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List of Abbreviations

CHF	Community Health Fund
DMO	District Medical Officer
FBO	Faith-based Organisation
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (GmbH)
HPSS	Health Promotion and System Strengthening Project, Dodoma Tanzania
IFC	International Finance Corporation
IHI	Ifakara Health Institute
ILS	Integrated Logistics System
MDC	Micro Distribution Centre
MoF	Ministry of Finance, Tanzania
MoHSW	Ministry of Health and Social Welfare, Tanzania
MSD	Medical Stores Department
NGO	Non-governmental Organisation
NHIF	National Health Insurance Fund
URT	United Republic of Tanzania
R&R	Report & Request
USAID	United States Agency for International Development
Swiss TPH	Swiss Tropical and Public Health Institute
WHO	World Health Organisation

Glossary

Dispensary	Place for the local community where medicines are dispensed and small-scale health services provided (only outpatient service)
Health centre	Small medical institution staffed by general practitioners and nurses (mainly outpatient, occasionally inpatient service)
Health facility	A building, where medicine is practiced (includes dispensaries, health centres and hospitals)
Health system ¹	Includes people, institutions and resources, arranged together in accordance with established policies to improve the health of the population they serve
Hospital	Larger medical institution staffed by general and special practitioners and nurses (in- and outpatient service)
Order fulfilment rate ²	The percentage of medicines ordered as compared to the number of medicines delivered to the health facility in a given time frame
Medicines availability ³	The percentage of health facilities with medicines in stock on day of interview
Stock-out ⁴	The total unavailability of medicines at the health facility / central storage (in percent); Stock-outs are calculated as number of items x number of weeks of zero stock as a percentage of full stock of a predefined list

¹ World Health Organisation [WHO] website (2014)

² Deutsche Gesellschaft für Internationale Zusammenarbeit [GIZ] (2011), p. 5

³ Ifakara Health Institute [IHI] (2013), p. 15

⁴ Euro Health Group (2009), p. 49

1 Introduction

At many health facilities throughout Tanzania, essential medicines are frequently not available for patients who seek medical care. Various studies identify irregularities in the medicine supply chain and resulting stock-outs at health facilities and at national storages as one of the major problems in the health system in Tanzania.⁵

The availability of medicines is determined through specific tracer items, which represent essential medicines for most common diseases in the country or area of the study. The numbers and types of tracer medicines can vary depending on the sample size, methodology applied and executive organisation.⁶ A study conducted by the Ifakara Health Institute (IHI) in 2012 used fourteen tracer items to investigate their availability.⁷ The mean score for medicines availability in the visited health facilities was 41%, meaning that on average 41% of health facilities had respective medicines in stock at the day of the interview, 59% did not. The study found discrepancies in availability between rural (37%) and urban (54%) areas and between public (37%) and private (55%) health facilities. Generally, hospitals had a better availability (68%) than lower level facilities such as health centres (45%) and dispensaries (40%).⁸ On the contrary, a bottle of Coke can be found almost everywhere, even in remote areas. Certainly, medicines are a publicly provided good in this context and a bottle of Coke is the product of a profit-oriented private corporation. Thus it might be tenuous to draw comparisons, considering also that medicines are a potentially lifesaving commodity, sensitive to storage and temperature and a bottle of soda is not. Still, the question arises about the origins of the difficulties in providing health facilities with the needed amount of medicines in time to treat patients.

In 2010, the project “Last Mile” was launched between Coca-Cola, the Global Fund and the Medical Stores Department (MSD) in Tanzania, aiming at enhanc-

⁵ Wiedenmayer (2011), p. 7; Deutsche Gesellschaft für Internationale Zusammenarbeit [GIZ] (2011), p. 7; Ministry of Health and Social Welfare [MoHSW] (2008a), p. 25; Ministry of Health and WHO (2002), p. 11 and 14

⁶ MoHSW (2013b), p. 11

⁷ The full table is available in the annex of this document

⁸ Ifakara Health Institute [IHI] (2013), p. 14f

ing efficiency of medicines supply to health facilities in remote areas. This was done through active knowledge transfer from Coca-Cola logistics experts to persons responsible at MSD in a targeted area. First positive results have been presented and the project was expanded to Ghana and Mozambique⁹

This essay commences with giving an overview on the medicines supply system in Tanzania and Coca-Cola's supply chain approach in developing countries. Thereafter, the key challenges of data management and processes, funding, human resources and accountability in the medical supply chain at national, district and local level are studied. For every challenge, the comparison to Coca-Cola is drawn and then discussed, if there are options to adopt elements of the Coca-Cola system to the medicine supply chain and where the limitations are.

2 The medical supply chain in Tanzania

2.1 The role of the Medical Stores Department (MSD) in the medicine supply chain in Tanzania and other (interational) stakeholders

Tanzania has a centralized procurement and supply system for medicines in place. Key actor is MSD, a semi-autonomous public unit under the Ministry of Health that handles all the medical requirements for government health facilities at all levels.¹⁰ It is structured in nine zonal stores located throughout the country from which around 5,000 health facilities (including public and private/faith-based hospitals, health centres and dispensaries) are supplied.¹¹ Despite this responsibility order fulfilment rates reach between 50% and 70%.¹²

Beside the national stakeholders, several multi- and bilateral partners, NGOs and FBOs are involved in the procurement and supply of medicines. In particular for priority diseases such as HIV/Aids, Malaria and tuberculosis.¹³ Thus, multiple medicines supply systems exist at the same time.

⁹ The Global Fund website (2014)

¹⁰ MoHSW (2008b), p. 11

¹¹ Medical Stores Department [MSD] website (2013)

¹² GIZ (2011), p. 16 – 19; MoHSW (2013b), p. 13; Wiedenmayer (2012a), p. 14

¹³ MoHSW (2008b). p. 7

2.2 Structures and flow of information / supplies – The Integrated Logistics System (ILS)

A vital component in the medical supply chain in Tanzania is the so-called Integrated Logistics System (ILS), which was implemented by the Ministry of Health and Social Welfare (MoHSW) in 2005. The aim was to combine the logistics systems of a number of vertical programs (essential medicines, family planning, Malaria, etc.) in order to keep track of orders and thus improve efficiency and performance of the supply chain.¹⁴

Figure 1 below illustrates the various steps in the ILS system for health centres and dispensaries as well as ordering procedures for hospitals. ILS requires to request supplies on a quarterly basis, using the so-called report & request (R&R) forms. The District Pharmacist then compiles and submits the forms to MSD, after they have been approved by the District Medical Officer (DMO). Hospitals generally order via requisition forms directly at MSD, however, frequency of ordering can vary from weekly, monthly to quarterly.¹⁵ Based on the placed orders and funds available for each health facility, MSD prepares and delivers the order directly to the respective health facility.¹⁶

¹⁴ USAid Delivery Project (2011), p. 9

¹⁵ Euro Health Group (2007), p. 55

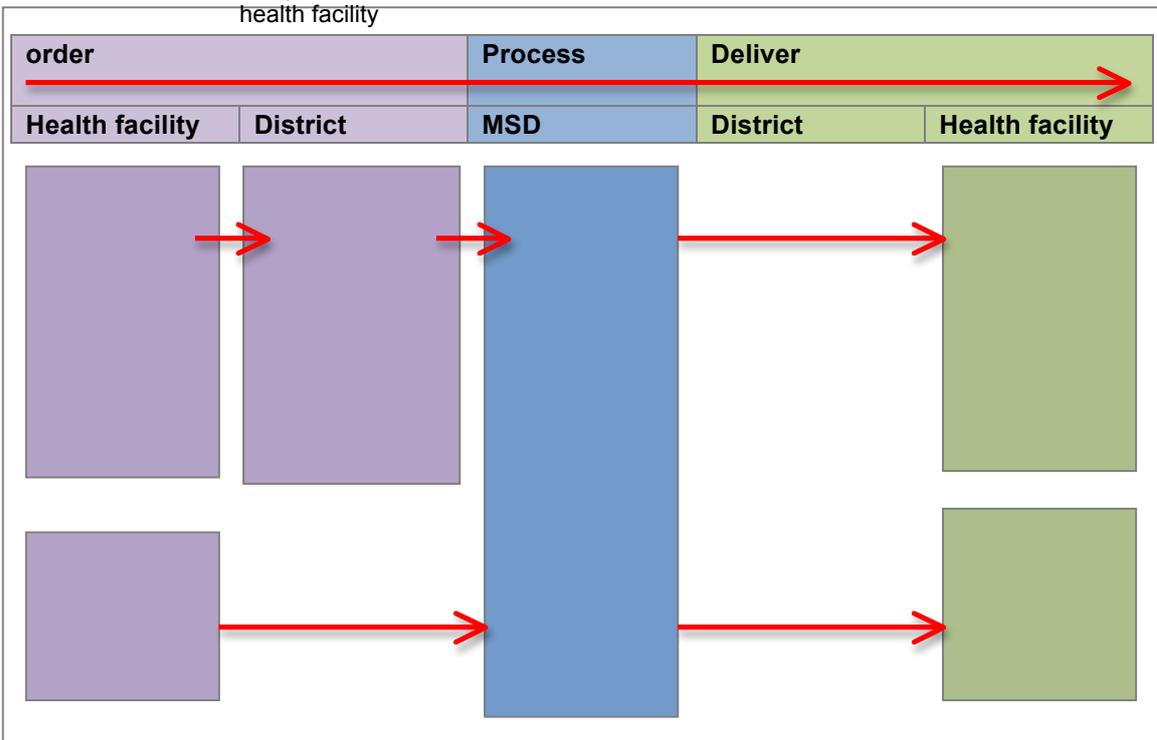
¹⁶ MoHSW (2013b), p. 14

Dispensary & Health Centre:
 Staff fills R&R form on a quarterly basis and submits to district

1. District Hospital receives medicines
2. District Medical Officer approves
3. Pharmacist submits to MSD

Dispensary & Health Centre
 receives medicines

Figure 1. Movement of supplies and information and the Integrated Logistics System



Source: Own illustration based on Wiedenmayer (2011)

3 Coca-Cola and its supply chain approach in developing countries

The Coca-Cola Company is the largest non-alcoholic beverage company in the world, selling more than 1.8 billion servings a day worldwide. The Coca-Cola system is characterised through operating on a local scale with more than 250 bottling partners worldwide to which concentrates and syrups are sold. The locally produced beverages are then vended to local customers and partners, who finally sell the products to the end consumer.¹⁸

Coca-Cola started its operations in Tanzania in 1952¹⁹, thus before independence (1963) and the development of health policies. Coca-Cola uses a wide

¹⁷ Own illustration based on Wiedenmayer (2011) and personal communication with Dr. Denis Mbepera, Regional Pharmacist in Dodoma, Tanzania
¹⁸ Coca-Cola website (2014)
¹⁹ Coca-Cola Sabco website (2013)

range of distribution methods, which vary significantly depending on markets. In several developing countries like Tanzania, Coca-Cola operates among other channels through a manual delivery approach, the so-called Micro Distribution Centres (MDCs) to serve even remote areas. The first MDCs were piloted in 1999 in Ethiopia and the approach quickly expanded to other countries in East Africa. Small-scale entrepreneurs procure the soft drinks at the independently owned distribution centres and deliver the products to evenly small-scale businesses (corner shops, restaurants, retailers) in their area. With this model small but regular deliveries can be performed, even to hardly reachable areas.²⁰

Before setting up such distribution centres and warehouses, thorough assessments are conducted in the target area about consumer and retailer behaviour, territorial and outlet factors, warehouses and transportation requirements and suitability of distribution channels.²¹ Selection criteria for MDC managers are defined and suitable persons recruited. MDC owners are fully responsible for financing the start-up costs including licences, rent, supply and means of transport.²² Incentives and remuneration systems are quite well developed. The often first time business owners receive training from Coca-Cola local bottling partners on basic business skills, account development, distribution management, merchandising, customer services and on-the-job coaching.²³ Through regular exchange with Coca-Cola staff, MDC owners have access to the company's management tools, such as track inventory, sales monitoring, and business performance. Two regular contact persons are defined for each MDC, who monitor supply and inventory, develops retail accounts and generates orders as needed.²⁴

One advantage of this system is the close proximity to the customer, and thus that retail outlets do not have to wait for infrequent truck deliveries but have constant access to the products at the MDCs. Consequently MDCs can purchase

²⁰ Harvard Kennedy School and International Finance Corporation [IFC] (2009), p. 10ff; IFC (2010a), p.14

²¹ IFC (2010b), p. 4

²² *ibid.* (2010a), p. 14

²³ *ibid.* (2010b), p.2

²⁴ Harvard Kennedy School and IFC (2009), p. 18ff; IFC (2010a), p. 14

on a demand-driven basis rather than following a longer planning approach. This also addresses financial, space and storage limitations.²⁵

Coca-Cola's record keeping about sales, demands and market development is exceptionally strong. The company is able to base predictions on real-time data and feeding the information immediately back into the information loop and adapt strategies if needed.²⁶ This is, however one of the major challenges in the medicine supply chain in Tanzania.

4 Key challenges in the current medical supply chain in Tanzania and opportunities/limitations to adopt elements from the Coca-Cola system

4.1 (Data) management, processes and communication

MSD is often held responsible for not being able to deliver all essential medicines in needed amounts. However blaming one player in a systemic and complex network of multiple actors might be too easy. Data management is a critical issue throughout the supply chain from national to health facility level and vice versa. In figure 2 duties at all levels as well as occurring challenges, such as delay and under-supply of medicines are illustrated as described in the following paragraphs.

At health facility level, stock keeping and prediction of medicines are generally weak. R&R are not filled in at all or only fragmentally for the reason, that many health workers are not familiar with the medical logistics and management in general and in particular with the ILS. Training was only provided once in 2005 and repeated for facility in charges in 2013.

At district level, more delays are caused during compiling the R&R forms. Review is often not or insufficiently performed, and the forms are not always submitted to MSD in time. Occasionally, the District Pharmacist orders medicines

²⁵ *ibid.* (2009), p. 15

²⁶ The Social Market Place website (2013)

on behalf of health facilities without knowing their exact needs.²⁷ Capacities for managing medical requirements for the entire district are rather poor.

At national level, MSD is repeatedly unable to plan adequately due to weak information received from lower levels. MSD procurement plans are based on following estimates, usually predicted per year: Forecasts, stock on hand at all levels of the distribution system, quantities already ordered or deliveries expected, direct donations from development partners, expected losses, estimated consumption during the period.²⁸

Thus interrupted flow of information between the different levels and resulting uncertain estimates in any of those indicators can lead to inadequate ordering and supply. Subsequently, MSD is not able to timely hand in requests for needed budgets, to procure medicines in time and to supply orders. The fact that a complete procurement cycle by MSD takes about nine months is an additional hindrance for in-time delivery.²⁹

²⁷ Chimnani et al. (2010), p. 9; GIZ (2011), p.16

²⁸ MoHSW (2008c), p. 30 – Calculation: *Quantities required = (stock on hand + quantities already ordered + direct donations expected from any other source – estimated consumption for the period – losses – desired stock at the end of the period).*

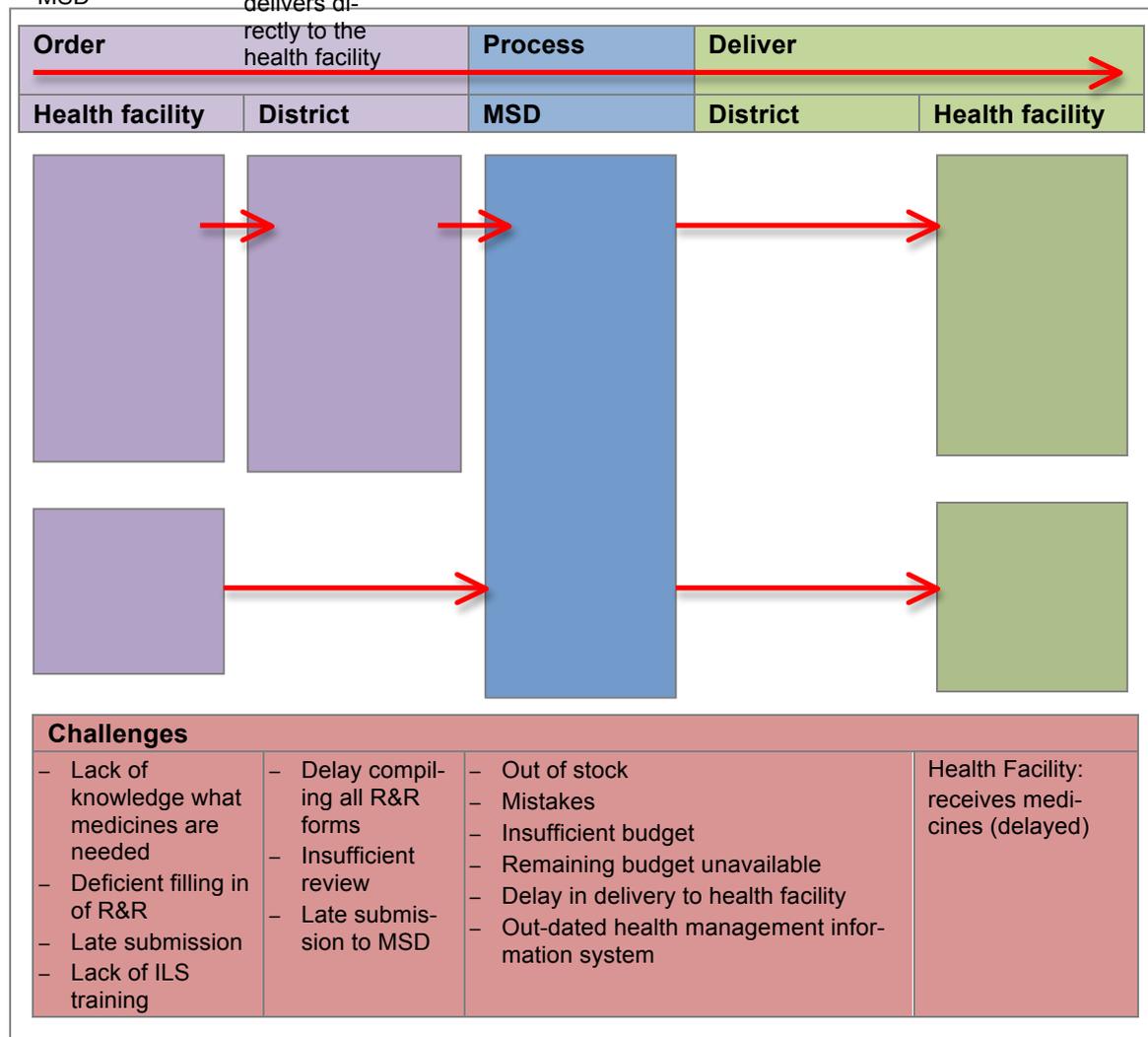
²⁹ Personal communication with Dr. Romuald Mbwasi, Pharmacist and Senior Technical Advisor to the MoHSW, Tanzania

hospital
Dispensary
& Health
Centre:
Staff fills R&R
form on a
quarterly
basis and
submits to
district

1. District Pharmacist reviews
2. District Medical Officer approves
3. Pharmacist submits to MSD

hospital
Dispensary
& Health
Centre
receives
medicines

Figure 2: Challenges and reasons for delay in the provision of information and supply of medicines from the health facility to MSD and back



Source: Own illustration based on Wiedenmayer (2011)

Another major obstacle is bureaucratic and inflexible structures in the event of stock-out at MSD as illustrated in figure 3. The policy states that MSD has to report to districts when unable to supply medicines, and only then the district can look out for other possible suppliers. Up to 19 signatures from official entities are needed before the alternative procurement can be performed.³⁰ This policy and the time-consuming information cycle delays the purchase of medicines through other channels tremendously.

³⁰ *ibid.* Dr. Romuald Mbwasi

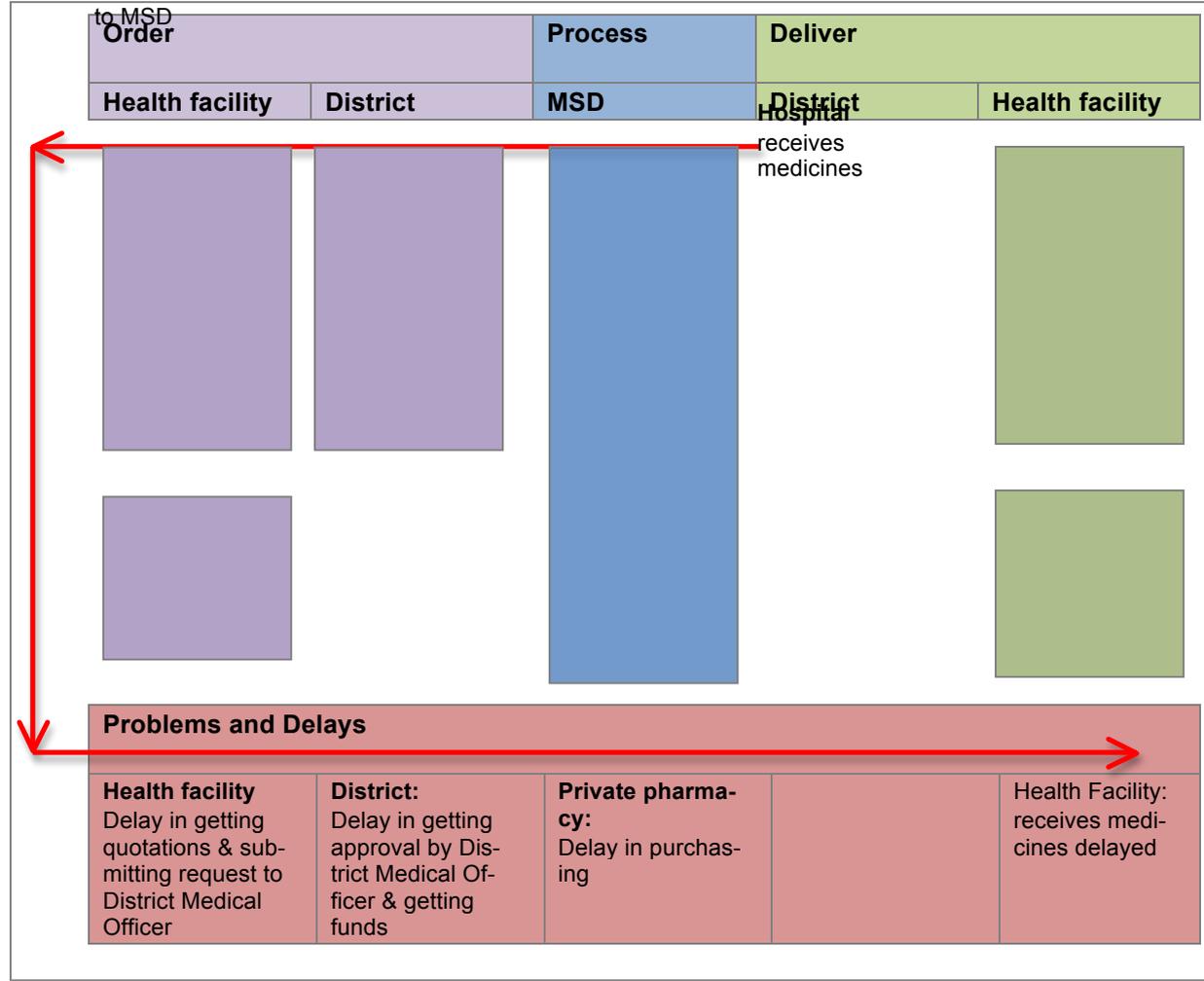
Dispensary & Health Centre:
Staff fills R&R form on a quarterly basis and submit to district

- District Pharmacist reviews
- District Medical Officer approves
- Pharmacist submits to MSD

Dispensary & Health Centre
receive medicines

Hospital
Ordering via requisition form directly at MSD

Figure 3: Problems and delays during alternative procurement process if MSD is out of stock



Source: Own illustration based on Wiedenmayer (2011)

In addition to obstacles in the internal information system multiple other supply chains built up by external partners lead to an overall fragmented supply system and flow of funds. An assessment conducted by the Ministry of Health and Social Welfare (MoHSW) in 2008 shows that several stakeholders prefer direct donation of goods through their own procuring sections.³¹ There is rather little coordination and communication between different organisations,³² which results in management challenges for MSD and to overlapping of orders and expiry problems.³³

³¹ MoHSW (2008b). p. 7 and 11

³² MoHSW (2008a), p. 4; MoHSW (2008b), p. 1; Wiedenmayer (2011), p. 6

³³ MoHSW (2013a), p. 36

What is the Coca-Cola approach?

Coca-Cola uses various distribution channels, however, manages these channels through only one system to keep track of sales and stocks. One of Coca-Colas core competencies is the ability of real-time information gathering, data management and thus to anticipate trends. This entire process starts on the ground with local partners, from where the system is fed with information to higher levels. Prior to setting up distribution centres, a thorough situation- and context analysis is performed to get as much information about the targeted area. Thus, knowledge about the specific market can be constantly accumulated. The broad range of distribution points, many of them in areas that are difficult to access, allows for direct contact with customers and on-demand distribution.

What could be adopted for the medicine supply system in Tanzania?

What are the limitations?

Coca-Colas ability of planning and management, knowledge of customer needs as well as overseeing the entire supply chain rather than only segments of it is a key learning for public sector institutions. Coca-Cola has control over only one system, clear structures and responsibilities and control mechanisms in place.

Even though, the ILS system was introduced with the aim to combining several existing logistic systems into one, the success up until now is limited. Donors and development organisations should be aware of their responsibility to contribute to a functioning system rather than avoiding bureaucracy and delivering their priority items directly to health facilities.

However, it is important to keep in mind, that the range of medical products is wide, many are sensitive to storage and temperature and have to be imported from abroad from different producers. Thus, the complexity in procurement and supply should not be underestimated. Additionally, there might even be legal issues resulting from inadequate delivery practices.

In frame of the project “Last Mile” a work stream was established to identify root causes of stock-outs and enhance communication across the supply chain. Planning practices at MSD were revised and instead of an annual forecast, the zonal offices are asked to collect data on a monthly or quarterly basis. This data is planned to be used to constantly adjust procurement plans. While this initia-

tive addresses a core obstacle, the difficulty persist that accurate data on consumption and demand often still get “lost” on the way to the system.³⁴

Smooth information processes would furthermore favour enhancements of the current funding situation (described in 4.2). Having said that, one has to keep in mind that donors have different understandings of aid and strategies and decisions are widely politically driven. Another hesitation is, that an improved information system might not be favoured by all internal stakeholders. Weak data management and non-transparency implies less control from outside.

4.2 Funding of medicines, allocation, flow and access to funds

In general, funds for medicines supply are found to be insufficient. The budgetary situation with regard to essential medicines has improved only marginally, in terms of real disbursed amounts from USD 0.80 per capita in 2009/10 to USD 0.84 in 2011/12.³⁵

Challenges start with the Ministry of Finance (MoF) with delayed disbursements of funds to the Ministry of Health and Social Welfare (MoHSW). Additional to these delays, the disbursed amounts tend to be less than approved, with an average of 75% only.³⁶ The procedures within MoHSW further delay disbursement to MSD and amounts tend to be unreliable, which leads to cash flow problems and delayed orders of medicines. The need for cash flow at MSD and the health facilities are in turn not sufficiently acknowledged in the ministries. Furthermore there is not enough awareness about the duration of the MSD procurement cycle of nine months.³⁷

In theory, accessing complementary funds (e.g. through the National Health Insurance Fund, Community Health Fund, cost-sharing) is possible, however limited, burdensome and time intensive. In a study conducted in Dodoma region, 60% of the health facilities have never assessed complementary funds to

³⁴ Yale Global Health Leadership Institute website (2013a)

³⁵ MoHSW (2013a), p. 33

³⁶ MoHSW (2013b), p. 5

³⁷ Euro Health Group (2009), p. 16

purchase medicines.³⁸ There are no common guidelines in place how to access these funds and alternative procurements were difficult to track at district level.³⁹

What is the Coca-Cola approach?

Coca-Cola is a private, autonomous corporation with a financially sound performance. Coca-Cola gains sufficient revenues from its worldwide sales to constantly invest into improving its business and its supply system.

What could be adopted for the medicine supply system in Tanzania?

What are the limitations?

Room to adopt practices in terms of funding from Coca-Cola to the medicines supply chain in Tanzania is limited. This is true due significant differences in the working context of both organisations and thus means of funding. Coca-Cola is a private enterprise with financial assets. The company is able to constantly invest in the needed distribution infrastructure. The medicine supply system in Tanzania, on the contrary, is coupled to the government, which is not able to collect taxes from the majority of its population. Most Tanzanians work in the informal sector or make a living from subsistence farming. Thus, the government is highly dependent on contributions from donors.

However, as elaborated in 4.1 improving the flow of information between the different internal stakeholders could have impacts on the funding situation. In a first instance, regular flow and commitment to agreed fund disbursements from MoF to MoHSW could be strengthened and thus delays in medicines supply reduced. In a second instance under the assumption that donor countries join efforts to improve the overall system in line with the government, higher amounts could be disbursed. On a local level, health facilities need to be informed and empowered to request and use complementary funds, for instance through developing guidelines in order to simplify procedures.

³⁸ Wiedenmayer (2012a), p. 13ff

³⁹ Wiedenmayer (2012b)

4.3 Human resources, capacities and management

Another obstacle to a functioning medicine supply chain is that Tanzania has a lack of pharmaceutical staff at all levels. The number of pharmacists and pharmacy technicians has in fact decreased from 0.15 in 2008 to 0.12 in 2012 per 10,000 people on average.⁴⁰ Most pharmacists are based in Dar es Salaam, the largest city, whereas rural areas face an acute shortage⁴¹. This issue is confirmed in a situation analysis conducted in Dodoma region, where 95% of health facilities had no pharmaceutical staff on duty.⁴² This is little surprising due to the fact that as of 2011 only two schools for pharmacists and two for pharmaceutical technicians were in place in Tanzania.⁴³

Thus, health facility staff takes over additional (pharmaceutical) tasks, which they are not familiar with and are not corresponding to their profession. In fact, a significant proportion of health care professionals in general posted in rural areas do not report to their workstation or health staff is “in and out” during work hours.⁴⁴

At district level, District Pharmacists are often overburdened with their responsibility to oversee medical needs in the entire district and supervising all health facilities at once.⁴⁵ Furthermore, training in human resource management skills is rare for key health staff and there is a lack of clear duties and responsibilities.⁴⁶ Concluding, Tanzania educates its health staff not according to the needs of the country and lacks health professionals.

What is the Coca-Cola approach?

Local partners and MDC owners undergo a critical selection process and are then supported with relevant training, continuous supervision and necessary management tools. Roles and responsibilities are clear to all actors.

⁴⁰ MoHSW (2013c), p. 6

⁴¹ MoHSW (2009), p. 17

⁴² Wiedenmayer (2012a), p. 9 and 26

⁴³ MoHSW (2009), p. 20-21

⁴⁴ Sikika (2010), p. 10; Sikika (2012), p. 7

⁴⁵ GIZ (2011), p. 20

⁴⁶ MoHSW (2013c), p. 12

What could be adopted for the medicine supply system in Tanzania? What are the limitations?

Certainly, Coca-Cola does not primarily educate its own employees but is able to recruit worldwide professionals. At a local level, the required knowledge of how to purchase/sell a bottle of soft drink as well as keeping books is not as complex than diagnosing and dispensing the correct medicine. Therefore, for Coca-Cola it requires less effort to train people to perform well than for MoHSW/MSD. Once a person completed medical/pharmaceutical training, the individual most likely does not want to spend the working life in a remote village somewhere in Tanzania, whereas working in the Coca-Cola distribution network is attractive for people in rural areas.

However, what the government could adopt from Coca-Cola is to clarify roles and responsibilities as well as to providing job descriptions for each position. During the “Last Mile” project, job descriptions were developed for each MSD position in order to facilitate hiring, evaluating and training.⁴⁷ However, this would be helpful for all positions involved, also in the districts and at health facility level.

Furthermore, the adaptation of curricula for pharmaceutical staff could help to address the needs especially of rural areas. At St. John’s University in Dodoma, in fact a one-year dispenser course is planned to address the needs of the pharmaceutical sector.

Additionally, appropriate and frequent training could keep health staff in the knowledge loop. The build-up of a thorough and continuous supervision system including performance evaluation where responsibilities are clear has the potential to significantly improve motivation and performance at all levels. However, critical voices would again point on the lack of funds available to carry out these activities.

⁴⁷ Yale Global Health Leadership Institute website (2013b)

4.4 Accountability and pilferage

Due to a lack of record keeping at all levels, accountability issues arise. During the field visits for the 2007 drug tracking study, record keeping was found to be poor, sometimes not even a copy of orders could be found. Thus it is difficult to reconstruct which items arrived at the health facilities and were given to the patients and which ones did not.⁴⁸ The study found that MSD medicines (thus from the public sector) frequently make their way to the private sector, mainly to small stores in the villages. Inspections and audits are rarely conducted, often left without consequences and thus there is room for unethical behaviour. At district level, actions to address these accountability issues are not clearly specified in the MoHSW/MSD special audit action plan.⁴⁹ A study conducted by GIZ in four regions in Tanzania showed that patients registry and dispensing register at facility level are often not matching, e.g. patients were not recorded in the patients registry but still received medicines. This is likely due to „under the counter“ payments.⁵⁰ Sometimes there is no record keeping at all and nobody really knows where the medicines are. It was found that illegal selling of non-authorized, stolen and low quality medicines occurs on a regular basis and that regulatory capacity to address these issues is insufficient.⁵¹

What is the Coca-Cola approach?

On one hand, Coca-Colas local partners are own entrepreneurs and have therefore a lot of personal incentives to perform well. Secondly, due to Coca-Colas financially sound situation, the company is able to set up a remuneration and incentives system, which constitutes good performance. On the other hand, Coca-Cola provides close supervision through two regular contact persons combined with monitoring of inventories and business performance.

⁴⁸ URT and Euro Health Group (2007), p. 63

⁴⁹ *ibid.* (2007), p. 69

⁵⁰ GIZ (2011), p. 5-7

⁵¹ MoHSW (2013a), p. 35

What could be adopted for the medicine supply system in Tanzania? What are the limitations?

Coca-Cola does not face the risk of pilferage as does MSD, but not because of having more ethical employees. Medicines are a precious good and when salaries are not competitive and legal consequences are absent, temptations are high to sell medicines under the table. Moreover, the performance of health facility staff does not have an influence on their remuneration in contrast to most private sector organisations where bad performance most likely leads to losing the job.

This issue could be addressed with financial and pharmaceutical audits followed by consequences in case of unethical behaviour. First positive results on this intervention was shown on the example of two districts in Dodoma region, where the availability of medicines was better in interrogated health facilities than before conducting the audits.⁵² Disciplinary actions for non-compliance are certainly an effective tool to avoid unethical behaviour. However, such a process would need to be institutionalised on a national level to achieve a significant impact.

Higher remuneration, recognition and performance-based incentives could motivate more health staff to do their best and decrease the risk of pilferage. But there we are again at the funding issue, since there is not much room for increasing salaries.

5 Conclusion

First of all, direct comparison between the performance of Coca-Cola and MSD should be treated with caution, because both organisations operate in very different contexts. Coca-Cola is a private, autonomous corporation with sound financing options and control over a clearly defined range of products and the ability to produce locally. MSD, on the contrary, is part of a highly complex political system, dependent on ministries and donors with multiple interests.

⁵² Personal information by Dr. Karin Wiedenmayer in a briefing on first results of respective audits.

Thus when looking at the core issues in the medicine supply chain in Tanzania, adoptions of the Coca-Cola system seem rather limited. The issue always goes back to funding as a core obstacle as well as managing diversified data. Setting up a functioning supply chain and data management is furthermore very complex and has to involve all stakeholders, thus simply “activating” a better distribution system is not possible.

Nevertheless, Coca-Colas core capability of exceptional planning and data management, knowledge of customer needs and in particular overseeing the entire supply chain is for sure a key learning for public sector institutions. Enhancing information exchange at all levels between the involved actors is another topic where Coca-Cola performs well and that could be adapted by the involved parties in the Tanzanian supply chain. Coca-Colas clearly defined roles and responsibilities and the performance-driven attitude of employees is another field that could be addressed by the Government of Tanzania. A functioning network of supervision and context-based, continuous training curricula for involved people could be key to better performance. The project “Last Mile” highlights surpluses of knowledge sharing between public and private organisations and options to start increasing medicine supply chain performance in Tanzania.

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Annex

Availability of essential tracer medicines according to level of service, managing authority, owners and residence area

Background characteristic	Amitriptyline 25mg cap/tab	Amoxicillin 500mg cap/tab	Atenolol 50mg cap/tab	Captopril 25mg cap/tab	Ceftriaxone 1g/vial injection	Ciprofloxacin 500mg cap/tab	Co-trimoxazole 8+40mg/ml suspension	Diazepam 5mg cap/tab	Diclofenac 50mg cap/tab	Glibenclamide 5mg cap/tab	Omeprazole 20mg cap/tab	Paracetamol 24m1/ml suspension	Salbutamol 0.1mg/dose inhaler	Simvastatin 20mg cap/tab	Medicines mean score (e)	Total number of facilities
Level of service																
Dispensary	8	57	11	10	62	80	76	45	54	16	16	100	18	3	40	1100
Health Centre	20	57	24	19	62	81	84	50	57	24	26	100	19	4	45	137
MCH Clinic	30	44	30	30	85	100	98	44	30	39	16	100	23	16	49	8
Hospital	60	70	56	57	78	88	88	66	74	73	60	100	62	19	68	52
Managing authority																
Government/Public	9	55	8	7	60	77	73	41	51	12	9	100	15	2	37	923
Mission/Faith based	23	69	30	29	70	91	89	62	70	35	46	100	34	5	54	132
NGO/Not-for-profit	0	70	14	0	98	98	84	43	70	41	14	100	55	0	49	9
Private-for-profit	19	60	41	36	70	91	91	62	62	45	53	100	40	9	57	233
Ownership																
Public/Government	9	55	8	7	60	77	73	41	51	12	9	100	15	2	37	923
Private	20	65	35	31	71	91	90	62	66	41	49	100	37	7	55	374
Residence																
Rural	7	54	7	7	59	78	74	41	50	11	9	100	14	1	37	844
Urban	26	65	35	29	72	85	86	61	67	40	44	100	37	9	54	453
Total	12	57	15	13	62	80	77	46	55	19	18	100	20	3	41	1297

Source: Ifakara Health Institute (2013)

*Notes: The mean percentage of medicines available (Amitriptyline + Amoxicillin + Atenolol + Captopril + Ceftriaxone + Ciprofloxacin + Co-trimoxazole + Diazepam + Diclofenac + Glibenclamide + Omeprazole + Paracetamol + Salbutamol + Simvastatin) / 14