the local level, including core relationships between citizens and politicians, and between citizens and service providers.

4.1 Visibility and political salience in the health sector

Tanzania is a vast country with a high degree of religious and ethnic diversity, yet it has maintained high levels of political stability and a strong national identity (Hoffman, 2013). Since independence in 1961, the political landscape of Tanzania has been dominated by the Chama cha Mapinduzi (CCM) party. Tanzania became a multi-party democracy in 1992, and a number of opposition parties have emerged since that time. However, CCM has remained dominant throughout this period, capturing 62% of the presidential vote in 2010 and 78% of seats in Parliament. In this section, we examine some underlying features of the broader political context, which is characterized by limited political competition and a predominance of populist policies that have contributed to weak monitoring and performance management across service delivery sectors. These background factors act as underlying governance constraints, which may not be addressed by more 'surface level' technical reforms.

A number of studies of Tanzania's national political economy context have identified some of the key features of the political environment, including a high concentration of power within the executive branch of the government, with the civil service and machinery of the state deeply intertwined with the structures of CCM (OPM-REPOA-CMI, 2005, Hoffman, 2013). Political power is seen to be based in part on the government's ability to provide public goods with mass appeal and to give its representatives access to resources that can be channelled to citizens (OPM-REPOA-CMI, 2005, Hoffman, 2013; Hyden, 2005; Hussman and Mmuya, 2007; Tilley, 2013). Tanzania has faced some political constraints in implementing its decentralisation strategy, and in practice, processes of service delivery have remained largely top-down, with centrally defined budget allocations and priorities. This overarching governance context with relatively limited levels of political competition and concentrated power is relevant to understanding some of the dynamics underlying stock- outs, including the general lack of transparency and the weak culture of accountability.

Recent observations suggest that the government has come under increasing pressure in its attempts to maintain support and political legitimacy in recent years (Hussman and Mmuya, 2007; Hoffman, 2013). There are also suggestions that internal divisions within the CCM are growing, and that President Kikwete has failed to exert effective control over the party or manage its various factions (Hoffman, 2013). The increasingly independent media has been willing to engage in critical analysis of government performance, with some evidence of declining public opinion of the government (see Box 1). The combination of these pressures has contributed to

the government's increasing emphasis on its performance and delivery of services, including a series of commitments and promises on these issues. However, at the same time, this emphasis on achieving visible results has to some extent exacerbated dynamics of short termism and policy incoherence by encouraging political leaders to engage in personalistic and populist policy-making. The launch of the Big Results Now initiative in 2013, for instance, was a highly visible demonstration of the President's commitment to areas of service provision of public concern and was done in a top-down manner, including the creating of a separate Presidential Delivery Unit. However, the extent to which the ambitious targets established can realistically be achieved remains to be seen, and so far the health sector has not been prioritized as part of this initiative.

Box 1: Public opinion pressures in Tanzania

The share of the vote captured by the CCM in the 2010 elections was the lowest since the first multi-party elections held in 1995, and was seen as a particularly dramatic decline from its peak post-democratic performance in 2005. Dissatisfaction with government performance on a range of issues also appears to have increased; both fed and amplified by the growth of independent media reporting. Afrobarometer surveys for Tanzania show rising adverse impressions of both central and local government performance across 2008 - 2012. Perceptions of corruption have also risen for all forms of government and public officials across the same period, although Afrobarometer's analysis notes that citizens report surprisingly high levels of approval of officials despite this widespread discontent with governance in the country (Afrobarometer, 2012).

In the health sector, these incentives have created a strong focus on delivering highly visible inputs, chiefly the construction and expansion of health facilities, while distracting attention from addressing some of the less visible, more complex issues underlying the health system that contribute to problems such as stock-outs. The political commitment to building a medicine dispensary in every village, a health centre in every ward and a hospital in every district[5] seems to fit this pattern and appears to have been driven in part by short-term motivations, as it does not seem to have taken into account existing limitations to the health budget and human resources for health, or the long-term system improvements needed to support their functioning.[6] Interviewees noted that this policy has been very popular among the population in general and provoked a considerable response in terms of community-led construction. District and Regional Medical Officers (DMOs and RMOs) also report pressure from both councillors and MPs to direct resources to complete and staff these new facilities. The extent to which this expansion of facilities is creating pressures on the budget for medicines overall is unclear, but it seems obvious that it is exacerbating existing problems with the human resource shortages and delivery logistics that contribute to stock-out problems.

Policies focused on reducing medicine stock-outs, many of which have emerged in response to growing pressures and media coverage, have in some cases focused on visible, superficial aspects of the problem rather than advancing deeper and more complex reforms such as improving accountability amongst health staff, and the effectiveness of oversight through the supply chain. The recent policy shift requiring MSD to deliver medicines directly to facilities rather than via district-level authorities can be seen in the context of populist politics and increasing pressures on the government. The prevailing narrative in interviews, reports and local media is that the shift to Direct Delivery came about in response to a media focus on the problem of stock-outs and popular dissatisfaction over these issues.[7] In political terms, it was a highly visible intervention that focused attention on leakages at the local level by making the removal of DMOs from the supply chain a priority, and thereby deflected blame from MSD and the central government. From a technical point of view, however, it is unclear why direct delivery to facilities would be a top priority among the range of issues facing the MSD and questions have been raised as to the costs, effectiveness and sustainability of the policy, which is currently being evaluated.

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[5]See MOHSW (2006) 'Primary Health Services Development Programme 2007-2017' (PHSDP/MMAM).

[6] This pledge would require establishing and staffing an additional 5,162 dispensaries, 2,074 Health Centers and eight District hospitals, representing a near doubling in the total number of public health facilities and the HRH workforce needed to staff them.

[7] Yale Global Health Leadership Institute - MSD Direct Delivery Tanga Pilot http://nexus.som.yale.edu/ph-tanzania/?q=node/113.

Overall, there seems to be strong evidence that the problem of stock-outs is being maintained and exacerbated at least in part by the political salience of highly visible outputs, leading to prioritisation of some areas over others and what could be termed short-termist and populist policy priorities. These reflect historical modes of political competition in Tanzania as well as recent political trends within an environment of weak accountability. The priorities created by these forms of competition are particularly problematic in the context of resource constraints, both for the health sector overall and for medicine supplies in particular, as explored in the following section.

4.2 Budgetary and funding constraints

Absolute levels of funding are a contributing factor for medicine stock-outs in Tanzania; however, funding increases alone are unlikely to solve the issue of stock-outs. Delays in disbursement of funds have historically created bottlenecks in supply, and rigid budget rules and inequitable patterns of resource distribution can create localised shortages. More generally, poor capacity, a lack of transparency and perverse incentives mean that forecasts of medicine needs are often inaccurate; this leads to a mismatch of supply and demand between MSD and health facilities. This combination of factors often prevents the existing limited resources from being used effectively, and while increased funding might create some additional leeway in the system, its effects would be limited without broader reforms.

There is a reasonable level of consensus that the health sector as a whole, and allocations for medicines and medical supplies in particular, suffer from severe under-funding, and that this is a key contributor to persistent stock-outs. Prioritization of the health sector and social services more generally in Tanzania is relatively low compared to other spending areas, such as infrastructure and energy. Estimates usually cited are that the 2011-2012 budget needed for medicine and medical supplies was TZS 198 billion. Only TZS 78.6 billion was allocated, however, and the figure remained at TZS 80 billion for 2012-2013 (MoHSW mid-term review, 2013). While the budget for essential medicines has increased in nominal terms over the past decade, these increases generally have not kept pace with inflation and population growth.

Over the last decade, reports have consistently linked funding issues with medicine stock-outs ; a common perception is that greater funding will be needed to overcome stock-out problems. Moreover, essential medicines remain reliant on donor funding. In 2012-2013, Tanzania's pooled budget for essential medicines and supplies was TZS 80 billion, of which 42.5% was from the Government of Tanzania budget and 57.5% was from donor contributions through the health basket fund (MoHSW mid-term review, 2013). These spending levels (below $1 a day per capita) can be compared to required allocations for essential medicines and supplies estimated at $2.50 per capita per year during the medium-term expenditure framework process in 2009, and can also be compared to $5 per capita per year contributions estimated by global health initiatives to procure HIV/AIDS, malaria and tuberculosis medicines and supplies (MoHSW mid-term review, 2013).

The total level of funding alone, however, is not the only constraint on funding and budgeting processes. A persistent lack of transparency and reliable evidence on medicine availability continues to undermine efforts both to accurately quantify the levels of overall need and to monitor and track distribution.

As a result, a clear consensus has not yet been reached on how much funding is required to prevent the stock-out problem. The process of estimating the budget needed for medicines is particularly complex given that existing data on medicine orders, deliveries and consumption is not reliable. In addition, where data is available, it may not adequately reflect actual needs, as previous stock-outs may not be captured in the data. There may also be incentives for inflating orders and consumption records at the local government and facility levels, as weak monitoring systems allow some opportunities for theft of medicines (e.g. illicit sales of publicly-funded medicines to private pharmacies). Furthermore, a few respondents during our research reported that facilities sometimes order medicines according to what MSD has in stock rather than according to their needs, and stockpile items in anticipation of future stock-outs. While such behaviour may be an understandable coping strategy given the frequency of shortages in MSD's supply of drugs, this further complicates the process of estimating real consumption and demand for medicines, illustrating how perverse incentives at multiple levels can interact in a vicious cycle.

Given the number of years it has been in existence, some argue that MSD should be in a position to more accurately forecast its needs, and that health facilities should be able to make better predictions. Aside from special cases of disease outbreaks, the extent to which demands for essential drugs fluctuate over time due to hard-to-predict changes in disease burdens is not fully clear. It is likely that there may be some interests in favour of maintaining a certain degree of opacity in the system, as the lack of clear information and record-keeping to track medicine needs allows opportunities for leakages in the system. Indeed, multiple respondents interviewed during our study noted a perception that systemic leakages are common at multiple levels, from the centre down to health facilities. The government's current quantification effort is an important step toward forecasting medicine needs across the country, and it will be important for the results to be communicated transparently in order to build understanding and confidence in the credibility of this process.

> ## Box 2: Delays in medicine budget disbursements
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> Improving the timeliness of disbursing Tanzania's essential medicines budget through efficient, transparent transfer processes is an important component of the strategy to address stock-outs. Funds for medicines are released by the Ministry of Finance and Economic Affairs (MoFEA) and then approved by MOHSW before being transferred to an account at MSD and becoming available for purchase orders from health facilities. Delays between funds released from MoFEA to deposits appearing in health facility accounts has been found to be longer than three months in some cases (GoT-DANIDA, 2009: 34). Although the budget year begins in July, MSD typically has not received any funds until December, although there was significant improvement in 2013. Given the large size of funds being transferred, there may be incentives to hold funds in accounts at multiple stages in the supply chain rather than immediately releasing or spending these funds.
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> Late disbursement of funds contributes to procurement bottlenecks at MSD, which spread throughout the supply chain. The erratic availability of funds contributes to irregular patterns of ordering medicines at the facility level, which in turn undermines the ability of MSD to make informed procurement plans and increases the chances of stock-outs. Overall, there is a surprising lack of agreement on the timing and amount of disbursement between different institutions, although some efforts are reportedly underway to make these transfers more transparent. Again, more accessible information on the timing and size of budgetary transfers for medicines would be an important step to understanding and addressing delays in the system.

Challenges in effective coordination across government institutions exacerbate problems in medicine budgeting and planning processes. MSD has argued that the main reason for stock-outs is its insufficient budget from the Ministry of Finance and severe delays in disbursement of funds to MSD, which procures 90% of medicines and supplies purchased using the government budget (including budget support). Due to these delays, MSD has accumulated unsustainable levels of debt for several years (currently estimated at TZS 52 billion) due to failure to recover substantial costs associated with customs clearance, shipping and packing of drugs. Alongside these shortfalls in budget allocations, a related problem is delays in budget disbursement (see Box 2). MSD and donors have identified these budgetary and cash flow issues, which exacerbate inefficiencies in procurement and constrain MSD's ability to effectively manage drug supply for the country, as a top priority for dealing with stock-outs. The Prime Minister has instructed MoHSW to pay back the debt, but this has not yet occurred. Meanwhile, others argue that it is not certain that debt is the key cause of the bottleneck at MSD, which may have substantial funds from health facilities and vertical programmes sitting in its accounts before procurement. The credibility of MSD's claims about the urgency of addressing the debt issue could potentially be boosted if there was more transparent disclosure about cash flows, including the amount of working capital in MSD accounts.

Coordination challenges between central and local levels of government also feed into some of the budgetary problems that contribute to stock-outs. Until 2010-2011, MoHSW allocated funds from the essential medicines budget to health facilities based on flat amounts for health centres and dispensaries. In recent years, funding allocation formulas have been adjusted to take into account the size of health facility catchment areas. However, the need for a review of these formulas, with a particular focus on equity issues, has been identified (MOHSW mid-term review, 2013). At the district level, there is now a considerable amount of leeway in determining how to allocate funds to health centres and dispensaries, and guidelines on how to prioritize spending are not clear; this is likely to contribute to inefficiencies and inequities in the distribution of medicines.

This section has illustrated several ways in which budgetary problems interact within the broader political economy environment to result in problems that cannot easily be solved through increased funding alone. Indeed, many of the facilities visited for this research claimed that the problem was not that they did not have enough money in their accounts, but that MSD did not have the drugs to fill their orders. Health facilities are required to submit all drug orders to MSD first as the primary supplier; they can only purchase drugs from the private wholesaler after receiving confirmation that the item is out of stock at MSD, which is often a lengthy process. Further, they can only purchase drugs from alternative suppliers using facility-generated funds such as user fees and National Health Insurance Fund payments, which are typically quite limited. As a result, frequent stock-outs at the central MSD level inevitably lead to stock-outs further downstream in public health facilities.

In summary, these dynamics have created a vicious cycle in which problems of funding gaps combine with other factors, including a lack of transparency and coordination challenges at both central and local levels, to perpetuate and even worsen the issue of medicine stock-outs.

4.3 Human resource constraints

Shortages of human resources for health (HRH), low skill levels and poor distribution of staff   the Tanzanian health sector and contribute to medicine stock-outs by reducing capacity for pharmaceutical forecasting and accentuating tendencies to waste medicine stocks through over-prescription and misdiagnosis. These issues also contribute to a broader lack of discipline and accountability among health workers (see section 4.5).

 The financial constraints discussed in the previous section contribute to major shortages of HRH. The overall lack of adequate funding in the health sector has contributed to shortages of adequately trained and skilled personnel whose skills are needed to effectively forecast, order and manage medicine stocks. However, as we see with the funding issues discussed above, there are other factors that influence human resourcing for health, including inefficient distribution of existing staff. These factors contribute to low morale amongst health staff and together serve to exacerbate many of the issues contributing to stock-outs, as well as to poor quality health services overall.

Extreme gaps in human resources for health affect the capacity of different institutions to help manage stock-outs. WHO (2010) figures from 2000-2009 show that the numbers of physicians, nurses and midwifery personnel relative to population size in Tanzania are among the lowest in the world, and well below the African average. In a survey of public health facilities in 103 districts conducted in 2008, Sikika (2010) found that the average gap between statutory HRH requirements and actual staffing levels was 54% across health facilities and HRH types.

Shortages in the total number of health sector staff are exacerbated by inefficiencies in the distribution of human resources within and between regions. Human resource shortages are especially severe within the pharmaceutical sector, and particularly affect lower level facilities in rural and remote areas. For instance, the IHI (2013) SARA survey found that looking at all types of health facilities across their sample, some 69% of health professionals were stationed in urban areas and only 31% in rural areas, even though approximately 70% of the Tanzanian population live in rural areas. Sikika (2010) found that while there were similar shortages in percentage terms across government facilities in rural and urban areas, staff deployed to urban areas were far more likely to report for duty compared to rural areas (93% compared to 74%).

Low skill levels among health staff have also been highlighted and appear to be particularly severe within the pharmaceutical sector. For instance, only 55-60% of district pharmacists have pharmacy training, despite their important role in coordinating with MSD on medicine orders (USAID, 2011: 69). While the District or Council Pharmacist is responsible for assisting health facilities in forecasting and ordering, it has been noted that in practice this role is often neglected. Low skill levels and poor professional training among health workers contributes to some deviation from the official guidelines for prescribing essential medicines, including misdiagnosis and tendencies to over-prescribe drugs, contributing to wastages of medicines.

These HRH difficulties arise from a combination of issues at both the central and local levels. At the central level, there are issues around the prioritisation of HRH recruitment and the overall standards of training. At a more localised level, low skills and low morale amongst health staff can undermine discipline in the health service, particularly for staff operating in challenging circumstances and where there is minimal supervision.

This seems to have contributed to poor performance, including poor record-keeping at the facility level, which undermines the functioning of the medical supply chain. In summary, human resource constraints at the central and health facility level contribute to issues of medicine wastage, and serve to exacerbate issues around poor planning, monitoring and a lack of accountability.

4.4 Inefficiencies in the supply chain

Overall levels of resourcing, both financial and human, therefore, help to explain why medicine stock- outs persist and will need to be addressed at the systemic level as part of reform efforts. Resource constraints combine with other constraints on this system, such as issues of the distribution of resources, a lack of transparency and poor coordination across different parts and levels of government. In turn, these factors have several impacts on, and can help to explain, persistent inefficiencies in the supply chain. Supply chain challenges reflect in part the complex technical and logistical aspects of medicine supply chains, which have been analysed in depth elsewhere (See for example, Special Audit Report, 2011; USAID, 2013); a full review of the supply chain is beyond the scope of this study. However, many of these issues are rooted in, and exacerbated by, the political dynamics outlined in section 4.1. For example, the political priority for the expansion of health facilities and the failure to secure adequate HRH to staff them has worsened the logistical problem of medicine forecasting and distribution. Similarly, highly visible reforms, such as the switch to Direct Delivery or the adoption of parallel reporting systems and reforms at the instigation of donors, can add to organisational burdens. The lack of transparency and tendency towards top-down decision-making can also be explained partly by the long history of centralized, single-party rule and a desire to maintain control over potential resources for patronage that has become more complicated with the fragmentation of the CCM. Thus, since few of these issues can be characterized as purely technical problems, we summarize some of these challenges below with attention to how they relate to Tanzania's political economy context and some of the incentives of different parties involved.

Several weaknesses in Tanzania's medicine supply chain have been identified elsewhere, as summarised in Box 3 below. An important issue, which has not received sufficient attention in existing analyses and which cuts across many of these situations, is the way that a lack of transparency exacerbates many of the logistical problems identified at different stages in the supply chain. While there has been some mobilization and political momentum toward reaching targets, such as reduced delays in procurement and budget disbursement, there has not been as much emphasis on achieving greater transparency on budgetary transfers, account balances and fulfilment of medicine orders, despite their important potential to support reform processes.

Box 3: Medicine supply chain issues

Challenges identified in the medicine supply chain include poor forecasting, long supply lead times required for ordering medicines and inefficiencies in procurement (USAID, 2013). At the central level, MSD's procurement process typically takes three months for purchases from local suppliers and six to nine months for international procurement bids. The unpredictability of international supplies is a major source of bottlenecks, which have contributed to shortages of critical drugs, in some cases for months at a time. Complicated public procurement processes in Tanzania are another barrier to efficiency in the medicine supply chain, although the recent use of framework contracts is expected to lead to some improvements. These constraints weaken MSD's performance in adequately filling and delivering orders of drugs to health facilities.

Health facility staff interviewed during our research noted several problems with the medicine supply chain, including insufficient availability of drugs at MSD to fulfil orders, long ordering cycles and late supply of medicines and medical supplies. Almost all the health facilities visited in Iringa, Mbeya and Ruvuma claimed that incomplete fulfilment of orders by MSD was the main reason their facilities sometimes experienced shortages of medicines and supplies. It is difficult to assess the validity of these perceptions given limited evidence available and because health facilities may have incentives to shift blame away from themselves and toward MSD and/or to order quantities of medicines that are greater than their actual needs. Data on order fulfilment collected by USAID (2011) showed that the MSD only met 68% of orders at hospitals and 67% of

orders at health centres and dispensaries, although MSD estimates current fulfilment rates at between 70% and 90% of orders (USAID, 2011: 72). More comprehensive data on order fulfilments should be available (e.g. from MSD), but this information is not easily accessible.

Some evidence suggests a lack of attention or commitment from MSD to improve the transparency and quality of its services contributes to supply chain problems. For instance, receipts from MSD deliveries to facilities list the drugs delivered, but do not clearly note which drugs are out of stock, making it difficult to discover the discrepancy between what was ordered and what was delivered. One medical officer in charge at a district hospital noted that when they ordered from private pharmacies, by contrast, the pharmacies always called to inform the hospital in advance if any of the medicines ordered were stocked out and proposed alternative options before the delivery was sent. There did not seem to be any comparable initiative from MSD; facilities would not learn of stock-outs until incomplete orders arrived.

Further confusion can be generated due to health facilities sometimes receiving unrequested or soon-expiring drugs that do not match their needs, which may in part be because some medicines (especially from vertical programmes) continue to be supplied partly through a de facto 'push' system. While some health facility staff interviewed had been pro-active in trying to report and address these issues, acceptance of the persistent nature of these problems and a lack of motivation to report issues seemed to be common. Health facility staff were sometimes not aware of how much money was in their accounts at MSD, further exacerbating planning and forecasting challenges and highlighting the lack of transparency in the system.

As noted earlier, one of the major barriers to ensuring a functioning medicine supply system is that existing data on medicine orders, deliveries and consumption is not reliable. USAID (2013) notes that MSD largely bases its quantifications on historical sales data which, by definition, excludes demand that occurs during stock-outs because health facilities or individual citizens will purchase from private providers during these periods. Few of the health facilities visited kept patient records and the level of discipline observed in recording prescriptions and medicine disbursals seemed to vary significantly. These types of problems are usually attributed to a lack of training on forecasting of medicine needs and ordering procedures, which has been widely documented. However, there may also be incentives for staff at the health facility and local government level to either neglect or falsify records to cover up leakages of medicines, with considerable potential for exacerbating inequalities across geographic areas. Moreover, problems with forecasting and data collection at the local level are likely to feed back up to the central level and exacerbate challenges of supplying medicines that match facilities' current needs.

In summary, issues of a lack of transparency and performance oversight at central levels interact with conditions and behaviours at the level of local governments and health facilities, further undermining the functioning of planning, forecasting and procurement systems. USAID (2011) notes that there is a general culture where data and information are often perceived as something that needs to be collated and passed on rather than utilised. This is clearly seen in efforts to date to improve the collection of information on medicine availability through mechanisms such as the Health Management Information System (HMIS) and the SMS 4 Life system, which have had a limited impact so far on stock-outs. Indeed, while the actual collection of data has improved, barriers remain in terms of a lack of utilisation of data collected and a lack of action as a result of weaknesses identified. Thus, emphasis on a lack of transparency must also recognise that problems will not be resolved by the sheer fact of making information available or public – attention needs to be paid to broader questions about whom the data is generated for, how accessible the information is and whether adequate incentives exist to analyse and act on the information generated.

Finally, an argument against the suggestion that the stock-out problem is mainly due to logistical issues in phases such as budgeting, ordering, and forecasting relates to the fact that certain drugs are much more likely to be stocked out than others. There is widespread reporting that medicines prone to stock-outs tend to be those that are both pricey and fast-moving (e.g. easy to sell on the street or to private pharmacies), especially antibiotics, while stock-outs of cheaper medicines or highly specialized drugs are rarer. If the problem was simply a matter of general underfunding and/or logistical problems in the system as a whole, they might be expected to cut across different types of drug categories more evenly. A closer analysis of these types of patterns could provide some important insights into the stock-out problem.

4.5 Weak monitoring and oversight

A general lack of oversight, monitoring and accountability at all levels of the medicine supply chain has been a major contributing factor to the problem of medicine stock-outs through wastage, poor working practices and leakage of funds and supplies. While these issues are partially the result of resource shortages, poor working practices and institutional structures, there are also strong political drivers including the prevailing culture of not reporting wrongdoing amongst civil servants and the conflicting incentives created by the lack of a clear division between the civil service and the ruling party. The difficulties citizens face in providing 'bottom-up'accountability are also important here and are examined in depth in the following section.

Limited institutional capacity and incentive problems at multiple levels in the medicine supply chain contribute to dynamics that undermine effective monitoring and oversight, which can exacerbate stock-out issues. Hussman and Mmuya (2007: 177), for instance, note that 'The overlapping structures between the CCM and the state impair both vertical and horizontal accountability.' There are broad questions as to whether the structures of the system create sufficiently clear lines of accountability or are adequately resourced to create an effective monitoring system. Some of the institutional dynamics at the central and local levels that affect monitoring of medicine availability are discussed in this section. At the central level, the institutional capacity of the Pharmaceutical Services Section (PSS) within MoHSW and MSD, along with the lines of coordination and accountability within and across the institutions, is relevant to control over stock-outs. The existence of multiple parallel systems for managing drugs funded through different donors or vertical programmes further complicates systems of monitoring and oversight. Meanwhile, there are structures in place at local levels that serve monitoring functions at the district and health facility levels, but in practice these bodies typically seem to have limited overall influence on stock-outs.

At the central level, the Pharmaceutical Services Section (PSS) at MoHSW plays a central role in ensuring the availability of medicines; however, it has been noted that it faces constraints in its ability to oversee MSD and the provision of medicines in general throughout the country. One issue under discussion is the possibility of elevating the unit's status to become its own department given the relatively limited number of staff in the unit. The new Logistics Management Unit (LMU) at MoHSW should help to consolidate activities related to oversight of the medicines supply chain, although the team of consultants funded by the Global Fund who will be hired to staff the unit may raise some questions about sustainability.

Questions have also been raised about some of MSD's management practices and institutional structure. MSD, while semi-independent, falls under the purview of the MOHSW which allocates its budget; however, it delivers primarily to DMOs and health facilities, which are under the Prime Minister's Office, Regional Administration and Local Government (PMO-RALG). One issue that has been raised in MSD Board meetings is the need for MSD's organizational structure to better reflect its three core functions of procurement, storage and distribution of medicines and medicine supplies. Currently, procurement is managed by a small unit under the director rather than being a separate department. For instance, there could be benefits to a structure that reflects and facilitates greater specialization of these distinct functions. The Minister of Health's decision to appoint to the MSD Board of Directors a few members of parliament who had been vocal critics of MSD and the management of drugs in the past seems to demonstrate a commitment to reform, but there still appears to be a need for stronger oversight over MSD.

Below the central level, there are a number of formal committees that serve monitoring and oversight functions over the medicine supply chain. This includes Council Health Management Teams (CHMTs) and district health governing boards at the district level, village-level health committees and health facility committees for every hospital, health centre and dispensary. Unfortunately, despite good practices that seem to be improving the drug availability situation in some areas, these local-level bodies seem currently to have relatively limited impacts on stock-outs overall, due to limits in capacity, resources and incentives for tighter monitoring.

The performance of local systems to monitor stock-out situations is affected in part by some of the Regional and District Commissioners (RCs and DCs), who are appointed by the President rather than elected or appointed by the ministry for local government. Moreover, the CCM constitution states that both regional and district commissioners are the party's representatives in the region and district, reportedly 'obscuring where the party ends and the state begins'. (Hoffman and Robinson, 2009: 132). DMOs are also, in some cases, subject to

political pressures, for instance from influential local councillors or MPs who may be able to influence their future career path. The confusion and tensions generated at a local level by these three overlapping sets of actors – elected representatives, civil service officials and representatives of the central government and CCM – is well documented (see Hoffman, 2013) and was also apparent in interviews conducted for this study. The differing priorities, personalities and relative strengths of these different actors thus produce a range of countervailing pressures on the district health administration. Relatedly, there appears to be a general problem of management figures at the district level having very broad and multi-faceted roles while lacking the time, support and skills to fulfil them. DMOs, in particular, have a wide range of responsibilities, which may diminish the effectiveness of their oversight, particularly over more remote facilities (USAID, 2011: 29). Similar issues apply for District Pharmacists, who are overburdened by their supervisory and oversight roles (USAID 2011: 29).

These dynamics can be seen in the poor functioning of existing monitoring systems. It is the role of the DMO and the Council Health Management Team to carry out visits to health facilities at least once per month and to conduct supportive supervision audits once every quarter, which includes some focus on monitoring stock levels and assisting in building capacity for forecasting and record-keeping on medicines. Interviewees at both the district and health facility level note that supervision is typically less regular than this in practice, and that breakdowns of communication between health facilities and the CHMTs can contribute to stock-out situations. While these problems may in part be due to weak monitoring capacity issues (e.g. insufficient funds for transport to conduct monitoring visits), there may also be lacking incentives to reveal some of the gaps in the system. This is supported by observations that the current types of auditing and 'supported supervision' being conducted by CHMT may not adequately identify and sanction certain practices that contribute to stock-outs such as poor record-keeping on medicine prescriptions, orders and supplies.

Beyond monitoring at the district level there are also questions of how enforced, or enforceable, discipline is at the level of the health facility. It seems that disciplining staff for failure to follow guidelines on record keeping and even lack of investigation into suspicions of involvement in medicine leakages and corruption are relatively rare. This may be in part related to a prevailing work culture in which individuals agree not to report each other for malpractice (Hussman and Mmuya, 2007) and civil servants' jobs maintain relatively secure and protected regardless of performance. It is likely that some health facility staff have some awareness of irregular behaviours that contribute to leakages of medicines and that they are frustrated by the resulting impacts on patient care, but there are likely to be strong disincentives against reporting these types of issues.

These dynamics affect the various committees responsible for playing 'bottom up' monitoring roles at the health facility level. Several of the health facilities visited noted that the health facility committees played an important role in verifying the contents of orders delivered by MSD to ensure that the right quantities and products were received. However, it is typically difficult for these committees to provide ongoing monitoring of the drug supplies after the time of delivery; often the pharmacist has considerable power over the ongoing management of stock and it is difficult for other staff to keep track of it. Some facilities try to adhere to practices such as posting updated lists of current stock at the facility each day, but these types of policies have generally been difficult to enforce and keep up. The structure of some of these committees may also contribute to certain conflicts of interest and reluctance to voice complaints. For example, the secretary of the health facility governing committee at the district level is the DMO himself. Since the DMO finances the board, the board may lack incentives to be critical due to fears of financing cuts. Similarly, at the facility level, while the chair of the health facility committee is usually a citizen selected to represent the views of the community, in practice the chair often lacks power relative to the secretary of the committee, who is a medical officer from the facility and whose presence may create reluctance to raise criticisms about the management of the facility. Moreover, there is a general reluctance from communities to engage in scrutiny and take initiative at the community level without authorisation from higher authorities. These dynamics are discussed further in the following section.

The multiple levels at which there are breakdowns in monitoring and oversight and the poor collection of data overall, as described above, creates significant potential for leakages of medicines from the public health system. Some respondents noted that the role of corruption and leakages in the system may be exaggerated relative to the extent that other issues (such as complicated logistics, supply chain inefficiencies, management challenges and human resource deficits) are to blame. At the same time, given the high value of commodities at stake and the role of the government in the medicine supply chain, it is useful to give greater consideration to how the potential for corruption may shape some of the underlying factors and incentives that contribute to stock-outs.

During the course of field work, various anecdotes were shared, including instances in which health facilities sign delivery forms to confirm their receipt of medicines from MSD, but then MSD trucks take these medicines to other buyers back in Dar es Salaam; MSD trucks are reported to have been spotted in some cases making suspicious night-time deliveries. In Mwanza, two MSD drivers in succession were accused of stealing their entire truck full of medicines. There were also reports from district-level authorities of health facilities with missing information and discrepancies between medicine consumption and patient numbers, which could indicate the theft or diversion of medicines. The anecdotal and fragmentary evidence around leakages is considerable, but there remains an absence of reliable information for the system as a whole. Thus' it remains challenging to make evidence-based claims about the extent and/or causes of leakages at different levels in the system. As one interview respondent expressed, 'I don't know where the holes are, but there are holes, either at MSD or with end users.' Interviews with actors at the central government level highlighted a common perception that most of the leakages in the medicine supply chain happened at the level of the health facility. One interview respondent in Dar es Salaam stated, 'If you asked me where are the leakages, I'd put my money on the medicines getting to facilities and disappearing from there.' Meanwhile, the perspective from hospitals, health centres and dispensaries presents a different picture, identifying stock-outs at MSD itself as the main cause. Debates in the past have tended to fall into patterns of blame-shifting between different parties, which can distract from serious efforts to investigate and address problems; those who are benefiting from the current system are likely have an interest in maintaining this type of dynamics.

These issues contribute to a culture that allows for close relationships between health workers in public facilities, private pharmacies and drug companies, which can contribute to leakages of public drugs into private markets. A recent study by Twaweza found that 28% of randomly-selected survey respondents reported that the private pharmacies where they purchase drugs were owned by someone who also has an affiliation with a public health facility (Twaweza, 2013). Some private pharmacies have been found to be illegally stocking drugs from the MSD, and prosecution or discipline for these issues seems to be relatively rare.

Interviews with District Pharmacists revealed that private pharmacies in Songea and Mbinga had been shut down for stocking government drugs in the last four months, but apparently in neither case were district officials able to trace their supplier . Recent media reports also give an indication of the scale of these issues; in September 2013, a total of 120 pharmacies in the Mwanza region were closed for illegally selling medicines from government health facilities and other violations; some 1.5 tons of medicines were seized.[8] The same article notes that the investigation uncovered 52 private pharmacies that were illegally owned by government officials within the health services in Mwanza. In such cases, doctors might have been able to benefit directly from stock-outs in public facilities in which demand shifted to the private sector. A related problem is that many drug companies provide explicit incentives for prescribing certain branded (non-generic) drugs that are only available at private facilities. One doctor explained that there are often deals between doctors or pharmacies at public health facilities and private pharmacies and/or drug companies. It is not uncommon for doctors to receive a share of profits – often around 10% – each time certain drugs are prescribed.

Interviews highlighted a strong perception at the district, health facility and community level that there is little that can be done to hold the MSD and the MOHSW to account for medicine stock-outs. DMOs had followed up with MSD as to unfilled or erroneous orders, but lacked any mechanism for sanction. Thus, while actors at the local level blamed the central government for stock–outs to a large extent, they viewed these conditions as being immovable and therefore energies were chiefly directed towards mechanisms and solutions outside of the MSD distribution system that could be enacted at the local level.

To summarize, weaknesses in monitoring and accountability appear to be contributing to medicine stock-outs by allowing space in which leakages of medicines and corruption can occur alongside other logistical challenges related to forecasting, ordering, storage and delivery of medicines. Improving monitoring and oversight especially at the district level seems to be an area with strong potential to improve the availability of medicines, particularly if it is possible to find champions willing and able to support these activities. Some efforts are underway to share lessons on how to improve the effectiveness of local efforts to monitor stock-outs. For instance, more might be learned from some innovations used in Iramba district, which included a range of reforms focused on improving flows of information and monitoring procedures that have been seen to help

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[8] *The Citizen* 'Over 1.5 tonnes of drugs confiscated' Monday 13 September 2013.

reduce stock-outs (see Box 4). The 'satellite' approach to decentralized monitoring encouraged by Wajibika, a three-year programme financed by USAID designed to build capacity at the district level to improve accountability, management and budgeting in a variety of sectors including health, may be another useful model; in this case, health centres serve as hubs responsible for monitoring the dispensaries in their areas of service. There may also be scope for the government to learn from some of the vertical programmes' efforts to monitor drugs more strictly, such as the auditing procedures used by the Global Fund, which involve collecting detailed data on consumption at the level of the health facility. Efforts to improve capacity and skills for monitoring will need to address questions about whether the underlying incentives to monitor stock-outs rigorously – and to uncover some of the malpractice that is likely to be found – are sufficiently powerful, given that leakages are likely to benefit some of the power-holders in the system.

Box 4: Improving local monitoring of stock-outs: Iramba's experience

One of the most frequently cited cases of innovative local government efforts helping to address stock-out problems is the experience of Iramba district in the region of Singida. Iramba's success is largely attributed to the dynamic leadership of the DMO, who took on tackling the problem as her personal cause, with the support of a strong team of staff.

During monitoring visits to health facilities, Iramba's CHMT identified several irregular practices , including reports of high levels of medicine consumption despite low numbers of patients. Building on these initial observations, the CHMT then explored the irregularities more closely by undertaking more rigorous monitoring, which compared data on commodities received from MSD with registers of patients and drugs dispensed. It became apparent that there were a few facilities with better management practices that were avoiding stock-out problems; in these facilities, most medicine items had been received six months ago and consumption had been minimal.

This led to a conclusion that although supervision visits had been conducted for years, they were often biased and were not uncovering the full picture of the situation that was driving stock-outs in many facilities. This motivated CHMT to develop more rigorous procedures for monitoring health facilities in the district. For instance, some modifications were made to the data collected in the HMIS system, as it was found to be missing some key information. District-level resources were invested to make monitoring happen, including the provision of vehicles for auditing trips. Health facility governance boards were provided with small monetary incentives to make sure their meetings took place, along with training on how to better organize their reports and put them into a summary format that could be easily reviewed by the DMO to facilitate action.

Results included a significant decrease in consumption and an improvement in the availability of drugs . It also became easier to attract CHF funds, which reportedly increased from TZS 4-5 million per month to TZS 40-50 million per month, suggesting that when better services are delivered, people are more willing to pay to enrol. The district was also able to pay staff a monthly allowance to improve capacity and incentivize staff. It is notable that these results seem to have been were achieved with no more resources than other areas, but simply with more efficient use of existing resources.

The DMO's efforts were rewarded with promotion to RMO and the presentation of an award at a national conference. The model is now being rolled out throughout the region of Singida. It is hoped that this innovative model will inspire others to take the lead on fighting stock-out problems. Further studies on this case would be useful in order to assess the impacts more rigorously and to help determine which aspects of the model may have the potential to be replicated effectively in other areas.

4.6 Citizens' agency and accountability

Much of the analysis thus far has examined how systems and processes work in practice: how a range of constraints – from funding constraints through to underlying governance drivers – seem to explain dysfunctions in the system of medicine distribution. In particular, we have identified a lack of attention to the impacts this has had at the local level, particularly in terms of monitoring and oversight, and the interaction between constraints at central and local levels. However, a significant gap remains regarding the voice and agency of citizens, which is the focus of the section below.

The success and potential of efforts to promote citizens' voice and agency in order to improve public services in Tanzania present a mixed picture overall, although a number of interesting success cases have emerged.

Tanzania has a range of CSOs with varying levels of resources and different regional concentrations; however' the influence of these types of organizations on policies in the health sector is considered to be relatively low overall. An increasingly vibrant independent media sector has been developing, with an accompanying willingness to engage in critical analysis of government performance, although this type of coverage still tends to be fragmented regionally, because the state-run broadcasting organization is the only truly nationwide network. It is notable that, despite positive examples of citizen accountability resulting in improved service delivery, there are also cases in which these pressures seem to have had less desirable effects, such as improvements for particular sections of society that may not include the most vulnerable.

Constraints to citizens' voice and agency reflect the fact that, in practice, MPs and local councillors have little incentive to push for substantive reforms. As others have highlighted, local level political logics in Tanzania have a notable tendency towards clientelism, with emphasis placed on the delivery of tangible goods and services to communities (OPM-REPOA-CMI, 2005; Hyden, 2005; Hoffman, 2013). Similar political logics also apply for MPs, particularly given the historical weaknesses of the legislature in policy making and the disincentives created for holding the Executive to account, particularly for CCM MPs, not least because of the impacts on career advancement within the CCM (Hussman and Mmuya, 2007; Hyden, 2005; Hoffman, 2013).There does seem to be some interest from MPs and Councillors in the medicine stock-out issue at the district level, but this rarely seems to be targeted at systematic solutions or attempts to hold higher levels of government to account. There are multiple examples of village leaders and councillors pursuing highly personal solutions to stock-outs issues – particularly through purchasing medicines for individual constituents – but, otherwise, the overwhelming focus remains on how the limited supply of drugs is distributed to facilities and populations within the district. Local governments have had some success in leveraging funds from public health insurance schemes (NHIF, CHF, and TIKA) toward purchasing medicines for health facilities, but there are currently limitations in the potential for these schemes to solve stock-out problems (see Box 5).

Box 5: The role of public health insurance schemes in reducing stock-outs

In our interviews with local government officials, increasing enrolment in the government's existing health insurance schemes – NHIF, CHF and TIKA – was frequently cited as one of the most promising solutions for addressing stock-out problems. In the case that medicines needed by health facilities are stocked out by MSD, these funds can be used to procure these medicines through alternative suppliers. Currently, the amount of funds available through these schemes is often relatively small in comparison with the size of accounts for purchasing drugs from MSD. Low enrolment in the schemes has been fuelled in part by perceptions that the benefits of membership might not exceed the costs.

There is also some evidence that these schemes could have some unintended negative effects on those who are not enrolled. Interviews with officials in several areas highlighted that members of these schemes – who tend to be wealthier and better connected to political institutions (as NHIF is for public employees)– were much more likely to launch complaints about the state of medicine stock-outs that then reached higher level officials. In the areas visited, these pressures did not generally seem to have resulted in attempts to improve medicine access overall, but instead had resulted in segregated provision, which could reduce access for vulnerable groups who are not enrolled. Some facilities reported instructions from the district level to prioritise members of these schemes when distributing drugs; in one case, the medical officer in charge reported that his request to the DMO to resupply certain medicines had been refused due to the low proportion of his catchment area that were members of these schemes. Finally, some concerns were raised during our interviews about whether adequate oversight mechanisms exist to track the accounts where revenues from CHF and TIKA are held, given the potential for mismanagement of funds.

Barriers to collective action and mobilisation by citizens remain, in respect of the reform of medicine distribution systems and the ability to put pressure directly on the health service and district officials. Citizens' expectations of their political decision makers remain conditioned by historical accountability relationships, and this, together with their own past experiences, often leads to a general acceptance of the current state of public services rather than an interest in trying to challenge the system. Citizens may feel dependent on health workers and the government, and this can make them unwilling to demand better services or to challenge unethical practices (USAID, 2011: 30). The complexity of stock-out problems also makes it difficult for citizens to take action on the issue; there tends to be greater focus instead on the provision of tangible resources for local health

systems such as ambulances, medical equipment and the construction of health facilities, which feed into the preferences of leaders to provide highly visible goods. Finally, the nature of the circumstances in which one needs medicines may also explain some of the failures of collective action. While aware of stock-out issues broadly, citizens may not be overly concerned or consider them a high priority until they actually fall ill – when they will be most vulnerable – and in these cases the easiest response may be to purchase medicines at private dispensaries rather than demand their rights to publicly provided medicines.

Relationships between service users and service providers are also essential to understanding the dynamics of stock-outs. In interviews, service providers frequently highlighted that they felt under pressures from citizens to prescribe medicines for conditions (rather than providing other forms of treatment or advice) and to prescribe multiple medicines rather than a single one. This was particularly felt in the case of fevers, where there were reported pressures to prescribe malaria medicines in the absence of proper tests or even negative tests for the condition. One recent study found massive levels of over-diagnosis of malaria in health facilities in Dar es Salaam and emphasized the need for Rapid Diagnostic Testing to replace routine microscopy as the first-line diagnostic tool for malaria in all settings (Kahama-Maro et al, 2011). Irrational prescribing behaviours are exacerbated by some of the incentives that health providers may face to over-prescribe medications or to prescribe certain types of drugs (e.g. non-generics), and are also related to poor training and monitoring of prescribing behaviours. All of these dynamics can contribute to stock-outs by leading to over-consumption and maldistribution of medicines. Investigations by USAID have found similar issues, noting that good care is often associated with multiple medicines in the Tanzanian context and that greater control of patient demand could help to reduce some of the stock-outs issues (USAID, 2011: 24,74). Indeed, investigations by Twaweza found that 97% of surveyed patients reported having received medicine, a prescription for medicine, or both, at their last visit to the health facility (Twaweza, 2013).

A few interesting examples of actions and innovations in response to bottom-up pressures at the district and regional level were mentioned during the research. For instance, two of the RMOs interviewed had initiated investigations into stock-outs in their own areas as a response to public concerns. The first was directed to do so by the RC after publicity in the media over stock-outs and complaints from members of the insurance system, and had reportedly resulted in the creation and enforcement of new internal systems at the national hospital. The second had only just been initiated, and was apparently undertaken on the initiative of the RMO after hearing repeated concerns over stock-out issues from members of the public during public meetings held by MPs and Councillors in the region. The aim of this second investigation was to understand what the causes of stock-outs in that region were, and what actions, if any, the local administration could undertake to reduce stock- outs.

Alongside these government-led efforts, the potential for citizen data collection to usefully augment official monitoring channels was raised in several interviews, with DMOs and Councillors noting that this could be a useful source of information, provided that it was verifiable through official channels. For DMOs, interest seemed mainly to be in the potential of this information to supplement the data they were able to gather through their own supervision, whereas councillors saw as it as an opportunity to overcome some of the information asymmetries between themselves and district officials. There also seems to be some potential to use citizen data gathering as a focal point for dialogue between groups. Interviews with PADI (Tanzania Mission to the Poor and Disabled), a CSO in Songea that works closely with HelpAge International, found that initiating dialogues with Songea District Council based on findings the organization had gathered from monitoring health services for elderly people was an effective collaborative strategy to achieve progress. This collaboration resulted in an initiative specifically intended to improve medicine supplies to the elderly, through brokering an agreement with faith-based pharmacies to offer free drugs for the elderly with full reimbursement from the Council.

Efforts to improve data collection and analysis of the problems at local levels for stock-outs therefore may have potential to achieve some traction, particularly if there are adequate resources and efforts dedicated to synthesizing and sharing the data in user-friendly formats, and if it is shared with key stakeholders who have interests, incentives, and power to respond effectively to the findings. Studies by organizations such as GIZ, Sikika, and Twaweza, which perform on-the-spot checks measuring stock-out levels of certain medicines in a sample of facilities at a given point in time, have been a useful source of information. The Stop the Stock-outs campaigns which generated significant media coverage on the issue in Kenya and Uganda may be another relevant model. However, while these snapshots of the current situation may be useful for raising public awareness and addressing denial of the problem during initial stages of the campaign, such approaches have

limitations in terms of paving a clear path for action; in other words, they alone may not be sufficient to inform large-scale policy responses.

By contrast, some government-owned data sources, such as recent efforts to improve and consolidate health data collected by the government into the new e-LMIS information management system, do have much wider coverage and a more extensive range of indicators, giving it a significant advantage over most data sources collected by non-government entities if issues of reliability and completeness of the data are resolved. Unfortunately, much of the data collected is not currently analysed in detail due to restricted access, lack of incentives and capacity constraints within government. Greater openness, transparency and accessibility of information could help enable this data to realise its full potential and strengthen the links between information and action. Currently, data related to medicine availability can be requested from MoHSW for consideration on an ad-hoc, case-by-case basis; however, it seems that there is not yet any clear set of formal data-sharing policies or guidelines to govern the process. One CSO representative noted, 'If we don't know the problem, we can't solve it – we're just shooting in the dark!', and expressed the opinion that access to information such as that collected in the ILS Gateway system should be key to identifying the problem. Likewise, there seems to be some appetite for better data availability on stock-outs among stakeholders at the level of local government, particularly if it is possible to provide reliable summary data pointing to key gaps that can be connected with actionable follow-up plans. Tanzania is a member of the Open Government Partnership (OGP), a new multilateral initiative championed by President Kikwete that seeks to make governments more open and responsive to citizens. The country's first action plan has, as its second commitment, radical transparency of medicine supply chain to the facility level.[9] However, in practice, little implementation has taken place , and it remains to be seen whether this will be implemented and what effect it can have on realigning the incentives that enable chronic stock-outs.

Bottom-up pressures from citizens over the state of the health service in general and medicine stock-outs in particular are evident and operate through a variety of channels and mechanisms. However, these accountability mechanisms do not have a straightforward impact on the issue of medicine stock-outs, with positive innovations being balanced by dynamics that can worsen the stock-out issue or lead to improvements only for particular sectional groups. This highlights the fact that simply raising awareness is unlikely to lead automatically to better outcomes, and emphasizes the need for better information to be combined with strategic approaches to engaging citizens, civil society- and government effectively.

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[9] 'Posting orders and receipts of medical supplies from the Medical Stores Department (MSD) online and on notice boards to the facility level and updated in real time' http://www.opengov.go.tz/files/publications/attachments/OGPACTIONPLANREVISEDON26-3-2012-1_sw.pdf.

5 Conclusions

Addressing the problem of medicine stock-outs is one of the most difficult and important challenges for Tanzania's health sector. The complex matrix of stakeholders, incentives, and causal factors involved at a variety of levels, and the continuing nature of stock-out problems in spite of reform efforts, make it clear that there are no simple 'quick-fix' solutions. Many possible angles from which to approach the problem have the potential to yield some traction, however. Many of the current reforms to address stock- outs seem to be heading in positive directions, although at this point the evidence of results is rather limited and a high level of uncertainty remains about which policies are likely to be most effective. Our research has identified several core cross-cutting issues summarized below.

First, we identified that overall levels of funding remain too low but that progress is also hampered by an ongoing lack of transparency and reliable evidence on medicine availability. This is further undermined by apparent coordination challenges between different parts of government (such as Treasury, the Ministry of Health and Social Welfare, MSD and central and local government). This contributes to fragmented and opaque systems and contributes to a vicious circle.

Second, the lack of adequate overall funding translates into lack of adequate human resourcing. Our analysis points to a combination of onerous requirements, low morale, low skill levels and a lack of performance-based incentives among health staff. This leads to a lack of discipline and poor record-keeping at the facility level, which can undermine the functioning of the medical supply chain and feeds back up the system in terms of poor oversight.

Third, while there are a number of technical weaknesses in supply chain management for medicines, an important aspect cutting across many of these, and which has not received sufficient attention to date, is the way that a lack of transparency exacerbates many of the logistical problems at different stages in the supply chain. While there has been some mobilization and political momentum toward reaching targets, such as reduced delays in procurement and budget disbursement, less emphasis has been placed on achieving greater transparency overall, on budgetary transfers, account balances and fulfilment of medicine orders, despite their important potential to support reform processes. This further undermines the functioning of planning, forecasting and procurement systems.

Related to this, broader questions remain as to whom data on medicine availability is generated for, if it is meaningful at local levels and if there are beliefs that better forecasting at the local level will actually make a difference. This is clearly seen in efforts to date to improve the collection of information on medicine availability through mechanisms such as the Health Management Information System and the SMS 4 Life system, which have had a limited impact so far on stock-outs. Indeed, while the actual collection of data has improved, there are a series of barriers to its utilisation, and a lack of action as a result of weaknesses identified. The lack of transparency and of reliable data on medicine availability remains a significant block on progress, but it is not one which can be fixed by the provision of more information alone. Greater attention needs to be paid to the accessibility of information, its relevance to users and the ability of different stakeholders to act on it and the establishment of an incentives regime in which such information results in practical rewards and sanctions. Without this, there are dangers – including for existing reform efforts – that further data will be generated and made available, but may not have the intended impact on outcomes.

Fourth, despite some efforts toward decentralisation, in practice processes of service delivery have remained largely top-down, with blurred lines apparent between the ruling party and the state. Some argue that the previous 2010 election result – in which the share of the vote captured by the CCM was the lowest since the first multi-party elections were held in 1995 – alongside polling evidence of growing dissatisfaction with government

performance has contributed to <u>dynamics of short termism, populism and policy incoherence</u>. The political commitment to building a medicine dispensary in every village, a health centre in every ward and a hospital in every district seems to fit this pattern of short-term and populist pledges. These underlying logics help to explain the lack of systemic reforms to date, and the predominance of fragmented and uncoordinated systems.

Fifth, overlaps between CCM and the state are recognised to <u>undermine several lines of accountability</u>, contributing to unclear lines of responsibility and political influence for elected representatives, civil service officials and representatives of the central government and CCM. As a result, few examples can be identified where staff are disciplined for poor performance, including in relation to medicine stock-outs, even in cases where distribution of medicines is skewed towards particular groups and interests. This has all increased the potential for corruption and leakages for local level distribution.

Sixth, <u>significant gaps remain regarding the voice and agency of citizens</u>. Constraints to citizens' voice and agency reflect the fact that, in practice, MPs and local councillors have little incentive to push for substantive reforms and pressures from certain service users can exacerbate issues of medicine stoc- outs or result only in targeted relief for those with greatest 'voice' and influence. The efficacy of the few opportunities citizens have to report stock-outs directly is undermined because there is little assurance that this triggers systemic reforms and accountability. Barriers to citizens' collective action also remain, because, while they are aware of stock-out issues broadly, they may not consider it a high priority until they actually fall ill – when they will be most vulnerable – and even in these cases there are often opportunities to exit through purchasing medicines at private dispensaries or through privileged access to public health insurance schemes for those that can afford them.

These findings point to some of the underlying drivers of medicine stock-outs that will need to be addressed in order to achieve sustainable solutions that address the underlying roots of stock-out problems. They suggest the need for some new strategies to target identified gaps and to support more realistic options for reform. Our analysis also points to some positive examples from which further learning is possible. For instance, progress made in areas like Iramba suggests that efforts to improve monitoring and oversight at the district level could have strong potential for improving the availability of medicines, but requires finding political actors, reformers and allies who are willing and able to support these activities. In general, a key insight is that efforts to improve the collection and analysis of data on stock-outs may have important potential to achieve some traction, particularly if there are adequate resources and efforts dedicated to synthesizing and sharing the data in user-friendly formats with key stakeholders who have interests, incentives and power to effectively respond to the findings.

The recent increase in political competition and opening up of media space has raised the profile of medicine stock-out issues and suggests that this could be a possible window of opportunity through which to support progressive change. NGOs such as Sikika have used media effectively to raise awareness on stock-outs. However, these dynamics may increase pressures to provide tangible goods to the public in ways which may not address the roots of stock-out problems. Similarly, pressures from citizens, which remain muted in many areas, have complex effects, in some cases resulting in tangible actions and widespread improvements, while in other cases resulting in improvements only for certain segments of society. Nonetheless, there seems to be a genuine desire from many parties to find solutions to medicine stock-outs across multiple levels of the system, even if the causes and solutions are not yet fully understood.

Our analysis has a number of implications for civil society organisations such as Twaweza and highlights some challenges as well as some potential opportunities. First, greater transparency and information on medicine stock- outs may not be sufficient to generate greater accountability and action. Key questions that need to be considered include how such information can be used and acted upon and who has incentives to do so. In the case of medicine stock-outs, there already seems to be considerable consensus that it is a major national challenge; this has been documented through a range of data collected by the government and other organizations, and major reform efforts are underway. This suggests a need to go beyond broad strategies to raise awareness on the issue and instead to go deeper into understanding and addressing key bottlenecks through focused engagement strategies which complement and support existing reform efforts. Second, within the socio-political context of Tanzania in general and around this issue specifically, citizens are likely to face particularly strong barriers and disincentives to taking individual or collective action to hold the system to account, as described above. Furthermore, it may be difficult to involve citizens in collecting and understanding useful,

easy-to-understand data on stock-outs. Collecting accurate information on stock-outs inherently relies on cooperation and trust with health service providers, since information that can be obtained through citizens' direct observation and experiences with stock-outs is limited. Stock-out data can vary significantly depending on specifics related to the sample chosen, time of survey, number and types of drugs monitored and so on, and there is some risk that simple snapshots may present misleading pictures of the overall situation that could lead to suboptimal policy responses. It is also important for stock-out data to be analysed in connection with other health data, particularly on utilization of health services, in order to be more meaningful.

Taken together, our findings therefore emphasize the need for better monitoring and greater transparency, but also highlight some of the challenges for achieving this effectively and turning it into improved action. Evidence from randomized evaluations on the effectiveness of community monitoring to improve public service delivery in country contexts such as India, Kenya, Uganda and Indonesia has been very mixed, and support our arguments that context and details matter (Duflo et al, 2012; Bjorkman and Svensson, 2009; Banerjee et al., 2010; Olken, 2007). Some of the generalizations that can be made from this body of research are that community monitoring tends to work better when citizens have control over service providers, when they are delegated specific tasks and receive adequate training, and when meaningful information can be presented in simple formats.

Importantly, there is some evidence that the role of information per se is not always the key force driving results – the process of bringing together stakeholders for dialogues can be an important driver of progress, and the details of how such meetings are conducted (who is invited, etc.) may affect the potential for information to lead to action (Wild and Harris, 2011). Indeed, effective engagement on stock-outs issues is likely to demand some level of collaboration with the government, whether at the level of the central government (e.g. MoHSW, MSD), local government (e.g. RMOs, DMOs, councillors), or service provider level. In order to be effective, CSOs may need to engage in multiple types of roles, including acting as watchdogs (e.g. to build public awareness of these issues), while also taking more collaborative approaches to achieve progress. The extent to which CSOs and the government are likely to be comfortable with playing such diverse roles is not yet clear.

Finally, it is important to emphasize again that the issue of medicine stock-outs is one of the most politically sensitive issues in the health sector, involving a complex set of entrenched interests at many levels. In this sense, it might be characterized as a high-risk but potentially high-reward area with which different stakeholders, such as civil society, donors and others, can engage. Overall, there does appear to be real potential for civil society organizations and the government to explore a wide range of options for engaging citizens to help address stock-out issues. Experimentation and pilot-testing of different methods with the flexibility to identify and adapt to new directions and implementation models would be key to any strategy, given the inherent complexity of this problem and the lack of clear evidence for which solutions are likely to work in different parts of the country.

5.1 Recommendations

In light of this, we set out below a preliminary list of potential options particularly with civil society organizations in mind, which combines further development of some existing strategies and some newer ideas. These include:

Campaigns to improve transparency of data on medicine supply and distribution at facility-level
The analysis set out above emphasizes the importance of greater transparency, but also suggests that rather than taking on the many levels of the system, civil society could consider an approach that would concentrate on the key outcome – that is, the actual availability of key medicines at local facilities. The idea is not to over-simplify the issue, but to shift the attention from technocratic concerns with inputs and processes (although working on the processes is an integral part of improving the system, technical agencies, not civil society, are better placed to do so) to outcomes that matter to people's lives. An example of such an initiative is the monitoring of 'radar' school textbooks in Tanzania, in which the government has commissioned a private agency to manage an interactive (and regularly updated) website that provides clear and accessible information as to how many books (and what type of books, from which publisher, etc.) have been provided to which school[10]. An essential part of

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[10] Full details of the Books and Desks Monitoring System, part of the Primary Education Support Project (PESP), can be accessed here: http://www.pesptz.org/index.php/home?lang=english.

such an initiative will be citizen feedback loops; that is, mechanisms through which citizens can add their own inputs and react to the data presented on the platform, and have some assurance that authorities take such feedback seriously.

Improve accessibility of existing data, and verify independently
If the data available in the new e-LMIS system (i.e., data already collected by the government and development partners), was made publicly accessible (as it has been made in similar schemes in Ghana and Kenya, which provide publically available summaries of stock-out data on a regular basis), civil society could play a significant role in analysing and popularizing it, particularly through links with the media. This data (which is disaggregated to facility level and can also be aggregated intelligently) could form the basis for informed comparisons, such as a ranking among facilities or between districts, with a system of awards (or name-and-shame approach) linked to it.

There is also a role for civil society to initiate new data collection efforts to cross-check and complement data sources collected by the government. An analogy can be drawn to the Uwezo initiative, which independently assesses learning levels of children in Tanzania on an annual basis: there could be an 'Uwezo for medicine' – which would focus on assessing, at the level of primary health facilities, the availability of a short list of essential drugs. As the Uwezo effort has shown, making credible data on the low levels of basic literacy and numeracy in Tanzania has contributed significantly to the national debate on quality of education and possible solutions.

Innovative methods such as having a trained team of monitors conduct a simple exit survey of patients leaving the hospital, with questions on what medications if any were prescribed and received, might be also be a potential approach to independent verification.

Another strategy might focus on the roughly 100 public hospitals in the country that are responsible for providing a significant percentage of the total medicine supply. Although some evidence suggests that stock-out problems may be more serious at the level of health centres and dispensaries compared to hospitals, there may be logistical advantages to focusing at the hospital level initially given that such a large proportion of all drug volumes (and presumably stock-outs) are concentrated in a relatively small number of hospitals.

Use the media to highlight success and relative performance, as well as positive deviance
Citizen-driven data, comparative data, and stories of positive deviance ought all to be communicated loudly through the media. Given the complexity of stock-out issues, it seems important for mass information campaigns to try to accomplish specific goals rather than generally aiming to raise awareness on stock-outs. This might include providing comparative data on stock-out levels in surrounding areas or highlighting exemplary models of districts or health facilities making progress in preventing stock-outs, as a strategy for rewarding positive achievements and sharing information that might inspire positive innovations elsewhere. Conversely, there is also room for the media to play a greater role in putting pressure on the system by bringing to public attention cases where corruption or irregularities have been detected. Civil society organizations can explore their links with independent media to both provide inputs and help shape the debate around the issue.

Look for, connect and foster positive deviance from a variety of actors
Our research highlights that there are individuals at a variety of levels and in a range of positions focused on this issue who might be potential allies. Some DMOs, Councillors, members of Council Health Boards and hamlet leaders all noted that they lacked information about what was happening at the health facility level and expressed interest in the potential for improved monitoring. Working with pre-existing CSOs at the local level could also prove a useful strategy, as they will already have links to the district administration and may have prior experience in finding potential alliances and brokering agreements.

There are also examples of apparently successful innovations (e.g., in Iramba district) in improving flows of information and monitoring procedures. Further, Wajibika's 'satellite' approach may be a useful model, where health centres serve as hubs responsible for monitoring the dispensaries in their areas of service, helping to decentralize responsibility for monitoring away from over-burdened district offices. Civil society organizations can explore and document these and other examples of innovation – not so much for providing a blueprint for a solution, but to document stories of how actors have come together to solve a problem. Efforts to document and

draw attention to examples where progress has been achieved may help to shift some of the debates on stock-outs towards a focus on how incentives and interests can be aligned, and problems solved (e.g. through media, meetings bringing together different parties, highlighting differences in performance across districts/facilities, performance-based rewards ceremonies, etc.). Processes such as collaborative community score cards for the health service could bring together these groups and create forums where issues can be explained and trust built between groups. Supporting forums for local level dialogues between local government, health providers, and citizens could help to raise awareness and understanding of multiple perspectives on stock- out issues – and similar approaches seem to have some successes at local level, as discussed above.

A "coalition for delivery" to make things move
Persistent medicine stock-outs across the health sector have been a cause of widespread concern in Tanzania for some time. Numerous initiatives have been established to address the problem from within and outside government, but despite several promising starts, overall they have failed to gain sufficient traction. The recommendations above seek to create conditions and realign incentives so as to achieve the missing traction. While the recommendations are located more on the 'demand side', the aim is to spur new sets of collaborations and accountabilities between citizens and the state and reformers within the state, and to recognize and reward innovations that get things done. The key to solving Tanzania's chronic stock-out problem may lie less with any particular set of solutions, several of which are known and likely to be useful, and more with creating the conditions in which a coalition of actors come together and work in a concerted fashion to make things move.

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Annex: Organisations Interviewed

Acasia Pharmacy, Iringa Municipality

Aga Khan Health Centre, Iringa Municipality

Christian Social Services Commission

GIZ and Tanzanian-German Programme to Support Health (TGPSH)

Ifakara Health Institute (IHI)

Ilala Municipal Health Authority

Ilala Regional Referral Hospital

Iringa Municipal Council

Iringa Regional Hospital

Iringa Regional Medical Office

John Snow Initiative (JSI)

Mapera Health Centre, Mbinga District

Mbeya National Referral Hospital

Mbinga District Council

Medical Stores Department (MSD), Dar Es Salaam and Iringa Zonal Office

Members of Parliament

Ministry of Health and Social Welfare (MOHSW)

Miyomboni Pharmacy, Iringa Municipality

Msindo RC Dispensary, Iringa Municipality

Mwema Health centre, Songea Municipality

Nduli Dispensary, Iringa Municipality

Ngima Dispensary, Mbinga District

Ngome Health Centre, Iringa Municipality

Pathfinder

People Living with HIV/AIDS (PLHA) / Walio Katika Mapambano Na AIDS Tanzania (WAMATA)

Prime Minister's Office, Regional Administration and Local Government

Ruvuma Orphans Association (ROHA)

Ruvuma Regional Medical Office

Sabasaba Dispensary, Iringa Municipality

Sikika

Society for Women in AIDS in Africa (SWAAT) and Self Help Development (SEDECO)

Songea Municipal Council

Tanzania Mission to the Poor and Disabled (PADI)

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