WSUP
Water & Sanitation
for the Urban Poor

PRE INTERVENTION ANALYSIS ABOUT THE WATER AND SANITATION INFRASTRUCTURE SITUATION IN CHAMANCULO, IN THE CITY OF MAPUTO

Maputo, 2009

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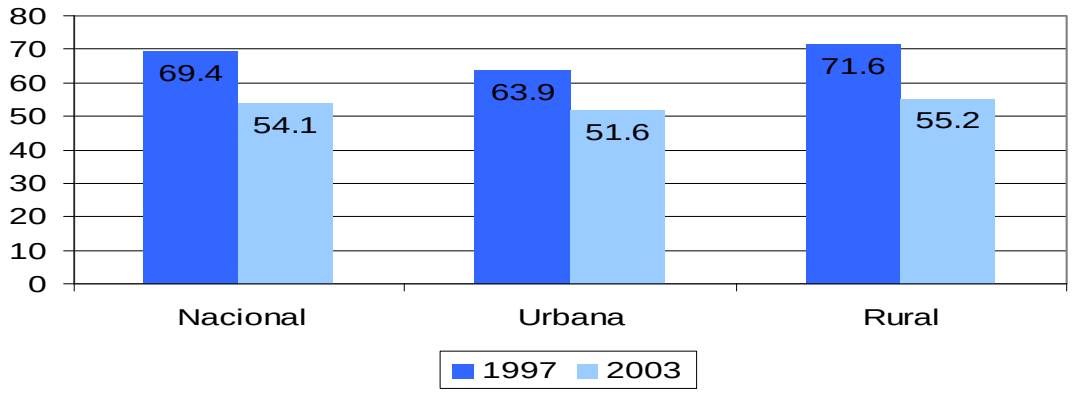
A. INTRODUCTION

(a) Justification and Objective of the Study

In Mozambique the incidence of poverty on the national level reduced to 22 percent between 1997 to 2003[1], decreasing from 69.4% to 54.1%, which means it exceeded the goal foreseen in PARPA I of reducing the poverty incidence to 60% until 2005. However, although the poverty incidence increased in the rural areas (55.2 percent) and there poverty is still higher comparing to the poverty in the urban level (51.6 percent), it was indeed in the rural area where the poverty decreased the most, with the improvement of access to basic services (water, sanitation, food, education, health and shelter). In the urban level poverty has been increasing due to the increase of the inequality in the distribution of the incomes and opportunities, this had a higher expression on the 5th February 2008 with the violent manifestations in the city of Maputo and Matola, due to the increase of transport costs.

Table 1: Percentage of population that live below the poverty line



Source: UNICEF, 2006

The WSUP Maputo Project has the objective of "improving the conditions of water supply and sanitation in the rural areas of Maputo city." In this sense the neighborhood of Chamanculo C by its characteristics (Section C1) was one of the selected areas for the intervention of the Project. The present study was carried out to collect and analyze information about the present situation of water supply and sanitation, in this area to inform the design and implementation of the activities of the project.

[1] The main data about poverty in Mozambique refer to Inquiries of the Family Aggregation (IFA) which is carried out every six years, that is why we used the information of 1997 and 2003.

B. METHODOLOGY

The methodology used for the present study was based on a data collection and qualitative and quantitative information, with the aim of answering the following evaluation questions:

i) What are the main characteristics of the bairro of *Chamanculo C* that influence the present situation of water supply and sanitation conditions?
ii) What is the present situation concerning the infrastructures of water supply and sanitation in the area?
iii) What is the current social economic situation of the families and their capacity of payment of services related to water and sanitation?
iv) What are the hygiene practices/habits of most of the families?

(b) Data Collection Instruments

For the effect of data collection to produce the information above mentioned we used the following instruments: i) Household questionnaires – for this purpose about 565 households were interviewed with a pre-tested questionnaire, ii) Interviews with the key Informers – including the secretariat of the area and the local people and institutions that deal with water supply and sanitation, and iii) Document Analysis – project documents and previous studies carried out for *Chamanculo C bairro.*

(c) Data analysis

The first step of the analysis was the statistic treatment of the Household Questionnaires which were processed on the SPSS software (Statistical Package for Social Science) which resulted in the production of different themes and topics of interest for the study. The second step was dedicated to the interpretation of these results, for this effect we used the information on tables and also the information of the key informers, as well as the information from documents.

(d) Size and characteristics of the sample

For this work about 565 people were interviewed, representing the households, of which 63.5 percent were women and 36.3 percent were men. The average age of the interviewed people was 39 years old (minimum: 13 years old, maximum: 89 years old). 75.5 percent of the people interviewed were the heads of households and the rest, about 24.4 percent were the other members of families, namely: adult sons (11,3%), non adult son (7,1%), other relatives (6%).

C. FINDINGS AND RECOMENDATIONS

C.1 Characteristic of the houses

The neighborhood of Chamanculo-C, is located at urban district number 2, in the suburbs surrounding Maputo city. In this neighborhood most of the population live literally in inhuman conditions because most of the population of this neighborhood are refugee who moved to this place during the time of the civil war, the houses are improvised with leftovers of cans, tins, sticks, and the houses are scattered all over, without any organization, and in a situation where by one latrine can serve 10 families, with 6 to 10 people in each family. This neighborhood was one of the neighborhoods devastated by the floods in the year 2000, which worsen the living conditions of this population. However, the floods of the year 2000 also called the attention of the Municipal Government and the Organizations of the Civil Society so that they could intervene in the deplorable conditions of the neighborhood. From that time until now, this neighborhood has been benefiting of some infrastructures of water and sanitation, however, they are still not enough to improve the living conditions of these families in an acceptable way.

Picture 1: Neighborhood of Chamanculo C, viewed from a Satellite

Source: Google Earth

The WSUP-Maputo aims to work essentially on the "compounds", which is a group of houses made of wood and zinc, built in the same piece of land, built during the colonial era on a private initiative to accommodate local labor from the rural areas that came to Maputo City in a form of temporary work. In these houses there were no much worries with water and sanitation conditions, because it accommodated people with a determined time and most of the times without their families. However, with national independence most of the "compounds" were nationalized and became managed by the government in the first step and gradually they were given to the national citizens. From that time to today the population density has increased very much (it probably increased four times the normal size) and the water supply and sanitation became worse. (WSP, 2009)

Currently, most of the "compounds" accommodate the same extended family, however, 30.4% of the "compounds" accommodate 2 to 5 families in the same space. With cases of 6-10 houses (10.27%) and even more than 10 Households (4.25%) (Table 1).

Table 1: How many homes are in this "compound"?

Number of households in the compound	Number of cases	Total Percentage
1 House	311	55.04%
2-5 Houses	172	30.44%
6-10 Houses	58	10.27%
More than 10 houses	24	4.25%
Total	565	100.00%

The level of education of these people has increased a lot lately because of the awareness of the population in general, the need of formal education to get better jobs, and it's easily seen in the urban and peri-urban population. This finding matches with the results of the study that indicate that 42.7% of the interviewed people had the elementary level of education, 88.1% of the interviewed women can read and write and 95.6% of the men interviewed can also read and write. (Tables 2 and 3).

Table 2: Higher level of Education (in the family aggregation)

	Number of cases	Percentage
a) Without education	43	7.6
b) Primary education not concluded	106	18.8
c) Primary education completed	64	11.3
d) Secondary education not completed	241	42.7
e) Secondary education completed	72	12.7
f) University education not completed	31	5.5
g) Other	8	1.4
Total	565	100.0

Table 3: Can read?

			0.7 Can read?			
			Yes	No	Without Answer	Total
0.3 Sex inquired	Women	Number	317	42	1	360
		% of the "Sex inquired"	88.1%	11.7%	0.3%	100.0%
		% that "Can read?"	61.8%	82.4%	100.0%	63.7%
	Men	Number	196	9	0	205
		% of the "Sex inquired"	95.6%	4.4%	0.0%	100.0%
		% that "Can read?"	38.2%	17.6%	0.0%	36.3%
Total		Number	513	51	1	565
		% of the "Sex inquired"	90.8%	9.0%	0.2%	100.0%
		% that "Can read?"	100.0%	100.0%	100.0%	100.0%

C.2 Social Economic Situation and Health

Most of the families who live in the compounds in the bairro of Chamanculo C have listed as their source of income small owned businesses (28%) such as buying and selling of food, second hand clothes, small repair shop to repair different electrical appliances, tailors shop, etc. However, we also noted that there are many working age unemployed people (16.3).

Table 4: Occupation

		Number of cases	Percentage
(a)	Own business / self-employed	158	28.0
(b)	Not employed in the agricultural sector	70	12.4
(c)	Working on His/her own plantation	23	4.1
(d)	Working on plantations that belong to other people	2	0.4
(e)	Unemployed	92	16.3
(f)	Student	81	14.3
(g)	Other	139	24.6
Total		565	100.0

Households are mainly composed of adults who are above 18 years of age: approximately 3 adults/per household, 2 children with ages between 5 to 18 years old and 1 child less than 5 years old per household.

Table 5: Number of people in the house

	Minimum	Maximum	Average
1) >18 years old	0	11	3.26
2) 5 – 18 years old	0	14	1.72
3) < 5 years old	0	18	1.07

The average income of the households is about 2.400,00 meticais/monthly, close to minimum salary, however, there is a considerable number of families that live with a minimum monthly income of 200 meticais per month.

Table 6_Monthly income of the household (meticais)

Minimum	Maximum	Average
200	4,500	2,441.67

In relation to possession of goods, the survey reveals characteristics of poor suburbs. Most of the families have a gas stove, electric stove, and others use charcoal to prepare their meals, more than 60% have radios and/or televisions in their homes, 47% have a refrigerator. In relation to agriculture-cattle resources we can observe that only 18.6% have land to cultivate and in the surrounding areas land to cultivate is very scarce because in that neighborhood most people are in the informal sector, commerce and provision of services.

However, one of the main constraints for the growth of economical activities in the families in this neighborhood is access to financial services, if we consider that only 3.4% of the inquired people received a certain credit to finance their income activities.

Table 7 House goods

	a. Number of divisions	b. Electric stove/gas/ charcoal stove	c. Radio	d. Television	e. Fridge	f. Sewing machine	g. Bicycle	h. Motorcycle
Number	241	515	391	393	266	46	21	9
Percentage	42.7%	91.2%	69.2%	69.6%	47.1%	8.1%	3.7%	1.6%

	i. Car	j. Boat	k.Telephone	l. Cultivating land	m. Cattle	n. Pigs	q. Sheep
Number	32	2	105	36	1	565	3
Percentage	5.7%	0.4%	18.6%	6.4%	0.2%	100.0%	0.5%

Table 8: do you benefit from any financial or material scheme assistance?

1. Loan / Credit	2. Training	3. Latrine System	4. Housing	5. Vehicle	6. Material	7. None
19	5	14	5	0	2	512
3.4%	0.9%	2.5%	0.9%	0.0%	0.4%	90.6%

The incidence of school- age children, who are enrolled at school is relatively high, is at about 99.57%. This result should be in part due to a strong mobilization from the education sector for the obligation of primary education in the ambit of the Implementation of the Millennium Development Goals to assure Universal Education of every child in the Primary Education until 2015.

Table 9: Number of school-age children and the number of children enrolled at school

	Minimum Number	Maximum Number	Sum	Average
Men	0	7	496	0.88
Women	0	5	455	0.81
Total	0	8	933	1.65
Enrolled	0	8	929	1.64
Incidence of school-age children l enrolled in schools			99.57%	99.57%

According to the data, diseases such as diarrhea are not very frequent in the neighborhood. In this sense 97.7% say that no diarrhea was suffered by children less than five years old in the last two weeks before the interview was carried out.

This information is important because in part it can mean that the improvement in the water treatment and the sanitation alternatives were maybe reinforced along the time in this neighborhood, given the clearly vulnerability of the environment sanitation and other physical characteristics of the neighborhood.

C.3 Water supply

(a) Water Source

Table 10 _In the last two weeks, did any child less than five years old suffer from diarrhea? (who may have defecated more than 3 times on the same day)

	Number of cases	Percentage
Yes	13	2.3
No	552	97.7
Total	565	100.0

The main water source to drink is pipe water from the neighbor's house (44.2%), however, some have water tap in their houses (25%) and others have to depend on the public water taps (22.1%). The same proportions use water taps inside their houses for other purposes like (cooking, washing clothes, others) as for drinking water.

Table 11: Primary water source

	Type of fountain	Number of cases	Percentage
Drinking water source	Inside the house	45	8.0
	Public fountain	125	22.1
	Water tap in the yard	141	25.0
	Water tap in the neighbors yard	250	44.2
Water fountain for source	Inside the house	45	8.0
	Public fountain	125	22.1
	Water tap in the yard	149	26.4
	Water tap in the neighbors yard	242	42.8
Water source for cleaning the house	Inside the house	45	8.0
	Public fountain	123	21.8
	Water tap in the yard	139	24.6
	Water tap in the neighbors yard	251	44.4
Water source for washing clothes	Inside the house	45	8.0
	Public fountain	125	22.1
	Water tap in the yard	149	26.4

	Water tap in the neighbors yard	242	42.8
Water source for bathing	Inside the house	46	8.1
	Public fountain	124	21.9
	Water tap in the yard	139	24.6
	Water tap in the neighbors yard	251	44.4
Water source for gardening	Inside the house	37	6.5
	Public fountain	62	11.0
	Water tap in the yard	88	15.6
	Water tap in the neighbors yard	121	21.4
Water source for small businesses/commercial activities	Inside the house	23	4.1
	Public fountain	35	6.2
	Water tap in the yard	42	7.4
	Water tap in the neighbors yard	81	14.3
Water source for other purposes (ex. Washing the latrine or flashing it)	Inside the house	29	5.1
	Public fountain	40	7.1
	Water tap in the yard	65	11.5
	Water tap in the neighbors yard	92	16.3

In relation to the secondary water source: no one referred to the existence of secondary water source.

We observed that, many people do not have to walk long distances to fetch water, mainly because for many water is fetched mostly from a house in the same neighborhood, in this sense most of the people (57.5%) have to walk 15 minutes to fetch water, some people (7.8%) have to walk between 15 to 30 minutes and very few (1.2%) walk distances above 1 hour to fetch water.

Table 12: How long do you take from your house to the MAIN water fountain (including the time you take to go, come back and wait in the line)?

	Number of cases	Percentage
Less than 15 Minutes	325	57.5
15 a 30 Minutes	44	7.8
More than 1 hour	7	1.2

The road that these families take to go and fetch water, in the understanding of these families is easy and is not dangerous (table 13). However, the difficulty is related to the long queuing lines that they have to face when fetching water and the time that they have to wait in the line.

Table 13. Is it easy to walk in the road that you use to go and fetch water in the MAIN SOURCE?

		Number of cases	Percentage
1.Yes		309	54.7
(b)	No, because it is dark in the afternoon	41	7.3
(c)	No, because it is very irregular	15	2.7
(d)	No, because it is very dirty	5	0.9
(e)	No, because of others	10	1.8
Total		565	100.0

Table 14: Are there always people waiting on the line to fetch water when you get to the MAIN SOURCE?

		Number of cases	Percentage
1.	Yes, always	216	38.2
2.	Yes, often	51	9.0
3.	Sometimes	24	4.2
4.	No	89	15.8
Total		565	100.0

Table 15: if yes, how many people in general in the MAIN SOURCE?

Number of people that answered the question	Maximum number of people in the line	Minimum number of people in the line	Average number of people in the line
281	0	100	15.00

Most of the time the people that go to fetch water were not afraid in this process: there were however, concrete situations cited where people were afraid.

Most of the households go to fetch water on foot, some - everyday and others not. In terms of number of times that they go and fetch water it varies from one to twenty times a day.

Table 16. Did you ever feel afraid when you fetched water from the MAIN SOURCE?

	Number of cases	Percentage
Yes	49	8.7
No	324	57.3
Total	565	100.0

Table 17: How do transport the water to your house from the MAIN SOURCE?

	Number of cases	Percentage
Without an answer	176	31.1
On foot	384	68.0
Wheel barrow	4	0.7
Outher	1	0.2
Total	565	100.0

Table 18 Do you fetch water everyday?

	Number of cases	Percentage
Yes	231	40.9
No	148	26.2
Total	565	100.0

Table 19 If yes, how many times do you go and fetch water per day?

Number of cases	Minimum	Maximum	Average
234	1	20	6
234			

Table 20. If no, how often do you go and fetch water?

	Number of cases	Percentage
Alternative days	116	20.6
Once in every 3 days	27	4.8
Once in every 4 days	1	0.2
Other	4	0.7
Total	565	100.0

In relation to the period of fetching water we noticed that most families fetch water in the morning (68%). However some prefer to do it at mid day to avoid queues.

They fetch at least 20 liters and there are situations where they fetch up to 300 liters per day.

Table 21. During which period of the day do you normally fetch water?

	Number of cases	Percentage
Mid day	181	32.0
Very early in the morning	384	68.0
Total	565	100.0

Table 22. What quantity of water do you fetch in you main water fountain, each time you go to the fountain (liters)?

N	Minimum	Maximum	Average
380	20	300	26.89

The water sources seem to be more or less reliable- 76.6% of the people interviewed said that during the month before the interview was carried out there was always water available. However, occasionally there were cases whereby there was no water available, When the water fountain is broken it takes at least 1 to 2 days to fix the problem.

Table 23. Last month, was there always water available when you went to fetch water?

	Number of cases	Percentage
Yes	433	76.6
No	102	18.1
Total	565	100.0

Table 24. Was there ever a moment when there was no water available in your main water source, when you went there to fetch it?

	Number of cases	Percentage
Yes	202	35.8
No	331	58.6
Total	565	100.0

Table 25. If yes, when and how often does this happen?

	Number of cases	Percentage
Only occasionally	95	16.8
At least once a week	32	5.7
At least once a month	78	13.8
Most of the times during a specific time (eg. Dry season)	2	0.4
I don't know	12	2.1
Total	**565**	**100.0**

C.4 Water Consumption

(a) Water Available

Most of the families (98.8%) have sufficient water for the whole year both for drinking and other activities, such as washing clothes, cleaning the house and bathing, etc. In the perception of most people (96.5%) of the people interviewed water is good for drinking and is of acceptable quality for any domestic use.

Table 26: Do you think that the water from the source that you use is good for drinking?

	Number of cases	Percentage
Yes	545	96.5
No	8	1.4
I don't know	9	1.6
Total	565	100.0

Table 27: How do you describe the taste of the water of your main source?

	Number of cases	Percentage
Good	546	96.6
Not satisfactory	16	2.8
Total	565	100.0

(b) Water treatment

In relation to water treatment we saw that most of the people interviewed (78.9%) do not treat water for the family consumption, and only (20.2%) said that they treat water before drinking. For those who treat water, their main method is "boiling the water".

Table 28: Do you treat the water before drinking it?

	Number of cases	Percentage
Yes	114	20.2
No	446	78.9
Total	565	100.0

Table 29: If yes, what do you do to treat the water?

	Number of cases	Percentage
1. I boil it	64	11.3
2. I use the sedimentation process	9	1.6
3. I use chemical products (eg. Chorine)	12	2.1
6. Other	31	5.5
Total	565	100.0

(c) Payment of Water

93% of the people interviewed said that they pay for water that they consume and they pay monthly, which means that this is a verbal agreement between the parts (neighbor or source and the consumer).

Table 30: If you pay for the water, how do you pay for it, in the main source?

	Number of cases	Percentage
Per bucket (container)	192	34.0
Monthly	333	58.9
Weekly	2	0.4
Other (specify)	1	0.2
Total	565	100.0

Table 31: If you pay for the water, do you limit your consumption because of the water cost?

	Number of cases	Percentage
Yes	108	19.1
No	416	73.6
Total	565	100.0

The domestic water cost varies from zero to five hundred meticais as payment for water connection, and also depending on the distance from the source to the house, the pipe cost varies from 100 to 300 meticais. No maintenance cost was cited by the interviewed.

Table 32: water costs

	N	Minimum	Maximum	Average
IF IT IS PIPE WATER – How much do you pay for the initial cost (installation fee)?	8	0	500	132.38
IF IT IS PIPE WATER – How much do you pay for the initial cost (pipes/installation fee)?	2	100	300	200.00
IF IT IS PIPE WATER – How much do you pay for the maintenance fee (average per month)?	0	0	0	0

When asked if they would be interested in paying a little bit more - for them to have better quality water, the answers were divided. 50% of the participants were interested and the 50% were not interested.

C.5 Sanitation

(a) Latrine availability

Most of the compounds have at least one shared latrine (84.2%) , and some households have their own latrines (30.2 %). Most of both of them (33.8%) are "*low quality latrines", however, a considerable part have simple latrines of sewage " and " latrines with connection to the septic sewage" (49.9%).*

Table 33: Is there an accessible latrine for the house in the compound (home L)?

	Number of cases	Percentage
Yes	476	84.2
No	22	3.9
Total	565	100.0

Table 34: Is there an accessible latrine for the house in the compound (shared home)?

	Number of cases	Percentage
Yes	83	14.7
No	18	3.2
Total	565	100.0

Table 35: What type of latrine is it?

	Number of cases	Percentage
Connected to the network	2	0.4
Connected to the septic sewage	121	21.4
Flashing latrine	5	0.9
Simple latrines of sewage	161	28.5
VIP latrine	6	1.1
A very low quality latrine	191	33.8
Other	7	1.2
Total	565	100.0

In relation to their functioning state, we found that compounds without any latrine functioning and others with 7 functional latrines. Each of the latrines can be exclusively used by one household or even 59 households.

Table 36: What type of latrine is it, is it a shared one?

	Number of cases	Percentage
Connected to the network	2	0.4
Connected to the septic sewage	10	1.8
Flashing latrine	2	0.4
Simple latrines of sewage	63	11.2
A very low quality latrine	12	2.1
Other	3	0.5
Total	565	100.0

Most of the (54.5%) considered that the current situation of these infrastructures is not satisfactory and they were never emptied. In the cases were they were emptied they would have to pay someone to do it, and for this effect people were willing to pay a minimum of 150 meticais up to 800 meticais.

Table 37: How do you describe the latrine that you use?

	Number of cases	Percentage
Satisfactory	249	44.1
Not satisfactory	308	54.5
Total	565	100.0

Table 38: How many times do you empty it?

	Number of cases	Percentage
Never	404	71.5
Once in 3 months	22	3.9
Once in 6 months	18	3.2
Once a year	25	4.4
Once in 2 years	39	6.9
Other	28	5.0
Total	565	100.0

Table 39: How do you empty your latrine/septic sewage?

	Number of cases	Percentage
	414	73.3
Vacuous tank	32	5.7
I pay someone to do it manually	68	12.0
A family member does it	23	4.1
I don't empty it	28	5.0
Total	565	100.0

Table 40: If yes, what would be the average cost, for you, for it to be emptied?

N	Minimum	Maximum	Average
2	150	800	475.00

When asked about the reasons of not having a latrine in the compound, in the cases where this happened, the main answer was lack of space for building it.

(b) Latrine Usage

Most of the people interviewed said that they used the latrines in the compound to defecate. Only three people said that they use the community latrine and other alternatives.

Table 41 Where will defecate if you don't have a latrine at home?

	Number of cases	Percentage
Community Latrine	2	0.4
Does not know	1	0.2
Total	565	100.0

According to the information that we received, many people use community latrines. (54%) The queue to use the community latrine is on average between 1 to 10 people using or awaiting to use the latrine in a certain period of time. The use of the community latrine is free of charge.

Table 42: Normally how many people are in the line when you get to the community latrine?

	Number of cases	Percentage
No one	47	8.3
1 to 5	28	5.0
6 to 10	11	1.9
11 to 20	9	1.6
More than 21	3	0.5
Total	565	100.0

Table 43: Is there someone who cleans the community latrine?

	Number of cases	Percentage
Yes	69	12.2
No	27	4.8
Total	565	100.0

From the people that use the community latrines, most of them think that their current condition is not satisfactory, noting in particular, lack of cleanliness and them being full, , with people who even stop using them once they get there and see their condition.

Table 44: How do you describe the community latrine that you use?

	Number of cases	Percentage
Satisfactory	30	5.3
Not Satisfactory	68	12.1
Total	565	100.0

Table 45: Did you ever happen to not use a latrine when you wanted to use it?

	Number of cases	Percentage
Yes	154	27.3
No	400	70.8
Total	565	100.0

Table 46: IF YES, when did that happen and how many times did that happen?

	Number of cases	Percentage
Yes, at least once a week	52	9.2
Yes, at least once a month	11	1.9
Yes, only in specific times of the year	43	7.6
Yes, only in specific times of the year, only occasionally	1	0.2
Occasionally	46	8.1
Total	565	100.0

Table 47: IF YES, can you please explain why?

	Number of cases	Percentage
It was closed for maintenance	27	4.8
It was very dirty	6	1.1
The septic sewage was full	26	4.6
Other	92	16.3
Total	565	100.0

(c) Conditions of the Latrine

The results of the observation of the current situation of the latrines in the houses, indicates that they were in a reasonable state and clean (64.1%), but with bad smell and with a few flies.

Table 48: Condition of the latrines mostly used by the family members – Smell

	Number of cases	Percentage
Smells outside the latrine	72	12.7
Smells inside the latrine	203	35.9
Without smell	272	48.1
Total	565	100.0

Table 49: Condition of the latrines mostly used by the household members – Cleanliness

	Number of cases	Percentage
Feces and paper used outside the sewage	44	7.8
A little bit dirty	141	25.0
Clean	362	64.1
Total	565	100.0

Table 50: Condition of the latrines mostly used by the family members – Flies

	Number of cases	Percentage
Some flies	249	44.1
Many flies	70	12.4
Without any flies	228	40.4
Total	565	100.0

In terms of structural conditions 60% of the latrines observed did not present any ruptures and rifts in its structure while 40% did.

Most of the latrines did not have a door but had a separate lid to close the latrine (42.3%).

Table 51: Condition of the latrines mostly used by the family members — Superstructure

	Number of cases	Percentage
Visible holes	89	15.8
With rifts	107	18.9
Without rifts	344	60.9
Total	565	100.0

Table 52: Condition of the latrines mostly used by the family members – Flagstone condition

	Number of cases	Percentage
Some rifts	130	23.0
Without rifts	338	59.8
You can see the sewage	66	11.7
Total	565	100.0

Table 53: Condition of the latrines mostly used by the family members – Door

	Number of cases	Percentage
The door closes completely	121	21.4
The door closes, but not completely	124	21.9
Without a door	302	53.5
Total	565	100.0

Table 54: Does the hole of the latrine have a separate lid?

	Number of cases	Percentage
Yes	315	55.8
No	229	40.5
Total	565	100.0

Table 55: Did the lid cover the hole at the time of the visit?

	Number of cases	Percentage
Yes	348	61.6
No	194	34.3
Total	565	100.0

During the time of the visit most of the sewages were empty, however about 9% of the sewages visited were completely full with feces visible floating on top.

Table 56: To what point was the sewage full?

	Number of cases	Percentage
The sewage was empty or almost empty	324	57.3
The sewage was partially full	98	17.3
The feces were visible on top of the sewage	52	9.2
Not applicable	65	11.5
Total	565	100.0

C.6 Hygiene and Sanitation

(a) Facilities and habit of washing hands

We did not observe any specific sink for washing hands, and in the cases where this existed, there was no soap or any other detergent for washing hands.

Table 57: Is there a sink to wash hands near the latrine?

	Number of cases	Percentage
No, 10m away	12	2.1
None	401	71.0
Yes, 10m away	67	11.9
Yes, next to the latrine	67	11.9
Total	565	100.0

Table 58: If yes, is there soap available?

	Number of cases	Percentage
Yes	135	23.9
No	359	63.5
Total	565	100.0

Most of the people interviewed (92%) said that they washed their hands mainly in necessary cases such as before eating, after using the latrine, after eating, etc.

In 50% of the houses visited there was a dish for soap, however, more than half (55%) of these families did not have soap or any other detergent in it

Table 59: Was there a dish available to wash hands?

	Number of cases	Percentage
Yes	334	59.1
No	228	40.4
Total	565	100.0

Table 60: Was there enough water to wash hands?

	Number of cases	Percentage
Yes	323	57.2
No	239	42.3
Total	565	100.0

Table 61: Was there soap available?

	Number of cases	Percentage
Yes	280	49.6
No	282	49.9
Total	565	100.0

(b) Solid waste and sewage treatment

Most of the used water in houses would immediately be thrown to the street, without any municipal sanitation. In few cases there are drainage systems available (19.7%).

Table 62: To where does the used water from the house go?

	Number of cases	Percentage
To the street	321	56.8
To the street, to the drainage system	5	0.9
To the street, to be reused	1	0.2
To the drainage system	105	18.6
To the drainage system, other	2	0.4
Reutilization	3	0.5
Linked to the sewage system	4	0.7
Other	121	21.4
Total	565	100.0

In relation to solid waste removal, what people used varied a lot, but in some cases there was a central collection, but in some cases the treatment varied between burying the garbage in the back yard, burning it, among other alternatives.

64.5% of households benefit from a system of garbage collection, and in a certain way they pay for these services[2], . For those who do not benefit from these services, half of these households are willing to pay for these services.

Table 63: Where do you place your garbage?

	Number of cases	Percentage
	6	1.1
In a hole at the back yard of the house	49	8.7
In a hole at the back yard of the house, in a specific place on the street	6	1.1
In a hole at the back yard of the house, it is collected from the house	5	0.9
In a hole at the back yard of the house, it is collected from the house, I burn it	1	0.2
In a hole at the back yard of the house, I burn it	1	0.2
In a hole at the back yard of the house, it is collected in a specific place, I burn it	1	0.2
In a hole at the back yard of the house, I burn it	1	0.2
In a hole at the back yard of the house, in a specific place on the street	1	0.2
In a hole or container in the street	72	12.7
In a hole or container in the street, they collect it from the house	4	0.6
In a hole at the back yard of the house, I burn it	1	0.2
Openly in the air	1	0.2
They collect it from the house	71	12.6
They collect it from the house, in a specific place	2	0.4
They collect it from a specific place	291	51.5
I burn it	4	0.7
Other	48	8.5
Total	565	100.0

Table 64: If you are currently not paying for these services, would you be interested to have the garbage collected from your house?

	Number of cases	Percentage
	183	32.4
Yes	83	14.7
No	299	52.9
Total	565	100.0

[2] Through the billing of energy which incorporate a garbage collection rate

C.7 Water supply operators

(a) The relationship between the consumers and water suppliers

Most (73.6%) of the water consumers, who were part of this study, did not know where the office of water supplier is located, and consequently they had never complained or visited it.

Table 65: Do you know where the Office of the main water supplier is located?

	Number of cases	Percentage
Yes	146	25.8
No	416	73.6
Total	565	100.0

Table 66: Have you ever visited the main water supplier with a complaint?

	Number of cases	Percentage
Yes	52	9.2
No	508	89.9
Total	565	100.0

Table 67: Have you ever visited the main water supplier to pay water?

	Number of cases	Percentage
Yes	84	14.9
No	475	84.1
Total	565	100.0

Table 68: Have you ever visited the main water supplier with another purpose?

	Number of cases	Percentage
Yes	34	6.0
No	528	93.5
Total	565	100.0

Table 69: Do you know where Office of the local government is located?

	Number of cases	Percentage
Yes	292	51.7
No	270	47.8
Total	565	100.0

Table 70: Have you ever visited the local government with a complaint?

	Number of cases	Percentage
Yes	62	11.0
No	500	88.5
Total	565	100.0

Table 71: Have you ever visited the local government to pay?

	Number of cases	Percentage
Yes	68	12.0
No	493	87.3
Total	565	100.0

D. CONCLUSION

(a) General Conclusions

The situation of water supply and sanitation conditions in the bairro of Chamanculo C is very bad. The migration of people from the rural areas to the city during the civil war was the main factor that influenced the population density and consequently the pressure on the resources and the sanitation difficulties that people are living in this bairro currently. The floods of the year 2000 came to worsen this scenario with the destruction of some infrastructures of water and sanitation which were already in bad condition.

The water supply is assured through piped water, which is usually located at the tap of the house (77.2%). However, houses with taps are still very few, making most of these households (44.2%). to fetch water from the closest neighbors, by a payment agreement made between both parties.

The number of families that treat water for consumption is very low (78.9 %).

The sanitation problem is the major problem in the neighborhood of Chamanculo C. In the compounds there is a big pressure on the few latrines existing there, given the higher number of people who use these same latrines (5 households in average per latrine).

Most of the people interviewed (92%) said that they washed their hands mainly in necessary cases such as before eating, after using the latrine, after eating, etc; 50% of the houses visited there was a dish for soap, however, more than half (55%) of these families did not have soap or any other detergent in it.