PRE-CRISIS MARKET ANALYSIS (PCMA)

City Level View – Domestic water supply, sanitation and hygiene products in six poor suburbs of Harare, Zimbabwe

PCMA conducted September 2016

(Report published December 2016)

"*Our failure is in responding to the symptoms and not the root causes of the problems. As long as the determinants of health are not addressed, we will continue to firefight*"

Nyaradzai, Health Promotion Officer, Mabvuku-Tafara (2016)

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CONTENTS

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Front cover photo: Victor Makovere of Oxfam Zimbabwe is training PCMA enumerators on the concepts of market systems in training prior to the PCMA fieldwork (Oxfam, 2016)

Disclaimer

The findings, interpretations and conclusions expressed herein are entirely those of the authors and should not be attributed to Oxfam Zimbabwe or the Government of Zimbabwe The scenarios which informed the data collection and subsequent analysis for this report reflect a small sample set of the areas targeted. Similarities in collected data analysis suggest trends which have been reflected in the analysis and recommendations from this report. It should be noted that any recommendations taken forward may require subsequent analysis to validate their design and scalability. Indeed, future use of the recommendations from this report should also take into consideration the relevance of the data collected and any need for baseline updates. Market systems are complex and fluid and are continuously changing such that if market-based programming is used in future contingency planning in Harare a review mechanism should be integrated into the planning to ensure relevance of market-based programs within the current context of the market system.

This report is also available on the following link: http://www.emma-toolkit.org/reports.

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

4

List of Acronyms

DA   District Administrator

DOS   Dialogue on Shelter

DRR   Disaster Relief Reduction

EFSVL   Emergency Food Security and Livelihoods

EHO   Environmental Health Officer

EHT   Environmental Health Technician

E-SAG   Emergency Strategic Advisory Group

EPR   Emergency Preparedness and Response

HCC   Harare City Council

HPO   Health Promotion Officer

IACCH   Inter Agency Coordination Committee on Health

MSF   Medicines San Frontiers

NCU   National Coordination Unit

NGO   Non-Governmental Organization

NFI   Non Food Items

OFDA   Office for Foreign Direct Assistance

PCMA   Pre-Crisis Market Assessment

PoUWT   Point of Use Water Treatment

PPP   Public Private Partnership

RA   Resident Association

UNICEF   United Nations International Children Emergency Fund

WASH   Water Sanitation and Hygiene

WHH   Welthungerhilfe

WSCIF   Wash Sector Coordination Information Forum

ZIMVAC   Zimbabwe Vulnerability and Capacity Assessment

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

5

EXECUTIVE SUMMARY

This report presents the summary findings of a Pre-Crisis Market Analysis (PCMA) carried out across June to September 2016 in Harare as part of a global programme funded by OFDA/USAID to understand how pre-crisis market analysis can be used to inform improved WASH emergency preparedness, response and resilience programming in complex urban environments.

Market analysis provides a better understanding of the system (that is the influencing environment, services, goods, infrastructure, market actors (including users)) in which we are working in order to inform the design of programmes such that they can work with (where appropriate) and in awareness of the market system. The outputs of the PCMA will not lead only to market-integrated responses but will also be used to inform the improvement of programme planning to improve overall programme effectiveness, efficiency, quality and ensure no longer-term harm is done to communities by undermining the incumbent WASH market systems and actors.

This exercise has sought to address a number of issues identified as part of a global review of PCMAs that were hindering the successful implementation of PCMA recommendations. It has expanded on the traditional PCMA guidance to test a lengthier three-phase approach to the PCMA that incorporates additional phases of work to build better preparedness into PCMA fieldwork as well as provide sufficient time and resources to incorporate recommendations into improved contingency planning. In addition, tools refined from learning taken from other PCMAs were developed and tested in the field to enhance the breadth and depth of primary data collection including GIS mapping, combined WASH assessment, KAP and market surveys and IT tools.

The first two phases of this PCMA Approach – the scoping and PCMA fieldwork phases – have been conducted in six vulnerable suburbs in Harare, with a total population of over 500,000 people, which are locations prone to waterborne disease outbreaks of typhoid and cholera. The challenge of considering waterborne disease as a reference crisis in chronic WASH environments is that these WASH issues, exacerbated by fluctuating seasonal or economic situations, result in the outbreak. Rather than being affected by a mutually independent crisis, the WASH system is a causal factor in the crisis which complicates baseline referencing. Dependent on the time of year and economic situation there will be different responses required to meet the required WASH needs of the population. As such rather than a reference crisis we have created three scenarios in which outbreak risk is likely and have understood how the WASH system reacts and could respond to support scenario-based contingency planning.

Over the course of the two phases, in addition to secondary research, over 715 field level interviews were conducted (as part of a combination of focus group discussions and key informant interviews with households and other market actors) as well as stakeholder workshops with relevant governing and emergency coordination bodies at the district, municipal and national level. It was identified early on that the complexity of the WASH systems for each district was not understood at a sufficient enough level to determine which markets would be critical in a crisis in the different areas of Harare. The fieldwork conducted focused on establishing a baseline understanding of the WASH systems, users and market actors in order to better determine the critical markets within these systems to be working with the understanding that once potential markets for intervention were collectively agreed, they further research could be conducted to support the design of programmes as required.

This summary report seeks to pull together a city-level view of the WASH system based on the assessment, drawing out key commonalities and differences in the localities and presenting recommendations for emergency preparedness, response and resilience programming. This report, due to the breadth of data collected, does not seek to present a detailed review of each suburb and

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

6

interview. Supplement reports will be provided in addition to this report for district administrators and other organisations seeking more detail for the specific areas in which they work.

At a city-level, the assessment was able to establish a profile of the target localities most of which are characterised by low income earners and poor water and sanitation services:

- Due to population pressure, inadequate resources and an ageing WASH infrastructure, the centralised utilities are unable to provide necessary services to the communities to meet demand;

- Against the background of the recurring disease outbreaks, decentralised systems have propagated to augment water supply through construction of boreholes by NGOs and other well-wishers, individual digging of shallow wells and use of other unsafe water sources that compromise the health of the communities;

- Households are building sanitation facilities that are of poor quality and in close proximity to underground water sources with the inhibitive cost, practicality and low adoption of desludging propagating an environment of overflowing or unemptied latrines, which, especially but not exclusively in rainy season, present a major contamination risk;

- While communities have a good understanding of the causative factors of disease outbreaks, hygiene behaviour appears to have been influenced by both a reliance on free support whether in terms of availing of free water sources and as such no ownership of the operation and maintenance of much relied on boreholes or free supply of water treatment chemicals so that communities do not adopt prevention practices such as household water treatment.

- In addition, the government and requisite utility departments are caught in a quagmire where, faced with inadequate resources, increasing demand on services and indeed, community resentment at their perceived failure, they are having to make difficult decisions on adopting lower service levels in order to at least meet some of the basic needs of the population.

- In looking at access to water, sanitation and hygiene goods and services the assessment was able to establish that while affordability is one of the factors that is influencing households being able to access these goods and services, it may not be the primary factor as many of the households are able to afford these goods and that instead the issue is the prioritisation of use of these goods that would be pivotal in helping reduce and indeed prevent the impact of disease outbreaks in the localities. Engagement with service providers at the localities and upstream yielded that demand and not necessarily supply is the challenge.

At the city and district levels, various proposals have been given, both market-integrated and not that if adopted can contribute significantly to risk reduction on the immediate but also facilitating better preparedness and response in the event of a disease outbreak. Recommendations have been made for programmes in areas of sustained water supply, access to safe water, safe disposal of human waste and proper hygiene practice. There are some long term interventions proposed that look at addressing the chronic WASH issues in addition to advocacy on areas that need reviewing as a sector in order to both improve how emergency response is being undertaken but also ensure that the response mechanisms do not compromise future WASH programming. These proposals will be reviewed as a sector involving among others the Harare City Council and WASH Emergency Strategic Advisory Group (ESAG) to prioritize and develop contingency plans for implementation.

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

7

SECTION 1: CONTEXT AND METHODOLOGY

1.1 Why market analysis is important

All humanitarian interventions have an impact on markets either before, during or after a crisis occurs. Analyzing markets is important at all stages of humanitarian responses in order to:

- Do no harm: mitigate risks of medium and long-term negative impacts on local markets and peoples livelihood created by humanitarian responses bypassing local economic dynamics;
- Increase efficiency and effectiveness: use existing market actors' capabilities and networks to provide for the needs of affected population, analyze how markets respond to a humanitarian response to allow for timely adjustments throughout implementation;
- Strengthen preparedness and emergency response;
- Support livelihoods and local economic cycles in all stages of preparedness and emergency response, to support resilience building and bridges the divide between humanitarian and development agendas.

Importantly, this approach also encourages a local sense of ownership and accountability to emergency preparedness and response and resilience-building which are critical in terms of reducing dependency on external support being the default response and brings more community-based inclusivity to contingency planning.

The Pre-Crisis Market Analysis (PCMA) is an approach to conducting market assessments prior to emergencies in order to anticipate how markets will respond after a shock occurs. It builds on earlier experiments with market baseline mapping and analysis conducted in pre-crisis settings.

PCMA is designed to help agencies to improve preparedness, feed into future planning efforts and contribute to the design of disaster risk reduction programs by identifying certain parts of market systems which are not functioning well or may be vulnerable to shocks. Increasing the speed of emergency responses or mitigating disaster risks by utilizing or strengthening market systems to support disaster management planning would potentially reduce the impact on lives and livelihoods and begin to address the longer term or chronic nature of poverty and vulnerabilities.

1.2 Methodology for OFDA Programme

The Pre-Crisis Market Assessment (PCMA) conducted in Zimbabwe is part of a global programme funded by OFDA to understand how pre-crisis market analysis could be better applied to the Water, Sanitation and Hygiene (WASH) sector; to apply a PCMA in the urban context (as the vast majority to date have been conducted in rural areas where systems are often more simplistic); and how the results of such an analysis could be successfully operationalised. As such this PCMA report forms the basis of a wider 'PCMA approach' being tested and refined within Bangladesh, Indonesia and Zimbabwe.

The OFDA programme has sought to address a number of issues identified as part of a global review of PCMAs that were hindering the successful implementation of PCMA recommendations, namely:

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

8

- Limited time to prepare in advance of PCMA fieldwork leading to too many assumptions being made up front starting the analysis in the wrong direction and low quality primary data collection methodology leading to PCMA recommendations being too high-level

- Lack of inclusion of the users of WASH goods and services into the PCMA in order to design good quality, effective interventions that target the needs and preferences of the most vulnerable

- Challenges to operationalise and/or integrate PCMA recommendations into contingency plans and measure their effectiveness once the analysis is concluded

Expanding on the traditional PCMA guidance, introducing a lengthier approach to test and refine new ideas to address the identified issues, this PCMA report therefore provides an overview not of just the 10-day exercise, but the outputs of the approach through the first two phases of work – scoping and PCMA fieldwork phase – which are two out of three phases of the PCMA approach being tested.
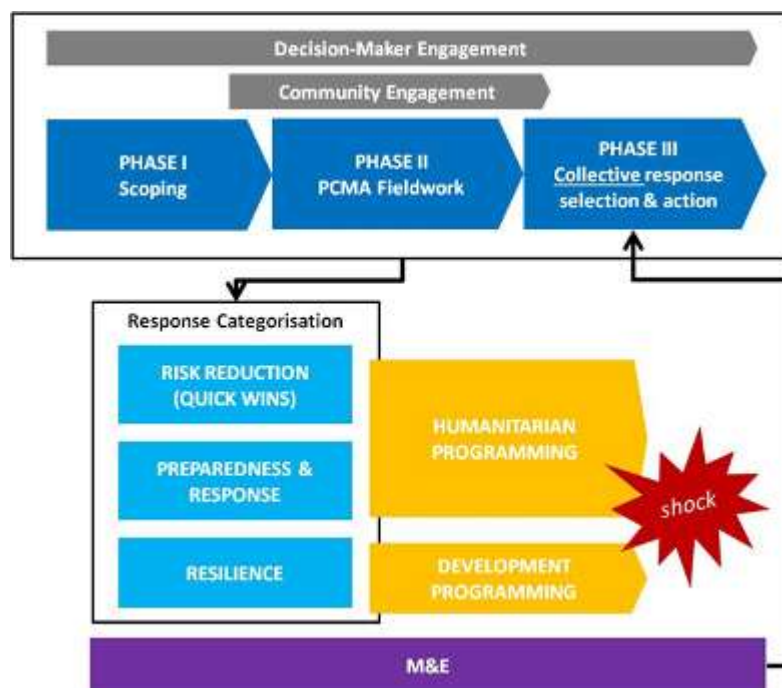
Figure 1: Phases of the Pre-Crisis Market Analysis

The recommendations from this report will feed into a process of informing refinement of or new programming for emergency preparedness, response and risk reduction. The programmes will be collaboratively agreed and the agencies mandated to take on such programming assigned the task to deliver these programmes utilising the market analysis to inform the programme design. The agreed programming will be integrated into district level and a city level contingency plan and monitoring and evaluation tools put in place as appropriate to maintain and activate the plan as required.

It is acknowledged that not all the programme recommendations will be able to be funded through the OFDA/USAID programme and it has been recommended that the PCMA approach should support inter-agency collaboration and decision-making on market-informed programming but should not also fund all the programme recommendations. Given the multiple agencies involved in city-level responses, and the fact that the recommendations could fall into both humanitarian and development programming, funding for complex city-level programme updates should be sought post-analysis once an evidence basis and collective agreement for the programme has been formed.

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

9

A key aspect of this work has been to build awareness within the WASH and humanitarian sector of the possibility of utilising complimentary market-based programming for emergency preparedness, response and resilience building throughout the PCMA process. In addition to articulating the strategic potential of market-based programming, the approach to the PCMA fieldwork also incorporates a capacity building of decision-makers and field practitioners to enable others to utilise this approach in the future.

In Zimbabwe, the capital Harare was focused upon especially targeting of five high density suburbs which are prone to disease outbreaks of typhoid and cholera with an additional sixth area added to the assessment at the request of the local authorities given a spike in diarrheal disease in the area. Due to the similarities in profiles of the various high density suburbs, the learning from the PCMA is expected to form an evidence base for how to effectively scale programming across areas with similar profiles in an effort to avoid the need of conducting PCMAs in every individual suburb within a city. In addition, should the PCMA approach be success, it is an ambition of the programme to encourage PCMAs in other cities and sectors in the country.

This project has provided an opportunity for Oxfam, as well as other actors involved in WASH humanitarian and development activities, to inform its urban WASH strategy and also strengthen its position as a WASH sector actor locally. In an addition as a result of this project and its emphasis on engagement, advocacy and capacity building, Oxfam was nominated by the National Action Committee for WASH to be the focal partner for Harare province on all issues relating to WASH. This further consolidated Oxfam's strategic relationship with the Harare City Council to be able to influence better coordination and communication of emergency responses and, based on a consultative process, recommend improvements to current WASH contingency plans.

SECTION 2:   SCOPING

2.1   Purpose and Approach

In preparation of the primary data collection, the scoping phase sought to answer the question, "what are the critical market needs currently underserved in crisis within the vulnerable populations?". To inform the identification of the critical markets the scoping process looked at a preliminary level, the existing WASH infrastructure, WASH services value chain, the sector coordination system and structure; existing regulation and how all these impact on WASH service delivery to the population especially during crisis. The scoping exercise aimed at validating target areas, reference crisis and vulnerable populations as well as to provide baseline WASH datasets to validate during fieldwork.

The scoping phase involved looking at various so**urces of information including:**

- **Desk review & key informant interviews with city level stakeholders -** Looking at reports and various statistics available from government and non-governmental departments, conducting key informant interviews with various stakeholders in the areas such as local authorities, city council officials, private utility service providers and WASH sector actors involved in overseeing or implementing water, sanitation and hygiene programmes in Harare city. This report summarises the key city level and scoping refinement analysis below. For further information on location specific data from the scoping exercise please see supplementary scoping report.

- **Reflection Workshop (a new workshop format) -** Information was garnered from the project inception workshop, the Reflection Workshop that brought together various WASH sector actors from line ministries; Ministry of Health, Ministry of Water, Environment and Climate Change; local government representatives from Harare and Kadoma and implementing

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

10

agencies such as UNICEF, MSF and RedCross among others. Rather than specifically focusing the workshop on introducing the PCMA concept only, a new approach was undertaken in order to build greater understanding and acceptance on how market analysis and market based programming could complement current contingency planning and emergency response activities. This involved undertaking deliberations which focused on how to improve WASH preparedness and response in Harare with specific reference to a recent typhoid outbreak and as such presented an enthusiastic platform to both identify areas for learning and introduce the opportunities that come with incorporating markets based programming to facilitate emergency preparedness and response and disaster risk reduction and resilience activities. For further information specific to the Reflection Workshop please see supplementary workshop report.

2.2   City Level WASH Context

Traditionally, Harare had a centralised water and sanitation infrastructure but rapid urban growth, economic decline, and aging infrastructure has led to a decline in the quality and reliability of the service leading to an increase in decentralized, informal infrastructure being created to serve local needs but without sufficient funding or governance structures to manage them.

Harare Water and Sewerage is the department within Harare City Council responsible for the maintenance of water and sewerage distribution, treatment and storage infrastructure, treatment of water at the Morton Jeffrey water works and revenue collection.

ZINWA is involved in the maintenance of dams which supply water to Harare with Chivero, Manyame, Seke and Harava dams being the major sources of water for Harare. However these sources have become inadequate coupled with aged infrastructure that is not capable of efficiently distributing water to the population. As at October 2016, Zimbabwe National Water Authority (ZINWA) reported that the city is relying heavily on polluted water from Chivero and Manyame due to partially treated domestic and industrial effluent which is discharged directly into the dams. Compounded by drying up of dams due to the on-going drought, ZINWA has had to open up Dema dam to boost water levels at Seke and Harava dams. (ZINWA, 2016)

The increasing population influx, especially of lower income earners into the high density suburbs, continues to place significant pressure on the water and sanitation services which were built to serve a much smaller population. Efforts by the government to stem the movement into to the locations has been in vain exacerbated by a challenging economic environment and the on-going drought in the country that has led to an increase in rural to urban migration as people look for alternative sources of income and seek to live in locations that are less expensive.

As such centralised municipality water and sewer coverage does not extend to all the suburbs in Harare and for those that it does, it may not provide a fully performing service, with reliability and quality of supply plaguing water distribution and sewers often being blocked primarily due to poor maintenance, high water pressures and poor solid waste management. Public utilities do not have adequate resources, both financial and human to effectively operate and maintain the water, sanitation and hygiene infrastructure not to mention, the much needed, upgrading and expansion. Where the municipality cannot extend sufficient services to suburbs, private organisations and NGOs have been involved in the provision of water in some parts of Harare through borehole drilling and mobile water supplies. These services however can only be offered at community level and there is no regulatory framework to govern these operations (Ndedzu, Muhoyi, Kunguma, & Mavesere, 2012). Increases in diarrhoea cases have been blamed on irregular and poor quality water supplies and inadequate faecal

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

11

sludge management arising from the lack of access to sewers and bursting of those that exist contaminating both municipal and groundwater water supplies.

2.3   Defining the reference crisis and target locations

The WASH priority in Harare is to prepare better for an often annually recurring waterborne disease outbreak for which contingency plans vaguely exist and responses still mirror those utilised during the economic collapse of 2008/9. This is compounded by poor coordination and inadequate resources to implement proposal.

Between 2000 to 2008, the collapse of the economy, public sector investment and flight of donor finance meant minimal new investments and failure to maintain an already aging infrastructure led to a severe decline in services. The nationwide cholera outbreak in August 2008 was a 'red flag indicator' of the state of the sector (World Bank, 2011). According to a survey carried out by the GoZ and UNICEF in 2010, safe water coverage levels which stood at over 95% in the early 1990s have fallen to a low of 40% in most of the large cities and towns (Ndedzu , Muhoyi, Kunguma, & Mavesere, 2012).

***Figure 2: Real time depiction of distribution of Cholera cases in Harare during the Outbreak in 2008** (Source: Cholera Control and Command Centre Harare as cited in Chipare, 2010).*

The scoping exercise was carried out under the background of a recent WASH crisis: a typhoid outbreak in the city between February and May 2016. High density areas in Zimbabwe, and more specifically in Harare, have been the epicentres of disease outbreaks including the 2008-2009 cholera outbreak.

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

12

Table 1: Epicentres of Typhoid Outbreaks in Harare (Dr Masunda, 2016)

	Total cases reported	Epicentre	Typhoid	
			Suspects	Confirmed
February to May 2010	446	Mabvuku-Tafara	398	54
2011	1078	Dzivaresekwa	1078	26
October 2012 to July 2013	5186	Glen View Dzivaresekwa Budiriro	247	
December 2013 to May 2014	3409	Glen View Dzivaresekwa Budiriro	1731 857 176	10
December 2014 to September 2015	467	Budiriro	191	19
January to March 2016	624	Budiriro Glen View	188 110	8 6

Epidemiological studies show that the areas experiencing high levels of recurrent waterborne disease are in Glenview and Budiriro, with the most recent outbreak being early in 2016. However, due to other humanitarian actors performing interventions in the area at the start of this study, and a lack of focus on the medium risk areas, the National Coordination Unit asked for the PCMA to focus on medium risk areas instead with the cognizance that certain interventions identified may be able to be adapted to be used across multiple districts in Harare. Therefore, the following five initial target locations where the pre-crisis market analysis to understand local level WASH systems and household practices and preferences: **Dzivarasekwa, Kuwadzana, Mabvuku-Tafara, Caledonia and Hopely**. In 2016 between January and May 2016, Mabvuku-Tafara Caledonia had 94, Kuwadzana 42, Hopely 12 and Dzivarasekwa 7 suspected cases of typhoid (Harare City Council City Health Department, 2016).

Stoneridge, a peri-urban area of Harare experiencing in the past twelve months a recent influx of internally displaced persons due to land evictions, was also added to the scope of the project whilst the fieldwork was underway. Oxfam were asked by Harare City Council to include Stoneridge as part of the assessment due to suspected typhoid cases in the area. The area is seen as high risk as there are an abundance of temporary dwellings and no formal WASH infrastructure serving the community. Key findings are detailed later in this report but a separate high-level report for Stoneridge was submitted, due to the urgency, to Harare City Council and the Emergency Strategic Advisory Group for consideration earlier in the year. *This report has been provided as a supplement to this report and was created in three days post fieldwork in order to allow for rapid decision-making.*

The challenge of considering waterborne disease as a reference crisis in environments with chronic WASH challenges is that these WASH issues, exacerbated by fluctuating seasonal or economic situations, result in the outbreak. Rather than being affected by a mutually independent crisis, the WASH system becomes a causal factor in the crisis which complicates baseline referencing.

In fact waterborne disease outbreak was seen as a normal part of life in Harare with respondents from surveys finding it hard to understand what we meant by 'crisis' when referring to typhoid or cholera outbreaks. The outbreak is a consequence of the WASH system under stress. This makes defining the normal versus crisis state of the WASH system difficult because there is no specific, time-constrained baseline reference to refer to.

When undertaking a PCMA you need to identify a reference crisis in which to base the normal state versus crisis state of the WASH system in which you are working. Distinguishing between crisis and non-crisis periods was a major challenge in this assessment making defining system reactions for

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

13

waterborne disease outbreaks a rather complex undertaking. It would be expected that the baseline situation would involve a situation where at best, service delivery to communities is adequate and where crisis, in this case disease outbreaks, would negatively impact the ability of the existing systems to provide the necessary services. Instead, it is widely known that there are various issues in the baseline situation that could be creating the outbreak itself.

It was also established during fieldwork that waterborne disease outbreak is not restricted to rainy season only (to which preparedness planning is dominantly aligned) with incidents likely to occur in dry season too under the right conditions as well as economic instability in any season. Generally the waterborne disease outbreak happens as a result of chronic issues being exacerbated due to seasonal variations affecting the functionality of the WASH systems and/or the economic situation affecting both the functionality of the WASH system and household coping mechanisms.

One could argue that without a clear reference crisis a PCMA should not have been undertaken in the area as this is a 'development' problem. However, there is a blurred line between who should be responsible for managing chronic WASH issues and those who should manage the consequences of chronic WASH issues. Waterborne disease is a man-made and is preventable if triggers exacerbating chronic conditions are understood. Addressing chronic WASH issues is not the mandate of humanitarian organisations, however, until the chronic issues are addressed, humanitarian actors will still be needed should outbreaks occur.

This study has therefore provided a list of recommendations that incorporate an understanding of the markets that could be used in emergency preparedness and response but also in resilience building given the chronic and recurrent nature of the reference crisis in a way to support recovery and rehabilitation of WASH systems, not hinder their development. In addition, according to the Markets in Crisis DGroup, there are few PCMAs that specifically focus on market analysis to inform waterborne disease outbreak interventions and as such, research in how to conduct such analysis and overcome the challenges presented by it would be useful to the global WASH community.

Dependent on the time of year and economic situation there will be different responses required to meet the required WASH needs of the population. As such rather than a reference crisis we have created three scenarios in which outbreak risk is likely and have understood how the WASH system reacts and could respond to support scenario-based contingency planning.

Table 2: Reference Scenarios

Scenario	Season	Economic Situation
A	Dry	Stable
B	Rainy	Stable
C	Any season	Unstable

Rainy versus dry seasons
The assessment confirmed that disease outbreaks are more prevalent during the rainy season when there are increased incidents of faucal contamination of water sources due to bursting of sewers that were previously unused or blocked by solid waste; increased wastewater flow from overflow or seepage latrine pits and modified -septic tanks[1] which have been constructed in close proximity to shallow wells commonly used by many households in the high density suburbs to supplement their

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[1] Modified-septic tanks is used here as in Harare residents refer to brick latrines with an unlined pit as a septic tank. This led to some confusion during the fieldwork as proper use of septic tanks would prevent faecal contamination, however, it became evident that the terminology used by residents and enumerators alike did not correspond to common engineering terminology associated with a septic tank.

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

14

water sources. On the other hand, in the dry season, drying of the various water sources that communities rely on sees increased rationing and lack of availability of water from groundwater sources. As such this is also the time when many households increasingly use unsafe water sources or are limited in terms of the adequate amount of water for personal hygiene, all serving as a prelude to disease outbreaks. Additionally, the difference in the seasons, in some areas, affects household income, as is the case in Stoneridge, where the dominant form of informal employment ceases due to localized flooding during the rainy season.

In either case, both seasons have the necessary conditions that would serve to propagate the spread of waterborne diseases that are the reference for this study. ***Previously, the focus has been primarily for preparation for the rainy season only.***

	J	J	A	S	O	N	D	J	F	M	A	M	J
RAINFALL (monthly average mm)	3	1	2	6	32	97	181	197	169	97	35	11	3
TEMPERATURE (monthly avg °C)	13.7	13.4	23.7	26.8	28.2	27.4	26.2	26.3	25.8	26.2	25.3	16.1	13.7
WATER AVAILABILITY													
MUNICIPAL WATER	XX	XXX	XX	XX	XX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
B/H WATER	XX	XX	X	X	X	XX	XXX	XXX	XXX	XXX	XX	XX	XX
SHALLOW WELLS	X	X	X	X	X	XX	XXX	XXX	XXX	XXX	XX	XX	X
WATER RATIONING	---	---	XXX	XXX	XXX	---	---	----	---	----	---	---	----
TYPHOID CASES	40	78	64	30	-	-	-	74	382	524	272	89	72
DYSENTRY CASES	20	57	66	41	-	-	-	56	144	120	81	89	25
DIARRHOEA CASES	397	1368	1822	1496	-	-	-	1366	2403	2085	-	-	-

Figure 3: Seasonal Calendar (taken from Scoping Report, Oxfam 2016) Adopted** from **(Ministry of Health and Child Care, 2015-2016) and Harare Weather Statistics (YR, 2016)

Water Availability Key (Estimation): X=Low   XX=Medium   XXX=High

Economic stability versus instability

Relative to 2008/9, Zimbabwe's economy is stable. The economic collapse of 2008/9 is used as the baseline for collapse and the lead up to it the period of instability characterized by devaluation of the local currency, mass unemployment and hyperinflation. Periods of instability and collapse, exacerbate already existing WASH issues, with one of the results of the 2008/9 collapse being the outbreak and spread of one of the largest cholera outbreaks in Zimbabwe with almost 100,000 cases and over 4,200 deaths reported in 57 of the country's 62 districts (IWSD, 2009).

During the fieldwork, therefore, the Zimbabwean economy was considered stable relative to this baseline reference point of instability and collapse. It is recognized however, that even though the economy is for the purposes of this assessment, defined as stable, the economy is starting to show warning signs of instability which should be early warning signs for all actors involved in contingency planning.

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

15

The vast majority of the population is in informal employment, public sector employees not being paid on time and there is restricted access to cash and indeed US currency, on which the country relies on with the government issuing a bond note equivalent to USD $1 in November 2016. Local manufacturers and industry are weakened as they deal both with a trade deficit and challenges accessing the necessary raw material for production most of which is imported. Importing has also become a challenge as bank restrictions have been placed on foreign currency transactions and priority items for foreign transactions outlined. However, lessons learned from the previous economic collapse have led: to better business continuity planning with many businesses stockpiling in the event of a weakened economy; proactive debate in government, banking and emergency bodies to prevent and plan for a collapse particularly under widespread public pressure and anxiety to avoid the same situation; and the increase in use of non-cash financial alternatives such as mobile money to maintain transactions in the absence of physical cash; and the acknowledgement that the WASH infrastructure and local knowledge has improved since there was a lot of learning from the 2008 experience that can help inform dealing with the current situation.

The PCMA attempts to establish whether the current economic situation could result in a similar crisis and how if at all, market based programming could reduce the likely vulnerability that would arise if a disease outbreak occurred in such circumstances. The economy is fragile and as such there is a concern that if that if the economic system collapses, market based programming would not be effective. The PCMA recommends exploration of programmes that could support and strengthen local market capacity to support prevention, preparedness and response activities. The challenge lies in creating programmes that can continue to work in the event of both scenarios; a disease outbreak and a collapse of economy, such that contingency plans can still be activated with confidence (Whitehouse, Markets in Crisis Discussion Group, 2016).

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

16

2.4   Defining the critical markets to study

It was identified early on that the complexity of the WASH systems for each district was not understood at a sufficient enough level to determine which markets would be critical in a crisis in the different areas of Harare

The issue of emergency response to disease outbreaks formed a major discussion point in the reflection workshop of July 2016 that brought together key stakeholders in the WASH sector nationally and in Harare. Traditionally in a PCMA, a critical market would be defined to reduce the scope for a very focused review e.g. water trucking market or soap market. Having completed the scoping phase and reflection workshop, however, it was apparent that the complexity of the WASH systems, how they interact and co-exist and how users and market actors function within them was not well understood. In fact, a KAP analysis funded by UNICEF was about to begin in Glenview in July 2016 to assess why cholera kept reoccurring in the area. Generally it was understood that the following areas were the key areas of vulnerability in the WASH system that needed to be better understood in order to identify the critical markets within them:

i. **Access to sustained water supply**: in many of the target areas, the water supply especially from the main reticulation system is inconsistent in terms of reliability and quality. In situations where alternative sources such as boreholes have been provided, lack of maintenance of the facilities affects their being able to be sustainable water options that can serve communities during crisis. This is then linked to subsequent courses of action taken by the community such as using unsafe sources of water.

ii. **Access to safe water**: breakdowns or water cuts or lack of water availability have the community opting to use water sources that are not safe. The safety of the water is linked to the type of water sources used for example unprotected shallow wells, contamination of water during handling and the availability and use of water treatment options.

iii. **Safe disposal of human waste**: several issues were brought forward on the issue of safe disposal of human waste especially during crisis. This is especially significant because they are part of the causative factors for many of the WASH crisis. These include the type of technologies being utilized, the quality of infrastructure being put up and the adequacy of the available facilities.

iv. **Proper hygiene practice**: proper food handling by vendors, for instance the Chief Public Health Officer cited that single males as a key but ignored vulnerable group due to their eating patterns and risk of exposure from food vendors; household handwashing; and point of use water treatment during critical times were highlighted as key areas that need to be addressed in view of the role they have in disease spread during WASH crisis.

There was a lack of significant understanding of the critical markets within these vulnerable areas as well as lack of consensus at the city level on how to deliver the right humanitarian responses. This was particularly pertinent when identifying the reluctance of key stakeholders of free borehole programmes and distribution of free NFIs due to the risk of such short-term responses undermining the long-term market demand of WASH goods and services.

While these critical issues span wide across the WASH portfolio, it was deemed of importance that the PCMA process start broad in order to understand the complex urban WASH environment in which the outbreaks were regularly occurring. Fieldwork conducted focused on establishing a baseline understanding of the WASH systems, users and market actors in order to better determine the critical markets within these systems to be working with the understanding that once potential markets for

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

17

intervention were collectively agreed, they further research could be conducted to support the design of programmes as required.

2.5   Defining the target population

Unfortunately, there were neither household economic assessments (HEA) nor vulnerability risk analyses (VRA) on which to build assumptions upon for targeting particular vulnerable groups at risk of waterborne disease in the target areas.

The scoping phase helped identify key vulnerable groups for targeting during the fieldwork through key informant interviews and focus group discussions. Key groups targeted were: church groups, single men, and women.

Efforts were undertaken to develop a data collection approach that would help identify key household demographic and economic data to determine household purchasing power, coping mechanisms and vulnerabilities in key informant interviews. In the absence of a HEA, ZIMSTAT's Poverty Index (ZIMSTAT, 2016) was utilised to assess household socio-economic grouping in the different target areas. ZIMSTAT have a baseline – the Total Consumption Poverty Level (TCPL) – which is the minimum income level per month that a person or household needs to meet basic living standards. The TCPL per person per month for Harare is $95.38 which for the average household of 5 people rounds off to approximately $480.

Upon pre-testing the survey prior to its use, it was evident that all of the target locations consisted of households that were living well below the TCPL. This did not mean that people could not meet their WASH needs but that a different segmentation of these households was needed in order to, at minimum, understand basic income levels of households. During the questioning people were asked a series of demographic and economic questions related to their households. Key economic indicators were:

- **Household income**: grouped at less than $100 per month; between $100 - $250 per month; between $250 to $500 per month; greater than $500 with the assumption that those in the latter group would meet the TCPL baseline criteria

- **Household source of income:** informal, formal and unemployed or dependent household occupants**.** This also included establishing household **income dependency on international remittances**. This was included as those households receiving international remittances are highly vulnerable to economic crisis as lack of currency in banks would remove this income stream from households before other forms of in-country cash flow. Those households dependent on this rather than domestic income could likely be first to experience economic hardship with limited coping mechanisms to substitute their loss of income (Whitehouse, 2016)

- **Household credit and saving facilities:** in order to understand household disposable income levels

- **Household tenure status:** in order to understand minimum household outgoings monthly, the table below gives an indication of the cost of living associated with housing and utilities according to a 2011 assessment on urban areas in Zimbabwe (Mercy Corp, 2011)

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

18

Table 3: Cost of Living Associated with Housing and Utilities

Tenure Status	Average Rent (USD$)	Average Council Bills (USD$)	Average Electricity Bills (USD$)	Total (USD$)
Private Tenants	60	17	26	103
Council Tenants	47	19	26	92
Homeowners	0	21	31	52

The tenure outgoings vary from location and can be used as a baseline to understand household outgoing. It is evident that people renting that are earning less than $100 per month will struggle to meet their basic household needs due to the additional cost of rent on top of other living expenses. As such, calculating the percentage of population with household income less than $100 per month and renting will help us understand which groups are the most economically vulnerable as they have in fact less disposable income. This PCMA is not intended to be an extensive household economic assessment but this calculation should provide a crude measure of vulnerability targeting for the purpose of this exercise.

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

19

Table 4: Calculating Vulnerable Population from target areas

*Extrapolated from number of respondents in PCMA 2016

Location	Total Popn	Av. HH Size	City Level		% meetingTCPL from PCMA*	% < TCPL	Suburb Level			
			TCPL/ person Harare	TCPL for HH in Harare			Popn < TCPL	% popn < $100 Income*	# popn < $100 Income*	#popn < $100 who are renting (%total suburb popn)*
Stoneridge	30,000	5	$95.38	$476.90	0%	100%	30,000	60%	18,000	3,300 (11%)
Hopely	123,930	6	$95.38	$572.28	5%	95%	117,734	56%	69,401	27,265 (22%)
Mabvuku-Tafara-Caledonia	114,000	5	$95.38	$476.90	3%	97%	110490	42%	47,350	15,481 (14%)
Dzivara-sekwa	69,230	6	$95.38	$572.28	5%	95%	65,769	42%	29,077	2,077 (3%)
Kuwad-zana	176,693	5	$95.38	$476.90	8%	92%	162,558	19%	33,572	3,534 (2%)
Total	**513,853**						**486,550**		**197,399 (38%)**	**51,657 (10%)**
							Poor = 289,151		**Very Poor = 145,742**	**Ultra Poor = 51,657**

SECTION 3: MARKET ANALYSIS METHODOLOGY

3.1   Objective

As discussed previously, prior to narrowing on critical markets we first needed to do get a better understanding of the WASH systems in the target locations and users within them. As such the field data collection exercises were developed to gather a broad view of the WASH systems and user knowledge, attitudes and preferences with regards to WASH and their reactions and needs in a waterborne disease outbreak. This broad view would aid the identification of critical WASH markets that needed to be supported to prevent or mitigate any waterborne disease outbreak.

Instead the report will present a summary of the WASH needs and market functionality in the target locations in the different scenarios; user knowledge, attitudes and preferences in the different scenarios; identify the critical markets; and propose high-level emergency preparedness, response and resilience programming. Upon the shortlisting and agreement of the programming, a more thorough analysis of the critical markets and any missing data requirements will be conducted to design the programmes accordingly.

Building on the critical issues identified during the scoping phase, the following key analytical questions were used to guide the methodology adopted for the assessment:

   i.   What are the household knowledge, attitudes and practices within the target population with regards to water supply, sanitation and hygiene in both crisis and non-crisis periods (later adapted to reference scenarios)?

   ii. What are the constraints if any affecting the accessibility, affordability and quality of WASH goods and services in both crisis and non-crisis periods (later adapted to reference scenarios)?

   iii. What is the capacity of the market systems to cover the needs and diversity of needs of the population and people's access to these goods and services during crisis and non-crisis periods (later adapted to reference scenarios)?

   iv. How can market systems be used to facilitate access to the critical WASH goods and services during crisis and non-crisis periods (later adapted to reference scenarios)?

   v.   What are the possible direct/indirect market response opportunities to address identified household behaviours and/or market constraints inhibiting the provision of critical WASH goods and services to the target populations in both crisis and non-crisis periods (later adapted to reference scenarios)?

3.2   Data Collection Methodology

A combination of tools and data collection techniques were utilised to gather a comprehensive set of data points to understand water, sanitation and hygiene infrastructure and practices in the area. Based on learnings from previous PCMAs, including those recently undertaken in Jakarta, Indonesia as part of the OFDA/USAID funded global programme, the tools selected were adapted to address key

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

21

challenges that had arisen previously in PCMAs and to address data gap concerns amongst the humanitarian community. These were mainly:

- **Preparation of data collection methodology, questionnaires and sampling strategy prior to the fieldwork in order to secure good quality data** – *using the 10-day process, whilst for simple WASH contexts may be suitable, in large, complex urban environments where results will be highly scrutinised, best practice data techniques need sufficient time to be set up to meet analytical and stakeholder standard requirements*

- **Creating sufficient time to familiarise enumerators with data collection tools and analysis techniques prior to fieldwork in order to secure good quality data** – *often enumerators are given less than a day (if that) to familiarise themselves with the rapidly constructed questionnaires which inhibit the quality of the surveys conducted. PCMA training was conducted the week prior to the fieldwork in order to maintain 'fresh' understanding of the surveys and objective of the fieldwork within the teams.*

- **Appropriate use of IT tools to speed up analysis and secure data collection without inhibiting data quality** – *previously data in handwritten notes has been lost in hastily bought together teams without good data collection practises and ability to rapidly collate and analyse vast data sets. An IT tool allows for more robust data collection; it can be updated daily if the right hardware/software utilised to reflect growing learning; and it can support rapid analysis of large data sets increasing the ability to understand larger sample sets in the short fieldwork time.*

- **Gathering the user perspective and identification of vulnerable groups** – *traditionally the user perspective had been addressed but with a very small number of interviews and subsequent assumptions that did not necessarily adequately reflect different user segments nor behaviour analysis.*

- **Developing a data validation methodology that would allow a mix of stakeholder views and groups for comparison from group and individual interview settings** – *previously many of the interviews, due to the rapid nature of the PCMA, were done through focus groups only. This could lead to a bias in data collected.*

- **Identifying opportunities to combine and consolidate various WASH assessment tools** – *WASH capacity assessments, KAP analyses, market assessments, gender assessments and so on mean that communities often get bombarded with multiple assessments that have crossover themes. By finding a way to merge them would reduce the burden on the community as well as improve the efficiency of resources.*

- **Defining a rapid analysis technique** – *developing a technique in which to rapidly assess multiple qualitative and quantitative data sets from different stakeholder groups in order to summarise outputs and potential recommendations. The challenge of analysing large, mixed data sets is often what reduces ambitious data collection methodologies.*

3.3   Targeting and Data Analysis

The table below highlights the approach used to garner information based on the key analytical questions:

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

22

Table 5: Key Analytical Questions for PCMA

	Analytical Area	Sources of Information	Approaches
1.	**Household knowledge, attitudes and practices on key WASH issues**	Households, community groups,	Household interviews, focus group discussions
2.	**Constraints on access, affordability and quality of WASH goods and services**	Households, Community groups	Household interviews, Focus group discussions
3.	**Capacity of market systems to meet population needs of WASH goods and services**	Retailers and service providers	Key informant interviews
4.	**Enabling market systems**	Local authorities , Service providers	Key Informant interviews
5.	**Market response opportunities**	Community groups, Local authorities	Focus group discussions, Key Informant interviews

Three key data collection techniques were used to generate data sets required to answer the key analytical questions. For each technique, questionnaires were tailored to meet the data collection requirements from specific stakeholder groups and specific enumerators trained on the different questionnaires and tools for each technique. This was in a bid to enhance data quality and speed of data collection. The tools developed were a combination of rapid WASH needs assessment, KAP analysis and market system analysis questions for water, sanitation and hygiene. The tools had been field tested during the previous Oxfam assessments to ensure functionality and included a combination of IT and manual data collection tools. Each enumerator was also given the opportunity prior to and during fieldwork to critique the tools if changes/improvements needed to be made in order to ensure we could gather the right data.

a) GIS Mapping (in conjunction with Medecins Sans Frontieres Belgium (MSF-B)):

- One of the major concerns noted for Harare is that there are no up-to-date systematic views of the existing water, sanitation and hygiene infrastructure making it difficult for WASH actors to plan and coordinate for improving existing infrastructure or preparing to mitigate the risks of crises relating to WASH. One of the activities that Oxfam wanted to undertake as part of this project was to map WASH infrastructure and market actors in the project areas. On engagement with other actors in the sector, it was established MSF-B was in the process of developing a basic GIS map of key WASH data points to complement a borehole upgrade and maintenance project the organisation is carrying out in a number of districts in the city. Their GIS mapping was restricted to mapping boreholes, health centres and community health groups in the MSF-B project working areas. In recognition of the mutual interests of the MSF-B and Oxfam projects, the two organisations came together under a Partnership Agreement to create an accurate and comprehensive map of the WASH system (inclusive of WASH infrastructure, service and good providers) for Harare city and risk profile to priority areas. The objective of the partnership is to amalgamate the efforts and resources to build a robust map faster and more comprehensively together and to reduce duplication of activities and engagement.

- The objective was to capture location, capacity and performance data on specific WASH infrastructure; potential contaminant risks; and WASH hygiene product retailers in the area.

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

23

- This mapping would also allow for collation of a performance baseline for WASH infrastructure and supply; and contingency stock and local WASH goods and service providers database.

- On the background of the work that MSF was already undertaking, Oxfam provided staff to collect field data whilst MSF-B provided the technical input and guidance to the mapping exercise supporting development of the data collection tools; sorting of mapped data; and mapping of data points.

- Each target location could be measured within 1 day using four field enumerators and data gathered could be mapped by a GIS trained officer within 1 days. Over 288 data points were mapped using Android enabled smartphones and tablets with KoboCollect software to build on a database that MSF-B were already collating on local boreholes. Each data point providing overall service provision and performance data in addition to GIS locations. *A separate report on the GIS mapping, key finding and lessons learned from the utilising the tools is available and a sample map is available in the Annex.*

b) Focus group discussions (FGDs)

- The FGDs had designated team leaders including the Markets in WASH Project Manager, Oxfam's Country WASH Coordinator and Food Security and Livelihoods colleagues from Indonesia and Zimbabwe who were familiar with markets assessments. The team leads were accompanied by group members from Oxfam and partner agencies who also took turns in steering the discussions. Nine people were involved in facilitating the FGDs in the first week and four people in the second week of data collection.

- A total of 30 focus group sessions were conducted for women groups, male groups, local authorities, community health clubs, health personnel and religious groups. A total of 169 females and 58 males represented the six areas.

c) Key informant interviews (KII) at households

- The household interviews used a combined WASH/KAP/Markets questionnaire (that was cross checked against individual tools and combined into one) and was designed to be delivered using an Android enable smartphone or tablet using SurveyCTO software and handwritten notes for long, qualitative answers. The questionnaire was refined daily to address faults or need for different questions and new surveys uploaded to the tool. The final version of the questionnaire was created for Stoneridge when data collated from the other five target locations had provided sufficient data sets to allow for inclusion of more set responses to qualitative questions which allowed for more rapid interviews and analysis. Dependent on the respondent and aptitude of the enumerator, the average interview lasted 25-30 minutes.

- 19no and 7no field enumerators conducted household interviews across different areas in the phase 1 and phase 2 of data collection respectively to gather a representative picture of issues. A total of 572 households were interviewed (450 female and 132 male respondents).

The PCMA was not structured as a research study involving statistical sampling of target populations. Instead as a guideline, a minimum number of 100 community stakeholders were expected to be engaged in each of the locations during the field work to serve as a representation of the rest of the population. Enumerators were positioned within the communities to assess different areas within districts in order to understand any commonalities and differences across the district. In addition,

enumerators were asked to sample every 3rd household. A total of 799 people were formally interviewed during the assessment. During the mapping process, an additional 480 people were formally interviewed.

PCMA Training

The week prior to the fieldwork, PCMA training was performed in two stages to meet different objectives and trainee requirements. The first was a strategy focused 1-day training programme with decision-makers or leadership teams and enumerators or field level practitioners to create an baseline understanding of the strategic importance of PCMA; generate buy-in at leadership levels; and create a common language between leadership and field teams. The second 3-day training was with field practitioners to explain activities to be undertaken to perform basic market analysis and familiarise them with the tools to be used. The second training was a pre-cursor to the fieldwork with the expectation that all attendees to the second training would only complete that training level by also conducting the fieldwork and analysis exercises.

The attendees to both training events were multi-sector and multi-functional in a bid to reduce the siloed nature that PCMAs are currently conducted in. Multi-disciplinary teams are valuable to market analysis (where market questions can be adapted to different sectors) as different perspectives can be lent to addressing different issues; operational challenges can be addressed in programme design early on by building multi-disciplinary teams; and the capacity of teams can be built up quickly if there is confidence to perform such assessment with groups from different specialisms rather than rely solely on teams to be generated from one specialism.

For more information on the PCMA training approach a supplementary overview and review of the training can be provided upon request.

3.4   Data Analysis

The data analysis was undertaken at various levels. Each enumerator team was split into groups (dependent on technique utilised) to summarise the learnings and issues of the day which were fed back to team leads who then fed this to the project manager. Any changes to techniques, logistics, IT tools etc were discussed with the team leads and change effected as required. The IT manager collected all IT devices daily, charged and updated them as required. At the end of the data collection within each locality, the household interview data was collated into excel and analysed to summarise learnings and identify any data gaps or discrepancies. This activity would take 1 to 1.5 days per locality with one good analyst.

At the end of the fieldwork, the GIS, FGD and household KII teams were bought together to collectively analyse the data collected by location. Using a rapid analysis technique based on human-centred design approaches for numerous data sets, the teams were asked to individually summarise their findings on each section of questioning according to the tools and people they spoke to. These findings were then grouped into themes. These themes were then discussed collectively as a group to validate and scrutinise according to different perspectives from the different stakeholder groups as well as the excel data sets previously analysed from the households. This time was also used to address any discrepancies or confusion with data sets with enumerators. Generally, for each locality this process would take two hours with the team and a good facilitator.

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

25

SECTION 4:   KEY FINDINGS– COMPARATIVE ANALYSIS OF WASH AT THE CITY-LEVEL

The simultaneous assessment of six different locations across Harare allowed us to understand WASH market system opportunities and challenges with regards to prevention and responding to waterborne disease outbreak and the similarities and differences in each locality of Harare. These differentiators are important to understand because, in some cases, current response strategies may not actually be appropriate in certain localities due to the WASH system and profiles of the crisis-affected populations in the area.

This summary report seeks to pull together a city-level view of the WASH system based on the assessment, drawing out key commonalities and differences in the localities and how this would affect preparedness, response and resilience programming. A second part to this report provides area-specific detail for district administrators and organisations seeking more detail for the specific areas in which they work.

4.1   WASH Environment

This is a summary of the major influencers in the WASH environment from a policy, regulatory, economic or social perspective that may play a major influencing role in the accessibility, affordability and quality of WASH goods and services to the target localities. Noting again that these are macro-level considerations for the WASH system as a whole across the poorer suburbs of Harare and more specific factors may be revealed for specific critical markets or localities.

Urban Planning & Resettlement Issues

Unplanned settlements and evictions have led to areas being underserved by the municipality which serve as hotspots for waterborne disease outbreaks

Some of the suburbs surveyed are older in terms of when they were established such as Mabvuku-Tafara and Dzivarasekwa which served as residential areas for large farms in the vicinities. Others developed as off-shoots of existing areas expanding especially with the increased rural to urban migration as people look for employment in urban areas. These include Hopely and Caledonia. Efforts by the government in previous years through resettlement operations such as Operation Murambatsivina (where people settled in unplanned locations would be evicted and sent back to the rural areas or resettled in other settlements) have not been successful. Indeed, the forced resettlements have created in themselves, additional pressure as communities keep moving to other areas due to the unpredictability of their tenure permanency or contribute to overcrowding of suburbs where housing development cannot keep up with the pace of migration. This has been seen in Stoneridge, a former community living on farmland that has been inundated by 15,000 internally displaced people where a failure to provide adequate new infrastructure to accommodate the influx of IDPs led to a waterborne disease outbreak in 2016.

In an attempt to manage housing issues, the city has worked with various institutions including various Housing cooperatives and Urban Development Cooperation (UDCORP) especially in the peri-urban areas. These cooperatives are allocated land through state and local authorities on condition that they

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

26

service the land by building housing and linking them to the necessary amenity services (DFID, 2015). While some housing cooperatives like Nehanda in Dzivarasekwa are celebrated as success stories, many of these still face challenges in the provision of water, sanitation and road infrastructure (Chirisa, Gaza, & Bandauko, 2014) While there is recognition of the potential that these cooperatives can and are playing in improving Tenureship in peri-urban areas, politicization and claims of corruption is putting their credibility at stake. NGOs such as Dialogue on Shelter are also involved in supporting infrastructure development in these unserviced informal settlements by building the capacity of the communities on various financing mechanisms that they can adopt to facilitate their infrastructure development. In collaboration with The Bill and Melinda Gates Foundation, Dialogue on Shelter is engaging with City of Harare in developing and upgrading slums (DFID, 2015).

Planning Law Enforcement

Without a viable alternative for supplementing the lack of adequate WASH infrastructure in under-served communities, enforcement of safety standards for wells and toilets is likely to be overlooked

With increasing overcrowding, lack of urban planning, and a need for households to build their own WASH infrastructure to meet their needs, there is a lack of enforcement for safety standards regarding structural quality and location of wells and toilets. With lack of an alternative, households are developing their own coping infrastructure but putting themselves at risk. Local authorities, aware of the issues, are in a 'catch 22' with a lack of viable alternatives to support the WASH gaps causing this in the community. With this however does come an opportunity to work within communities to educate on the needs for such standards to be adhered to and to support contracting of adequate suppliers or training of households for building work. In Stoneridge, for example, IDPs had given up waiting for the Housing Cooperatives to build them shelters and had started to create their own brick moulding and building businesses to build the housing, wells and toilets needed to live adequately in the area. Their resilience should be commended not condemned and supported in order to reduce the risk they are creating for themselves and those around them in building structures below a safety standard.

Technology by-laws

By-laws associated with out-of-date standards for the context, as well as a high expectation within the general public for well-governed, high standard water and sanitation services, are inhibiting progressive discussion on how to address a number of the WASH challenges currently experienced.

Historically, Harare has been used to receiving high standard centralised water and sewerage service infrastructure akin to the quality expected in developed countries. As such policy and regulation (including strict technology by-laws) were developed in terms of governing to this water and sanitation standard. These days, due to economic and development challenges, what was once a standard that could be adhered to and appropriate for the local population is insufficient. New, diversified technologies are required to meet the growing population needs and fill the gaps in the aging and limited centralised water and sanitation infrastructure.

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

27

Non-Revenue Water & Humanitarian Responses

Boreholes drilled by the UN and NGOs have been blamed for creating an unwillingness to pay for access to clean water and a deterioration of the water supply systems because of reduced revenues in being able to maintain them creating a stalemate between humanitarian entities and utilities

One of the major issues during the 2008/9 cholera outbreak was attributed to the inadequate safe water supply from the mains in Harare. At the time of there was a high risk of secondary contamination from aging distribution networks and a concern that municipal water was not being treated sufficiently to meet WHO total residual chlorine standards. This coupled with bursting sewers increasing contamination risks led to a decision by the UN and NGOs to drill boreholes to augment access to safe water supply in the areas mostly impacted by the cholera outbreak in addition to free distribution of various water treatment chemicals so that they could treat their water at the point of use.

Over 167 boreholes in Harare during this period including the 5 PCMA project areas. Interviews with the lead engineers from Harare water department indicate that the issue of drilling boreholes in urban areas was met with a lot of resistance from the utilities, mostly because this level of service was linked more with rural areas as it was expected that all urban households would be connected to piped water. It was also not clear whose responsibility it would be to facilitate the operation and maintenance of this new water infrastructure post-emergency. While several organizations made efforts to train Water Point Committees (WPC), a system that has been used widely in the rural areas as part of the Community Based Management model, many of these WPCs did not last for long after the handover of the facilities. Similarly, UNICEF and other WASH partners advocated and trained plumbers and technicians within Harare Water to facilitate the maintenance of these boreholes including equipping various Harare Water offices with spare parts and repair kits but lack of ownership of maintenance still prevails. The lack of clarity on this issue has resulted in most of the boreholes developed during the cholera outbreak breaking down and, as of March 2016, only 93 of the 167 (55%) boreholes developed were fully functional despite the fact that they now dominate as the primary source of water for most localities in which they exist (Harare City Council City Health Department , 2016).

During the PCMA fieldwork, it was interesting also, to get varied opinions on the issue of maintenance of these water facilities. In some districts such as Mabvuku-Tafara, the Harare water district office, in view of the challenges with access to the main water supply has taken an active role in ensuring the operation of these water facilities and there is a dedicated team, even though limited by resources including spares, that responds to reports of break downs even for the boreholes. On the other hand, in places like Dzivarasekwa, this was not necessarily the case. The role of operation and maintenance is left to the communities who, where organized, pull together resources to facilitate repair of broken down boreholes. A key issue cited by Harare Water officials is that the boreholes are serving as a disincentive for households to pay their water bills, as they have alternative water options. For the resource strapped utility, this further relegates on much needed resources to continue supply and if at all, facilitate additional supply. With the boreholes providing water for free, some Harare Water counterparts see no need to facilitate their repair as they are not a revenue generation option for them and indeed are creating a bigger resource gap for them.

This stalemate has resulted in a situation that unfortunately perpetuates the chronic water supply issues especially in the high density suburbs. The Harare Water and Sewerage department views the boreholes as undermining them both in terms of the financing for the operation of the main water supply system and serving as a disincentive for households to pay their bills as they have other free options. On the other hand, communities, due to the inadequate water supply or quality from the mains are not willing anymore to pay for poor quality services.

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

28

Economic Issues

Economic instability not only lowers household purchasing power but also erodes the purchasing power and functionality of the majority of WASH actors in supplying vital WASH goods and services leading to a total collapse of WASH system

For further detail see explanation in section 3.2 defining the reference crisis and target locations.

4.2   WASH System Maps

Given we are focusing initially on the WASH system as a whole in order to identify the critical markets supplying water to residents and the opportunities to strengthen, utilize or do no further harm to the market in our interventions, this map is very busy. It represents the major market actors and infrastructure across the target areas for water supply. It shows scenario A (dry season, stable economic environment) only with section 5.4 presenting the changes to the system in the alternative scenarios. Due to the complexity of the diagram, specific metrics for the providers have not been shown in the diagram. The map amalgamates the WASH markets systems across the six surveyed area to show a high level view of the market system and city wide opportunities and constraints. A gap analysis later provides more detail of suburb specific WASH systems and performance in section 5.8 and individual suburb reports have been made for local authorities which can be made available upon request.

There is not a specific section to discuss each market actor in detail as it will repeat previous material created. Details on key influencing stakeholders and their roles can be found in the *Scoping Report* supplement and a database of key market actors outlined in this report (at city and suburb level) can be provided upon request.

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

29

4.2.1 Water Supply

City-wide, there were very few decentralised water service providers such as water carts or bottled water creating a reliance on the poorly functioning centralised municipal infrastructure or informal and inadequately maintained groundwater sources for provision of water

The figure below gives an indication of the water supply system in Harare.
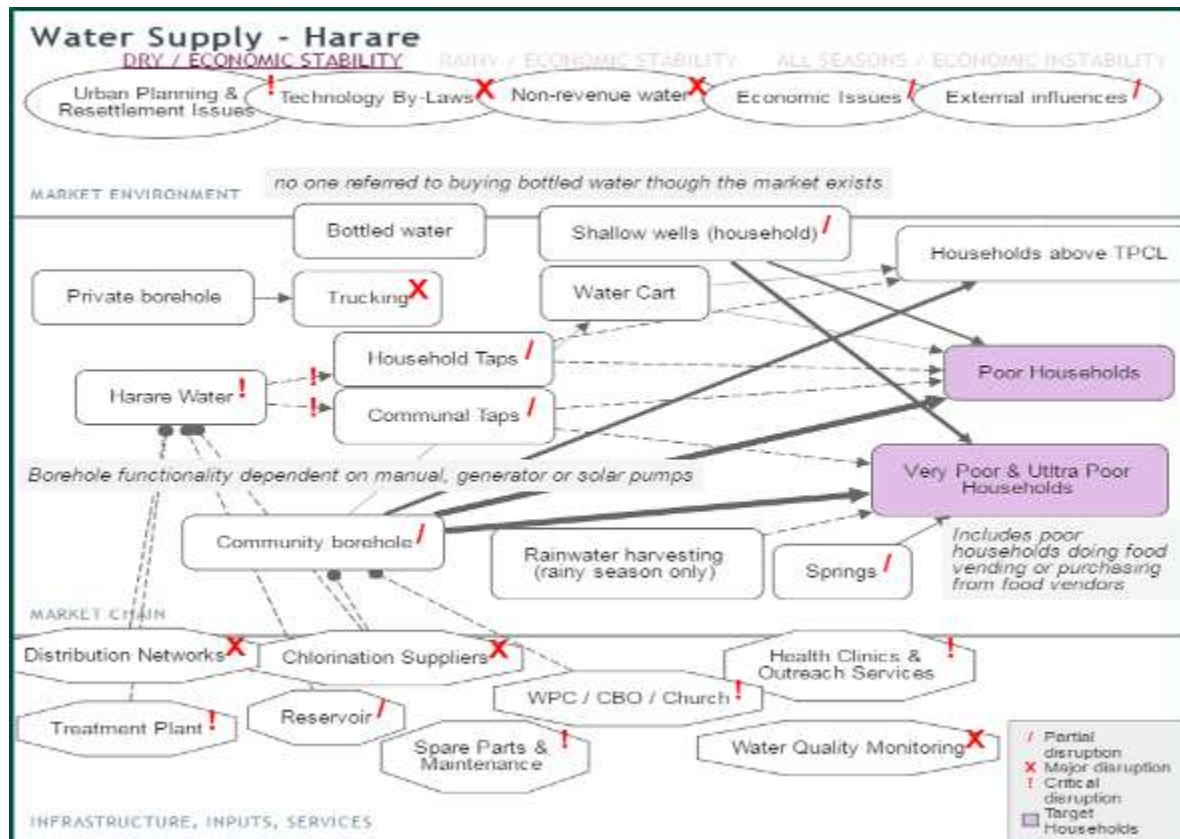
Note that 'disruption' here refers to either a supply, quality or affordability issue and is articulated in the narrative below.

Figure 4: Water Supply Market Map for Poorer Suburbs of Harare

Demand for clean water has outstripped the capacity of the local utility companies meaning that people either pay for dilapidated municipal infrastructure but do not trust its quality or reliability

A big issue relating to the high density suburbs is the settlement of populations in locations which have not yet been 'serviced' meaning where the necessary amenities such as water supply and sanitation systems that are linked to the centrally managed infrastructure have not yet been put in place to serve the population. It has been a big bone of contention for utility service providers such as the Harare Water and Sewerage department which is battling with both inadequate resources and an ever increasing population demand on the existing water and sanitation system.

Only those people connected to municipal sources differentiate their drinking water and non-drinking water sources

Those without municipal water, unless they have access to rivers, use groundwater sources as their primary water source for all water needs. Those with access to municipal water will use it for non-

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

30

drinking purposes but will, in most cases, utilise groundwater sources for drinking water because they do not trust the quality of municipal water. From the PCMA, an average of only 8% of the population in the six target areas use water from the municipality, and of these, 39% shared that the water is not safe. Many people were concerned of green matter coming from their municipal water supplies. This is likely a source copper oxide, common with high pressure water eroded copper distribution pipes though this is yet to be confirmed by Harare Water.

Boreholes and shallow wells are now the primary source of drinking water and are perceived as safe despite recent surveys showing 55% of boreholes across the city were not functional
414 of the517 (80%) respondents use either boreholes or shallow wells as their primary source of water with 80% of those using boreholes considering them safe to drink without treatment and 59% of those using shallow wells considering them safe to drink without treatment.
Of the boreholes surveyed during the PCMA, approximately 76% were experiencing some sort of challenges accessing water including water shortages, rationing and long queues due to groundwater depletions or technical issues with pumps. Many residents were turning to shallow wells to meet the gap in water supply from boreholes although in places these were also dry.

Boreholes that had been installed with in-line chlorine dispensers had never, since they had been drilled, had their chlorine replaced but will still perceived as safe water sources by the community. The maintenance programmes are supposed to be managed and funded by the Water Point Committees (CBOs or churches) did not appear to be functioning, with a number of residents saying that they only paid for access to boreholes if there was a breakdown, rather than providing a continuous maintenance fee. There was also concern raised over where funds were spent with some residents refusing to pay due to corruption fears.

Water quality and health monitoring is not regularly performed in all target areas which maintains perception of groundwater sources being clean and reduces the ability to activate preparedness/prevention activities in contamination hotspots. Even when water quality tests are undertaken, little remedial action is taken as there are few options really that can be offered to the communities. Lack of resources compound this action both on the part of ability to comprehensively undertake water quality monitoring and also ability to be able to take action and offer safer water options where quality is found wanting.

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

31

4.2.2   Sanitation

In most of the target areas, there a virtually no decentralised sanitation service provision and a personal requirement to manage sanitation access with little support from other service providers if centralised sewer networks are unavailable or unaffordable in the locality

The figure below shows the sanitation market system in Harare.
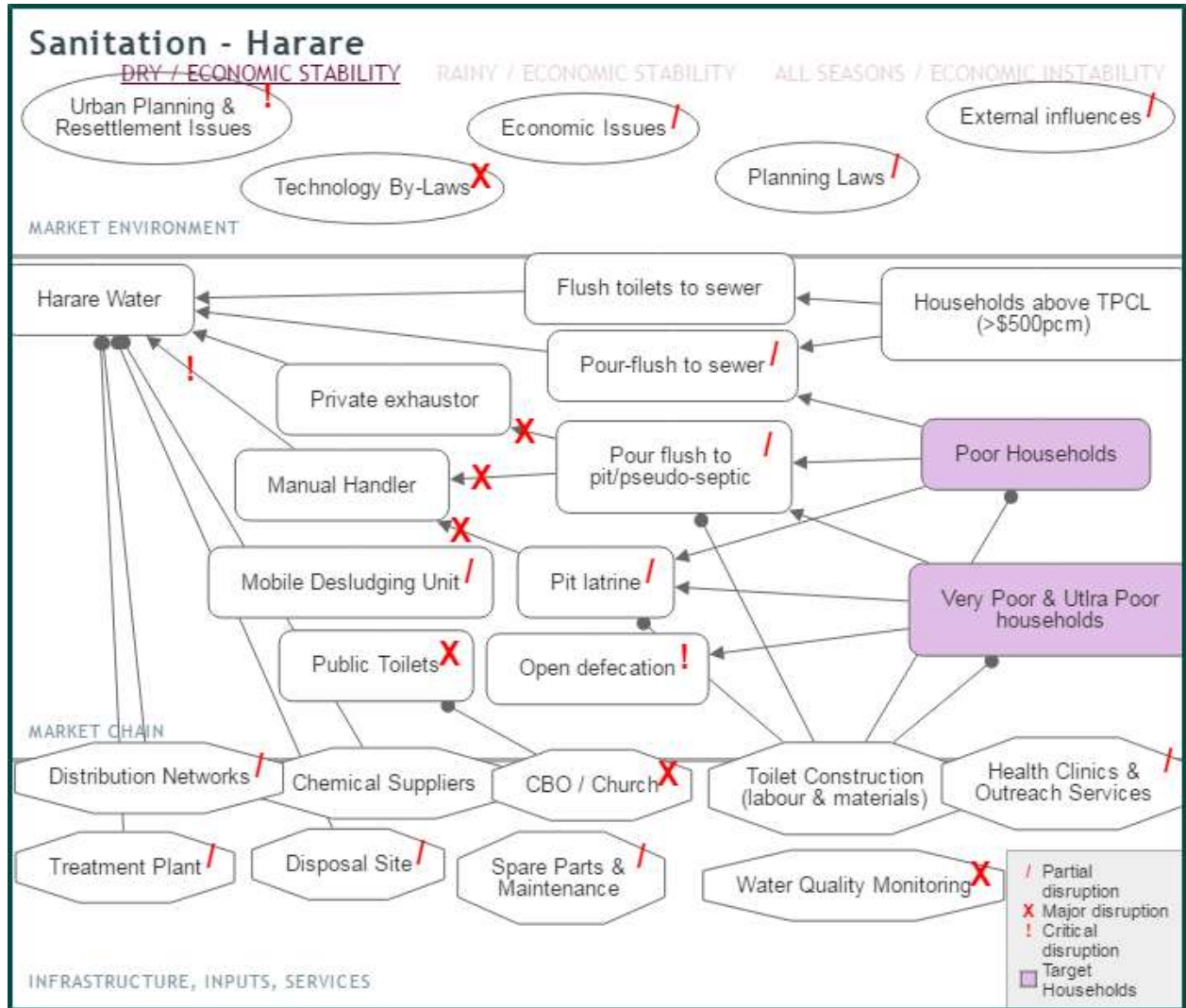
Note that 'disruption' here refers to either a supply, quality or affordability issue and is articulated in the narrative below.

Figure 5: Sanitation Market Map for Poorer Suburbs of Harare

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

32

Where the municipality cannot provide adequate toilet or sewer services to residents, households have opted to build their own toilets often with sub-standard storage facilities and many in close proximity to water sources
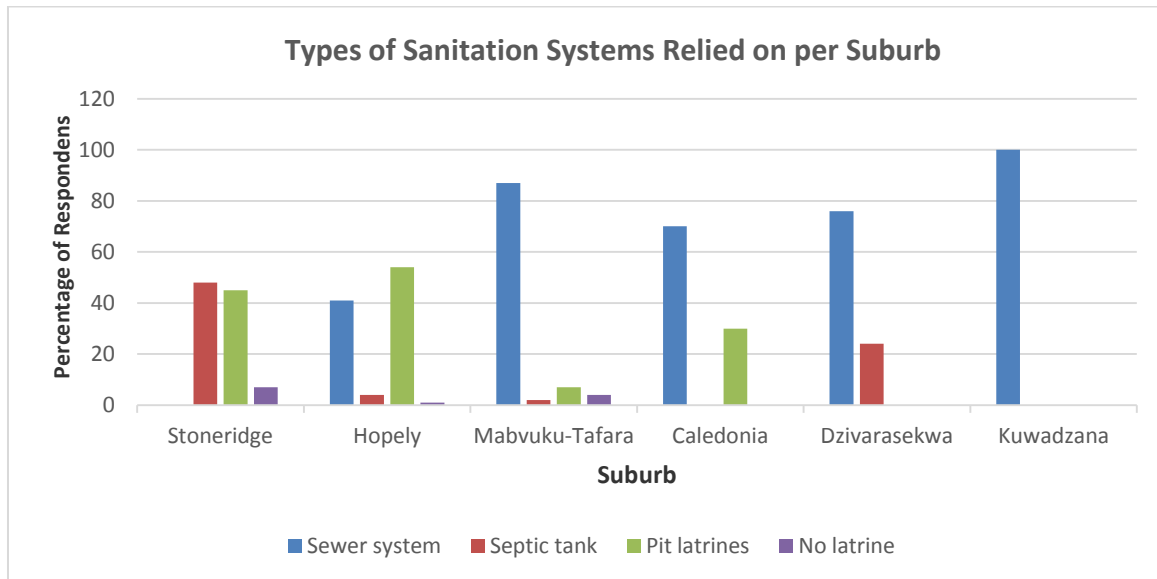

Figure 6: Type of Sanitation Systems Relied on in the Target Areas

Most households with pit or modified-septic tanks prefer to build new ones due to the cost of emptying or using a manual emptier creating unprotected pits of faecal matter in the community that are a major contamination risk in all seasons

The private exhausters struggle to empty dry pits as well as access poorer communities due to the poor road networks. Mobile desludging units are designed to address this issue but are as yet not approved for use in Harare. In the dry season, as borehole rationing increases, people default to using shallow wells which are often located on household plots and are in close proximity to household toilets. As pits are unlined and unemptied, contamination with the groundwater can still occur and as such we can see outbreaks not just in the rainy season but in dry season too. The pictures below show some of the variations of modified -septic tanks constructed by households in these suburbs.

Figure 7: Two Cabin toilet under construction in Stoneridge (Picture by Mark Harper, Welthungerhilfe)

There is little evidence of sustained solid waste collection across all localities which, in the rainy season, blocks sewers and exposure to faecal waste through overflowing sewerage or poorly disposed sanitary products

Ageing pipes are unable to cope with the increased pressures as is noted by frequent sewer bursts, mostly attributed to blockages due to poor solid waste disposal, lack of water to keep the system flowing and interferences in various areas. 48% of respondents of the GIS mapping complained of sewer blockages with the majority experiencing blocking every month (Oxfam PCMA, 2016).

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

33

Another concern in some of locations such as Hopely, Caledonia and Stoneridge was poor waste disposal with communities citing poor disposal of diapers as a major concern. In both these locations, they do not receive support in terms of council collection of refuse and most households dig pits for dumping and burning of waste. With diapers not being biodegradable they are not only a sight sore but pose a public health hazard due to the stool and also cause blockages of drains especially during the rainy season. Despite the relative good knowledge on the importance of hygiene and health issues, it was rather contradictory to see practice such as open defecation, indiscriminate waste disposal in some of the locations. Discussions with communities yielded that there is a general apathy towards 'community good', mostly attributed to harsh economic times and increased individualism. The other issue related to this is the general expectation that all issues relating to sanitation management should be facilitated by the government and city council. This includes waste disposal, provision of proper sanitation facilities creating resentment among communities.

Open defecation still exists in all areas surveyed though more so in those areas without a formal sewer system or suffering from water shortages inhibiting flushing of toilets
Although a year round issue for those areas without formal sewerage infrastructure and temporary dwelling (as is the case in Stoneridge), open defecation is therefore more likely during dry season due to water shortages.

4.2.3 Hygiene

On the topic of hygiene, the focus was to predominately validate the findings from a 10-day PCMA in April 2015 that provided a baseline analysis for the soap and Waterguard markets/ The PCMA in 2016 aimed to validate some of the findings from the 2015 PCMA particularly with regards to whether poor purchasing power was the main driver in lack of Waterguard demand. In addition, this PCMA also sought to understand, at a high-level, if other NFIs distributed by NGOs in outbreaks could be sufficiently supported by the market.

City wide, local shops (formal and informal) were more likely to be selling soap, buckets and bleach but not household water treatment products.

The assessment found that there was a fair level of knowledge relating to WASH issues and most importantly, the necessary hygiene related issues that are important in preventing the spread of waterborne diseases although this did not necessarily translate into practice
Approximately 46% of the respondents interviewed had a good understanding on the need for handwashing and seemed to be practicing based on proxy indicators such as designated areas for washing and availability of soap for handwashing. These respondents had a fair understanding of the link between contaminated water, food and diseases such as cholera and typhoid and that if there was an outbreak, would make changes such as stopping sharing food. Public food vending was also a key concern in some of the locations especially Hopely where public food establishments are associated with poor hygiene practice and as such risk areas for disease spread.

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

34
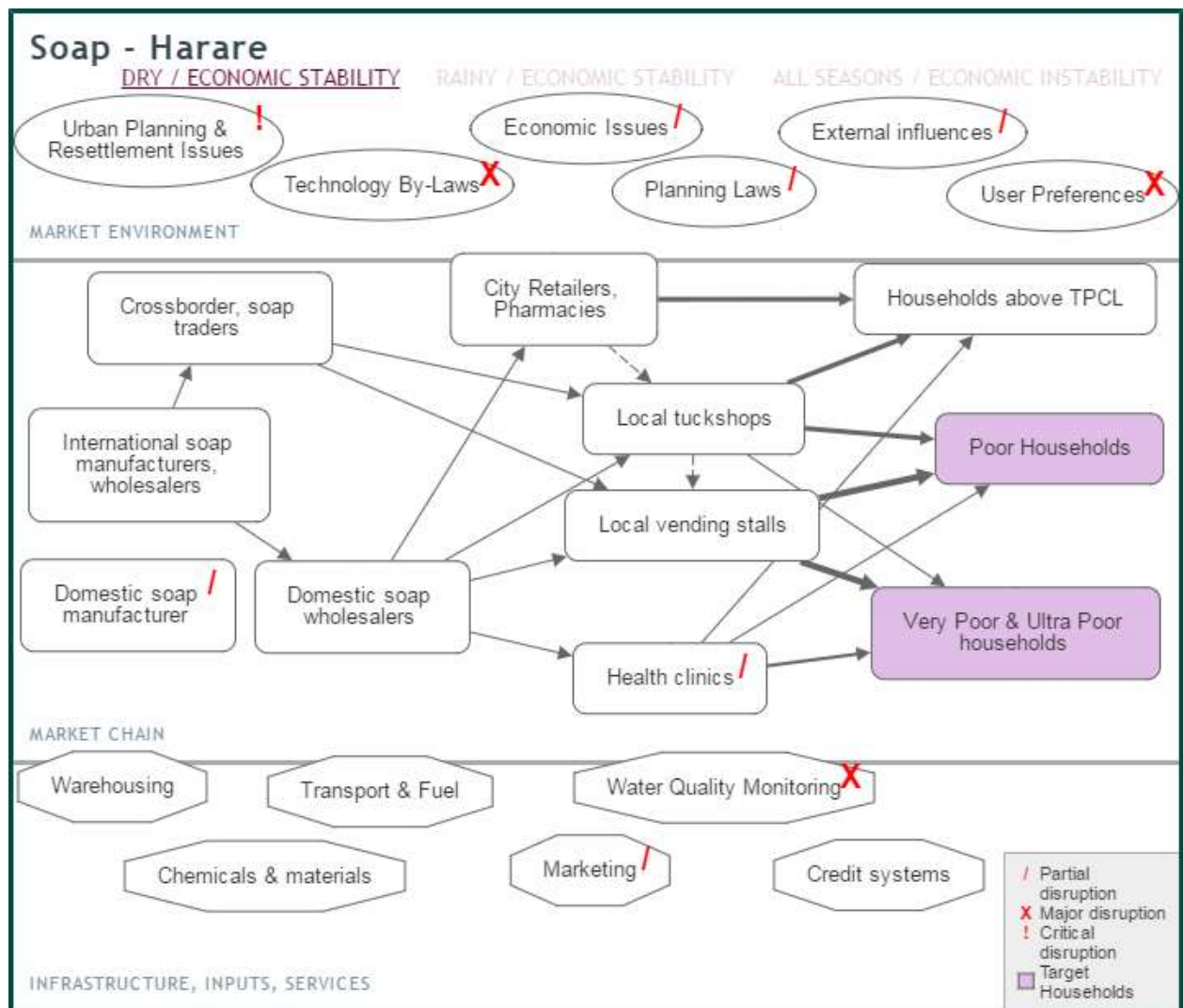
Figure 8: Soap Market Map for Poorer Suburbs of Harare

In terms of recent disease outbreaks in Harare, only 39% knew that there had been a typhoid outbreak in 2016. Those that had heard about the outbreak found out at various times in the year and mostly through radio, family & friends and the health clinic

Despite continuous risk of waterborne disease there seemed to a sporadic approach taken to outbreak communications and further preparedness and prevention in communities.

Soap and Waterguard sales were generally consistent throughout the year with a small peak in demand at the beginning of the rainy season with the market easily able to meet demand.

All the areas have many service providers for soap. Of the service providers interviewed in the respective areas, greater than 70% of vendors/tuckshops in the respective areas supplied soap products. However, for household water treatment and containers the presence of such items dropped to below 15% of vendors/tuckshops across all the areas. The table below gives a detailed breakdown of the number of service providers involved in selling different WASH goods and services in the locations.

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

35
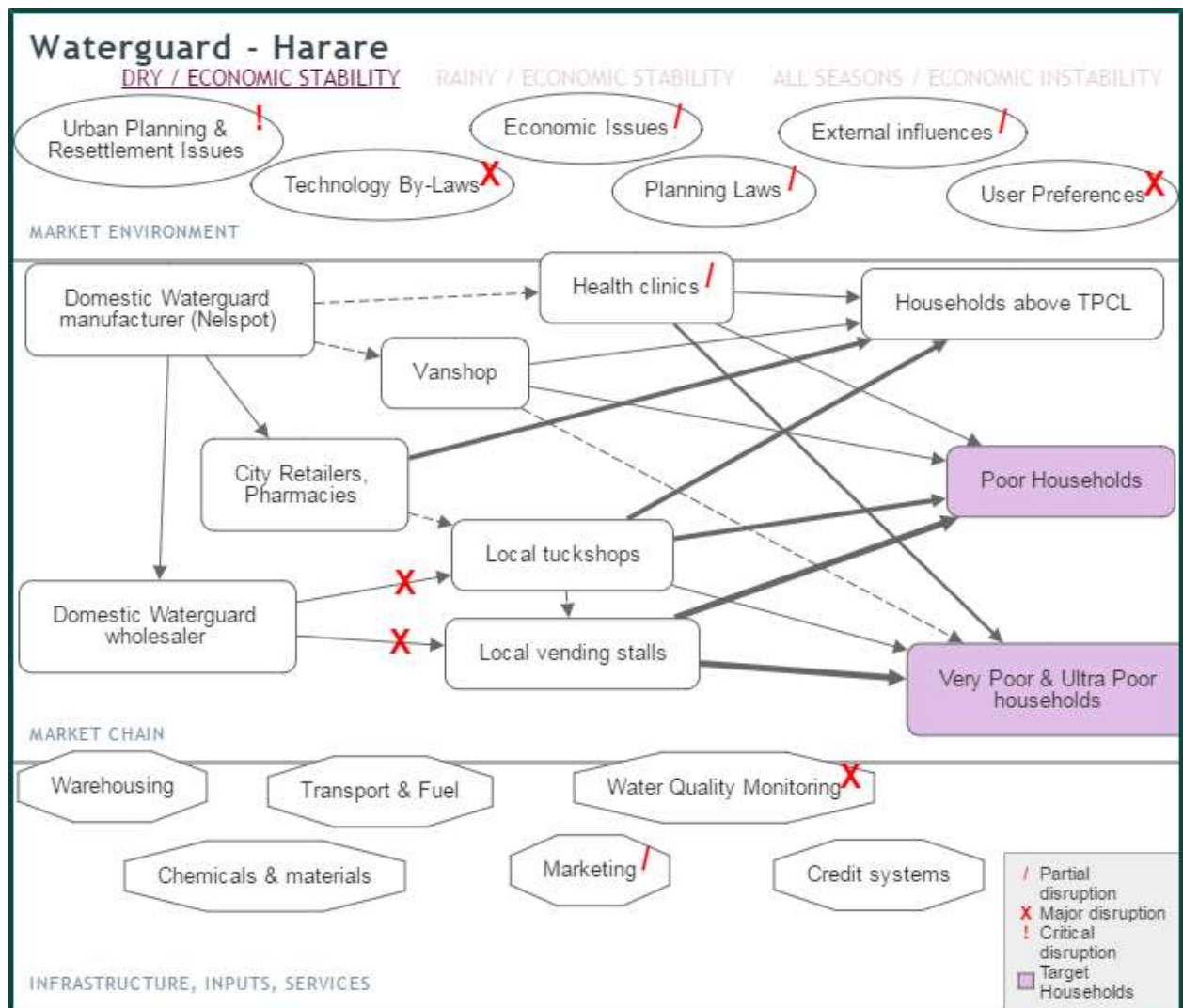
Figure 9: Waterguard Market Map for Poorer Suburbs of Harare

Note that 'disruption' here refers to either a supply, quality or affordability issue and is articulated in the narrative below.

Significantly, the least affluent areas have the cheapest prices for comparative hygiene goods with the price of Waterguard being cheaper than bar soap on a per unit and monthly cost basis 58% of respondents across all the areas use bar soap for handwashing. Out of this, most of them, 64% purchase soap once a month and 32% once a week. Of those 58% using bar soap for handwashing, an average 10% are in the ultra poor category (the category of people that may struggle to afford basic household items based on household purchasing power and expenditures).

Based on the WASH product mapping, assuming highest price, the maximum spend on soap needed to supply an average sized household for one month is 2.5 bar soaps totaling $3.75 per month. However, assuming highest price, the maximum spend on Waterguard needed to supply an average sized household for one month (750 litres approx. according to Sphere Standards) is 1 bottle totaling $1 per month.

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

36

Table 6: WASH goods and services details (adapted from GIS mapping report (Oxfam, 2016))

Suburb	Soap			Containers		POU chemicals		Water cart	Well digger
	Bar	Tablet	Liquid	Buckets (without taps)	Buckets (with taps)	Water guard	Jik		
M, T, C	50	53	8	3	0	3	5	5	1
Hopely	34	30	7	5	1	2	2	2	1
DZ	28	32	12	2	1	2	5	0	0
Kuwadzana	26	35	26	6	0	4	4	0	0
Stoneridge	27	27	27	2	0	0	0	0	0
Total	155	177	80	18	2	11	16	7	2

Household water treatment is nearly a quarter of the monthly price of soap and, theoretically, could be affordable if households already purchase sufficient quantities of soap per month. Although there may be the need to choose between soap or household water treatment, when questioned, people from households noted they would prefer to treat their water by boiling. As such, affordability may not be the key determining factor in lack of demand for water treatment chemicals but a matter of perception on costs or product preferences which is discussed later.
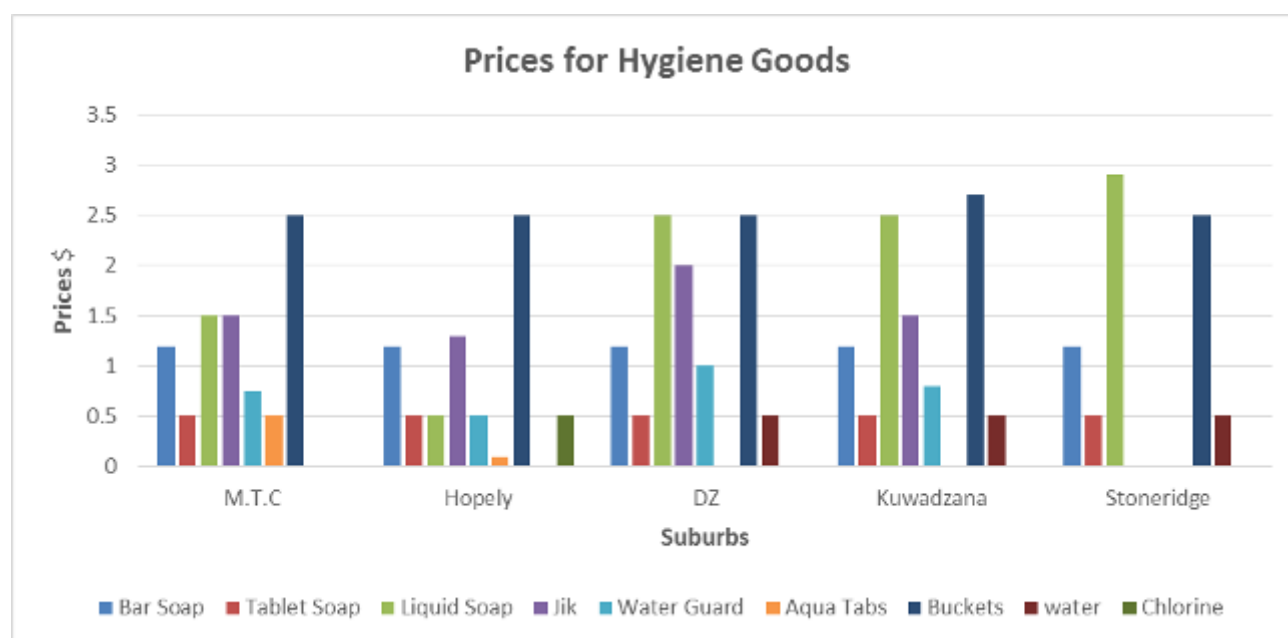

Figure 10: Average prices of WASH goods

Table 7: Range of prices for WASH goods

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

37

Suburb	Bar soap		Tablet soap		Liquid soap		Jik		Water guard		Bucket	
	lowest price ($)	highest price ($)	lowest price ($)	Highest price ($)	lowest price($)	Highest price($)	lowest price($)	Highest price($)	lowest price ($)	Highest price ($)	lowest price ($)	Highest price ($)
MTC	1.00	1.50	0.50	1.00	1.40	2.70	1.50	2.20	0.50	0.72	2.50	3.29
Hopely	1.00	1.20	0.50	1.00	0.50	1.00	1.30	1.30	0.50	0.50	1.50	2.50
DZ	1.00	1.50	0.40	1.00	1.42	2.50	1.50	1.50	0.50	0.80	1.00	3.00
Kuwad-zana	1.00	1.50	0.50	1.00	1.00	2.77	1.20	1.20	1.00	1.00	1.39	2.69
Stone-ridge	1.00	1.00	0.50	1.00	1.80	2.90	Not found	Not found	Not found	Not found	1.50	2.50

A key finding in the engagement with service providers was the lack of variance between the level of supply or demand during crisis and non-crisis periods
It is likely the lack of demand increase is associated with lack of awareness of what to do in an outbreak based on earlier survey results. It is more likely people are unaware there is an outbreak occurring or, in the case one is occurring, that people do not purchase products because they are likely to receive them for free if the outbreak is 'bad enough'. The market could likely expand to meet increased demand but the demand is being reduced by an expectation of free distributions. Household purchasing power could be a factor but given historic demand of items and consumer preferences for the different hygiene products it is unlikely it is the determining factor during periods of relative economic stability.
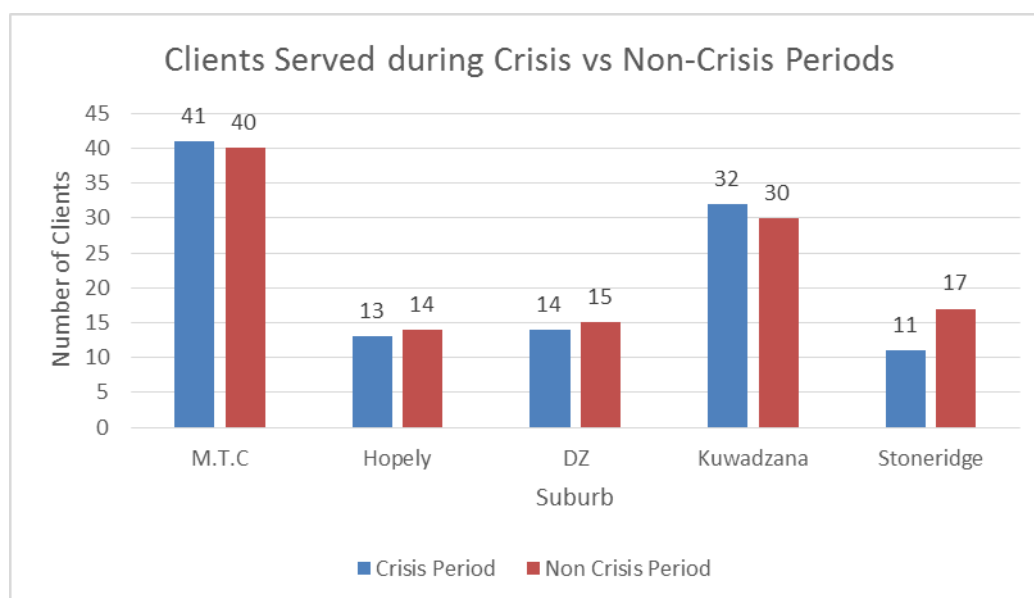
Figure 11: No. of clients served during crisis and non-crisis periods

The figure above shows, based on information shared by the service providers, the variation between the number of clients served per day during crisis and non-crisis periods. Crisis periods were defined as those times when there are disease outbreaks in the localities and specific mention was given to

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

38

recent Typhoid outbreaks in the localities. Only Mabvuku-Tafara-Caledonia and Kuwadzana indicate a slight increase in the average number of clients served during crisis periods.

Despite the continuous risk of waterborne disease outbreak, there is little or no demand for chlorine-based water treatment products locally which is reflected in a lack of supply in local areas. While affordability is a contributing factor to purchase of hygiene products, this assessment found that it was not the determining factor and that indeed, most of the households are able to afford soap and water treatment chemicals if they felt that it was a priority issue.

The issue of household water treatment was found to be multifaceted. On one hand, the assessment found, as was the case with the PCMA carried out in 2015 in Hopely and Mbare (Gachoud, 2016), that many households do not see the need to treat their water as they see groundwater sources such as boreholes and shallow wells safe. On the other hand, free distribution of water treatment chemicals during disease outbreaks has resulted in influencing WASH hygiene behavior as many households only treat water if they are provided with the treatment chemicals free of charge. While discussions with the City Health promotion teams yielded that communities are usually encouraged to buy water treatment chemicals once their supply is finished, there is little demand in local shops indicating that continued purchase post-distribution is not happening.

The research found various reasons as to why people do not use water treatment which included people saying they:

- cannot afford household water treatment
- do not like the taste or smell of it
- do not feel the need for it as they believe the groundwater sources are 'safe enough'
- do not know they need to use it as they have not had to before
- use it only when it is distributed by NGOs or the Government

When community members were asked to share which water treatment option they would resort to in the event of an outbreak, most, 38% of the respondents cited boiling mostly due to it being a cheaper option. There seems to be a general perception of expensiveness of water treatment chemicals however when questioned how much the price of for example Waterguard was, most residents did not even know the price.

Discussions with those selling water treatment chemicals yielded that there is very little demand for the products and as such no incentive for them to stock up on the items. This, as discussed earlier is a possible result of the communities being used to receiving free supplies during disease outbreaks.

4.3   Location Profile Summary

This table summarises key profile characteristics across the different target localities assessed in the fieldwork. There is an attempt here to show the similarities and differences between areas in order to show key indicators that may need to be taken into consideration when implementing emergency preparedness, response and resilience programmes and whether areas with similar profiles outside of the targeted areas could have the similar programmes work within those localities also given their similar demographic, economic and WASH profiles.

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

39

It should be noted that within the areas, the profile characteristics are extrapolated from the data collected from both primary and secondary research for each area and are not statistically representative but offer a 'good enough' view as per the principles of PCMA in order to inform a baseline, high-level analysis to formulate initial critical market identification and opportunities for emergency preparedness, response and resilience programming improvements based on market analysis considerations.

Table 8: Location Profile Summary of Target Areas:

<u>**KEY**</u>

Permanent	Brick house structure
Soap & PoUWT availability	>80% availability in shops sampled = excellent
	50-80% = good;
	>50% = poor;
	> 10% = limited/no supply

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

40

	Stoneridge	Hopely	Caledonia	Mabvuku-Tafara	Dzivarasekwa	Kuwadzana
Demographics & Economics						
Population Size	30,000	123,930	35,000	79,000	69,230	176,693
General	Formal & IDP settlement Peri-urban	Illegal settlement Peri-urban	Formal settlement Peri-urban, hills	Formal settlement Peri-urban, hills	Formal settlement Peri-urban	Formal settlement Peri-urban
Housing Type	>60% permanent	> 60% permanent	> 60% permanent	> 80% permanent	> 90% permanent	100% permanent
Road Quality	Poor, dust	Poor, dust	Poor, dust	50% tarmac	50% tarmac	50% tarmac
Average Household Size	5 (1 child<1yr)	6 (1 child <1yr)	5 (1 child <1yr)	5 (1 child <1yr)	6 (2 children <1yr)	5 (2 children <1yr)
Tenancy	84% homeowners 16% tenants	59% homeowners 41% tenants	74% homeowners 26% tenants	62% homeowners 38% tenants	82% homeowners 18% tenants	60% homeowners 40% tenants
Employment Type	80% informal 20% formal	76% informal 24% formal	67% informal 33% formal	71% informal 28% formal	69% informal 31% formal	59% informal 41% formal
Average Monthly Income	60% <$100pcm	56% < $100 pcm	45% < $100 pcm	40% < $100 pcm	42% < $100 pcm	19% < $100 pcm
Remittances	24%	8%	10%	14%	48%	37%
Area Served by Harare City Council Utility Services						
Last outbreak	2016	2016	2016	2016	2016	2016
Water supply	No	Yes	No	Yes	Yes	Yes
Sewer service	No	Yes	Yes	Yes	Yes	Yes
Waste collection	No	No	No	Yes	Yes	Yes

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

41

Primary Water Source						
Municipal water	N/A	17%	N/A	3%	12%	23%
Boreholes	33%	47%	38%	46%	81%	76%
Shallow wells	60%	36%	60%	45%	7%	1%
Other	7%	N/A	2% (private trucking)	3% (springs)	N/A	N/A
Primary Toilet Access						
Pour flush to sewer	N/A	41%	70%	87%	76%	100%
Pour flush to pit/modified-septic	48%	4%	N/A	2%	24%	N/A
Pit latrines	52%	55%	30%	11%	N/A	N/A
Hygiene Practice & Product Availability						
Soap Use for handwashing	58%	57%	53%	69%	58%	59%
Local soap Availability**	Excellent	Excellent	Excellent	Good	Good	Excellent
Local soap price	$0.50-$1.50	$0.50-$1.20	$0.50-$1.50	$0.50-$1.50	$0.50-$1.50	$0.50-1.50
PoUWT Use*	32%	20%	23%	19%	19%	20%
Preferred water treatment method	Nothing (40%) Boiling(23%)	Nothing (38%) Boiling (28%)	Nothing (56%) Aquatabs (21%)	Boiling (46%)	Boiling(50%)	Boiling(39%)
Local PoUWT Availability**	Not available	Limited/no supply	Limited/no supply	Limited/no supply	Limited/no supply	Limited/no supply
Local PoUWT Price	Not available	$0.10-$0.50	$0.50-0.60	$0.50-$0.80	$0.50-$0.80	$0.50-$1

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

42

4.4   WASH System Scenario Reactions

Dry Season (Scenario A) - towards the latter stages of the dry season, lack of water availability as groundwater sources dry up causes rationing and queuing at the boreholes leading to:

- **Potential collection and use of other, less safe, water sources (e.g. shallow wells; surface runoff or rivers) -** *Requirement to ensure clean water is either available from other safe sources OR water treatment is available as a last barrier*

- **Reduced clean water for consumption for cleaning and cooking food -** *Requirement to ensure clean water is available and people understand importance of using clean water and soap in handwashing and cooking. This is particularly pertinent for food vendors who may stop cleaning their food appropriately with single males (generally high demand consumers of vended food) at a high risk at this time*

- **Increased queues and conflict at water points -** *Lack of access to safe water for vulnerable groups e.g. disabled, children, elderly who may need particular support in accessing other sources. In terms of issues, 30% of the respondents using boreholes shared that there are usually long queues at the boreholes which limits access and a smaller 6% shared that the water from some of the boreholes is rusty (Oxfam PCMA, 2016)*

- **Reduction of water for flushing toilets -** *Increased risk of open defecation due to lack of water for flushing toilets*

- **Reduced household income for households where informal sector work is replaced by the need to queue for water -** *Reduced household income can put strain on practicing good hygiene behavior and hence accessibility to clean water, household water treatment and soap is important as hygiene purchases may be deprioritised*

Rainy Season (Scenario B) – the rainy season replenishes dwindling groundwater storage so water availability increasing but water quality decreased due to contamination of water sources from:

- **Overflowing, unlined pits ('septics') running into surface runoff -** *Toilet pits need to be adequately constructed if not connected to a sewer and ideally emptied prior to rainy season to avoid overflowing due to increasing groundwater height and flooding from surface water*

- **Municipal water pipes burst from high pressures leading to municipal water contamination and increased surface water -** *Requiring greater use of household water treatment if municipal water used a home to avoid secondary contamination but also maintenance of the pipes to avoid increase runoff to avoid overflowing of toilets*

- **Overflowing sewers from blockages due to poor solid waste management -** *Leading to exposure of sewage to local areas and contamination to groundwater sources if located near to water source. In some areas, local populace is asked to pay for repair of water pipes at $20-50*

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

43

per blockage or burst meaning that most issues go unresolved as people are unable to or refuse to pay for something they believe they already pay for through utility bills

- **Only one locality utilizes rainwater harvesting making this a massively underutilized resource -** *Rainwater harvesting is also massively underutilized across Harare, likely due to the non-revenue water aspect, but would be an excellent source of clean water during rainy season.*

Economic Instability (Scenario C) – during the 2008/9 crisis the main issue was lack of clean water supply from the municipality leading to greater use of unsafe surface water sources and lack of purchasing power or availability of water treatment products. However, since 2008/9, the local water supply infrastructure has changed, shifting the risk profile[2]:

- **It is likely the municipal water supply would still be affected in terms of reduction in supply and chlorination but water supply gaps may be met, in the right season, by new groundwater sources -** *The risk presented by lack of water supply through the failure of the municipal water system direct to communities has been reduced with the introduction of boreholes. Focus therefore should be on ensuring these decentralized water sources are adequately managed to ensure continuous supply and treatment. Rainwater harvesting is also massively underutilized across Harare, likely due to the non-revenue water aspect, but would be an excellent source of clean water during rainy season. During dry season when these local groundwater sources are drying up, emergency water provision may be required through water trucking direct to communities from Harare Water or ZINWA or bottled water provision. Access to fuel and chlorine stocks being a major requirement to support this which also were a challenge in the economic downturn and as such contingency plans would need to make sure this was available*

- **International imports will be restricted due to lack of currency leading to chlorine and soap shortages however organizations under the leadership of the ESAG are now stockpiling key products in light of the weakening currency as contingency having learned from 2008/9** *- Key wholesalers and manufacturers independent of policy or regulations to do so (as well as UNICEF) have already started stockpiling key NFIs for maintaining the WASH infrastructure and hygiene products in country in light of current currency issues. This is a huge capital expenditure for small businesses cognizant of the challenge to maintain their business if international imports are reduced due to lack of local manufacture. Chlorine for water treatment plants was identified as a key risk nationally, as local authorities were already running short on supply and turning to wholesalers (such as Vita Nova) stockpiling resources for support.*

- **Reduction in household purchasing power would continue to result in lack of payment for WASH services and hygiene products but likewise availability/accessibility to these products would hinder their use** *- Supply and demand issues for hygiene products would*

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[2] *The vast majority of residents questioned about what happened to WASH services during the 2008/9 economic crisis were unable to recall or were not in Harare at the time. As such, secondary data and government, NGO and goods/suppliers accounts were taken into consideration to assume how the system would react*

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

44

prevent their use leading to contamination risks. However, certain NFIs may not be as critical as they were in 2008/9. For instance, buckets were a priority in 2008/9 the main reason being is that people were used to getting municipal water direct to their homes in many places so had never needed a bucket to carry water before. Thesedays, buckets are normal to carry water.

4.5   Key Market Performance (accessibility, affordability & quality)

Where the locality is served by the services/sources below the performance of the source/service is summarized qualitatively (the next section provides quantitative gap analyses). This table is quick summary of where performance may mean that the market supply or demand needs support in a certain scenario and/or requires strengthening to reduce the risk of outbreak in certain localities.

Table 9: Market Service & Product Performance

Market	Scenario A			Scenario B			Scenario C		
	A	$	Q	A	$	Q	A	$	Q
Municipal Water	●	◐	◐	◐	◐	◕	◕	○	◕
Boreholes	◐	●	◐	◐	●	○	◐	●	◐
Shallow Wells	◐	●	◕	●	●	○	●	●	◐
Trucked Water	●	◕	●	●	◕	●	◕	○	*Source dependent*
Springs	◕	●	◐	◕	●	◐	◕	●	◐
Bottled Water	Bottled water market exists at city level but 0% respondents across all localities use bottled water as a water source. Bottled water could be sourced and distributed to avoid permanent infrastructure improvements to areas (e.g. boreholes) which have caused issues in the past. Bottled water was not the focus of this assessment but could be investigated further if of interest by local authorities as a means of water distribution as								

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

45

	opposed to provision of emergency water from Harare Water or boreholes.								
Private Exhauster	◔	○	●	◔	○	●	◔	○	●
Mobile Desludging Unit	●	◕	●	●	◕	●	◔	○	●
Waterguard	◐	●	●	◐	●	●	◐	◐	●
Jik*	◐	●	●	◐	●	●	◐	◐	●

*added as found to be another local chlorine-based household water treatment in the market that potentially could be investigated further for household water treatment responses. However, detailed analysis was out of the scope of this PCMA

Key

|				
●	Optimum to meet baseline standard		◔	Very below baseline standard
◐	Below baseline standard		○	Inoperable or unattainable standard
A	Local safe availability of service or product in sufficient quantities	**$**	Affordability to target households	**Q**	Quality of service/product

4.6 WASH System – Critical Market Identification

For this PCMA, based on the scenario reactions above, it is very evident that the critical commodity is <u>clean water</u>. That critical commodity is provided in a complex urban market, by various market actors and infrastructure with different accessibility, affordability and quality considerations. The dominant source of clean water for the most vulnerable populations in a waterborne disease outbreak is clean water supplied by groundwater sources – boreholes and shallow wells. However, is this critical market to sustain the clean water provision during an outbreak?

Clean water provisions from critical groundwater sources are at risk of contamination due to failures in other parts of the WASH system. Therefore, the critical market associated with clean groundwater

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

46

provision could be management of the contamination source e.g. appropriate toilet or sewer construction or management of that source e.g. desludging toilets or unblocking sewers. In addition, a critical market to mitigate the risk of poor quality water provision from the groundwater sources, are markets for point-of-use water treatment. However, cleaning the water for consumption does not address the water availability issues plagued by dry season scenarios, so then is the critical water market the market that can fill the gap in supply should the groundwater sources be depleted or contaminated if not both.

Strengthening or supplementing the groundwater sources through a multi-barrier approach is the way to ensure access to clean water supply during the three reference scenarios. This approach may mean utilising other WASH markets within the system to expand to fill capacity gaps or to be strengthening to mitigate poor performance of the groundwater markets. By understanding the entirety of the WASH system we can see where they are opportunities to utilise the existing WASH market landscape to support the primary critical market of clean water through groundwater.
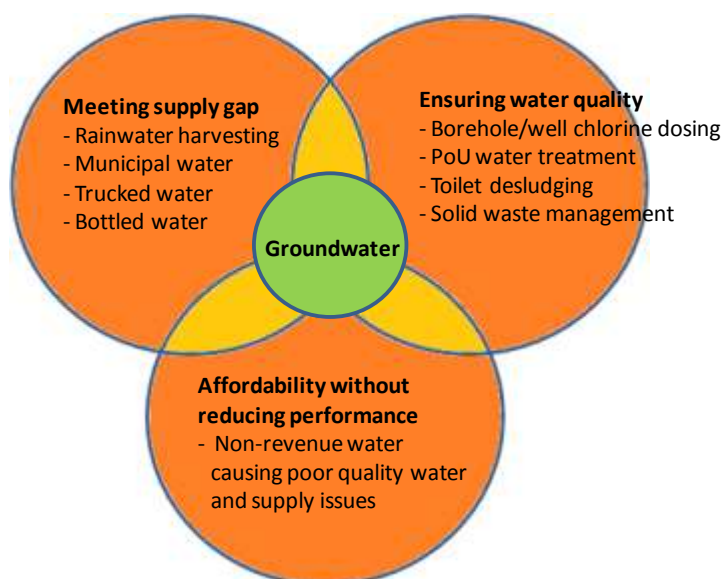
It should be noted that the groundwater sources were created as a result of a humanitarian response and are now the critical market requiring more support to reduce the impact of waterborne disease outbreaks. Thus, whilst we can support maintaining the performance of existing groundwater supplies, the humanitarian sector should reflect on this situation. It is acknowledged that during the economic collapse of 2008/9, drilling of boreholes was critical to maintaining life faced with no alternative. The questions however that have arisen are: could there have been less permanent solutions that could have been utilised that would not radically change the incumbent WASH system nor people's willingness to pay for clean water and their perception of 'safe' water? Or could a better recovery handover have been managed between humanitarian, development and government actors to ensure appropriate integration of the decentralised infrastructure into the WASH system. Here again the humanitarian-development relationship is extremely important and the risk of not working with each sector in mind is highlighted in Minimum Economic Recovery Standards.

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

47

4.7 WASH Vulnerability Heat Map

The risk levels to waterborne disease outbreak due to the vulnerabilities in the WASH system's performance and reactions in the different reference scenarios have been able to be scaled for each target location.

The figure below highlights the risk levels for the different project areas based on standards outlined in the SPHERE emergency guidelines. An additional category has been included that looks at availability of various WASH products, needed for prevention and risk reduction of disease outbreaks in the local markets. The figures used in the scale are based on indications of percentages that do not meet these standards and are also relative to the locations. The ranking as such should not be construed to mean the locations that are less vulnerable do not have WASH issues that need addressing but that they are, relative to the other locations, less vulnerable. This ranking has been added to help prioritize what in which areas to potential focus upon in emergency contingency plans.

Table 10: Heat Map of WASH Vulnerability Map for the different Project Areas

Highly vulnerable to slightly vulnerable

Category	Standard	Stoneridge	Hopely	Caledonia	Dzivarasekwa	Mabvuku-Tafara	Kuwadzana
Water Supply	Accesss and Water quantity	30	0	0	40	0	0
	Water quality	60	36	60	7	45	1
	Water facilities	97	98	82	93	76	96
Excreta disposal	Environment free from human faeces	65	61	51	56	50	40
	Appropriate and adequate toilet facilities	100	59	100	24	13	0
Hygiene promotion	Hygiene promotion implementation	22	29	21		22	
	Identification and use of hygiene items	42	43	47	42	31	41
Solid Waste Management	Collection and disposal	100	88	100	50	26	50
Drainage	Drainage works	100	59	30	24	13	0
WASH Market	Availability of PoUWT options	100	94	90	95	93	93
	Availability of hygiene products (soap)	16	16	4	8	23	8

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

48

Table 11: Keys for Vulnerability Map

Color Code Key	Standards Key
100-85: Red Between 100-85% of respondents not able to meet the relevant standard **85-70: Orange** Between 85-70% of respondents not able to meet the relevant standard **70-55: Amber** Between 70-55% of respondents not able to meet the relevant standard **55-40: Light green** Between 55-40% of respondents not able to meet the relevant standard **40-25: Green** Between 40-25% of respondents not able to meet the relevant standard **25-0: Dark green** Less than 25% of respondents not able to meet the relevant standard	**Water Supply** • Water quantity: gap based on standard of 20l/p/d • Water quality: gap based on water quality standards (perceived safety based on type of water sources used e.g. shallow wells not safe • Water facilities: gap of adequacy based on number of water options available for community of one BH per 250 people **Excreta disposal** • Environment free from faeces: gap based on based on reports of Open defecation • Appropriate and adequate toilets: gap based on access to sewer system for urban population **Hygiene Promotion** • HP implementation: gap in knowledge of hygiene issues based on understanding the importance of handwashing • Use of hygiene items: gap in use of hygiene products; soap for handwashing **Solid Waste management** • Gap in accessing waste disposal services **Drainage** • Gap in accessing drainage system **Hygiene Products in the Market** • Gap in availability of PoUWT and soap in local shops

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

49

4.8   WASH System - Gap Analysis & Market Expandability

Given the diversity of the WASH goods and services in Harare, there should be the opportunity to utilise various critical markets to support groundwater source quality and meet the supply gap contamination of the sources may present.

The figure below shows a high-level gap analysis to determine the demand requirements that need to be met. Given the diversity of potential market options available to meet this demand in the different scenarios, this report cannot calculate all the different market options for each area in Harare to meet supply needs. However, this is intended to provide a starting point for key services and products that can be cross-referenced with WASH system performance and availability data to support ongoing discussions on where opportunities could be capitalised upon utilising or strengthening existing WASH systems to deliver emergency preparedness, response and risk reduction activities.

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

50

Table 12: Water Supply Gap Analysis for Poorer Suburbs of Harare (Source: Oxfam PCMA 2016)

Water Supply (litres)	HH required per month	Total required by area (HH in local popn per month)	Scenario A (litres shortfall per month)	Scenario B (litres shortfall per month)	Market Expandability			
	Assumes 5 persons per household	*Assuming poor, very poor and ultra poor segments*	*Assumes 50% borehole & shallow well capacity due to water shortage not faults* Current shortfall based both on number of BHs in location operating at 50% (Standard 1 BH for 250 people)	*Assumes 100% borehole & shallow well capacity and 75% municipal water capacity*	**Municipality** (total capacity to be trucked from treatment)	**Private trucking** (total capacity)	**Bottled** (total capacity)	**Rainwater** (total capacity)
Stoneridge	750	2,700,000	2,625,000	2,550,000	Litres per day = 926,995 Trucks = 19 Harare Water customers should receive for free to substitute inadequate service. Others may need to pay subsidy for municipal water to avoid reliance on free water annually. Storage requirements to be considered also.	Litres per day = 926,995 Trucks = 19 Can function in A & B scenarios. In C, would need provision of fuel. Consideration of extent of subsidy for water needed to avoid reliance on free water annually. Storage requirements to be considered also.	Was out of scope for this assessment	Unlimited if storage installed in all areas. The only issue this may cause is maintenance of the storage systems and as such a financing strategy should be put in place.
Hopely	750	10,410,120	10,316,370	10,222,620				
Mabvuku-Tafara	750	4,740,000	4,083,750	3,427,500				
Caledonia	750	2,362,500	2,081,250	1,800,000				
Dzivarasekwa	750	4,361,490	4,080,240	3,798,990				
Kuwadzana	750	5,035,751	4,623,251	4,210,751				
Total (litres)		29,609,871	27,809,861	26,009,861				

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

51

Table 13: Desludging Market Gap Analysis for Poorer Suburbs of Harare (Source: Oxfam PCMA 2016)

Desludging (per pit or septic)	# toilets per HH	% popn in area with pit/septic	# toilets in area requiring desludging	Waste generation max (assuming 1 cubic metre pit/tank = 1000 litres)	MDU (Daily capacity)	MDU (Cost per toilet per HH at $30 per empty)
Stoneridge	1/3	100	1200	1,200,000	8-12 pits depending on distance to dumping site (12,000litres)	$10
Hopely	1/3	8	370	370,138		$10
Mabvuku-Tafara	1	9	569	568,800		$30
Caledonia	1/3	30	315	315,000		$10
Dzivarasekwa	1	24	1396	1,395,677		$30
Kuwadzana	N/A	N/A	N/A	N/A		N/A

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

52

	Waterguard (150ml bottle) 150ml of waterguard treats 1000litres of water				Soap (1kg bar) 450g of soap for personal hygiene and laundry			
	HH required per month	Unit demand by HH monthly	Total local stock	Total market stock potential	HH required per month	Unit demand by HH monthly	Total local stock	Total market stock potential
TOTAL	**N/A**	**39,480**	**74**	**60000**	**N/A**	**98,700**	**21,473**	**Awaiting wholesaler input for final calculations – a new version of the report will be uploaded once dataset complete**
Stoneridge	1	3,600	0	Manufacturer can supply 60,000 units per month. There is a demand and supply side issue at the local level not upstream chain level.	2.5	9,000	795	
Hopely	1	13,880	0		2.5	34,700	1,911	
Mabvuku-Tafara	1	6,320	43		2.5	15,800	5,761	
Caledonia	1	3,150	12		2.5	7,875	1,498	
Dzivarasekwa	1	5,815	0		2.5	14,538	2,836	
Kuwadzana	1	6,714	19		2.5	16,786	8,672	

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

53

SECTION 5: RECOMMENDATIONS

5.1   WASH System - Current Responses

In addition to the Cholera outbreak of 2008/2009, there has been a recurrence of waterborne disease outbreaks especially in urban areas. In Harare, this has included cholera in 2011, typhoid in 2013 and more recently in 2016 another typhoid outbreak. There have been other smaller outbreaks occurring almost on an annual basis, mostly, as cited by community members, during the rainy season. During these crises, the following are the key activities conducted by UN agencies, NGOs and Harare City Council departments:

i. Increasing water supply options by drilling of new boreholes and equipping them with either handpumps or motorizing them using electricity, generator or a combination of both or more recently using solar powered pumps. If the disease outbreak occurs in locations where boreholes were installed during previous cholera/typhoid outbreaks are broken down, an assessment is conducted to determine what is required to repair or rehabilitate the water points and if found feasible, necessary repairs are undertaken.

ii. Free distribution of Non-Food Items (NFIs) including soap, water treatment chemicals (mostly aquatabs but at times waterguard) and buckets. Other than aquatabs which are procured internationally by UNICEF, most of the other NFI items are usually procured locally also as part of pre-positioning by NGOs. The concern however, as mentioned in the report, is on the impact of free distribution of some of these items especially water treatment chemicals on the continuous adoption of water treatment behavior.

iii. Hygiene promotion campaigns at household and community level including distribution of IEC material and conducting of mass hygiene promotion activities by health promoters working with the city council, from NGOs or those trained as volunteer community health clubs to facilitate hygiene promotion in the community.

iv. Point of collection chlorination such as bucket chlorination done by MSF to ensure that water collected from boreholes is treated and in some cases conducting of shock chlorination of high risk water sources such as shallow wells.

Most respondents interviewed had an idea of the types of support given during crisis and as such based their needs on this but mostly shared that their bigger challenge is with the chronic WASH issues and as such identified these as the primary issues that need addressing not necessarily what is done during disease outbreaks.

5.2   WASH System – Response Considerations and Improvement Recommendations

The challenge with deciding which approach to take in terms of emergency preparedness and response is understanding the implications of response decisions on the long-term recovery and resilience of the WASH system. A few examples to note are:

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

54

- An unsustainable pattern has developed where with every disease outbreak, partners are prevailed upon to repair the broken down boreholes in the affected localities, often the very same ones year after year. External agencies fix the boreholes and provide free NFIs. However, there is growing evidence that in doing this it also creates a lack of ownership for personal wellbeing in an economic environment that is very different to when these responses were initially designed. It is possible that the current interventions are perpetuating the outbreaks by not encouraging sustained use of hygiene products and by creating a decentralized infrastructure that has created a culture of free access because, at some point, an NGO or well wishers come and fix it. This is not a promotion for the commercialization of water but recognition that appropriate financing mechanisms for infrastructure are required to maintain it should it be installed. The provision of free infrastructure and a poor exit strategy has created a new vector for contamination that now needs more external continuous support as it was not adopted by the local authorities.

- Household water treatment, a product that is at times disliked due to issues of taste and smell by communities, and perceived as un-needed now that 'safe' groundwater exists from the boreholes, continues to be in poor demand despite it's need. There is an assumption within the community that it is too expensive and yet limited respondents know the actual price of it. It is more likely, that people can afford it and do not see the need of using it and as such would rather wait until it is essential to buy it because an outbreak has occurred rather than use it to prevent an outbreak from occurring in the first place. And by that logic, if an outbreak triggers a free distribution response, then people will wait for the free distribution rather than purchase the products themselves.

  The argument as to whether household purchasing power is the main factor in low willingness to pay is subject to scrutiny in this case because of the relative low cost of the household water treatment and ability for households to purchase more costly items and requires more research. Merely stating in this PCMA that the Waterguard market can meet demand and supplying a voucher system to support that does not address the demand/supply issues with household water treatment in Harare and by not understanding the root of those issues, humanitarian interventions could perpetuate the issue and/or not provide effective NFI distributions if, for instance, there is no actual use of the products they distribute.

- The challenge of the multi-barrier approach is that complementary programmes need to be initiated with consideration of each other. Imagine there is a programme to stimulate demand for household water treatment and strengthen local supply such as to encourage the local populace to purchase household water treatment in areas of high risk. At the same time, groundwater sources in the area are dosed with chlorine to mitigate any immediate contamination risks. People may, due to the dosing (a temporary measure effective for a few days only) not see the need to purchase, or if obtained through a distribution, even use household water treatment any more creating a major risk to the first programme's effectiveness and overall barrier to prevent waterborne disease. In this case, you could argue that dosing may be prohibitive in effectively supporting the population. Ensuring that such a programme is complemented by a substantive educational and awareness raising component is crucial in making sure that these possible misconceptions are clarified would then be very important. As such knowing when to implement which WASH-related programme at what time is critically important to programme effectiveness due to the interconnected nature of WASH

- Finally, in Stoneridge, which was for the first time afflicted with a typhoid outbreak in early 2016 following the influx of IDPs early in the year, boreholes were once again dug to control the outbreak. It was acknowledged by Welthungerhilfe (the implementing partner at the time)

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

55

that they would have preferred to have trucked water from the local utility to the area but failure to agree on subsidized prices for the water with Harare Water rendered that program unfeasible and boreholes were dug to accommodate the IDPs by March 2016.

In September 2016, the PCMA assessment found that only 2 out of 4 of the recently drilled boreholes were working and none were chlorinated. In addition, the intervention earlier in the year had focused only on the IDPs for providing water supply and NFIs. Both the incumbent population and IDPs had not lived in overcrowded conditions before where water contamination was a risk. However, as the incumbents were not deemed as vulnerable, and as such were not the focus on receiving support and hygiene education. In addition, they were not accounted for in the provision of expanded WASH services and left to utilize their previous decentralized infrastructure (farm boreholes and shallow wells) which now were being over-utilized by the growing population and at risk of contamination. A number of those with suspected typhoid interviewed in September 2016 were from the incumbent population.

5.3   Prioritized Emergency Preparedness & Response Recommendations

The recommendations below provide a high-level recommendation and rationale but with the understanding that the data acquired in this work would be used to design the programme with the detail being drawn, as required, from the primary and secondary data collected, by the organisation(s) mandated to carry out the programme.

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

56

Table 14: Priortised recommendations

	Priority Level	Type	Rationale	Proposed Intervention	Proposed Locations
1a	High	Water quality	Promulgation of latrine pits and unlined septic tanks in the localities leads to high risk of contamination of water points	• Identification of contaminated boreholes and shallow wells for remedial action including possible closure and dosing of boreholes	Hopely, Caledonia, Stoneridge
1b	High	Water Quality	Frequent sewer bursting due to blockages especially during the rainy compromises the water quality in the locations considering high reliance on groundwater options.	• Clearing of drains and blockages in the location. Embark on campaign involving community groups and private sector actors especially in view of upcoming rainy season.	Mabvuku-Tafara, Dzivarasekwa, Kuwadzana
1c	High	Hygiene Practices	Low demand for water treatment in the area which considering the high risk of faecal contamination in the area warrants action.	• Educational and incentive programme to stimulate water treatment and better hygiene practices. Includes mobilizing demand to support supply strengthening in the area for waterguard, filters	Stoneridge, Hopely, Mabvuku-Tafara, Caledonia, Dzivarasekwa, Kuwadzana
1d	High	Hygiene Practices	A lot of public food vending the location many of which are observed to be of poor hygiene standard.	• Hygiene Promotion Campaign targeting food handlers • Engagements of institutions such as the churches, UDCORP in hygiene promotion initiatives in the location	Hopely
1e	High	Water Availability	Setting up of water storage tanks to be used both as storage for water during Emergency Water trucking and for rainwater harvesting during rainy season. In MT, need to operationalise a	• Engage with Harare Water about EWT and suitable financing model for it. • Establish more clearly what the challenge has been with regards to the usage of MT tanks	Mabvuku-Tafara, Stoneridge

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

57

			previous investment by USAID to construct rainwater harvesting tanks in the location especially in view of the upcoming rainy season and the opportunity for access to safe water	• Facilitate a cleaning of tanks campaign so as to allow more households to have increased access to water	
2a	Medium	Water quality	Most households do not empty their pit latrines and instead opt to dig new ones. In view of the proximity of shallow wells, is spreading the risk of groundwater contamination in the localities	• Emergency desludging of pits and clearing of drains using mobile desludging unit under a payment scheme that allows for the sustainability of undertaking	Hopely, Caledonia, Stoneridge
2b	Medium	Toilet Access	No public toilets and promulgated construction of poor quality sanitation facilities	• Public construction campaign involving UDCORP, Housing cooperatives, Private sector actors at a reduced cost to households	Hopely, Caledonia
2c	Medium	Environmental Hygiene	Indiscriminate disposal of diapers	• Engagement with private actors to set up a programme on diaper disposal as part of marketing strategy for sale.	Hopely, Caledonia, Dzivarasekwa, Kuwadzana
2d	Medium	Environmental Hygiene	Poor waste disposal	• Exploring a separation of waste and recycling programme with private sector actors	Hopely, Caledonia, Dzivarasekwa, Kuwadzana
2e	Medium	Water Availability	Existence of springs in some of the locations that could supplement water supply	• Work with partners to facilitate construction of spring boxes and a reticulation system for improved access to water. • In addition, consider construction of proper wash areas so as to limit contamination of water by having washing points.	Mabvuku-Tafara

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

58

2f	Medium	Water Quality	Poor perception of quality of water from Harare Water	• Water quality testing to determine the causative factors for discoloration and smell of water from Harare water and engagement with Harare Water and Private sector actors on remedial action. This together with awareness campaign on water quality in the communities	Mabvuku-Tafara, Dzivarasekwa, Kuwadzana
2g	Medium	Environmental Hygiene *Best Practice	Replication of waste management programme in this location to other areas.	To identify a way of having exchange programme between the districts so that this model can be copied in other locations	Mabvuku-Tafara
3a	Long term	Water Quality	Need for centralised water treatment since groundwater in many of the locations is suspect to contamination from faecal waste. Need for a sustainable management system to be set up tom facilitate the chlorination of water from boreholes	• Borehole chlorination maintenance agreements between WPCs/RAs and private sector actors • Discussions to be held with agencies on possible costs and modalities of payment for sustained water chlorination at boreholes	General
3b	Long term	Toilet Access and Water Quality	Current indiscriminate construction of poor quality toilets (pit latrines, pour flush) posing a significant health hazard in the areas especially on contamination of the water sources	• Construction of proper toilets that can be shared by households e.g. septic tank toilets, vermiculture toilets and that can be emptied periodically • Construction of raised latrines e.g. Ecosan at HH level to reduce risk of contamination of groundwater • Households to cover the costs	General

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

59

				of construction	
3c	Long term	Water Availability	Inadequate water supply in the localities with many of the residents relying on shallow wells as their primary source of drinking water. These sources are unsafe due to high risk of faecal contamination of groundwater in the localities.	• Working with Working with institutions such as the housing cooperatives to augment water supply especially in those locations that have poor water supply coverage by setting up decentralised water supply systems	Hopely, Caledonia, Dzivarasekwa, Kuwadzana
3d	Long term	Combined WASH Issue	In kind free distribution of WASH items such as soap, waterguard, buckets creating a sense of entitlement and dependency in the community that also affects preventive hygiene behaviour	• Advocacy through the ESAG with institutions such as UNICEF/NGOs/Local authorities to come up with a revised strategy on distribution of free NFIs.	General

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

60

SECTION 6:   NEXT STEPS

6.1   Agreements and readying interventions

The next step will involve reviewing the proposals outlined in the Pre-Crisis Market Assessment in consultation with the Harare City Council departments especially the City health department and Harare water, the district authorities, relevant line ministries and the Emergency Strategic Advisory group. The objective will be to facilitate a ranking process to identify proposals that can be developed further into intervention programmes for implementation by Oxfam or other actors in the sector.

6.2   Utilizing databases to support coordination and M&E

Infrastructure maps

In addition to the market findings, the GIS maps that have been produced detail the water, sanitation and hygiene infrastructure and service providers in the project localities, and data from local service providers to get information on the demand and supply issues relating to water, sanitation and hygiene goods and services.

These GIS maps can serve as a baseline measure of current WASH capacity and performance and contamination risk in order to develop preparedness and response plans upon as well as to measure success of resilience building activities. Likewise, by providing accurate positioning of these data points, it allows for continuous monitoring to be enabled on infrastructure and contact with retailers/suppliers. This is useful data that should be maintained and utilised to inform both humanitarian and development programming going forwards.

Service Provider and Product Supplier Listings

A database was created highlighting service providers both the various localities and upstream service providers involved in delivery of water, sanitation and hygiene goods and services. In terms of services, the database looks at services which are not necessarily restricted to emergency related services but that address the chronic water issues in the localities such as bulk water supply, transportation of water from water points to household. The sanitation services mostly refer to desludging services and toilet construction. The products referred to in this assessment are mostly those that would typically be needed especially during disease outbreaks and often constitute the Non-Food Items kit that would be distributed to households. This includes water treatment chemicals, soap and water storage containers. The presumption of course is that access to these products even during non-crisis periods is important in reducing the risk of disease outbreaks.

6.3   Contingency Planning Improvements

The key objective for the PCMA was to generate information that would aid in ensuring that future emergency response and preparedness activities relating to disease outbreaks would be more effectively undertaken especially also taking into consideration the role that markets can play in ensuring that this goal is achieved. The proposals outlined in this report, include both market-integrated and market aware programming that will be looked at in the context of reviewing the existing contingency plans to ensure that the scenarios developed and planned for are based on recent engagement with communities and market actors to ensure that the key WASH issues are adequately captured and addressed.

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

61

A big challenge in the contingency planning process has been the resourcing and with it the operationalisation of the proposed action plans. By exploring various financing and sustainability models, including incorporating the role of various market actors, both public and private there is a higher chance of ensuring that the plans are implemented.

6.4   Monitoring and Evaluation

The intervention proposals will include developing a requisite monitoring and evaluation framework. This will include putting in place:

- *Indicator monitoring*: at the basic level indicators will be developed to ensure that the intervention project goals, objectives and outcomes are achieved.

- *Response monitoring*: Most of the high priority intervention proposals are targeted at reducing the risk of occurrence of disease outbreaks. Nevertheless, if the crisis does occur, the project will be looking to monitor how response interventions are undertaken and how effectively they take into consideration and/or adopt market based approaches.

- *Cost-effectiveness analysis*: in making the case for market based approaches, the implementation of the proposed interventions will involve a comparison looking at the cost effectiveness of market based models as compared to the traditional emergency response interventions.

These have not been outlined in this report as they are programme specific and will be very broad in nature. Any programme resulting from the PCMA will be asked to provide an M&E framework to realise the above.

At a minimum, the contingency planning should create indicator monitoring for an early warning system for the different scenarios. These are suggested to be:

Table 15: Priority Indicators for Early Warning System

Scenario	Indicators
A (Dry season , stable economic situation)	- Amount of rainfall - Change in borehole yield - Prices of key NFI commodities (soap, water treatment chemicals) - Number of diarrhoea cases
B (Wet season, stable economic situation)	- Amount of rainfall - Change in borehole yield - Prices of key NFI commodities (soap, water treatment chemicals) - Number of diarrhoea cases
C Dry/Wet season, unstable economic situation	- Amount of rainfall - Change in borehole yield - Prices of key NFI commodities (soap, water treatment chemicals) - Inflation rate and price of key household commodities - Number of diarrhoea cases

6.5   Long-term WASH interventions

The long term interventions proposed from the PCMA are addressing resilience and advocacy issues relating to the noted chronic WASH issues. As such, they are not restricted to the project localities but would be expected to impact WASH sector action on emergencies.

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

62

SECTION 7: KEY LEARNINGS

I. Choosing a critical market before understanding how complex urban WASH systems function is challenging and risky

Urban WASH systems have are often very complex with a variety of ways in which WASH goods and services are delivered to the end-user through different infrastructure, services, products and formal, informal, centralized and decentralized actors. In addition, the quality, accessibility and affordability of these WASH goods and services vary due to location, season and economic situation.

Understanding how this WASH system functions and how the end-users interact with the system is critical to understanding the system strengths and weaknesses in periods of normality or crisis but also in understanding how to tailor interventions to meet end-user needs. Often, WASH systems will change at different times, with certain actors displacing others in order to meet a need in the marketplace that another actor or service cannot fulfill at a certain time. Understanding this helps us to understand both market weaknesses and opportunities. Essentially then an argument remains as to whether this should be a humanitarian only led study or a joint one between humanitarian and development sectors.

As such this paper has not shown a typical assessment of specific critical markets but:

- an analysis of the WASH systems in different areas;

- highlighted the importance of understanding the different nuances in locations in order to deliver quality responses to meet local needs;

- tabulated similarities and differences in those WASH systems in order to identify response expansion opportunities; and

- began to build a database of market data on key markets which will be built upon as agreement is made on which interventions to take forward

Rightly, PCMA guidance suggests narrowing the scope of a PCMA to the critical markets. However, in the case when critical markets are not immediately obvious (as they may easily be in simple rural WASH systems or emergencies), a pre-cursor to selection of critical markets may be to understand the WASH system in which we are working to identify the critical markets. Clearly the PCMA guidance is written with the premise of conducting fieldwork on a 10-day horizon and hence why critical market selection upfront to reduce scope is necessary and larger scoping of the WASH system would not be possible. However, the PCMA approach trialed in Zimbabwe challenged the 10-day approach, acknowledging a need for greater stakeholder engagement and more detailed analysis in order to justify implementation of PCMA recommendations and integration into contingency plans. Potentially, therefore, the PCMA approach will need to change for varying degrees of complexity and emergency state that the PCMA activity finds itself in, in order to be accurate.

II. Assuming current humanitarian response plans are correct to base our critical markets on undermines the value of understanding the WASH market system in the first place

By assuming we should use market analysis to identify ways in which we could integrate the market into delivering these responses before understanding the market and therefore what responses are actually needed undermines the value of the market exercise itself.

In the case of Harare, the default humanitarian response to a waterborne disease outbreak is to drill boreholes and distribute NFIs. This was the response utilized in the cholera outbreak during the economic crisis in 2008/9. This response has hardly changed since despite the WASH infrastructure being permanently changed with the introduction of boreholes and the economic situation improving. The reference crisis in which humanitarian responses are continually catering for is, fundamentally, outdated.

The PCMA has provided market evidence to challenge the current response paradigm and, by understanding the WASH system, asked to consider a variation on responses in order to transition away from a dependency on boreholes and NFI distributions. The WASH market system, if strengthened and appropriately primed to react to different outbreak scenarios, could likely serve its population. The challenge for humanitarian actors will be working out how to best support the market system in delivering on these responsibilities changing humanitarian agency roles from implementers to facilitators.

III. Where the crisis is caused by chronic WASH conditions and considered normality the baseline reference to which compare the state of the WASH system can be a challenge to define

This is explained in section 2.2.

IV. WASH market maps are more complex to create than those for food security due to the service-based nature of some WASH activities and the relationship between water, sanitation and hygiene goods and services which are not mutually independent of each other

In complex WASH systems, merely showing the market actors in a market chain to show provision of a commodity such as water can serve to negatively inform the nature of the system. Often the WASH system will provide a commodity in various different ways, market actors, services, products and infrastructures to meet local environmental, social and economic requirements. Indeed, the performance of these commodity chains are often interdependent with water, sanitation and hygiene systems and, as such, are intrinsically connected to the extent that referring a singular market, without understanding the system as a whole, will not provide a clear view of the challenges and opportunities within that market system. A system map is good in showing the complexity of the system but currently the currently PCMA guidance asks for market specific maps without understanding the system as a whole. If the system map does not exist first off, it will likely be needed in order to inform a specific market mapping and analysis appropriately.

In addition, disruption (indicated in the market maps as partial, major or critical) is an ambiguous terminology for WASH as it could mean multiple things – accessibility, availability, affordability, quality disruptions for instance. Thus a clear narrative will need to be added to any map indicating a disruption to ensure that the disruption, it's nature, it's cause and the response required is clear.

V. Market analysis should inform all programming not just market-integrated responses
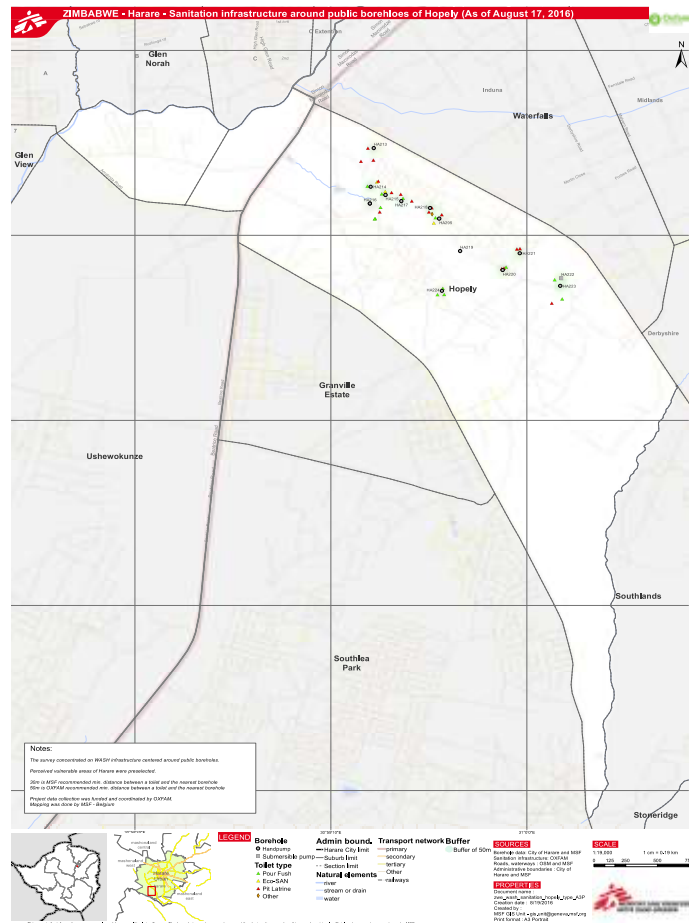
As per the recommendations provided in this report, it is acknowledged that in some circumstances, market-integrated opportunities may not be the best option for response. However, programmes developed with the 'market-in-mind', cognizant of how to be designed to effectively deliver the right products/services to the right target populations to meet their needs and preferences without causing harm to the local market system or WASH behaviours is as important as creating market-integrated responses.

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

64

SECTION 8: APPENDIX

6.1 List of supplementary reports

1. Scoping report
2. Reflection workshop report
3. GIS mapping report
4. PCMA training structure and trainee evaluation
5. Suburb level reports (Stoneridge, Hopely, Caledonia, Mabvuku-Tafara, Dzivarasekwa, Kuwadzana)
6. PCMA survey template

6.2 Sample GIS map

PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

65

SECTION 9: REFERENCES

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PRE-CRISIS MARKET ANALYSIS (PCMA)
Domestic water supply, sanitation and hygiene products
Harare, Zimbabwe PCMA – December 2016

66