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THE NGO JOINT INITIATIVE
FOR URBAN ZIMBABWE

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Baseline Report

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TABLE OF CONTENTS

LIST OF ACRONYMS

BVIP	Improved Blair Ventilated Latrine
CHC	Community Health Clubs
CHP	City Health Promoters
CRS	Catholic Relief Services
DRR	Disaster Risk Reduction
ECD	Early Childhood Development
IGA	Income Generating Activity
JI	Joint Initiative
NGO	Non-governmental organisation
OFDA	United States Office for Foreign Disaster Assistance
RTWH	Roof Top Rain Water Harvesting
SHC	School Health Clubs
SPSS	Statistical Package for Social Scientists
USAID	United States Agency for International Development
WASH	Water Sanitation and Hygiene

List of Tables

List of Figures

Executive Summary

The Joint Initiative for Urban Zimbabwe (a consortium of five International NGOs - Mercy Corps as lead, CRS, CARE, Africare, and Oxfam) will be implementing an eighteen month long project funded by Office for Foreign Disaster Assistance, (OFDA) concentrating on agriculture, Water Sanitation and Hygiene (WASH), and Disaster Risk Reduction (DRR) interventions. The program will be implemented in Mutare, Chitungwiza, Harare (Mbare), Masvingo and Bulawayo. The objective of the WASH component is to increase communities' resiliency to WASH related shocks such as disease outbreak, whilst the agricultural component is aimed at improving urban populations' reliable access to nutritious food.

The WASH component will be addressed through participatory health and hygiene education through the establishment or strengthening of fifteen community and school health clubs. The commercial product Waterguard will also be promoted for point of use water treatment. The project will promote and support community initiated clean up campaigns and reclamation of four illegal dump sites. Sanitation challenges will also be addressed through the establishment of youth sewage led income generating activities. In addition, DRR education will be promoted both at community and stakeholder level. Beneficiaries will also be trained on compost production and seed multiplication under the agriculture component.

In an effort to understand current community knowledge and practices in both WASH and agriculture, a baseline survey was conducted to establish a benchmark against which any changes brought by the program will be measured. The survey targeted 2200 households and 70 schools in the targeted wards.

The 2200 households and 70 school questionnaires were administered by 82 enumerators who were trained before they were sent to the field. Data collection was conducted in October-November 2013. Data entry and analysis was conducted using the Statistical Package for Social Scientists (SPSS) software.

Summary of Research Findings

- The average household size was six for the interviewed households and 79% had at least a member who was 0-14 years of age.
- Six percent of the interviewed households across the urban centers had received community sanitation related assistance in the three months preceding the baseline survey. Twenty two percent of the respondents had received health and hygiene training in the six months preceding the survey.
- Private flush toilets were used by 90% of the households, 4% used communal flush toilets, 4% bucket systems, and 2% pit latrines. Fifty-five percent had hand washing facilities at their sanitation facilities although some were not used due to lack of water.
- Ninety-six percent were washing hands before eating, 62% after relieving themselves, only 49% after food preparation, 51% before feeding children, and 34% after cleaning a baby's bottom.

- Eighty percent of the households reported that they were disposing of their waste through bins although some of the bins were not collected regularly.
- The backyards, homes, and open spaces for 55-75% of the households were clean by the time of the survey. Fourteen percent of the households had benefited from community water related assistance in the six months preceding the assessment.
- Household taps were the main water sources for drinking cited by 92% of the households, 13% from protected wells, 7% from boreholes, and 4% from communal taps. Sixty-three percent of the households reported that they felt their water was safe to drink. Fifteen percent of the interviewed households had members who suffered from diarrheal diseases in the six months preceding the baseline survey.
- Twelve percent had received some training in disaster risk reduction, 18% in compost production, 8% in seed multiplication and 16% in nutrition. Thirty-six percent had compost pits for their households and 71% did not know how to compost their household biodegradable waste. Sixty-six percent had household gardens. Only 29% had practiced seed multiplication at one point before the baseline assessment.
- All the school toilets were overburdened as all school enrolments were exceeding their carrying capacity and were accessing municipal tap water.
- Only 46% of the schools had separate toilets for the ECD and 15% had toilets that were usable with people with disabilities.
- Hand washing facilities were functioning for 88% of the schools but soap was available for hand washing in only 44% of the schools.
- School health clubs were active in 72% of the schools.

1.0 Background

According to the UN OCHA report, Zimbabwe has made progress on sanitation and hygiene coverage in rural communities over the past 30 years (from 5% in 1980 to 43% in 2010). In urban areas, coverage has actually declined over that same period (from 95% to 60%). The economic decline and hyperinflation faced in the country have strained local authorities' capacity for re-investment on water and sanitation infrastructure.

This JI program will target a total of 11,000 direct beneficiary households in Zimbabwe's five cities (Chitungwiza, Mbare (Harare), Mutare, Bulawayo, and Masvingo) through a strategic set of activities designed to mitigate the most pressing risks faced by the urban poor. While focusing on critical WASH activities the program will also address agricultural and nutrition issues. The JI will have a special focus on women and girls who have continued to bear a disproportionately bigger burden of water and sanitation problems in different spheres.

The JI Consortium will continue to use the multi-sectoral response to urban vulnerabilities and a collaborative approach to strengthen local mechanisms for maximizing impact, increasing access to priority needs and services, and protecting children and vulnerable groups. In this phase of the program the JI will seek to achieve the following objectives.

1. *To increase communities' resiliency to WASH-related shocks, such as disease outbreaks.*

2. *To improve urban populations' reliable access to nutritious food through improved incomes and production.*

2.0 Methodology

A quantitative research design was employed which involved the administration of a household questionnaires to 2200 households randomly selected from selected high density suburbs in Mutare (Sakubva, Hob House, Chikanga and Dangamvura) Bulawayo (Mzilikazi, Makokoba, Njube and Cowdry Park), Chitungwiza (St Mary's and Seke), Masvingo (Mucheke, Rujeko, Runyararo Pangolin and Sisk), and Harare (Mbare). The 2200 households were randomly selected from households which were registered under the project in the respective strata (selected high density suburb). All of the 70 schools in the targeted wards were purposively selected for interviewing. A total of 82 enumerators were selected and trained on how to administer the survey tool. The enumerators received daily supervision, follow up, and support to improve the quality of data collected.

Data Entry and Analysis

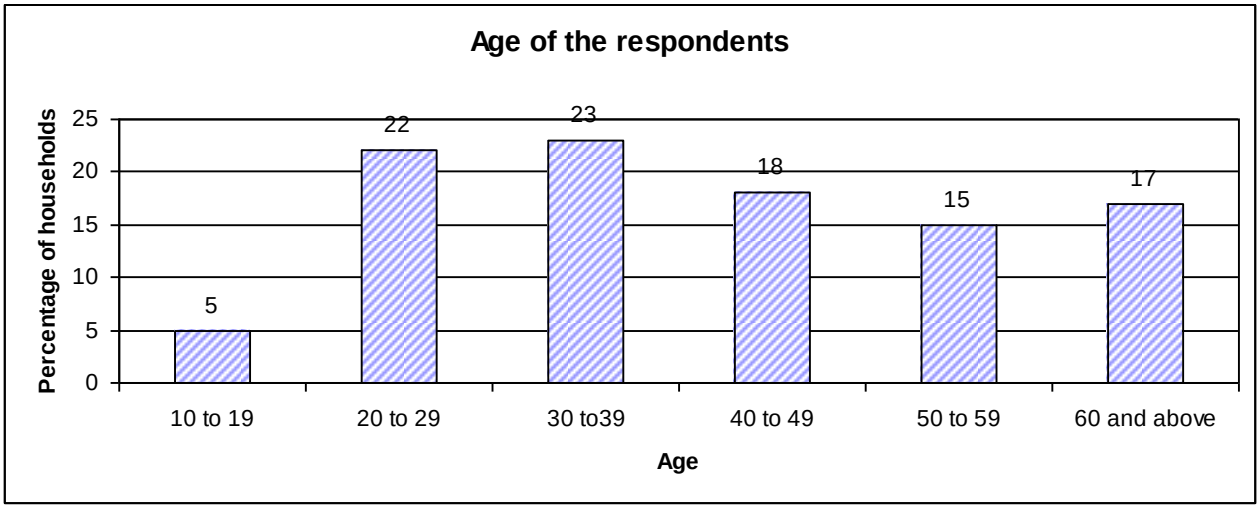
The data entry was in SPSSx with the help of competent data entry clerks. The data analysis was done through SPSSx and Excel and mainly involved running descriptive statistics and frequencies on selected agricultural, water, and sanitation indicators to give way to this report.

3.0 Research Findings: Households

3.1 Household Demographics

From the 2200 respondents interviewed, 15% were male respondents and 85% were females. The fact that 85% of the respondents were females could be a pointer to the fact that Zimbabwe being a patriarchal society, women spend most of their time at home attending to the household chores and community management roles as compared to their male counterparts. Ages of respondents ranged from between 10-19 years (5%), 20-29 years (22%), 30-39 years (23%), 40-49 years (18%), 50-59 years (15%) and over 60 years (17%) as shown in Table 1 below.

Figure 1. Age of the Respondents



The majority of the sampled households are married (60%) whilst a significant number (26%) were widowed. Seven percent were divorced and single as shown in Table 1 below.

Table 1. Marital status of the respondents

Marital status	Percent
Married	60
Divorced	7
Single	7
Widowed	26
Total	100

The average household size was 6 for the interviewed households. Seventy-nine percent of the households had at least a member who was 0-14 years of age. Thirty-five percent and 63% had at least a member who was 14-24 and 25 to 59 years of age respectively. Thirty percent of the households had at least a member who was 60 and above in age.

3.2 Water Sanitation and Hygiene Knowledge and Practices

Table 2. Community sanitation related assistance received

City	Percentage of households that received community sanitation related assistance
Mutare	13
Bulawayo	2
Masvingo	2
Chitungwiza	8
Mbare	9

On average, 6% of the interviewed households across the urban centers had received community sanitation related assistance in the three months preceding the baseline survey. The assistance was in the form of plastic bins for Chitungwiza and Mutare while it was in the form of some awareness trainings in Masvingo and Bulawayo.

Table 3. Health sanitation and hygiene related trainings in the last six months

Type of training	Number of households who received the training					
	Mutare	Chitungwiza	Bulawayo	Masvingo	Mbare	Averages %
Safe disposal of human feces (including pampers)	19	68	6	18	10	20
Waste separation	21	37	4	18	11	15
HH waste reduction	19	27	6	16	8	13
Disease prevention (water borne disease like cholera, malaria, diarrhea, bilharzia	21	52	13	17	12	19

HIV/AIDS	20	41	11	13	14	17
Hand washing	22	44	36	17	13	22

On average, 60% of HHs were trained by community health promoters, 28% by NGOs, 10% from the local Environmental Health Officers, and 2% were trained in schools. Male members of households participated less in these trainings when compared to female members of households. Across all the trainings, at least 90% of those trained were females either as the female household head or any other female household member. This demonstrates the critical role played by women in community development initiatives. It can also reflect the fact that Zimbabwe, being a patriarchal society, most males were engaged in formal or informal employment mostly away from their residences with many female members of the household remaining in the residence areas. This gives the females greater opportunity than males to attend these trainings. Some of the community health promoters were trainer under the last JI program that ended in May 2013. The fact that some trainings were carried out after May shows that the Community Health Club approach is effective and sustainable as people continued to meet beyond the project life span. The disease prevention trainings were mainly against cholera (44%), 16% malaria, 16% TB, 12% AIDS, 8% bilharzia, and 4% diarrheal.

3.2.1.1 Sanitation

It was revealed that private flush toilets were used by 90% of the households, 4% used communal flush toilets, 4% used bucket systems, and 2% pit latrines as shown in the Table below.

Table 4. Sanitation Facilities

Sanitation Facility	Chitungwiza	Mutare	Masvingo	Bulawayo	Average %
Private/ Flush Toilets	96	83	87	95	90
Communal Flush Toilets	0	7	5	3	4
Communal Bucket Systems	2	6	7	2	4
Pit Latrines	2	4	1	0	2
Totals	100	100	100	100	100

There was a decrease in the percentage of households using bucket systems from an average of 8% during the baseline survey of the previous JI program in 2012 to 4%. This could be an indicator of the improved water and sanitation conditions in the urban areas owing to the role played by different actors, the JI included. What most respondents focused on was the disposal of the bucket contents, with allegations that some residents were disposing of the bucket contents inside school durawalls in St Marys' Dungwiza primary school in Chitungwiza. In Masvingo, some were disposing the bucket content into pit latrines while some were disposing in the communal flush systems. In Bulawayo it was alleged that some were disposing bucket contents in open spaces or illegal dumpsites. In Masvingo, pit latrines were mainly used by households as an alternative sanitation facility during periods of water cuts when there was no running tap water to use flush toilets. These latrines were found in community gardens across the residential areas. In Mutare, households staying in incomplete houses in Dangamvura had temporary pit latrines to use, as was the case with households from mushrooming new houses in Chitungwiza.

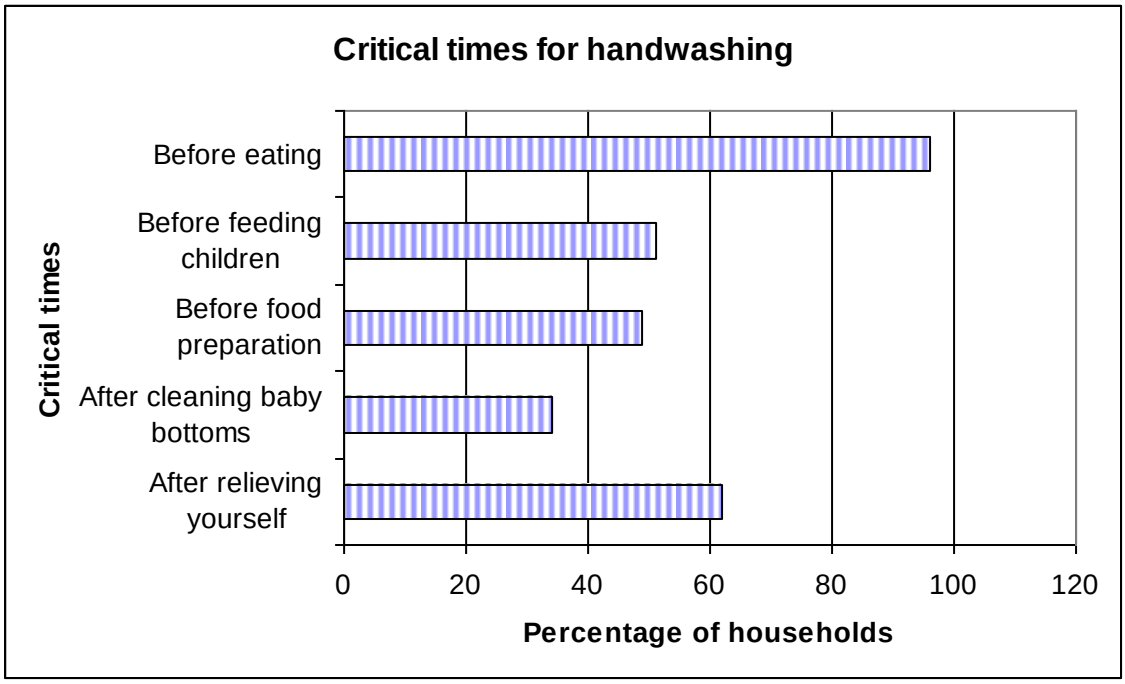
Twenty-seven percent had toilets inside their houses, 61% were accessing them within 1-5 meters away, and 9% have toilets 6-20 meters away from the house. Only 3% reported that they were accessing toilets over 20 meters away from their homesteads. The private flush toilets were shared by an average of 12 people although as many as 40 people renting the same house were sharing a single flush toilet in Sakubva in Mutare and Makokoba in Bulawayo. On average, a community flush toilet was shared by 83 people although the number could be as high as 219 people in Sakubva and Mucheke. Although a higher percentage were using flush toilets, anecdotally, many of them had malfunctioning flushing systems. As highlighted above, the facilities were overburdened as one toilet was being used by up to 40 people at a housing unit, resulting in too many sewage blockages.

Fifty-five percent of HHs had hand washing facilities at their sanitation facilities while 45% had no hand washing facilities. However, it was noted with concern that although some sanitation facilities had hand washing facilities, they were not being used as the facilities had most of their time without running water. Soap for hand washing was only available for 42% of the households. Sixty percent were using the pour to waste method of hand washing while the other 40% were washing their hands from a dish. For hand washing, 79% were using water only, 18% were using water and soap, 3% water and ash, and 1% water and detergents. After hand washing, 42% were using their clothes for drying their hands, 32% used drying towels/cloths, and 26% used drip drying. The best way of drying hands after hand washing should be drip drying as the other methods can lead to re-infection of the washed hands.

3.2.1.2 Hygiene

Findings on hand washing practices revealed that most of the households washed their hands at critical times with 96% before eating, 62% after relieving themselves, 49% after food preparation, 51% before feeding children, and 34% after cleaning a baby bottom.

Figure 2. Critical times for handwashing



3.1.2.3 Waste Disposal

Eighty percent of the households reported that they were disposing of their waste through bins (sacks, plastic bins, containers, polythene). Refuse was collected weekly according to 96% of respondents, and it is collected on schedule according to 82% of respondents in Masvingo, 84% in Bulawayo, 49% in Chitungwiza, and 63% in Mutare. When the bins were not collected on schedule, 22% were dumping the refuse in the open area, 62% were burning it while 16% were burying the refuse. Fumes from burning waste cause acute respiratory infections and the odors make the environment uninhabitable. On average, 47% of the interviewed households were practicing waste separation in the five cities but the missing link was what to do with the separated waste as all wastes were dumped at the same dump site and there was no active waste recyclers in the targeted five cities.

These findings confirm reports by the Human Rights Watch showing that throughout Zimbabwe, urban waste collection rates dropped from at least 80% (mid 1990s) to as low as 30% in some large cities and small towns with the worst affected areas being the low-income residential areas and informal settlements, with some not receiving service at all. The low waste collection levels have triggered widespread illegal open dumping and backyard incineration. This has created negative environmental impacts and increased the health risk of the residents. Open waste dumps are prime breeding sites for houseflies, rodents, mosquitoes and other vectors of communicable diseases such as fever, dysentery, diarrhoea, cholera and malaria while fumes from burning waste cause acute respiratory infections and the odors make the environment uninhabitable[1].

3.1.2.4 Sanitation issues in the suburbs

For Mutare, the backyard for 55% of the households was clean while 45% was rated as dirty on the day of the assessment surveys. The open spaces around 53% of the household were clean. The homes for 65% of the interviewed households were clean while 35% were dirty. Twenty percent of the backyards were clean while 24% of the households open spaces nearby were clean. Fourteen percent of the respondents reported open defecation practices in their respective areas. Twenty-three percent reported the presence of visible dumpsites that were not being attended to in their respective areas. Sewerage busted pipes were reported by 4% of the respondents and were observed in Sakubva and Chikanga.

In Bulawayo, 75% of households had clean backyards with Makokoba having the least number of households with clean backyards at 59.8%. Open defection was reported in 5% of the households with the highest prevalence of open defection reported in Mzilikazi (9%). Unattended illegal dumpsites were reported in 12% of the households with the highest figures recorded in Mzilikazi and Njube. The incidence of busted sewerage pipes was reported by 7% of the households and was observed in all of the targeted high density suburbs. Open sewers and flowing sewage are also common sights in Mbare (Harare), which in addition to contaminating nearby water sources like boreholes and wells, also attract flies and other disease vectors. Flies contribute to the spread of a number of diseases, including cholera and typhoid, but also trachoma, a disease of the eye that causes permanent blindness and affects 40 million people worldwide, including in Zimbabwe[2]

[1] http://www.trust.org/item/20131119164653-26p5r/Zimbabwe

[2] http://reliefweb.int/sites/reliefweb.int/files/resources

In Chitungwiza, it was observed that 69% of the homes, 68% of the backyards, and 62% of the open spaces surrounding the home were clean. It was also observed that 4% of the open spaces in the area had open defecation, 66.3% had visible dumpsites that are not being attended to in the area (picture below), and 67% had visible busted sewer pipes not attended by the City Council.

Figure 3. Illegal Dumpsite in Chitungwiza

In Masvingo, homes and backyards of 63% of the households were clean while the open spaces around houses were dirty for 67% of the households. Signs of open defecation around open spaces was noted by 54% of respondents (most common in Runyararo, the outskirts of Rujeko, and parts of Mucheke near the bus rank), while 44% reported the presence of dumpsites that were not being attended to. Burst sewer pipes were reported by 54% of the respondents with the highest prevalence reported and observed in Macheke**.** These findings are in line with UNICEF reports suggesting that 40% of Zimbabweans in rural areas practice open defecation and with the lack of adequate public sanitation facilities and shortage of water, the prevalence of open defecation in urban areas is estimated to be between 35 to 40%[3].

According to UN figures, in sub-Saharan Africa, open defecation has actually increased over the last 20 years and 15% of the population in the world still practices open defecation[4]. In urban Zimbabwe, it was revealed that people resort to open defecation because they were unable to flush their toilets as a result of lack of water, or their toilets were clogged and overflowing, rending the toilets unusable[5]. Open defecation also has an impact on personal dignity and safety, with women and girls facing particular challenges. As they move further away from crowded areas in order to have privacy, they are more at risk of physical attacks and sexual violence[6].

[3] http://www.unicef.org/zimbabwe/water_san_hygiene.html

[4] http://reliefweb.int/sites/reliefweb.int/files/resources

[5] http://reliefweb.int/sites/reliefweb.int/files/resources

[6] http://reliefweb.int/sites/reliefweb.int/files/resources

Water

Only 14% of the households had benefited from community water related assistance in the six months preceding the assessment, 9% of which had received Waterguard while 2%, 3%, and 1% had received water storage containers, aqua tablets, and chlorine respectively. The assistance was mainly coming from NGOs and their respective City Councils.

Water related trainings received

An average of 19% of the households in the five urban centers had received some water related trainings in the six months preceding the baseline assessment as summarized in the Table below.

Table 6. Percentage households who received water related trainings

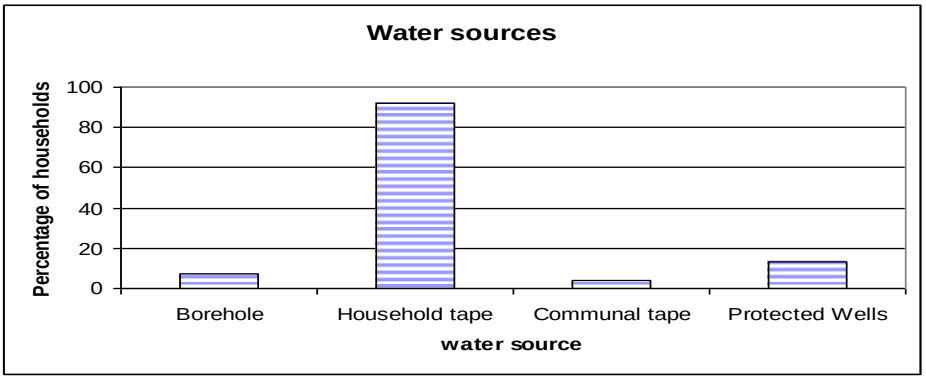
Type of training	Average %
Water storage	24
Water collection methods	20
Methods for transporting water	16
Point of use water treatment	18

On average, 60% were trained by community health promoters, 28% by NGOs like ZimAHEAD, 10% from the local Environmental Health Officers, and 2% were trained in schools. Those trained were mainly females (97%) household members who were trained while the other 3% were males.

4.2.2.1 Water sources for drinking

Household taps were the main water sources for drinking cited by 92% of the households. Seven percent used boreholes with Chitungwiza having the highest percentage of households relying on boreholes. Four percent relied on communal taps with Mutare having the highest percentage of households as shown in the figure below.

Figure 4. Water sources for the households



An average of 13% relied on protected wells for drinking water. Chitungwiza has the highest percentage (40%) of the households drawing drinking water from wells. Although people believe the boreholes are the safest water option, the Human Rights Watch revealed that one-third of urban boreholes tested showed contamination[7]. Evidence has always proved that underground water can be contaminated at any stage, especially in the era of industrialisation where excess chemicals can find their way into the water and the high likelihood of sewage seepage[8][9].

Eighty-three percent of households reported that their drinking water sources were not providing them with adequate water. On average each person was drinking 1.5 liters of water per day against the standard needs of 2.5 to 3 liters per day. The water shortage combined with the lack of functioning indoor toilets or community latrines sometimes gave residents no choice but to defecate outdoors[10]. The major reason was the water cuts or water rationing (61%) which was affecting all the cities but was more acute in Chitungwiza where households were receiving municipal water once a week. The publication called the Eye reported that the Masvingo residents need to brace for serious water cuts as Lake Mutirikwe (at an all-time low of about 8%) was drying up[11] . Five percent reported that the shortage of storage container was the reason they were not getting adequate drinking water from the sources at their disposal. Some could not get adequate water due to burst water pipes (3%), non-functionality of boreholes (4%), and too many people sharing the same source (19%).

Sixty-three percent of the households reported that they felt their water was safe to drink while 37% felt their water was not safe for drinking. In order to make the water safe for drinking, 30% were boiling it, 37% were using Waterguard, while 6% were using bleach. Aqua tablets were used by 11% of the households while less than 1% were using a cloth and water filters to filter the water before drinking. Thirty-one percent were not using anything to make their water safe to drink. The utilization of Waterguard as a water purification method can also be attributed to the efforts made in the previous JI phase to promote the product in the community. Of the households that purified their drinking water, 72% were regularly purifying (every time they collected it or on a daily basis) while 28% had irregular water purification (during disease outbreaks). Thirty-eight percent were getting their water treatment chemicals from the local shops, 30% from health centers, 22% from NGOs, while 7% were getting them from community health workers. Ensuring uninterrupted provision of safe drinking-water is the most important preventive measure against water borne diseases.[12]

Water storage and use practices

Eighty-five percent of HHs were storing their water, for cooking and drinking, inside their houses while 15% were storing their water outside their houses. Twenty-one percent were not storing any water. From the storage containers, household members were getting water through pouring, 29% by dipping, 7% were doing both pouring and dipping, and 1% were using containers with a tap.

[7] http://www.trust.org/item/20131119164653-26p5r/Zimbabwe
[8] The Standard (2013) Not all borehole water is safe: expertshttp://www.thestandard.co.zw/2013/09/15/borehole-water-safe-experts
[9] http://www.swradioafrica.com/2013/11/19/millions-of-lives-at-risk-over-govt-water-provision-failures
[10] http://www.swradioafrica.com/2013/11/19/millions-of-lives-at-risk-over-govt-water-provision-failures/
[11] http://www.southerneye.co.zw/2013/11/20/masvingo-city-faces-water-shortages-lake-mutirikwi-dries/
[12]World Health Organization (2006)
http://www.who.int/diseasecontrol_emergencies/guidelines/CD_Disasters_26_06.pdf

Thirteen percent were not using any containers. Sixty percent were using containers with lids for water transportation while 40% had open containers. Only 26% of the households were using containers with lids for water storage. Containers with lids reduce the chances of water contamination during transportation and storage.

3.2.3 Prevalence of diarrheal diseases in the last six months

Fifteen percent of the interviewed households had members who suffered from diarrheal diseases in the six months preceding the baseline survey. Of the concerned households, the most affected were in the 0-14 age group (86%) regardless of their sex while the other 14% were distributed equally amongst the 15-24 and the 25-59 age groups. This confirms UNICEF reports that diarrhea has become much more prevalent than before and is now one of the five main childhood killers in Zimbabwe[13]

3.3 Agricultural production/food security

Agriculture related trainings

On average 12% of the interviewed households had received some training in disaster risk reduction, 18% in compost production, 8% in seed multiplication, and 16% in nutrition. As was the case with the WASH trainings, over 90% of those trained were females and only 10% were males. The trainings in nutrition, compost production and risk reduction were done by the Councils' City Health Technicians.

3.3.1 Composting practices

Thirty-six percent of HHs had compost pits for their households. Seventy-one percent did not know how to compost their household biodegradable waste while 29% knew how to compost. Of these, only 11% were actually composting their wastes, an 18% gap between knowledge and practice. This shows that generally, knowledge of a certain principle does not translate to practice as there may be other factors that influence practice. The reasons for not composting were mainly lack of knowledge (50%), no space (16%), and not allowed by their landlords (5%). For the household that were composting, 5% were selling the manure while 95% where using the manure in their gardens.

With better management of waste, households can produce rich compost that can be used on gardens to improve the soil, thereby increasing productivity. This provides poor families with a variety of fresh vegetables to eat, as well as a small income from the surplus vegetables. Composting reduces the volume of generated wastes that would have to be transported and disposed of. It offers several benefits such as enhanced soil fertility and soil health thereby increasing agricultural productivity, improved soil biodiversity, reduced ecological risks, and a better environment[14].

Demonstrations carried out by Practical Action confirm that composting works better with well-segregated waste streams and the compost produced can be used for self-consumption (in own

[13] http://www.unicef.org/zimbabwe/water_san_hygiene.html

[14] http://practicalaction.org/home-composting-1

garden) or for sale to households or businesses such as hotels in the city[15]. Worldwide, home composting is now being encouraged as a means of reducing the organic waste being discarded and sent to the landfills. These organic substances are bulky to handle and contribute to numerous liquid and gaseous emissions that deteriorate dumpsite environments. Valuable products (compost) are produced while reducing the costs incurred for collection, transportation and final disposal at dumpsites[16].

3.3.2 Agricultural production

Sixty-six percent of HHs had household gardens while 35% had no gardens. Forty-five percent had grown covo, onions 5%, 11% maize, 11% sweet potatoes, and 16% tomatoes. Those who engage in gardening mentioned that their produce was mainly for household consumption although they could sell the excess. The table below shows that the production levels were purely subsistence.

Table 6. Volume and value of production

Crop type	Quantity produced	Quantity sold	Income realized
Covo	138 bundles	60 bundles	$20
Maize	14 buckets	2 buckets	$14
Tomatoes	15kg	0	0
Sweet potatoes	10kg	0	0
Onions	3 bundles	0	0

Of those who grew something in the last cropping cycle, 47% used retained seed, 29% of them purchased seed, and 24% had other means of accessing seeds which included sourcing from friends and relatives in the locality.

Seed Multiplication

Only 29% had practiced seed multiplication at one point involving crops like covo (76%), maize (3%), onions (5%), tomatoes (9%), and sweet potatoes (7%). In cities, urban agriculture is limited by legality, a lack of space, good quality seeds and the absence of economic incentives although it has considerable potential to improve food security[17]. Therefore proper seed multiplication can go a long way in enhancing crop production for the urban farmers. Urban populations are more vulnerable to food insecurity, as they rely on external sources for their food needs and are thus exposed to greater supply risks and urban agriculture may provide the solution to food security issues in cities especially considering that poor urban households have been by intensifying urban agriculture as a coping strategies to meet their household food entitlements[18].

[15] Abukutsa-Onyango Mary http://www.bioline.org.br/request?nd07020 seed production and support systems for African leafy vegetables in three communities in western Kenya

[16] http://practicalaction.org/home-composting-1

[17] http://www.futuredirections.org.au/publications/food-and-water-crises/1406-feeding-the-cities-is-urban-agriculture-the-future-of-food-security.html

[18] Hovorka, A and Tevera D http://www.krepublishers.com/02-Journals/JHE/JHE-32-0-000-10-Web/JHE-32-2-000-10-Abst-PDF/JHE-032-2-085-10-2015-Kutiwa-S/JHE-032-2-085-10-2015-Kutiwa-S-Tt.pdf

4.0 Research Findings: Schools

4.1 School Profiles

A total of 70 schools were interviewed 46 primary and 24 secondary schools.

Each school had an average of 29 classes and 24 classrooms, respectively. On average the schools had a carrying capacity of 1176 pupils while the actual enrolment on the day of the survey was 1398 pupils.

Table 7. Schools carrying capacities by urban center

Location	Number of schools	Average school carrying capacity	Average actual enrolment	Average number of classes	Average number of classrooms
Masvingo	11	877	1149	22	21
Mutare	18	1073	1284	27	20
Chitungwiza	14	1555	1760	41	22
Bulawayo	19	1200	1400	25	34
Mbare	12	1,012	1,148	27	21
Totals	74	5717	6741	142	118
Average	**12**	**953**	**1,124**	**24**	**20**

This explains why most of the schools (68%) practice hot seating as they all had a higher number of classes than they can accommodate in the available classrooms at the schools. This was not only exerting great pressure on the school furniture and classrooms but also on the water and sanitation facilities at the school.

4.2 Water situation at schools

4.2.1 Water facilities in schools

All the schools in the five cities were accessing municipal tap water. In Mutare only 23% of the schools had rainwater harvesters and 6% of them were non-functional during the time of the survey. In Masvingo all the interviewed schools had rain water harvesters which were still in good working order.

The water from rainwater harvesters was clear and was used for drinking and cleaning purposes. Seventy-one percent of the schools in Chitungwiza and 58% of the schools in Bulawayo had boreholes which were drilled at the zenith of the cholera outbreak between 2008 and 2009. In Mutare only 17% of the schools were accessing borehole water while only 5% of the schools in Masvingo were accessing boreholes. Borehole water was used for drinking, cleaning and flushing the toilets. Wells were not very popular at schools with only 1% of the schools in Mutare and 2%

in Chitungwiza reporting having a well. The wells were all seasonal and the water was used for watering flowers, flushing toilets, and cleaning purposes.

Seventy-eight percent felt their water sources were not supplying enough water for the school needs. Ninety-eight percent of the school had alternative water sources outside the school which they used when their source was non functional. When there was no water at the school, the major alternative water source was a community borehole which, on average, was 550 meters away from the school. It was taking an average of 42 minutes to collect the water from the alternative water source.

4.2.2 Water transportation and storage at the school

The most popular method for water collection was water buckets which were used by 54% of the schools and the rest used a mix of drums (13%), water bowsers (9%), drums (22%) and jerry cans (2%). It was universally observed, across the cities that both boys were fetching water for use in the schools and the caretakers regardless of sex also fetched water for their own use. Seventy-two percent of the schools indicated that the containers they were using for transportation had lids while only 54% used containers with lids for water storage.

Since the schools were experiencing water cuts, water containers were very critical for both transportation and storage. As highlighted before, a container with lids reduces the chances of contamination of the water during both transportation and storage.

4.3 Sanitation

4.3.1 Sanitation facilities at the school

The average number of functional toilet/squat holes was 25 for all the schools across the five urban centers. Considering that the average number of pupils per school was 1398, each squat hole was used by 56 pupils. According to the 1976 Education Act, as amended in 2006, the regulations made provisions for WASH in schools, it is a requirement that every school have at least two blocks of toilets, separate for girls and boys, and the number of toilets is further determined by enrolment in line with Ministry of Health and Child Welfare (MOHCW) standards of 25 pupils to one toilet (squat hole)[19]. Therefore, the situation in these urban schools shows that the toilets were over burdened which will make their cleanliness difficult considering that most of the schools did not have a regular supply of water for flushing.

Only 46% of the schools had separate toilets for the Early Childhood Development (ECD) children. Small chambers are usually recommended for the ECD for the younger kids to safely use them. The big chambers will require that the young children touch the chamber when using the toilet which will expose them to infection. The ECD were recruited well after the toilets were established for school pupils and came in to over crown the toilet facilities, hence the need for separate toilets for the ECD.

[19] http://www.washinschoolsmapping.com/projects/Zimbabwe.html

A few of the schools (15%) had toilets that were usable with people with disabilities. It was interesting to note that 87% of the school facilities in the targeted urban areas were used by churches during weekends which meant that the same facilities were exposed to use by a high number of people. It was reported in Masvingo and Mutare that churches that use school facilities during weekends usually leave toilets unclean and this was usually exacerbated by the lack of water for flushing. Only 1% of the schools had very old toilets which required demolitions as they were posing great hazards for the pupils.

The sanitation facilities were rated very clean for 17% of the schools, clean for 50%, dirty for 22% and very dirty for 11% of the schools. Dirty toilets are more like or worse than defecating in the open spaces. This possibly explains why 63% indicated that the major factor that reduced the use of the sanitation facilities was lack of cleanliness of the toilets. The area around the sanitation facilities was maintained for 83% of the schools. The areas around sanitation facilities were clean for 78% of the schools. If the areas around the sanitation facilities are not clean, this can be a conduit for flies from the toilets to the people and vice versa.

Hand washing facilities were functioning for 88% of the schools while non-functional for 22% of the schools. Soap was available for hand washing in only 44% of the schools and 56% had no soap for hand washing. Soap is critical for killing germs and it was proved that hand washing with soap can reduce diarrheal diseases by 40%. However, although there was a higher percentage of schools with functional hand washing facilities, the actual use of these facilities was low due to the shortage of water. In Chitungwiza some schools acknowledged the availability of soap received from UNICEF which was not being used due to water challenges.

The area around water facilities at the school like taps, boreholes, and hand washing points were rated very clean for 6% of the schools, clean for 66%, and dirty for 28% of the schools. If waste water is not well managed, the areas around water facilities can be potential hazards as they can be breeding grounds for disease carrying vectors.

School Health Clubs

The School Health Clubs had an average membership of 17 pupils although the membership ranged from 12 to 40. Forty-one percent of the members were male pupils while 59% were female pupils. School health clubs were said to be active in 72% of the schools and the table below summarises the roles played by club members.

Table 8. Role of school club members

Roles of club members	Percent
Identification of health hazards	6
Cleaning around the school	28
Do awareness campaigns	50
Mobilizing some children to clean the environment	11
Acting drama on hygiene and sanitation	39
Presentations at the assembly on certain thematic areas	6
Teaching other pupils on hygiene	6
Not aware	11

5.0 Conclusions and Recommendations

5.1 Conclusions

The study manages to provide a picture of the conditions in the five suburbs which would inform the project's progress towards meeting its goals. The remnants of the previous phases of the JI were evident in some of the water and sanitation conditions which prevailed in the suburbs. Although remarkable strides have been made, the conditions in the suburbs are far from satisfactory. Open defecation, dumpsites and other water and sanitation practices need to be addressed so that the incidence of diarrheal diseases can be curtailed.

5.2 Recommendations

1. Hygiene messages during this phase of the project should focus on open defecation so that the communities could be declared open defecation free.
2. Hygiene sessions should also address possible methods of waste disposal to reduce the amount of garbage dumped in open spaces.
3. Awareness raising sessions should be conducted with the school authorities so that the sanitation facilities take into consideration the needs of children living with disabilities.
4. Trainings on seed multiplication should be coupled with other trainings on gardening which include record keeping so that the changes realized by the project can be tracked.