REPOA
P.O. Box 33223, Dar es Salaam, Tanzania
157 Mgombani Street, Regent Estate
Tel: +255 (0) 22 2700083 / 2772556
Fax: +255 (0) 22 2775738
Email: repoa@repoa.or.tz

Website: www.repoa.or.tz

ISBN: 978-9987-483-31-0

Improving the Supply Chain for the Health Sector: What Role for Local Manufacturing?

Caroline Israel, Maureen Mackintosh, Paula Tibandebage, Edwin Mhede, Phares G. M. Mujinja

REPOA, is an independent, non-profit organization concerned with poverty and related policy issues in Tanzania. REPOA undertakes and facilitates research, enables monitoring, and promotes capacity building, dialogue and knowledge sharing.

REPOA research agenda is concern with poverty reduction with the focus in Socioeconomic Transformation for inclusive growth and development that reduce poverty substantially. Our objectives are to:

- develop the research capacity in Tanzania;
- enhance stakeholders' knowledge of poverty issues and empower them to act;
- contribute to policy dialogue;
- support the monitoring of the implementation of poverty related policy;
- strengthen national and international poverty research networks, and forg linkages between research(ers) and users

It is our conviction that research provides the means for the acquisition of knowledge necessary for improving the quality of welfare in Tanzanian society.

REPOA's Research Reports contain the result of research financed by REPOA. Our Special Papers contain the findings of commissioned studies conducted under our programmes of research, training and capacity building. The authors of these research reports and special papers are entitled to use their material in other publications; with acknowledgement to REPOA.

REPOA has published the results from this research as part of our mandate to disseminate information. Any views expressed are those of the author alone and should not be attributed to REPOA.

Working Paper
14/6

Improving the Supply Chain for the Health Sector: What Role for Local Manufacturing?

Working Paper 2 from the Industrial Productivity, Health Sector Performance and Policy Synergies for Inclusive Growth (IPHSP) research project.

By Caroline Israel*, Maureen Mackintosh**, Paula Tibandebage*, Edwin Mhede***, Phares G.M. Mujinja****

* REPOA
**Open University, UK
***Ministry of Industry and Trade
****Muhimbili University of Health and Allied Sciences

Working Paper 14/6

Published for: REPOA
P.O. Box 33223, Dar es Salaam, Tanzania
157 Mgombani Street, Regent Estate
Tel: +255 (0) 22 2700083 / 2772556
Fax: +255 (0) 22 2775738
Email: repoa@repoa.or.tz
Website: www.repoa.or.tz

Design: FGD Tanzania Ltd

Suggested Citation:
Caroline Israel, Maureen Mackintosh, Paula Tibandebage, Edwin Mhede, Phares G. M. Mujinja '*Improving the Supply Chain for the Health Sector: What Role for Local Manufacturing?'*

Working Paper 14/6, Dar es Salaam, REPOA

Suggested Keywords:
Health sector performance, Supply chain for health sector, Industrial productivity, health sector and inclusive growth

ISBN: 978-9987-483-31-0

Table of Contents

List of Tables ..... **iv**

List of Figures ..... **v**

Acknowledgements ..... **vi**

Abstract ..... **vii**

Acronyms and Technical Terms ..... **viii**

1. Introduction **1**

2. Concepts and methods **2**

3. Findings **5**

3.1 Manufacturing origin of medicines and other supplies 5

3.2 Market trends and the role of local production 12

3.3. Can more local manufacturing improve the health system? 21

3.4 Reflections from key stakeholders 24

4. Conclusion **26**

References **27**

Appendix **28**

Appendix Table 1A: Tracer medicines list, Tanzania 28

Appendix Table 2A: List of other tracer supplies, Tanzania 29

Publications by REPOA **30**

List of Tables

Table 1: Level of facility and type of shop, by rural/urban location 3

Table 2: Sector of health facility by rural/urban location 3

Table 3: Country of origin of tracer medicines, by sector in which they were to be used or sold (% of all tracers by sector) 5

Table 4: Country of origin of tracer medicines, by wholesale source sector (% of all tracers) 6

Table 5: Tracer medicines manufactured in Tanzania or Kenya (% of each medicine found) 6

Table 6: Tracer medicines supplied solely from countries outside East Africa 7

Table 7: Country source of tracer medicines by dosage form (% of tracers from each country category) 7

Table 8: Country of origin of other tracer commodities, by sector of facility/shop in which they were to be used or sold (% of all tracers by sector) 8

Table 9: Country of origin of other tracer commodities, by source of items (wholesale sector) (% of all tracers by sector) 8

Table 10: Percentage of items identified as manufactured in Tanzania, by type of item and wholesale source 9

Table 11: Non-medicine tracer items manufactured in Tanzania (% by country of origin of each item) 9

Table 12: Origin of non-medicine supplies found, by country of origin (% of type of supplies) 10

Table 13: Origin of non-medicine tracer items found only as imports, by country of origin (% of item) 11

List of Figures

Figure 1: A linear concept of a supply chain of commodities to the health sector 2

Figure 2: Interactions and feed back in supply chains to the health sector 2

Acknowledgements

We are grateful to Caritas Pesha, Seetbert Ijumba, and Jacob Kateri, who worked with members of the research team to conduct interviews and translation. We thank Mariam Mwandoro and Doreen Kachenje for data entry. We also thank Samwel Ebenezeri, who managed the fieldwork and assisted in supervising the data entry and cleaning. We are likewise very grateful to staff in the health facilities we visited and the key stakeholders in both the industry and health sectors for the time they put into the interviews and discussions.

We thank participants at the Policy Dialogue workshop entitled 'Improving the Supply Chain for the Health Sector: What Role for Local Manufacturing?' held at REPOA 27th June 2013 for their comments on presentations based on this material. The research was supported by the ESRC-DFID Growth Programme [ESRC grant number ES/J008737/1]. The contents of this working paper are solely the responsibility of the authors.

Abstract

The research findings presented in this working paper are drawn from an independent research project funded by the UK Economic and Social Research Council with financial support from UK DFID. The project is a collaboration between Tanzanian, Kenyan, and UK researchers. It aims to investigate the hypothesis that improved local industrial production – through higher productivity, more appropriate and cheaper products, and innovative production methods – could improve health service performance in each country, while raising economic output, and hence contribute to inclusive growth. If this hypothesis is correct, then better integration between industrial and health policies in each country could contribute to higher employment, industrial upgrading, and improved health system performance and accessibility.

This working paper is one of two presenting interim findings from Stage 2 of the project: a survey of supply chains into the health sector in four districts of Tanzania. A first working paper (Tibandebage et al. 2014) documented the availability, price, and supply chain organisation for essential medicines and medical supplies. This paper provides new evidence on the pattern of local and imported supplies to different health sectors and via different supply chains in Tanzania. It shows that around 16% of the medicines found on shelves from our tracer sample had been manufactured in Tanzania; about 15% came from Kenya; and nearly 70% were from outside East Africa, mainly India. Medical supplies traced from Tanzania were mainly basic commodities. All medical equipment, more complex supplies such as syringes and test kits, and other basics such as bandages, were imported. In general, the relatively low technical level of manufacturing in Tanzania was felt by health sector stakeholders to be constraining local supplies to the health sector.

Health sector interviewees stated that availability of supplies on the private market in Tanzania had been improving, but that the market share of medicines and other supplies from Tanzanian manufacturers appeared to be declining, notably because of rising price-based competition from imports. Opinions varied on comparisons between the quality and price of local vs. imported items. However, there was quite widespread support among health sector interviewees for the proposition that more availability of local supplies – and government support to assist local firms – was desirable to improve the level and security of supplies to the health sector.

Acronyms and Technical Terms

ADDOs	Accredited Drug Dispensing Outlets
ALu	First-Line combination therapy for malaria
ARV	Anti-Retroviral Medicine
DMO	District Medical Officer
FBO	Faith-Based Organisation
HIV	Human Immunodeficiency Virus
TPI	Tanzania Pharmaceutical Industries
Tracers	A sample of essential medicines and supplies
Tshs	Tanzanian Shilling
WHO	World Health Organisation

1 Introduction

This working paper presents interim results from an independent research project funded by the UK Economic and Social Research Council with financial support from UK DFID. The project is a collaboration between Tanzanian, Kenyan, and UK researchers. It aims to investigate the hypothesis that improved local industrial production – through higher productivity, more appropriate and cheaper products, and innovative production methods – could improve health service performance in each country, while raising economic output, and hence contribute to inclusive growth. If this hypothesis is correct, then better integration between industrial and health policies in each country could contribute to higher employment, industrial upgrading, and improved health system performance and accessibility.

To investigate this hypothesis, this ongoing research project has proceeded in three stages. In the first stage, key stakeholders in each country were consulted, and a local advisory board recruited in each country from both health and industrial sectors. In Stage 2, the supply chains of essential medicines and medical equipment and supplies from local industries and from imports into the health systems in Tanzania and Kenya were investigated, using in-depth case studies in four districts in each country. Shortages and unaffordability of these commodities are persistent causes of exclusionary and poor-quality health care in low-income Africa (WHO 2011).

Working Paper 1 from this project (Tibandebage et al. 2014) summarised project findings from Stage 2 on the availability of medicines and medical supplies in the sample facilities and shops; the pattern of supply chains to the different sectors; and the successes and challenges documented in the interviews.

This working paper presents the split between imported and local supplies to the health system documented in the Stage 2 research; traces the pattern of local and imported supplies to different health sectors and supply chains; and documents the views of interviewees in the health sector, including some senior stakeholders, of the actual and potential role of local manufacture in sustaining and improving access to essential health care supplies for the Tanzanian population.

The third stage of the research, currently ongoing in 2014, is drawing on the findings to date and investigating the scope for improved industrial supplies from local manufacturers into the local and regional health systems.

Initial findings from Stages 1 and 2 of the project were presented at a Policy Dialogue workshop in Dar es Salaam, Tanzania. The workshop brought together policymakers and senior managers and stakeholders in the health and industrial sectors to discuss the findings, and consulted the participants concerning the Stage 3 research. The presentations at that workshop are available on the Kenyan project research partner's website at http://www.acts-net.org/programmes-projects/projects?id=24.

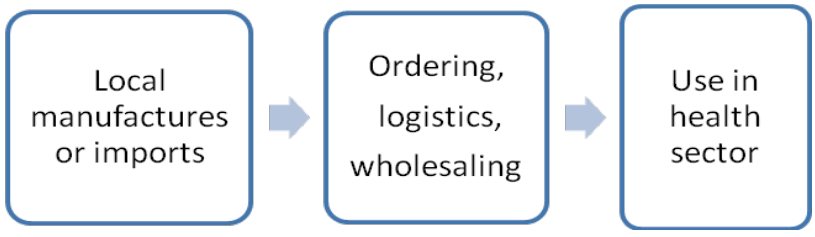
Findings from Stage 3, and the project as a whole, will be presented in a Policy Dialogue workshop in Nairobi, Kenya, in 2014.

2 Concepts and Methods

Analysing Supply Chains

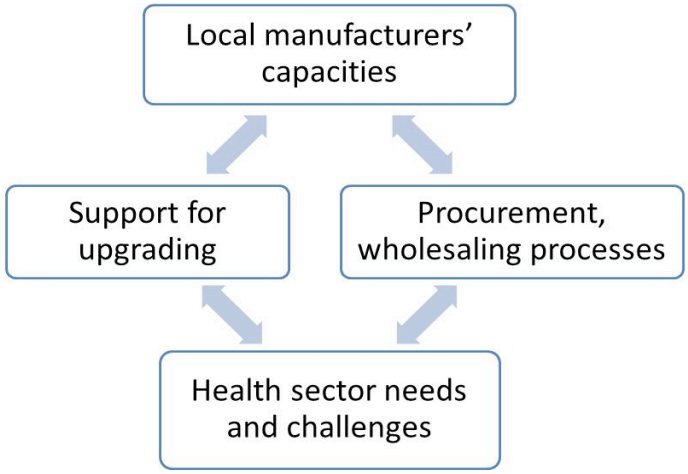
Stage 2 of the project used a mainly qualitative methodology, aimed at deepening understanding of supply chains into the health sector. A 'supply chain' is generally understood as the whole set of linkages and incentives by which a product is produced and delivered to the consumer (Yadav 2007, 2006). It includes the inputs to the production of the final commodity, its sale to purchasers, and its delivery to the final consumer. As a result supply chains are often thought of as linear processes from production through purchase and logistics to use (see Figure 1).

Figure 1: A linear concept of a supply chain of commodities to the health sector



However, the evidence in this project so far suggests a more complex framework. Building and sustaining robust local supply chains is likely to require continuous interaction and communication among the stakeholders, including an important shift in some areas from mutual blame to mutual support. The interactions we are exploring in Stage 3 are therefore likely to look more like Figure 2.

Figure 2: Interactions and feed back in supply chains to the health sector



The sample

Tanzanian health services are provided through three levels of facilities: dispensaries (87% of the total); health centres (9%); and hospitals (4%). There are around 6,000 registered facilities, two-thirds owned by the public sector (MoHSW 2009). Medicines and medical supplies are retailed

through pharmacies, Accredited Drug Dispensing Outlets (ADDOs), and licensed drug shops. The Stage 2 research was undertaken in four districts in three regions of Tanzania in January–February 2013. The districts included one in Dar es Salaam (District 1), one in Pwani region (District 2), and two in Arusha region (Districts 3 and 4). These districts were purposively sampled to capture both urban and rural characteristics in terms of infrastructure and distance to sources of supplies. Arusha region was chosen because it has districts that border Kenya, and we expected supply chains in the two countries to be more integrated along the border area than elsewhere in Tanzania (comparable sampling for the Kenya study included a district bordering Tanzania).

Within each district three wards were purposively sampled. In Dar es Salaam, one ward was selected in the commercial part of the municipality, one located far from the city centre, and one in between. The other three districts have a largely rural setting and in each we selected one ward that was the commercial centre and administrative headquarters of the district, one ward which was located furthest from the administrative headquarters, and one in the middle. We then purposively selected health facilities by sector and level of facility, and pharmacies, and drug shops, from within the three wards.

In total, interviews and data collection were conducted in 42 health facilities, pharmacies, and drug shops across the four districts. Table 1 shows the distribution of health facilities and shops by rural and urban location across the four districts.

Table 1: Level of facility and type of shop, by rural/urban location

Level of facility/ shop	Rural	Semi-rural	Urban	Total
Hospital	2	2	3	7
Health centre	3	4	1	8
Dispensary	9	4	4	17
Pharmacy	1	0	2	3
Drug shop	2	1	0	3
ADDO	2	1	1	4
Total	**19**	**12**	**11**	**42**

The majority of the facilities interviewed in the rural areas were in the public sector (see Table 2), reflecting the predominance of public health care in the rural areas, as compared to the greater relative prevalence of non-government facilities in urban Tanzania (MoHSW 2009).

Table 2: Sector of health facility by rural/urban location

Sector of facility	Rural	Semi-rural	Urban	Total
Public	11	4	3	18
Faith-based	2	3	2	7
Private	1	3	3	7
Total	**14**	**10**	**8**	**32**

Data collection methods and data analysis

The methodological approach of this part of the study was mainly qualitative, aiming to achieve an in-depth understanding of supply chain behaviour and challenges. Two types of data collection instruments were used. First, a mainly open-ended questionnaire, listing topics with prompts and follow-up questions, was used to collect data on availability of pharmaceuticals and other medical supplies and equipment, the sources of supply (wholesaler and manufacturer), supply gaps, and supply chain constraints. Second, lists of tracer pharmaceuticals and other supplies (see Appendix Tables A1 and A2) were used to obtain information regarding selected tracer pharmaceuticals and other supplies that were in stock on the day of our visit, or if not, when they were last stocked and ordered, plus details of manufacturer, country where manufactured, purchase price per pack, and sale price per pack. By 'tracer' commodities we mean a sample of essential medicines, and medical supplies and equipment and other basic supplies, used in the study to provide quantitative evidence of availability and source, and to provide examples for qualitative discussion.

Qualitative data were analysed using NVivo software. We coded and sorted data into different themes and undertook a systematic analysis of the information in the different themes. 'Local' products in this working paper refer to those products manufactured within Tanzania (irrespective of the ownership of the plant). 'Origin' refers generally to the country of manufacture. Quantitative data were analysed through use of Stata software to generate cross tabulations and other exploration of variables.

3 Findings

3.1 Manufacturing origin of Medicines and other Supplies

The tracer commodities data provide evidence of the manufacturing origin of the supplies used by our sample facilities and sold in our sample shops. We summarise the evidence here by health care sector – public, FBO-owned, and private – and also compare health facilities with shops.

Manufacturing origin of essential medicines

The data on the countries of origin of the essential tracer medicines in our list (see Appendix Table 1A) show that the main countries of origin in 2012 remained, as in the recent past (Mackintosh and Mujinja 2010, Chaudhuri et al. 2010), Tanzania itself (16% of all tracer medicine items found on shelves at the time of the visit), Kenya (15%), and India (48%). The next largest country suppliers were much smaller: China (7%), Cyprus (5%), USA (3%). No other country reached 3% of the total.

The country sources of the tracer medicines can be broken down by sector of use and by wholesale source: that is, whether the medicines are bought and supplied by the public wholesaler through donations, or by private wholesalers. These two ways of breaking down the data are very closely associated, since, as Working Paper 1 showed, the market is very segmented, with the government sector relying largely on the public wholesaler[1] and the non-government sectors mainly buying from the private sector.

Table 3 shows the country of origin of the tracer medicines according to the sector in which they were to be used or sold. A higher proportion of the public sector medicines were manufactured in Tanzania (22%) than was the case for FBO and private sector medicines (12% and 9% respectively). We consider a number of possible reasons for this finding below. Conversely, higher percentages of FBO and private sector medicines than public sector medicines were made in Kenya. The proportion of other imports was similar right across the sectors, between two-thirds and around 70%.

Table 3: Country of origin of tracer medicines, by sector in which they were to be used or sold (% of all tracers by sector)

Country of origin	Sector where medicine found			Total
	Public	FBO	Private	
Tanzania	22	12	9	16
Kenya	11	17	21	15
Other	67	71	69	69
Total	**100**	**100**	**100**	**100**

n=646

Note: totals may not add to 100 because of rounding.

We can also examine the country of origin of the medicines according to the wholesale sector (public or private wholesalers). As Table 4 shows, the public sector wholesaler had bought a significantly higher proportion of these medicines from Tanzanian manufacturers than had the private sector (22% as compared to 11%), while the private wholesalers had bought a higher proportion from Kenya. Direct donations are separated out (see Table 4) but are very few.

[1]In Tanzania the public wholesaler responsible for procurement and supply to the public sector is the Medical Stores Department (MSD).

Among the other countries of origin, both public and private wholesalers had bought from India nearly half of all the tracer items found (public wholesaler and the District Medical Officer, 49%; private wholesalers, 47%) and each had bought about 6% from China. Among countries with low rates of supply, the public wholesaler was more likely than private wholesalers to have bought from the UK and the USA, and private wholesalers were more likely to have sourced from Cyprus.

Table 4: Country of origin of tracer medicines, by wholesale source sector (% of all tracers)

Country of origin	Sector where sourced (wholesale)			Total
	Public	Donation	Private	
Tanzania	22	0	11	16
Kenya	10	25	20	15
Other	68	75	69	68
Total	**100**	**100**	**100**	**100**

n=609

Four Tanzanian firms had manufactured the tracer medicines from Tanzania logged in this study: Shelys, Keko, Tanzania Pharmaceutical Industries (TPI), and Zenufa. In this data set, Shelys was the largest supplier (41%), followed by Keko (36%). Keko's products had been predominantly purchased by public wholesaler, while roughly equal quantities of the other firms' products had been sourced by public wholesaler and private wholesalers.

Three tracer medicines were sourced 50% or more from Tanzania: sulphadoxine/pyremethamine (SP), an anti-malarial used particularly during pregnancy; ciprofloxacin, an antibiotic; and the painkiller paracetamol (all in tablet form). Two others were mainly (over 80%) sourced from Kenya: amoxicillin antibiotic syrup for children and clotrimazoleskin cream. Table 5 lists the tracer medicines that were sourced partly from Tanzania and Kenya, with the percentages from each country and from other imports.

Table 5: Tracer medicines manufactured in Tanzania or Kenya (% of each medicine found)

Medicine	Country of origin			Total
	Tanzania	Kenya	Other	
SP tablet (anti-malarial)	71	21	9	100
Quinine injectable (anti-malarial)	0	3	97	100
Amoxicillin tablet (antibiotic)	0	14	86	100
Amoxicillin syrup (antibiotic -child)	9	81	9	100
Ciprofloxacin tablet (antibiotic)	56	0	44	100
Atenolol tablet (hypertension)	0	17	83	100
Paracetamol tablet (anti-pain)	57	2	40	100
Diclofenac tablet (anti-inflammatory)	5	0	95	100

AZT+3TC+NVP tablet (ARV – anti-HIV)	34	32	34	100
Fluconazole tablet (anti-fungal)	25	13	63	100
Mebendazole tablet (deworming)	25	21	54	100
Clotrimazole cream (anti-fungal)	0	82	18	100
Amitriptyline tablet (anti-depressant)	0	22	78	100
Metformin tablet (anti-diabetic)	0	6	94	100
Glibenclamide tablet (anti-diabetic)	0	7	93	100
Normal saline and dextrose IV (intravenous fluid)	0	3	97	100

Table 5 shows that several other tracer medicines were sourced between 20% and a third from Tanzania, and that Kenyan manufacturers had supplied a rather wider range of items. Meanwhile, the following tracer medicines were supplied only from other imports, from varied origins but with India as the leading supplier over all (see Table 6).

Table 6: Tracer medicines supplied solely from countries outside East Africa

Name of medicine	Dosage form	Main origin (%)
Arthemeter/Lumefantrine (AL) (anti-malarial)	Tablet	USA (50%)
Benzyl penicillin (antibiotic)	Injectable	China (97%)
AZT+3TC+EFV (anti-retroviral, for HIV)	Tablet	India (100%)
TEN+ENT+Lpv/r (anti-retroviral, for HIV)	Tablet	India (100%)
Oxytocin (anti-haemorrhage after childbirth)	Injectable	Germany (67%)
Omeprazole (anti-ulcer)	Tablet	India (93%)
Loperamide hydrochloride (anti-diarrhoeal)	Tablet	Cyprus (69%)

Country of manufacture was thus associated with dosage form (see Table 7). Tanzanian firms mainly supplied tablets and capsules, plus some amoxicillin syrup for children. Injectables were wholly imported, from Kenya and other countries, as were creams and IV fluids. This suggests that the pattern of imports is determined in part by the currently limited technical capabilities of Tanzania-based firms.

Table 7: Country source of tracer medicines by dosage form (% of tracers from each country category)

Dosage form	Country of origin					Total
	Tanzania	Kenya	India	China	Other	
Tablet/ capsule	22	9	53	1	15	100
Injectable	0	1	31	43	25	100
Syrup	9	81	6	0	3	100
Cream	0	82	6	0	3	100
IV Fluids	0	3	91	0	6	100

n=646

Manufacturing origin of other tracer commodities

The non-medicine tracer commodities (see Appendix Table 2A) include essential medical and laboratory supplies and equipment and also basic items such as bed sheets and disinfectant. As might be expected, the countries of origin for this heterogeneous set of commodities are more varied than for medicines. Furthermore, it was harder for interviewees to identify the country of manufacture for many of these items, which were often not labelled in this way. For those items for which the data could be collected, there was some difference in country of origin between commodities acquired by facilities and shops in different sectors (see Table 8). Only a small proportion of these items were identified as made in Tanzania or Kenya, and 73% of the total came from outside East Africa.

Table 8: Country of origin of other tracer commodities, by sector of facility/shop in which they were to be used or sold (% of all tracers by sector)

Country of origin	Sector where item found			Total
	Public	FBO	Private	
Tanzania	18	22	30	22
Kenya	5	7	3	5
Other	78	71	66	73
Total	**100**	**100**	**100**	**100**

n=490

Many private shops sold only the most basic items, which were also more likely to be Tanzanian-sourced. Table 9 breaks down country of origin of these items by wholesale sector, distinguishing origins of goods provided by the public wholesaler from those sourced in the private sector. It shows that private wholesalers were more likely than the public wholesaler to have sourced Tanzanian-made items, again in part because our sample includes a number of private shops stocking only basic items.

Table 9: Country of origin of other tracer commodities, by source of items (wholesale sector) (% of all tracers by sector)

Country of origin	Type of source			Total
	Public sector	Donation	Private wholesaler	
Tanzania	18	2	33	23
Kenya	5	2	5	5
Other	77	96	62	73
Total	**100**	**100**	**100**	**100**

n=453

The patterning of manufacturing country of origin shown in Tables 8 and 9 therefore arises in part from the heterogeneous nature of these tracer commodities. Some of the equipment is required only in facilities (not shops), and is sold to private facilities only by the largest pharmacies; also, only facilities use laboratory reagents and tests and few shops sell them. The items that are more technologically challenging to produce are less likely to be manufactured in Tanzania, or indeed in many cases in Kenya, as compared to the simpler items.

Donations were weighted (70%) towards medical equipment items and were almost entirely sourced outside East Africa. Donations furthermore accounted for 26% of medical equipment items found: 24% in the public sector, 36% in the faith-based sector, and 18% in private facilities. The items found to be procured by the public wholesaler were spread quite evenly across the various categories while the items procured privately were weighted towards medical supplies and included few laboratory supplies. This pattern does not, however, explain the higher proportion of items bought from Tanzanian manufacturers by private wholesalers than by public wholesaler (see Table 9). Private wholesalers had purchased a higher proportion than the public wholesaler of Tanzanian manufactured goods found on the shelves relative to imports in each of the non-equipment categories: medical, laboratory, and other supplies (see Table 10). Numbers are small, but this may suggest that private wholesalers are somewhat more likely than public wholesaler to develop local manufacturer supply chains for such items.

Table 10: Percentage of items identified as manufactured in Tanzania, by type of item and wholesale source

Item type	Wholesale source	
	Public	Private
Medical equipment	0	0
Medical supplies	22	38
Other supplies	59	68
Laboratory supplies	3	7
Total	**18**	**33**

Just eight of the 30 non-medicine tracer commodities in the study were found to include items of Tanzanian origin (see Table 11). Of these, some were found solely as Tanzanian-manufactured items, though this result may in part arise from the difficulty in identifying the origin of some basic items such as brooms.

Table 11: Non-medicine tracer items manufactured in Tanzania (% by country of origin of each item)

Item name	Country of manufacture			
	Tanzania	Kenya	Other	Total
Alcohol/spirit for wound cleaning	100	0	0	100
Bed net	100	0	0	100
Bed sheet	100	0	0	100
Detergents	64	28	8	100
Disinfectants (Hibitane, Savlon)	38	17	46	100
Emulsion oil for laboratory	6	18	76	100
Hydrogen peroxide	100	0	0	100
Mop or broom	82	0	19	100

n=109

It was particularly hard to establish the manufacturing origin of the most common products, especially bed nets and bed sheets, and mops and brooms. Bed sheets had often been received or bought by facilities long before the visit, and the packaging of even recently arrived bed sheets from the public wholesaler did not necessarily specify the manufacturer. While these data therefore indicate the range of items currently sourced in Tanzania, they are an unreliable guide to the proportions of these goods coming in from imports, because of absent labelling of origin. Laboratory chemicals, detergents, and spirit were more accurately labelled: all of the spirit and hydrogen peroxide as well as most of the detergents found had been manufactured in Tanzania, while most of the emulsion oil and disinfectants were labelled as imported.

With these caveats, Table 12 shows the breakdown of origin where it could be identified by type of supplies.

Table 12: Origin of non-medicine supplies found, by country of origin (% of type of supplies)

Type of supplies	Country of origin					Total
	Tanzania	Kenya	India	China	Other	
Medical equipment	0	0	5	25	70	100
Medical supplies	30	5	4	12	50	100
Laboratory supplies	3	4	4	3	85	100
Other basic supplies	63	13	17	3	3	100

n=490

Only a few of these items were found as imports of Kenyan manufactures. These were detergents and disinfectants, emulsion oil and Giemsa stain for laboratories, and also syringes and needles. Absolute numbers of these items with identified Kenyan origin are small, so the finding may not be significant: however, 78% of the items manufactured in Kenya were found in the sample districts in Arusha region close to the Kenyan border, and only 22% in the lowland districts near the coast, suggesting some cross-border trading.

Table 13 shows the origin by tracer item for those items that were found solely as imports from outside East Africa.

Table 13: Origin of non-medicine tracer items found only as imports, by country of origin (% of item)

Item	Country of origin			Total
	India	China	Other	
Medical equipment				
Blood pressure machine	10	19	71	100
CD4 machine	0	17	83	100
Foetoscope	0	33	67	100
Glucometer	0	0	100	100
Microscope	5	5	89	100
Stethoscope	0	0	100	100
Paediatric weighing scales	0	18	82	100
Sharps box	29	0	71	100
Slides for microscope	0	94	6	100
Strips for glucometer	0	0	100	100
Medical supplies				
Crepe bandages	0	5	95	100
Gauze bandages	4	35	62	100
Protective gloves	8	8	83	100
Laboratory supplies				
Determine HIV test	0	0	100	100
Rapid diagnostic test for malaria	0	0	100	100
Haemoque for HB level	0	0	100	100
SD Bioline for syphilis	11	17	72	100
Other basic supplies				
Mackintosh/plasticised sheeting	83	17	0	100

As Tables 12 and 13 show, the items identified as manufactured in Tanzania and also to a considerable extent in Kenya were those requiring less complex technology. The more complex categories of medical equipment and laboratory reagents came largely from China and elsewhere outside East Africa, notably the US and the UK. Only 7% of these tracer items were found to be sourced in India, as compared to 48% of the tracer medicines.

The category of medical equipment, which included equipment-related consumables such as microscope slides and glucometer strips, consisted solely of imported items from outside East Africa (see Table 11). The largest single supplier was China (25%), followed by Germany (20%) and Canada (11%); India was a relatively small equipment supplier (5%). Laboratory supplies, including test kits, were largely imported, the largest supplier (25%) being Germany, followed by Korea and Japan (14% and 13%) and Sweden (14%); India supplied few items, while there were indications of

rising supplies from China, e.g. some consumables (see Table 12). The country origins of medical supplies were diverse; the largest single supplier was the UK (44%, mainly gloves, syringes and needles, and bandages), followed by Tanzania (30%) and China (12%). The category most likely to be identified as made in East Africa was 'other supplies' (see Table 12), including bed nets, bed sheets, and infection control items; note, however, the caveat above: identifying the origin of these items was difficult.

3.2 Market Trends and the Role of Local Production

In the exploratory interviews about supply chain experiences, we asked all our interviewees for their impressions of market trends: specifically, whether supplies availability on the market and from wholesalers had improved or declined recently, with details of how and why. We also asked for perceptions about the extent to which local manufacturers were supplying the market.

Trends in market availability of supplies

Despite the evidence presented in Working Paper 1 about the persistence of shortages at facility level, interviewees in all sectors replied that availability of pharmaceuticals and other supplies in the Tanzanian private market had increased in recent years, as compared to some years back. In public and FBO facilities, donations were also said to play a role in filling the gap in supply shortages. The majority of respondents firmly stated that pharmaceuticals and other supplies had become more readily available in recent years compared to some years back.

Here are some illustrative examples of these responses. Many interviewees in private facilities and shops were positive about improved market availability of supplies:

> Yes, more supplies are available nowadays. Many countries are producing various types of supplies. In the past we used to buy supplies from India. Nowadays we buy from different countries, including Tanzania.... (Private dispensary, District 1)

> Yes, in recent years, there have been tremendous changes in accessibility and availability of drugs and other medical supplies. We are operating under the open market. There are many shops that do sell medical supplies and with different varieties, with different quality and prices. This is both good and bad. It is good in the sense that you are able to get anything you want. But it is bad because there is low or no control on what comes into the market, the quality especially, and the dangers it can cause to our people. (Private dispensary, District 1)

This interviewee went on to comment on the impact on local suppliers:

> This has also contributed to low consumption of the locally made items and I think even some of the manufacturers have been kicked out of the market. (Private dispensary, District 1)

A respondent in a different private dispensary felt this increased availability was good for both the facility and patients:

> The changes have made it better for both our dispensary and our clients. We are able to provide what our clients want in terms of drugs especially. And the facility has benefited since we do not fail to fulfil all our clients' needs, and for those clients who want drugs from Europe, which are very expensive, I can stock a few or I can direct my client where they can get what they want. (Private dispensary, District 1)

Similar views were expressed in a private facility in District 2:

> The increase in medical supplies has been good for our centre so far; we can buy any medical item we want at a price we can afford. Patients also may opt for medicines they can afford. This improves the health sector for everybody. (In-charge, private dispensary, District 2)

In the public sector, a respondent in a dispensary thought that even if increased availability of pharmaceuticals, which he attributed to free-market dynamics of globalisation, was not benefiting the health facility, it was beneficial to patients:

> This has not brought any changes to this centre because it is a public facility and gets medical items from the DMO and [the public wholesaler]. But for patients it has had a positive effect, because there are so many pharmacies in town and drug shops all around. If you do not wish to use the public dispensary medicines, you can easily get alternative medicines somewhere else. (Public dispensary, District 3)

A respondent from another public dispensary in the same district had similar views:

> These changes in medical items supply have not brought any change to this dispensary because it's a government entity with a long supply chain from [the public wholesaler], but it has been a very good opportunity for patients. They are able to get medical items from private pharmacies and drug shops if they are able to [pay]. This is a good thing. (Public dispensary, District 3)

Competition between local and imported supplies

We asked respondents specifically about their views on trends in supplies from local manufacturers and the reasons for them. In District 1, public sector respondents thought there was increased availability of both locally manufactured and imported pharmaceuticals:

> There are lots of medicines and medical goods in the market in recent years from local manufacturers, because for example Shelys [a local pharmaceutical company] is nowadays making more varieties of medicines. (Public dispensary, District 1)

> I think availability of medicine and other supplies has increased to some extent over the years. There are now numerous pharmacies. Manufactured items have also increased. Nowadays it's not just India or China; we hear of supplies from Indonesia, Italy, Germany, and USA. (Public district hospital, District 1)

A respondent at a big pharmacy located in a very busy commercial area of District 1 gave a more mixed picture, citing shortages of some local products:

> There is a difference in products' accessibility, especially in medical products. Some few years back, most products were easily available and the prices were too low. These days, it is not easy to access all the medical-related products. For example, it has been two months now that I cannot get hydrogen peroxide [for wound cleaning].... [A] locally made cream for skin diseases has not been on market as well. I do not know the reason why, since the demand for the products is high. (Large retail and wholesale pharmacy, District 1)

He argued that imported products were more easily available but came at a higher price:

> Imported products are just a phone call away, only sometimes one can fail to purchase then because of their high prices. There are very many wholesalers, and new ones come up every day. This is an open market thing. I tell you, I know more than 30 firms or agents I can source from, and all these are within a radius of not more than 15 kms from Kariakoo. (Large retail and wholesale pharmacy, District 1)

This quite widely held view, that the availability of locally manufactured pharmaceuticals and supplies had declined over recent years, was shared by a respondent at a public district hospital, who attributed this trend to increased competition from imported supplies:

> Yes. There are so many medical supplies in the market if you compare with what was there 10 to 15 years ago. The only challenge that I see, is that the availability is not controlled today, and so we have so many sub-standard or fake things, including drugs and equipment.... The local manufacturers have faced competition from the imported supplies and as a result, either most of them have been forced out of the market, or their production has gone down because very few locally manufactured goods are seen in the market. (Public district hospital, District 3)

Another respondent thought that although local supplies were readily available, their prices were higher, so their market was being reduced by competition from cheap imported supplies:

> As for the local manufacturers, their products are available but their prices are so high and I have a feeling the consumption of local products has gone down. This is because of the availability of many cheap imported products that serve the same purpose, especially drugs. (In-charge, private dispensary, District 3)

Local suppliers: evidence, knowledge, and opinions

We explored respondents' knowledge of the extent to which supplies that they were using were available from local suppliers, or only from imports, and respondents' views about quality, price, and ease of buying from local suppliers.

The data from the survey using the lists of tracer medicines and supplies identified just ten Tanzanian firms as suppliers of those items (see Table 14). By 'Tanzanian' firms, we mean firms that manufacture in Tanzania, regardless of ownership. The listed firms produce pharmaceuticals and a number of key basic items for the health system such as bed nets, bed sheets, cleaning materials, and some basic medical supplies such as spirit for wound cleaning.

Table 14: Firms identified as local (Tanzania-based) suppliers of tracer medicines and supplies to the Tanzanian health system, with type of products supplied

Firm name	Products found in sample facilities and shops
Shelys	Pharmaceuticals, disinfectants
Keko	Pharmaceuticals, detergents, alcohol/spirit for wound cleaning
Tanzanian Pharmaceutical Industries (TPI)	Pharmaceuticals
Zenufa Laboratories Ltd.	Pharmaceuticals
A to Z Textile Mills, Arusha	Bed nets
AA Pharmaceutical	Hydrogen peroxide, alcohol/spirit for wound cleaning, emulsion oil
Murzah Soap and Detergents Ltd. / Murzah Oil Mills	Detergents, mops, and brooms
SG Star Industries/SG Pharma	Alcohol/spirit for wound cleaning, hydrogen peroxide
Tanzania Brush Products (TBP) Ltd	Mops and brooms
Vita Foam	Bed sheets

There was general awareness that pharmaceuticals were both locally produced and imported, and mixed views as reported above about their availability. Respondents correctly picked out painkillers, some anti-malarias, basic antibiotics such as amoxicillin, anti-worming pills, and cough mixtures as available from local suppliers. Conversely, they were aware that all intravenous (IV) fluids were now imported, along with the current first-line anti-malarial (artemisinin and lumefantrine, ALu), more complex antibiotics, and medicines for chronic illnesses such as hypertension and diabetes. There was consensus with regards to laboratory and other medical equipment, with all respondents saying that equipment such as microscopes, X-ray machines, and so on were all imported, as were sutures and syringes. Some also mentioned other specific medical supplies such as gloves and syringes as being solely imported. Respondents also mentioned basic items such as disinfectants as locally made. One or two items appear to have been wrongly identified as available from local suppliers, such as gauze bandages for which we have not found a local manufacturer.

Here are some of the quotes illustrating this knowledge and these opinions:

> All medical equipment are imported from different countries. I would say even small things like gloves, syringes and needles, drips, and even gauze and cotton. I have not seen anything locally made among the things we are supplied with. The main reason I

think is that there aren't many factories manufacturing such supplies locally. (In-charge, public dispensary, District 2)

In fact, all medical equipment and all medical supplies are imports. It's astonishing that Tanzania cannot manufacture gloves, which I think needs a simple investment …. Many gloves come from China, they are good manufacturers. (Pharmacist, drug shop, District 4)

What I know is that all medical equipment like X-ray machines, microscope, stethoscope and such items are made outside Tanzania. They are imported. Tanzania has so many qualified engineers, and the fact that she cannot manufacture medical equipment after 50 years of Independence raises questions with no answers. But I think officials of [the public wholesaler] prefer importing .... (In-charge, public dispensary, District 4)

Interviewees were asked to mention countries where their pharmaceuticals and other supplies are manufactured. The most frequently mentioned countries were Tanzania, Kenya, India, the UK, and China. Other countries mentioned included Egypt, South Africa, Switzerland, and a number of other European countries, such as the Netherlands. This is a quite accurate reflection of the sources outlined above that were identified in the survey, and shows that health system buyers have quite a good appreciation of the sources of the items they use.

Beyond the tracer items, one in-charge of a faith-based dispensary in District 1 estimated the percentage of pharmaceuticals his facility currently uses that come from outside Africa at 80%. He estimated only 5% to be products of Tanzania, another 5% to be from Kenya, and 10% to be from the rest of Africa.

Views on the quality of local supplies vs. imported supplies varied, as already noted, with some local supplies being perceived to be of better quality than imported supplies, and vice versa. The quotes below illustrate the range of respondents' views on quality of supplies, with some comparisons and contrasts.

Quality concerns

It depends. Some local suppliers have better quality than imported supplies and vice versa. For instance, we order beds from China and from Keko [a light industrial area in Dar es Salaam where a number of suppliers of furniture are located] in Tanzania. After some time, all the beds from China break. We have continued to buy beds from Keko because they are durable and have reasonable prices. (Procurement officer, public district hospital, District 1)

A respondent in another health facility had similar views and gave an example of a local firm producing good quality pharmaceuticals:

[C]ertainly we would prefer good quality medicines and other supplies. Shelys [a local pharmaceutical firm] has good-quality drugs which are readily available and price is affordable. So it does not mean that the drug is of good quality if it is from outside Tanzania. At one point for example, some of the drugs manufactured in India were of poor quality.... (Facility in-charge, public health centre, District 1)

Other respondents did not express any doubt about the quality of either local or imported pharmaceuticals:

> Since TFDA [the Tanzanian Food and Drug Authority] inspects all drugs produced locally and those produced from abroad, we have no doubt about quality. (In-charge, faith-based dispensary, District 1)

The same respondent attributed the tendency of some patients to prefer imported pharmaceuticals to their misconceptions about imported supplies:

> Yes, some patients (though few), they do [prefer imported medicines), especially those suffering from malaria. They prefer those drugs either manufactured or imported from Italy. The reason for this is mainly a wrong perception that everything from Europe is excellent. (Facility in-charge, faith-based dispensary, District 1)

Concerns about the quality of locally produced pharmaceuticals focused particularly on problems with the durability or compaction of tablets and on poor-quality packaging. The same respondent said:

> I have been informed by many of our patients that most of drugs manufactured locally are not sticky [i.e. do not hold together well], they tend to break up even before being opened. (Facility in-charge, faith-based dispensary, District 1)

Asked what should be done to increase the use of locally produced supplies, another raised similar issues:

> The local manufacturers should improve on the quality of their products and packaging.... As for the packaging especially of the liquid items, they need to make further improvements. If they achieve this, they will be able to compete with other manufacturers since the local products will be relatively cheaper and readily available in the market. (Facility in-charge, private dispensary, District 1)

A respondent in a faith-based hospital also mentioned packaging as a problem:

> Most of the local manufactured supplies do not look attractive or well made, especially drugs. Packaging also has its effect on demand. The local goods are also not well promoted or marketed and this is the manufacturer's duty; they must make their products visible in the market. (Pharmacist, faith-based hospital, District 3)

Comparing drugs produced in Tanzania to those produced in Kenya, one interviewee said:

> I personally and many of my patients prefer products from Kenya because they are almost the same price as those produced locally, or those from India and China. In terms of packaging and quality, those from Kenya are better than those made in Tanzania. A good example is paracetamol, those packed in a tin of 1,000 tablets. With those made in Tanzania, you are more likely to find a quarter of a tin has turned

> into powder, and that shows the quality of the tablet. In my opinion and from what I have heard our clients saying, drugs from Kenya and Cyprus are effective; they give examples like antibiotics. (Facility in-charge, private dispensary, District 1)

The same respondent, when asked the country origin of the drugs he usually stocks, said:

> [I]n my case, we do choose drugs depending on our client's preferences. For instance, I do not stock most of the drugs manufactured in Tanzania because our clients say they are of poor quality. (Facility in-charge, private dispensary, District 1)

A pharmacist in-charge in a public hospital raised a similar concern:

> The local commodities, especially tablets, are not of good quality, they are not as compact as those imported.... A medicine has been delivered only a week ago, and as you dispense, some tablets break into pieces (Pharmacist, public district hospital, District 3)

A pharmacist in an ADDO gave the following comparison:

> In my opinion, medicines from overseas are of better quality than local products. For example, ciprofloxacin, a drug for typhoid, is manufactured in this country and abroad as well. But customers prefer ciprofloxacin from outside the country, because it treats the disease very quickly. It is well packed and takes a few days and few tablets to get cured. Although it is expensive, we get many customers demanding ciprofloxacin from abroad. (Pharmacist, ADDO, District 3)

Another pharmacist suggested that quality problems make it hard for local producers to compete:

> Yes, availability of different commodities has changed. These days, there is almost each and every thing in the market. You can hardly fail to find anything but again, the challenge is with the quality. An example: medicines from one company in Tanzania. Although the tablets are packed in blisters, you can see powder within the strips. And these cannot be sold. The customer will not read the expiry dates; they will just tell you, this drug is bad, it has expired, and they will go away. (Pharmacist, pharmacy, District 2)

A respondent in a faith-based dispensary in District 2, however, explained that the quality of products produced within Tanzania varied according to the manufacturer, noting that not all were of poor quality. Some firms could produce good products; some local products, however, lacked good packaging, did not have proper measurements for dosages of syrups for children, and might lack clear expiry dates. On the other hand, the pharmacist in a large wholesale pharmacy, quoted above, took the view that local producers' main problem was capacity and volume, not quality:

> Local companies/manufacturers do manufacture good quality products but they do not produce enough to meet the needs/demand. In most cases, the local made products are not available on the market. The products have a high demand, for example Shelys'

> Diclopar and Keko's Paradiclo [painkillers] have a very high demand. The last time I sourced 50 cartons and they were all out in about 7 days; when I went to buy more, I could not get them. (Pharmacist, retail and wholesale pharmacy, District 1)

The same Shelys medicine was mentioned by another interviewee as an example of the lack of availability of local medicines:

> [T]he medicines manufactured locally are good and wanted by many clients, but the availability is so low. There are times when you cannot get any of the local commodities in the market. For example, there is a combination of paracetamol and diclofenac that is manufactured by Shelys Pharmaceuticals Ltd; there is a lot of demand for it from customers but for a long time now you have not been able to get it in the market. (In-charge, private dispensary, District 4)

One pharmacist attributed customers' preference for pharmaceuticals from Kenya to their greater availability compared to local products:

> Our customers prefer products from Kenya rather than those locally made. The prices are not so different; the issue of availability in the market matters a lot. Kenyan products are always available. (Pharmacist, pharmacy, District 1)

Another pharmacist agreed:

> Locally made items are invisible in the market, like spirit, even paracetamol. The easy-to-find goods are from Kenya. (Pharmacist, pharmacy, District 2)

Other respondents noted specific countries from where some of the drugs were of poor quality or thought to be so:

> Many of our patients do not choose [by country], but they do complain about many drugs from India; they say they do not get cured whenever they take them. Some drugs are sub-standard.... (Pharmacist, faith-based hospital, District 3)

Concerns about price

Responses to a question about prices of local vs. imported supplies also varied, with some saying local pharmaceuticals were cheaper than competing imports and others saying they were more expensive. All agreed that medicines from the UK, other European countries, and the USA were very expensive compared to pharmaceuticals from other countries. The relevant competitors with local producers on price were India and China.

Some of the respondents related price to quality:

> Drugs from USA and UK are of very good quality but they are very expensive. The price can be 10 times as much. So we may prefer those, but we cannot afford them. (Facility in-charge, public health centre, District 1)

> Medicines from outside [imports] are expensive though they are assumed by many Tanzanians to be of high quality. These medicines are also expensive, especially those from Europe. (Facility in-charge, public dispensary, District 3)

> We prefer locally manufactured pharmaceuticals because of the price – they are cheaper. Drugs and other supplies from outside are more expensive. (Pharmacist in-charge, public district hospital, District 4)

One respondent related price to transport costs:

> If more is produced locally the health system is likely to buy more locally because products from outside Tanzania are likely to be more expensive than locally produced ones. For example, the cost of transporting supplies from Keko area to anywhere within Tanzania is much lower than the cost of bringing in supplies from India. (Pharmacist in-charge, public district hospital, District 4)

Yet as noted above, others said local supplies were more expensive than imported supplies:

> Currently locally manufactured pharmaceuticals and other medical supplies are relatively more expensive, for example compared with those from China and India. (In-charge, faith-based dispensary, District 1)

A pharmacist was pessimistic about the ability of local producers to compete on price:

> I doubt if local manufacturers can out-compete their counterparts [i.e. overseas producers]. Personally I won't buy more local supplies, especially medicines, because they are expensive. I want to make profit, so I will always purchase a large stock from importers of manufactures who sell high quality supplies at a cheap price. (Pharmacist, ADDO, District 3)

An in-charge at a private dispensary had similar views, and gave an example:

> The only thing I consider when buying medical supplies is the price. For example, albendazole made by [a local firm] is Tshs 4500/=, while the same type from India is sold at Tshs 1500/= wholesale price. Why should I buy the local one then? (In-charge, private dispensary, District 3)

Another in-charge said:

> And regarding medicines at our centre we prefer those made outside, especially those from India. We buy few medicines made in Kenya. Medicines from India have a high quality and are also cheap compared to those locally manufactured. (In-charge, private dispensary, District 2)

3.3. Can more Local Manufacturing Improve the Health System?

We asked all our respondents whether they thought that local manufacturers could improve supplies to the local health system, and whether the local health system could provide a better market for local manufacturers. In other words, is there scope for mutual benefit? Many were unsure, but a number thought there were unused opportunities. In general, there was consensus that local manufacturers faced great difficulties, and a number of respondents argued that these difficulties had worsened in recent years.

Several people argued that increased imports of pharmaceuticals and other essential supplies were making an increasingly negative impact on local manufacturers' markets. As noted above, there was general agreement that imported supplies had increased in recent years; one respondent reflected that

> I think this has had a negative effect on the local manufacturers who expect to import the raw materials, and by the time their products hit the market, they cannot compete with the low prices of the same products imported from other countries. (Facility in-charge, public health centre, District 2)

Another similarly observed of recent trends:

> [T]he availability of local products has gone down. To find an item made in Tanzania is very rare. Most items are from India and China. (Facility in-charge, public dispensary, District 4)

Why was the supply of local products for the health sector low and apparently declining? Could and should local supplies be improved? A number of health sector respondents reflected on the constraints on local producers. A low level of technology was thought to be not only a barrier to increased production of pharmaceuticals and other medical supplies and equipment, but also a constraint on the quality of products currently produced locally.

> Medical supplies, medical equipment, and laboratory supplies are all made outside Tanzania because they require high technology maybe.... I am not sure why Tanzania even after 50 years of independence cannot manufacture medical supplies like syringes and needles and gloves. (In-charge, private dispensary, District 2)

> The reason as to why those items are not manufactured in Tanzania is not well known to me, but I guess it is a low level of technology that hinders local manufacturers from expanding ... medical items' supply. (In-charge, public dispensary, District 3)

> All medical equipment is imported from outside Tanzania. The reason is that Tanzania has a low technology level and there are no investors who are interested in investing in those areas. (Medical doctor, public dispensary, District 1)

Health sector respondents were also aware that industrial firms faced other problems such as raw materials supply:

> Most of the medicines are imported, and also other medical supplies and equipment. There is no possibility for local manufacturers to meet local needs because of bureaucracy; and import of raw materials is expensive. (District pharmacist, public District hospital, District 3)

> Most of the local manufacturers are not producing up to their capacity and they say the major challenge is the raw materials and the high costs involved in running the industries, as well as taxes. I think the government should support the manufacturers, especially remove taxes on the raw materials and products.… [also] importing raw materials requires a lot of foreign currency and this is beyond the capacity of many manufacturers. (Director, pharmacy, District 1)

The theme of needed government support for industry was taken up by a number of respondents. Some respondents put the blame on government for the challenges facing local manufacturers, including those that contribute to their products being more expensive than imported ones. The following quotes illustrate this line of thought:

> The health system has the capacity to source more supplies from the local manufacturers if they made it their priority. And I think the priority given to imported supplies comes from poor management on the whole issue. Why should [the public wholesaler] source paracetamol from India when there are local manufacturers like Shelys Pharmaceuticals Ltd. in Dar es Salaam? The government only needs to support such industries, encourage them to produce more, and buy from them. (Pharmacist, faith-based hospital, District 3)

> The government should intervene: provide local manufactures with tax holidays since they have proved that they can manufacture better quality goods for the wananchi [the people] than the imported goods. I think that because of the high costs of the raw material, that's why some of the local manufacturer resort to producing low quality products and some of the manufacturers have fallen out of the market. (Facility in-charge, private dispensary, District 1)

Two respondents recommended government-supported research especially on active ingredients for pharmaceuticals:

> Research on sources of raw materials within the country for pharmaceutical product is necessary in order to improve local industries to produce enough later. (In-charge, faith-based dispensary, District 2)

> Research on local herbs (pharmacognosy) should be done and they should come up with their own drugs and do it well, so that they can be approved for use in the health system. For example, there are many herbs used locally and they are effective. We

should stop depending on foreign drugs only. There is need to have our own drugs. (In-charge, public health centre, District 2)

There were also a number of recommendations to firms to promote their products more effectively:

> [T]hey should advertise their products in radios and TVs. Some people just do not buy a product because they have never seen it anywhere. They should also think of taking their depots nearer to the customers.... [T]hen I am sure their drugs would be much cheaper and the customers would buy more. (Pharmacist, pharmacy, District 2)

> They should ... improve quality. So that when patient come to us, they should not say 'I want panadol from Kenya or India'. We want patients to say 'I want panadol from Tanzania'. They can do this by do more advertisements; many patients do not have information about local industries and what kind of medicine and other supplies they make. The use of seminars, events, and commercials should be introduced ... as it will help to increase awareness. They should also reduce their prices. (Facility in-charge, private dispensary, District 1)

One respondent recommended government-industry partnership more generally:

> Local manufacturers have to come into partnership with the government. I say this because they do not produce enough and their quality is low. Partnership with government can strengthen them with technology and capital. (Owner, pharmacy, District 1)

This theme of the need for government and industry to work more together was widely argued. Many respondents argued that more local supplies would benefit the health sector, but that there was a need for government support to help firms to lower prices and improve quality. Benefits envisaged from more local supplies included the following:

> This [more locally manufactured supplies] is very important for the private [health] sector. We are facing a big problem and we cannot afford to pay high salaries. If medicines and supplies were cheaper, we could manage to increase salaries. Also, if supplies were locally produced, it would be easier to control quality. We are facing a big problem of financing. Donations are now very rare, so having more local supplies would help. (Facility in-charge, faith-based health centre, District 3)

Others argued that shorter supply chains should improve speed of delivery:

> It is possible for the health system to source more from local manufacturers than it does now because the process of ordering and delivering will be much easier: for example, ordering and delivering will be within the same locality.... The monitoring process would also be easy, since the health system will be in a position to monitor right from the primary stage of production, and quality of drugs would be assured right at the factory level. The effect of damages, delays in ordering and actual supplying, issues of

transport, and quality check of drugs for quality after delivery would all be avoided. (In-charge, public health centre, District 4)

3.4 Reflections from Key Stakeholders

At the initial stage of the project, we interviewed some key stakeholders (nine in total) on both the industry and health system sides to gain an overview from experts concerning the key issues affecting production and supply of pharmaceuticals and other essential supplies and equipment. These interviews identified a number of key issues also reflected in the quotations from health system respondents above. The issues are being further discussed in interviews with industrialists in the final stage of this research.

We asked key stakeholders whether in their view improving local production of pharmaceuticals and other essential medical supplies would be good for the health system. A respondent with long experience with pharmaceutical issues on the health system side said yes. The reasons he cited were greater ability to assure quality in Tanzania's own regulatory system, and reducing turnaround time on orders. However, he went on to explain the constraints that local manufacturers face:

> Improving local production is good for the health system. There is need to find out reasons behind Kenya's success in having many manufacturing firms. There is also need to look into the disincentives for local manufacturers – e.g. at present when you import medicine you do not pay taxes. So why should a businessman import raw materials that are taxed so as to produce pharmaceuticals locally?

A pharmaceutical management and supply chain specialist in an FBO overseeing social services provision listed a number of constraints on local manufacturers. These included the shortage of competent skilled people in pharmaceutical production and the lack of industrial pharmacy training; outdated technology causing low productivity and output and raising unit costs; low technological levels allowing the production of only basic formulations in pharmaceuticals; and higher production costs due to power problems. This expert also mentioned rising requirement for standards and the difficulty local manufacturers found in meeting those standards. Finally, he argued that penalties for the import of sub-standard drugs were not high enough to be a serious deterrent.

From the manufacturing side, a respondent in the key stakeholder interviews listed a number of problems, some similar to those mentioned above:

> There are at least five key challenges, namely: (1) lack of investment capital (i.e. both short- and long-term capital); (2) lack of trained human resources (especially industrial pharmacists...); (3) insufficient production capacity, able to supply only 25% - 30% to the local market [for pharmaceuticals]; (4) unfair competition from imports; (5) lack of appreciation [by government] of local pharmaceutical manufacturing industry as a strategic sub-sector.

Government, this respondent argued, could address this situation but it required a sustained effort: Deliberate and concrete efforts aimed at supporting and promoting local pharmaceutical

manufacturing firms by all relevant stakeholders could greatly improve the product quality and the entire sub-sector's productivity performance, and ultimately reduce Tanzania's dependence on imports…. [I]n most cases, the quality of imported pharmaceuticals and other medical supplies are is not guaranteed.

There was a perception expressed by this and three other senior stakeholder respondents that the lack of protection for local pharmaceutical manufacturers was in part externally driven. For example: The main constraint has to do with the WHO requirements that all pharmaceuticals should be imported at zero duty.

The same respondent continued:

> Tanzania is one of the LDCs so we should be allowed to impose some tariffs on imported pharmaceuticals. The government should not think it is a sin to do this so as to protect local industries. It is, however, difficult to refuse aid in the form of medicines unless we say that those bringing in medicines as aid should instead give money to local manufacturers to produce these medicines locally. The government could also introduce zero-rated VAT. We could also introduce a 'Buy Tanzania – Build Tanzania' campaign.

4 Conclusion

This working paper has summarised our findings from our health sector research on the pattern of supplies from local and overseas manufacturers into the Tanzanian health system. It has shown that around 16% of the tracer medicines found on the shelves had been manufactured in Tanzania; about 15% came from Kenya; and nearly 70% were from outside East Africa, mainly India. Medicines sourced in Tanzania were largely in tablet form, plus a few syrups; all parenteral products were imported. Medical supplies from Tanzania were found in the categories of basic commodities (bed sheets, brooms) and some key items such as insecticide-treated nets, hydrogen peroxide for wound cleaning, and disinfectant. All medical equipment, more complex supplies such as syringes and test kits, and other basics such as bandages were all imported.

Furthermore, there was a perception by respondents that the market share of medicines and other supplies from Tanzanian manufacturers has been declining relative to imports. Opinions varied on comparisons between the quality of local and imported items. However, there was quite widespread support for the proposition that more availability of local supplies – and government support to assist local firms – was desirable. Continuing research is exploring the constraints on local production of health sector supplies from the manufacturing side. Parallel research is underway in Kenya.

References

Ministry of Health and Social Welfare (MoHSW) (2009). Annual health statistical tables and figures Tanzania Mainland. http://www.google.co.tz/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=3&ved=0CDoQFjAC&url=http%3A%2F%2Fmoh.go.tz%2Findex.php%2Fdownloads%2Fcategory%2F18-monitoring-evaluation%3Fdownload%3D28%3Atanzania-health-statistical-tables-and-figure-2009&ei=MyTvUqPhIsO2hAfXhYH-4Ag&usg=AFQjCNHeXIaL4FtOxazPCDbT-uOAI_-PDA, accessed on 29-01-2014.

Tibandebage P., Mackintosh M., Israel C., and Mhede E. (2014). The Tanzanian health sector as buyer and user of medicines and other supplies and equipment. *Working Paper* 1 from the *Industrial Productivity, Health Sector Performance and Policy Synergies for Inclusive Growth* (IPHSP) research project, REPOA, Dar es Salaam.

World Health Organisation (WHO) (2011). The World Medicines Situation: Medicines Prices, Availability and Affordability. Geneva, April. http://www.who.int/medicines/areas/policy/world_medicines_situation/WMS_ch6_wPricing_v6.pdf.

Yadav, P. (2007). Analysis of the Public, Private and Mission Sector Supply Chains for Essential Drugs in Zambia. *A study for DFID Health Resource Center under the aegis of the META project*. http://apps.who.int/medicinedocs/documents/s18001en/s18001en.pdf.

Yadav P., Curtis K., and Sekhri N. (2006). Mapping and Realigning Incentives in the Global Health Supply Chain. *Global Health Forecasting Working Group Background Paper*. http://www.cgdev.org/doc/DemandForecasting/RealigningIncentives.pdf.

Appendix

Appendix Table 1A: Tracer Medicines list, Tanzania

ARTEMETHER+LUMEFANTRINE (AL/ALU: adult); 120+20mg
SULFADOXINE +PYRIMETHAMINE (SP); 500+25mg
QUININE; 600mg/2ml
AMOXICILLIN (adult); 250mg/500mg
AMOXICILLIN SYRUP (child); 125mg/5ml
BENZL PENICILLIN; 5000000IU (5MU)
CIPROFLOXACIN; 250mg/500mg
ATENOLOL; 50mg/100mg
PARACETAMOL; 500mg
DICLOFENAC; 50mg/100mg
ZIDOVIDINE/LAMIVUDINE/EFAVIRENZ (AZT+3TC+EFV); 300mg+150mg+6000mg
ZIDOVIDINE/LAMIVUDINE/NIVERAPINE (AZT+3TC+NVP); 399mg+150mg+200mg
TENOFOVIR/ENTRICITABINE/Lpv/r; 200mg+200mg+200/50mg
OXYTOCIN; 10iu & 5iu per ml
METRONIDAZOLE; 200mg/400mg
FLUCONAZOLE; 50mg/150mg/200mg
MEBENDAZOLE; 100mg
OMEPRAZOLE; 20mg
CLOTRIMAZOLE cream; 1%
AMITRIPTYLLINE; 25mg
METFORMIN; 500mg
GLIBENCLAMIDE; 5mg
LOPERAMIDE HYDROCHLORIDE; 2mg
NORMAL SALINE AND 5% DEXTROSE (IV fluid)

Appendix Table 2A: List of other Tracer Supplies, Tanzania

EQUIPMENT	MEDICAL/OTHER SUPPLIES	LABORATORY SUPPLIES
THERMOMETER	SURGICAL GLOVES	GIEMSA STAIN
BLOOD PRESSURE MACHINE	GAUZE BANDAGES	EMULSION OIL
MICROSCOPE	CREPE BANDAGES	DETERMINE HIV TEST KIT
SLIDES (FOR THE MICROSCOPE)	SYRINGES AND NEEDLES	RAPID DIAGNOSTIC TEST FOR MALARIA
STETHOSCOPE	HYDROGEN PEROXIDE (H202)	GRAME STAIN REAGENT FOR TESTING BACTERIAL INFECTION
FOETOSCOPE FOR MIDWIFERY	ALCOHOL/SPIRIT FOR WOUND CLEANING	HAEMOQUE FOR HB LEVEL
GLUCOMETER	DISINFECTANTS (HIBITANE OR SAVLON)	SD BIOLINE FOR SYPHILIS
STRIPS (FOR THE GLUCOMETER)	MACKINTOSHES/PLASTICISED SHEETING	
WEIGHING SCALES (FOR PEDIATRICS)	BED NET	
CD4 MACHINE	BED SHEETS	
SHARPS BOX	MOP OR BROOM	
	DETERGENTS	

Publications by REPOA

Books

"Researching Poverty in Tanzania: problems, policies and perspectives"
Edited by Idris Kikula, Jonas Kipokola, Issa Shivji, Joseph Semboja and Ben Tarimo

"Local Perspectives on Globalisation: The African Case"
Edited by Joseph Semboja, Juma Mwapachu and Eduard Jansen

"Poverty Alleviation in Tanzania: Recent Research Issues" Edited by M.S.D. Bagachwa

Research Reports

14/6 *In Quest of Inclusive Growth: Exploring the Nexus between Economic Growth, Employment, and Poverty in Tanzania*
Rizwanul Islam and Abel Kinyondo

14/5 *Cultural Factors Influencing Youth Attitudes on the Use of Condoms Against HIV Infection in Tanzania*
Mary N. Kitula and Thomas J. Ndaluka

14/4 *The Impact of Gazetting the Derema Forest Corridor in Tanzania on Community Livelihoods and Forest Conservation*
Nangena Mtango and Adam Kijazi

14/3 *Integrating Traditional and Modern Knowledge Systems in Improving Agricultural Productivity in Upper-Kitete Village, Tanzania*
Julita Nawe and Herbert Hambati

14/2 *Structural Barriers, Constraints, and Urban Youth Employment: The Case of Ilala Municipality, Dar-es-Salaam*
Christopher S. Awinia

14/1 *Socio-Economic Factors Limiting Smallholder Groundnut Production in Tabora Region*
Mangasini A. Katundu, Mwanahawa L. Mhina, Arbogast G. Mbeiyererwa and Neema P. Kumburu

13/1 *Factors Influencing the Adoption of Conservation Agriculture by Smallholders Farmersin Karatu and Kongwa District of Tanzania*
Simon Lugandu

12/4 *Factors Affecting Participation in a Civil Society Network (Nangonet) in Ngara District*
Raphael N.L. Mome

12/3 *"The Instrumental versus the Symbolic: Investigating Members' Participation in Civil Society Networks in Tanzania"*
Kenny Manara

12/2 *"The Effect of Boards on the Performance of Microfinance Institutions: Evidence from Tanzania and Kenya"*
Neema Mori and Donath Olomi

12/1 *'The Growth of Micro and Small, Cluster Based Furniture Manufacturing Firms and their Implications for Poverty Reduction in Tanzania'*
Edwin Paul Maede

11/2 *'Affordability and Expenditure Patterns for Electricity and Kerosene in Urban Households in Tanzania'*
Emmanuel Maliti and Raymond Mnenwa

11/1 *"Creating Space for Child Participation in Local Governmence in Tanzania: Save the Children and Children's Councils*
Meda Couzens and Koshuma Mtengeti

10/5 *"Widowhood and Vulnerability to HIV and AIDS-related Shocks: Exploring Resilience Avenues"*
Flora Kessy, Iddy Mayumana and Yoswe Msongwe

10/4 *"Determinants of Rural Income in Tanzania: An Empirical Approach"*
Jehovaness Aikaeli

10/3 *"Poverty and the Rights of Children at Household Level: Findings from Same and Kisarawe Districts, Tanzania"*
Ophelia Mascarenhas and Huruma Sigalla

10/2 *"Children's Involvement in Small Business: Does if Build youth Entrepreneurship?"*
Raymond Mnenwa and Emmanuel Maliti

10/1 *"Coping Strategies Used by Street Children in the Event of Illness"*
Zena Amury and Aneth Komba

08.6 *"Assessing the Institutional Framework for Promoting the Growth of MSEs in Tanzania; The Case of Dar es Salaam"*
Raymond Mnenwa and Emmanuel Maliti

08.5 *"Negotiating Safe Sex among Young Women: the Fight against HIV/AIDS in Tanzania"*
John R.M. Philemon and Severine S.A. Kessy

08.4 *"Establishing Indicators for Urban Poverty-Environment Interaction in Tanzania: The Case of Bonde la Mpunga, Kinondoni, Dar es Salaam"*
Matern A.M. Victor, Albinus M.P. Makalle and Neema Ngware

08.3 *"Bamboo Trade and Poverty Alleviation in Ileje District, Tanzania"*
Milline Jethro Mbonile

08.2 *"The Role of Small Businesses in Poverty Alleviation: The Case of Dar es Salaam, Tanzania"*
Raymond Mnenwa and Emmanuel Maliti

08.1 *"Improving the Quality of Human Resources for Growth and Poverty Reduction: The Case of Primary Education in Tanzania"*
Amon V.Y. Mbelle

07.2 *"Financing Public Heath Care: Insurance, User Fees or Taxes? Welfare Comparisons in Tanzania"*
Deograsias P. Mushi

07.1 *"Rice Production in the Maswa District, Tanzania and its Contribution to Poverty Alleviation"*
Jerry A. Ngailo, Abiud L. Kaswamila and Catherine J. Senkoro

06.3 *"The Contribution of Microfinance Institutions to Poverty Reduction in Tanzania"*
Severine S.A. Kessy and Fratern M Urio
Publications by REPOA

06.2 *"The Role of Indigenous Knowledge in Combating Soil Infertility and Poverty in the Usambara Mountains, Tanzania"*
Juma M. Wickama and Stephen T. Mwihomeke

06.1 *"Assessing Market Distortions Affecting Poverty Reduction Efforts on Smallholder Tobacco Production in Tanzania"*
Dennis Rweyemamu and Monica Kimaro

05.1 *"Changes in the Upland Irrigation System and Implications for Rural Poverty Alleviation. A Case of the Ndiwa Irrigation System, Wes Usambara Mountains, Tanzania"*
Cosmas H. Sokoni and Tamilwai C. Shechambo

04.3 *"The Role of Traditional Irrigation Systems in Poverty Alleviation in Semi-Arid Areas: The Case of Chamazi in Lushoto District, Tanzania"*
Abiud L. Kaswamila and Baker M. Masuruli

04.2 *"Assessing the Relative Poverty of Clients and Non-clients of Non-bank Micro-finance Institutions. The case of the Dar es Salaam and Coast Regions"*
Hugh K. Fraser and Vivian Kazi

04.1 *"The Use of Sustainable Irrigation for Poverty Alleviation in Tanzania. The Case of Smallholder Irrigation Schemes in Igurusi, Mbarali District"*
Shadrack Mwakalila and Christine Noe

03.7 *"Poverty and Environment: Impact analysis of Sustainable Dar es Salaam Project on "Sustainable Livelihoods" of Urban Poor"*
M.A.M. Victor and A.M.P. Makalle

03.6 *"Access to Formal and Quasi-Formal Credit by Smallholder Farmers and Artisanal Fishermen: A Case of Zanzibar"*
Khalid Mohamed

03.5 *"Poverty and Changing Livelihoods of Migrant Maasai Pastoralists in Morogoro and Kilosa Districts"*
C. Mung'ong'o and D. Mwamfupe

03.4 *"The Role of Tourism in Poverty Alleviation in Tanzania"*
Nathanael Luvanga and Joseph Shitundu

03.3 *"Natural Resources Use Patterns and Poverty Alleviation Strategies in the Highlands and Lowlands of Karatu and Monduli Districts – A Study on Linkages and Environmental Implications"*
Pius Zebbe Yanda and Ndalahwa Faustin Madulu

03.2 *"Shortcomings of Linkages Between Environmental Conservation and Poverty Alleviation in Tanzania"*
Idris S. Kikula, E.Z. Mnzava and Claude Mung'ong'o

03.1 *"School Enrolment, Performance, Gender and Poverty (Access to Education) in Mainland Tanzania"*
A.V.Y. Mbelle and J. Katabaro

02.3 *"Poverty and Deforestation around the Gazetted Forests of the Coastal Belt of Tanzania"*
Godius Kahyarara, Wilfred Mbowe and Omari Kimweri

02.2 *"The Role of Privatisation in Providing the Urban Poor Access to Social Services: the Case of Solid Waste Collection Services in Dar es Salaam"* Suma Kaare

02.1 *"Economic Policy and Rural Poverty in Tanzania: A Survey of Three Regions"*
Longinus Rutasitara

01.5 *"Demographic Factors, Household Composition, Employment and Household Welfare"*
S.T. Mwisomba and B.H.R. Kiilu

01.4 *"Assessment of Village Level Sugar Processing Technology in Tanzania"*
A.S. Chungu, C.Z.M. Kimambo and T.A.L. Bali

01.3 *"Poverty and Family Size Patterns: Comparison Across African Countries"*
C. Lwechungura Kamuzora

01.2 *"The Role of Traditional Irrigation Systems (Vinyungu) in Alleviating Poverty in Iringa Rural District"*
Tenge Mkavidanda and Abiud Kaswamila

01.1 *"Improving Farm Management Skills for Poverty Alleviation: The Case of Njombe District"*
Aida Isinika and Ntengua Mdoe

00.5 *"Conservation and Poverty: The Case of Amani Nature Reserve"*
George Jambiya and Hussein Sosovele

00.4 *"Poverty and Family Size in Tanzania: Multiple Responses to Population Pressure?"*
C.L. Kamuzora and W. Mkanta

00.3 *"Survival and Accumulation Strategies at the Rural-Urban Interface: A Study of Ifakara Town, Tanzania"*
Anthony Chamwali

00.2 *"Poverty, Environment and Livelihood along the Gradients of the Usambaras on Tanzania"*
Adolfo Mascarenhas

00.1 *"Foreign Aid, Grassroots Participation and Poverty Alleviation in Tanzania:*
The HESAWA
Fiasco" S. Rugumamu

99.1 *"Credit Schemes and Women's Empowerment for Poverty Alleviation: The Case of Tanga Region, Tanzania"*
I.A.M. Makombe, E.I. Temba and A.R.M. Kihombo

98.5 *"Youth Migration and Poverty Alleviation: A Case Study of Petty Traders (Wamachinga) in Dar es Salaam"*
A.J. Liviga and R.D.K Mekacha

98.4 *"Labour Constraints, Population Dynamics and the AIDS Epidemic: The Case of Rural Bukoba District, Tanzania"*
C.L. Kamuzora and S. Gwalema

98.3 *"The Use of Labour-Intensive Irrigation Technologies in Alleviating Poverty in Majengo, Mbeya Rural District"*
J. Shitundu and N. Luvanga

98.2 *"Poverty and Diffusion of Technological Innovations to Rural Women: The Role of Entrepreneurship"*
B.D. Diyamett, R.S. Mabala and R. Mandara

98.1 *"The Role of Informal and Semi-Formal Finance in Poverty Alleviation in Tanzania: Results of a Field Study in Two Regions"*
A.K. Kashuliza, J.P. Hella, F.T. Magayane and Z.S.K. Mvena

97.3 *"Educational Background, Training and Their Influence on Female-Operated Informal Sector Enterprises"*

J. O'Riordan. F. Swai and A. Rugumyamheto

97.2 *"The Impact of Technology on Poverty Alleviation: The Case of Artisanal Mining in Tanzania"*
B W. Mutagwaba, R. Mwaipopo Ako and A. Mlaki

97.1 *"Poverty and the Environment: The Case of Informal Sandmining, Quarrying and Lime-Making Activities in Dar es Salaam, Tanzania"*
George Jambiya, Kassim Kulindwa and Hussein Sosovele

Working Papers

14/6 *Improving the Supply Chain for the Health Sector: What Role for Local Manufacturing?*
Caroline Israel, Maureen Mackintosh, Paula Tibandebage, Edwin Mhede, Phares G. M. Mujinja

14/5 *The Tanzanian health sector as buyer and user of medicines and other essential supplies*
Paula Tibandebage, Maureen Mackintosh, Caroline Israel, Edwin P. Mhede, Phares GM Mujinja

14/4 *'Economic Transformation in Tanzania: Vicious or Virtuous Circle?'*
Marc Wuyts and Blandina Kilama

14/3 *The Changing Economy of Tanzania: Patterns of Accumulation and Structural Change*
Marc Wuyts and Blandina Kilama

14/2 *Silent Killer, Silent Health Care: A Case Study of the Need for Nurse-led Hypertension Management*
Celestina Fivawo

14/1 *The Invisibility of Wage Employment in Statistics on the Informal Economy in Africa: Causes and Consequences*
Matteo Rizzo and Marc Wuyts

13/4 *Payments and Quality of Ante-Natal Care in Two Rural Districts of Tanzania*
Paper 4 from the Ethics, Payments and Maternal Survival project.
Paula Tibandebage, Maureen Mackintosh, Tausi Kida, Joyce Ikingura and Cornel Jahari

13/3 *Payments for Maternal Care and Women's Experiences of Giving Birth: Evidence from Four Districts in Tanzania*
Paper 3 from the Ethics, Payments and Maternal Survival project.
Maureen Mackintosh, Tausi Kida, Paula Tibandebage, Joyce Ikingura and Cornel Jahari

13/2 *Understandings of Ethics in Maternal Health Care: an Exploration of Evidence From Four Districts in Tanzania*
Paper 2 from the Ethics, Payments, and Maternal Survival project
Paula Tibandebage, Tausi Kida, Maureen Mackintosh and Joyce Ikingura

13/1 *Empowering Nurses to Improve Maternal Health Outcomes*
Paper 1 from the Ethics, Payments, and Maternal Survival project
Paula Tibandebage, Tausi Kida, Maureen Mackintosh and Joyce Ikingura

Special Papers

14/4 *Review of the Governance Effectiveness of the Constituency Development Catalyst Fund in Tanzania*
Policy Forum and REPOA

14/3 *Hydrocarbon resources in Tanzania:*
Achieving benefits with robust protection
Sufian H. Bukurura and Donald E. Mmari

14/2 *In Quest of Inclusive Growth: Exploring the Nexus between Economic Growth, Employment, and Poverty in Tanzania*
Rizwanul Islam and Abel Kinyondo

14/1 *Assessing the Potential of Development Grants as a Promotive Social Protection Measure*
Flora Kessy

13/1 *Understanding the Process of Economic Change: Technology and Opportunity in Rural Tanzania*
Maia Green

13/2 *Rewards for High Public Offices and the Quality of Governance in Sub-Saharan Africa*
Theodore R. Valentine

12/4 *Growth with Equity – High Economic Growth and Rapid Poverty Reduction: The Case of Vietnam*
Do Duc Dinh

12/3 *"Why Poverty remains high in Tanzania: And what to do about it?"*
Lars Osberg and Amarakoon Bandara1

12/2 *The Instrumental versus the Symbolic: Investigating Members' Participation in Civil Society Networks in Tanzania*
By Kenny Manara

12/1 *The Governance of the Capitation Grant in Primary Education in Tanzania: Why Civic Engagement and School Autonomy Matter*
By Kenny Manara and Stephen Mwombela

11/1 *"Tracer Study on two Repoa Training Courses: Budget Analysis and Public Expenditure Tracking System"*
Ophelia Mascarenhas

10/5 *"Social Protection of the Elderly in Tanzania: Current Status and Future Possibilities"*
Thadeus Mboghoina and Lars Osberg

10/4 *"A Comparative Analysis of Poverty Incidence in Farming Systems of Tanzania"*
Raymond Mnenwa and Emmanuel Maliti

10/3 *"The Tanzania Energy Sector: The Potential for Job Creation and Productivity Gains Through Expanded Electrification"*
Arthur Mwakapugi, Waheeda Samji and Sean Smith

10/2 *"Local Government Finances and Financial Management in Tanzania: Empirical Evidence of Trends 2000 - 2007'*
Reforms in Tanzania"
Odd-Helge Fjeldstad, Lucas Katera, Jamai sami and Erasto Ngalewa

10/1 *"The Impact of Local Government Reforms in Tanzania"*
Per Tidemand and Jamal Msami

09.32 *"Energy Sector: Supply and Demand for Labour in Mtwara Region"*
Waheeda Samji, K.Nsa-Kaisi and Alana Albee

09.31 *"Institutional Analysis of Nutrition in Tanzania"*
Valerie Leach and Blandina Kilama

09.30 *"Influencing Policy for Children in Tanzania: Lessons from Education, Legislation and Social Protection"*
Masuma Mamdani, Rakesh Rajani and Valerie Leach with Zubeida Tumbo-Masabo and Francis Omondi

09.29 *"Maybe We Should Pay Tax After All? Citizens' Views of Taxation in Tanzania"*
Odd-Helge Fjeldstad, Lucas Katera and Erasto Ngalewa

09.28 *"Outsourcing Revenue Collection to Private Agents: Experiences from Local Authorities in Tanzania"*
Odd-Helge Fjeldstad, Lucas Katera and Erasto Ngalewa

08.27 *"The Growth – Poverty Nexus in Tanzania: From a Developmental Perspective"*
Marc Wuyts

08.26 *"Local Autonomy and Citizen Participation In Tanzania - From a Local Government Reform Perspective."*
Amon Chaligha

07.25 *"Children and Vulnerability In Tanzania: A Brief Synthesis"*
Valerie Leach

07.24 *"Common Mistakes and Problems in Research Proposal Writing: An Assessment of Proposals for Research Grants Submitted to Research on Poverty Alleviation REPOA (Tanzania)."*
Idris S. Kikula and Martha A. S. Qorro

07.23 *"Guidelines on Preparing Concept Notes and Proposals for Research on Pro-Poor Growth and Poverty in Tanzania"*

07.22 *"Local Governance in Tanzania: Observations From Six Councils 2002-2003"*

Amon Chaligha, Florida Henjewele, Ambrose Kessy and Geoffrey Mwambe

07.21 *"Tanzanian Non-Governmental Organisations – Their Perceptions of Their Relationship with the Government of Tanzania and Donors, and Their Role and Impact on Poverty Reduction and Development"*

06.20 *"Service Delivery in Tanzania: Findings from Six Councils 2002-2003"*
Einar Braathen and Geoffrey Mwambe

06.19 *"Developing Social Protection in Tanzania Within a Context of Generalised Insecurity"*
Marc Wuyts

06.18 *"To Pay or Not to Pay? Citizens' Views on Taxation by Local Authorities in Tanzania"*
Odd-Helge Fjeldstad

17 *"When Bottom-Up Meets Top-Down: The Limits of Local Participation in Local Government Planning in Tanzania"*
Brian Cooksey and Idris Kikula

16 *"Local Government Finances and Financial Management in Tanzania: Observations from Six Councils 2002 – 2003"*
Odd-Helge Fjeldstad, Florida Henjewele, Geoffrey Mwambe, Erasto Ngalewa and Knut Nygaard

15 *"Poverty Research in Tanzania: Guidelines for Preparing Research Proposals"*
Brian Cooksey and Servacius Likwelile

14 *"Guidelines for Monitoring and Evaluation of REPOA Activities"*
A. Chungu and S. Muller-Maige

13 *"Capacity Building for Research"*
M.S.D. Bagachwa

12 *"Some Practical Research Guidelines"*
Brian Cooksey and Alfred Lokuji

11 *"A Bibliography on Poverty in Tanzania"*
B. Mutagwaba

10 *"An Inventory of Potential Researchers and Institutions of Relevance to Research on Poverty in Tanzania"*
A.F. Lwaitama

9 *"Guidelines for Preparing and Assessing REPOA Research Proposals"*
REPOA Secretariat and Brian Cooksey

8 *"Social and Cultural Factors Influencing Poverty in Tanzania"*
C.K. Omari

7 *"Gender and Poverty Alleviation in Tanzania: Issues from and for Research"*
Patricia Mbughuni

6 *"The Use of Technology in Alleviating Poverty in Tanzania"*
A.S. Chungu and G.R.R. Mandara

5 *"Environmental Issues and Poverty Alleviation in Tanzania"*
Adolfo Mascarenhas

4 *"Implications of Public Policies on Poverty and Poverty Alleviation: The Case of Tanzania"*
Fidelis Mtatifikolo

3 *"Who's Poor in Tanzania? A Review of Recent Poverty Research"*
Brian Cooksey

2 *"Poverty Assessment in Tanzania: Theoretical, Conceptual and Methodological Issues"*
J. Semboja

1 *"Changing Perceptions of Poverty and the Emerging Research Issues"*
M.S.D. Bagachwa

Project Briefs

Brief 45 *Transparency and Accountability in Local Governance in Tanzania*
Amon E. Chaligha

Brief 44 *Public Accounts Committees in Eastern Africa: A Comparative Analysis with a Focus on Tanzania*
Riccardo Pelizzo and Abel Kinyondo

Brief 43 *Reversing Pharmaceutical Manufacturing Decline in Tanzania: Policy Options and Constraints.*
Samuel Wangwe, Paula Tibandebage,

Edwin Mhede, Caroline Israel, Phares Mujinja, Maureen Mackintosh

Brief 42 *Incomplete Intermediary Coordination and its Effects on Productivity of Sugarcane in Tanzania*
Donald Mmari

Brief 41 *Citizen Participation and Local Governance in Tanzania*
Amon E. Chaligha

Brief 40 *National Agriculture Input Voucher Scheme(NAIVS 2009 - 2012), Tanzania:Opportunities for Improvement*
Kriti Malhotra

Brief 39 *Examining the Institutional Framework for Investment in Tanzania: A perspective from the Executive Opinion Survey, 2012-13*
Johansein Rutaihwa

Brief 38 *"Achieving High Economic Growth with Rapid Poverty Reduction: The Case of Vietnam"*
Do Duc Dinh

Brief 37 *"Social-Economic Transformation for Poverty Reduction: Eight Key Messages for Unlocking Tanzania's Potential"*
Philip Mpango

Brief 36 *"Tracer Study for Research Users: The case of TGN Media Training"*
Ophelia Mascarenhas

Brief 35 Understanding Rural Transformation in Tanzania

Brief 34 Affordability and Expenditure Patterns for Electricity and Kerosene in Urban Households in Tanzania

Brief 33 Biofuel Investment in Tanzania: Awareness and Participation of the Local Communities

Brief 32 Supporting Tanzania's Cocoa Farmers

Brief 31 The Instrumental versus the Symbolic: Investigating Members' Participation in Civil Society Networks in Tanzania

Brief 30 Competitiveness of Tanzanian Coffee Growers amid Bifurcated Coffee Markets

Brief 29 Using Annual Performance Reports to Manage Public Resources in Tanzania

Brief 28 Growth of Micro and Small, Cluster-Based Furniture-Manufacturing Firms and their Implications for Poverty Reduction in Tanzania

Brief 27 Creating Space for Child Participation in Local Governance in Tanzania: Save the Children and Children's Councils

Brief 26 Tracer Study on REPOA Training Courses for Research Users: Budget Analysis and Public Expenditure Tracking System

Brief 25 Transparency in Local Finances in Tanzania.
2003-2009

Brief 24 Social Protection of the Elderly in Tanzania: Current Status and Future Possibilities

Brief 23 Children's Involvement in Small Business: Does it Build Youth Entrepreneurship?

Brief 22 Challenges in data collection, consolidation and reporting for local government authorities in Tanzania

Brief 21 Children's Involvement in Small Business: Does it Build Youth Entrepreneurship?

Brief 20 Widowhood and Vulnerability to HIV and AIDS Related Shocks: Exploring Resilience Avenues

Brief 19 Energy, Jobs and Skills: A Rapid Assessment in Mtwara, Tanzania

Brief 18 Planning in Local Government Authorities in Tanzania: Bottom-up Meets Top-down

Brief 17 The Investment Climate in Tanzania: Views of Business Executives

Brief 16 Assessing the Institutional Framework for Promoting the Growth of Micro and Small Enterprises (MSEs) in Tanzania: The Case of Dar es Salaam

Brief 15 Preventing Malnutrition in Tanzania: A Focused Strategy to Improve Nutrition in Young Children

Brief 14 Influencing Policy for Children in Tanzania: Lessons from Education, Legislation and Social Protection

Brief 13 Disparities Exist in Citizens' Perceptions of Service Delivery by Local Government Authorities in Tanzania

Brief 12 Changes in Citizens' Perceptions of the Local Taxation System in Tanzania

Brief 11 Citizens Demand Tougher Action on Corruption in Tanzania

Brief 10 Outsourcing Revenue Collection: Experiences from Local Government Authorities in Tanzania

Brief 9 Children and Vulnerability in Tanzania: A Brief Overview

Brief 8 Mawazo ya AZISE za Tanzania Kuhusu Uhusiano Wao na Wafadhili

Brief 7 Mawazo ya AZISE za Tanzania Kuhusu Uhusiano Wao na Serikali

Brief 6 Local Government Reform in Tanzania 2002 - 2005: Summary of Research Findings on Governance, Finance and Service Delivery

Brief 5 Children Participating in Research

Brief 4 Changes in Household Non-Income Welfare Indicators - Can poverty mapping be used to predict a change in per capita consumption over time?

Brief 3 Participatory Approaches to Local Government Planning in Tanzania, the Limits to Local Participation

Brief 2 Improving Transparency of Financial Affairs at the Local Government Level in Tanzania

Brief 1 Governance Indicators on the Tanzania Governance Noticeboard Website TGN1 What is the Tanzania Governance Noticeboard?

LGR 12 Trust in Public Finance: Citizens' Views on taxation by Local Authorities in Tanzania

LGR 11 Domestic Water Supply: The Need for a Big Push

LGR10 Is the community health fund better than user fees for financing public health care?

LGR 9 Are fees the major barrier to accessing public health care?

LGR 8 Primary education since the introduction of the Primary Education Development Plan

LGR 7 Citizens' access to information on local government finances

LGR 6 Low awareness amongst citizens of local government reforms

LGR 5 Fees at the dispensary level: Is universal access being compromised?

LGR 4 TASAF – a support or an obstacle to local government reform

LGR 3 Councillors and community leaders – partnership or conflict of interest? Lessons from the Sustainable Mwanza Project

LGR 2 New challenges for local government revenue enhancement

LGR 1 About the Local Government Reform Project