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Villages water study: women aspects

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INTRODUCTION

The information which is used in this paper is derived from secondary sources as well as from a social survey of three villages in Botswana: Molepolole, Mochudi and Kanye. All of these are defined as primary centres in the National Settlement Policy. They are also referred to as major villages. All had a population of over 25,000 by 1988.

The objective of the study was to discover and document water use patterns, habits and hygiene, in order to inform development of water provision infrastructure to cope with projected population of the year 2010.

However, of interest to the author, was the role of women or how the women perceive their role in the sphere of availability of water for their family use.

It has to be stated from the onset that the government of Botswana has fared fairly well in provision of services. In all these villages water is provided by means of standpipes. No household walks more than 2 kilometers to a standpipe, actually all those who walked more than a kilometer are living outside the village water works boundary. Of course the waterworks was laid as far back as 1979 in some villages and with present growth, it is estimated that some 10 - 15% of the population in some villages e.g Mochudi live outside the waterworks area.

During drought periods some of the boreholes serving the villages run dry, and supply to the standpipe fail, thereby forcing household members to walk longer distances. At times the borehole or water pipes supplying standpipes breakdown and in the interim period, before repairs, household members may also have to walk longer distances.

The survey results were analyzed separately for each village, however, for purposes of this paper the results of all three are summed up. As the objective of the paper is to document the role of women most of those findings that are general to the household are excluded. As the section on methodology describes several in depth observations were made on subsamples in Mochudi village, findings from these will

be highlighted in so far as they enrich the theme of this paper.

POPULATION AND DEMOGRAPHY

The following, developed by the Department of Town and Regional Planning (D.T.R.P.) in November 1988, serves as a guideline for the future population of the villages. In order to stress that this is a scenario all figures were rounded to the nearest thousand.

Year	Molepolole	Mochudi	Kanye
1981	20.566	18.386	20.215
1988	30.000	27.000	29.000
1990	33.000	30.000	31.000
1995	41.000	38.000	39.000
2000	50.000	47.000	48.000
2005	61.000	57.000	58.000
2010	73.000	69.000	69.000

The 1981 figures are taken from the 1981 Census.

Population growth in Botswana is 4.3% p.a. It is also influenced by fertility and mortality. Projected life expectancy at birth will increase from 52.3 years in 1981 to 66.4 in the year 2011 (male), from 59.7 years in 1981 to 70.0 in the year 2011 (female). Migration which is a key element of the scenario poses a problem. There are inaccurate migration statistics available, D.T.R.P. resorted to counting of plots from aerial photo taken in 1981/82 and 1985. Results of plot counting are as follows.

Village	1981	1982	1985	increase
Molepolole	-	5059	5957	898
Mochudi	4017	-	4556	539
Kanye	-	4636	5525	889

Increase in plots, per se, does not always indicate in migration as plots may be allocated to sons and daughters who have

been previously living with their parents. However, in some villages Mochudi and Molepolole which are nearer Gaborone it is possible that Gaborone residents are renting homes in these villages while renting out theirs in town at exorbitant rentals. Net migration is projected by D.T.R.P. for the villages to be as follows. Molepolole from 193 in 1981 to 90 in 2010 Mochudi from 251 in 1981 to 250 in 2010 Kanye from 150 in 1981 to 151 in 2010.

These are population projections on which provision of services are likely to be based for the purpose of the present paper this is enough to show the projected population of the three study villages.

METHODOLOGY AND SAMPLING PROCEDURE

1. Choice of study villages

The 3 villages and Maun (the latter was excluded due to manpower and time constraints) were selected by the Department of Water Affairs for the development of their water supply. The social survey is one of the several studies for this purpose. Technical, sanitation and population studies were part of the overall study.

2. Recent aerial photographs of the villages were used for sampling. Multistage sampling technique was used. The villages were first divided into several blocks, the blocks were numbered and then a random sample of the blocks was taken. The sample of 200 households in each village was distributed into the randomly selected blocks. In all 565 households were interviewed.

3. A structured questionnaire was developed pretested and administered on the 565 adult household members who were the respondents.

4. In Mochudi, two of the randomly selected blocks were further used for indepth studies and observation. These consist of:

- 20 households further interviewed to obtain income and expenditure data.
- 10 households served by on plot water connection for their water use habits.
- 10 households served by house connection for their water use habits.
- 10 households served by standpipes observed for their water fetching habits time taken to go to the standpipe, distance, time waiting their turn in getting the water, container used for fetching and storage of water. The amount of water fetched was measured so was that used for cooking, personal and clothes washing, watering gardens and domestic animals and also how water is transferred to the home.

5. Interviews were conducted with government officials, some village leaders and other informants in the village.

6. A random sample of water consumption of 50 households served each by on plot connection and house connection was taken from the water affairs records in each village for the whole of 1987 and the first 8 months of 1988 in order to calculate per capita consumption.

- a further random sample of 50 standpipes water consumption in each village was recorded for June and July 1988 to get an overview of how much each standpipe is used, that is, total water fetched from each standpipe. This enabled comparison between individual large water consumers such as boarding schools, and individual standpipes serving a large number of households.

7. Finally major water consumers were also documented eg. hospitals, industries, boarding schools, those with commercially run gardens that are irrigated etc.

As can be seen from the array of methodologies used the study is rich in data, however for this paper the author will only highlight those findings pertinent to womens' role.

WOMENS' ASPECTS

Sample The women form more than 60% of the sample as they are the adults usually found at home. Most of the women were household heads. In Mochudi for instance females dominated in the household. of the 937 household members 540 were females. These include 206 females under 14 years old.

Water source The survey results shows that 73% of the respondents are served by standpipes. 25% by on plot connection and 2% by house connection.

- Education had no influence in so far as water source is concerned because standpipes are provided by government.
- The connection fee of up to P300 (£1=P3) seems to deter some of those who would be interested in a house or on plot connection.

WATER STORAGE HABITS

- 58.3% of respondents store the water inside the house while 41.6% store it outside. 78.3% close the container.
- 50% of respondents wash the container everytime they fetch water. 26.4% once a day.

The tin bucket is used by 87.5% to fetch water. Education has no significance in

the use of the tin bucket. A difference is made in the study between a plastic bucket which has a handle and a plastic container that may be any plastic container but for this study it invariably refers to 10 litre or 25 litre containers. No-one is the sample admitted using 200 litre iron drum even though a few people were observed at the standpipes fetching water with these. Interviews show that some people charge P3 per 200 litre drum of water fetched as an income generating activity done by males.

- the mug and or calabash are used to take water out of the containers. Studies in water hygiene show that it is at this stage that most of the contamination of the water takes place. (Socio-Economic Effects of Village Water Supplies in Botswana 1988). A study by Agrell (1984) found that of 500 water samples taken from boreholes 85% had no faecal contamination yet almost all samples taken from household storage vessels were grossly contaminated. Suggested reasons for contamination are
 - low levels of personal hygiene
 - Use of dirty mugs
 - Water kept uncovered outside

ROLE OF WOMEN

Observation both at standpipe and at home show that fetching water is still a female role. 98% of those observed at standpipes fetching water were females (adult or child). Table 1 shows this aspect for one of the subsamples but also summarizes time taken to fetch water, distance to standpipe and quantity of water fetched.

- The women fetch water using various containers mostly tin bucket, however, the wheelbarrow seems to be a popular transport means. Women were observed putting 25 litre containers (2 at least) on wheel barrow and pushing it away. A back breaking task if the wheelbarrow has to be pushed for longer distances or up slopes. The few men who fetch water meantime use donkey carts or even trucks, therefore, for them fetching water is not such a onerous activity.

Table 2 is extracted from Eva Muellers articles as referenced, while it depicted other activities and observed such activities on several visits, it does illustrate how big the time variation is between men and women fetching water. Her study was done in smaller villages where water sources may have been far but the findings are applicable even for this study except that time taken may be slightly less.

The fetching of water is used by women as a social occasion in which certain interactions

takes place.

They usually go in groups or as friends to fetch water. They; at times, discuss current topical issues while waiting their turn. In some cases the older were observed scolding the children who waste water by letting their containers overflow. The women themselves were at times culprits because invariably everytime they came the container was rinsed, filled to the brim yet on the way to the head part of the water is spilled off too, so why fill it up in the first place.

There was no tension or any fights observed at standpipes possibly due to the fact that 2 minutes was the average waiting time. The pressure of water was good due to the previous seasons adequate rainfall.

The women interviewed did not resent their water fetching role and accepted it. Their only need is for more standpipes reliable supply and prompt repair in cases of breakdown. Very few found water quality and taste not favourable.

WATER USE

- Water is mainly used for drinking un-boiled by 87% of the sample, however, it seems less water is drunk, with a household of six members on the average drinking 1.5 litres per day.
- However, this water deficit is balanced by the 99% who also drink tea or coffee about 6.5 litres is used for this.
- 97% use water for washing cooking utensils. On the average of 4.5 litres is used a day for this.
- 97.4% use water for personal washing. It appears that less water is used for this activity (the social survey was done in winter) yet use of adequate quantities of water for personal hygiene hand washing and food preparation has been shown to be more important in prevention of water and sanitation related diseases than quality of water used since such usage may largely contribute to prevention of transmission of diarrhoea, skin and eye infection and lice borne infections.
- water is also used for washing clothes on the average twice a week 20-50 litres used at any one time. If there is a baby napkins are washed at least twice daily in which case the water is used more.
- The other water use habit by a small percentage of respondents is watering gardens.

WASTE DISPOSAL

Waste water is disposed by being thrown away on the plot by those who have no

sewerage system. Due to the dry climatic conditions the water evaporates and so far causes no problems. However there were a few who dispose of the water in the pit latrines. The latter is tolerable if pit latrine is pumped out when full but may cause problems if it is not.

WATER DEVICES

Only those who have house connection have any water use devices. Two households in Mochudi village had washing machines; otherwise no other major water use device was seen.

The households with house connections all have flush toilets but also a pit latrine, the latter was the first to be constructed. As money becomes available for house connection then flush toilets, bathrooms and showers are built. Fortunately for these households water tariffs in villages in Botswana are relatively cheap e.g. the average house connection paid P3.60 monthly for 26 cu metres of water recorded in their meter. On plot connection pay an average P2.10 for 7 cu metres. Figures taken from monthly statements from these preliminary findings it can be seen that even though the fetching of water is still a female role in Botswana, water provision is fairly adequate and therefore there is less resentment of this role.

However, as women are home managers as well, water hygiene education may have more of an impact when directed at them. They feed the babies therefore need to boil the water for bottle feeding. They wash the children, and should do so with adequate water at least once a day. They wash utensils and clothes. Utensils should be washed after every meal and clothes at least once a week again with adequate water and detergent. Water hygiene should not exclude males per se; but it seems more would be gained by focussing on women. Women are more likely to change their behaviour, they are also likely to be recipient of other hygiene education at health clinics during M.C.H. attendances.

In the case of major villages of Botswana where district councils through their water departments maintain the water source, it may not be necessary for women to learn how to maintain water standpipes, however, the area around some standpipes could be kept cleaner than is the case now.

Finally what is needed most is education on water conservation. The amount of water wasted by dripping taps, running children spilling water, overflowing containers and general re-use of waste water at home is

amazing in a country like Botswana that has finite water resources.

CONCLUSION

This paper has been prepared while the rest of the data has not been analyzed completely, and is therefore chiefly descriptive and very selective in areas discussed. While the final report may not add much on women's aspect and role in this field, the context in which the report will be put may illustrate certain issues much better. Due to the regained length of the present paper such areas as sanitation which are related to water have been left out, so are major demographic variables like age, education and income, as well as a geographical discussion of Botswana and the villages referred to or studied.

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TABLE 1

A TABLE SHOWING OBSERVATION OF 10 FAMILIES FOR 2 DAYS EACH ON WATER USE AND FETCHING HABITS IN MOCHUDI

Households	Days Observed	Time (in minutes) taken to standpipe	Distance (in meters) from standpipe	Total amount of water fetched (in metres)		Total Water fetched in litres	No of times water fetched per day	Fetched by
				AM	PM			
1	1	3	.190	30	0	30	2	f
2	1	3	.107	36	24	60	5	f
3	1	2.5	.180	20	20	40	4	f
	2			10	35	45	3	f
4	1	3	200	30	30	60	6	f
	2			30	35	65	5	f
5	1	6	483	48	32	80	6	f f/c
	2			44	12	56	5	f f/c
6	1	5	384	28	56	84	6	f m/c
	2			32	42	74	5	f m/c
7	1	7	560	20	60	80	2	f m/c
	2			20	60	80	2	f m/c
8	1	8	492	48	37	85	6	f f/c
	2			61	37	98	6	f f/c
9	1	5	400	72	40	112	6	f m/c
	2			60	36	96	5	f m/c
10	1	6	423	100	112	212	6	f m/c
	2			100	56	156	7	f f/c
Total		48.5	3419	789	724	1513	87	
Mean		4.85	341.9	78.9	72.4	151.3	8.7	

* f = female
 fc = female child
 m = male
 mc = male child

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Distribution of Activity Time by age and sex

ACTIVITY	SEX	7-9	10-14	15-19	20-29	30-39	40-49	50-59	60+	ALL
Fetching water	Male	1.6	2.3	2.2	1.9	1.7	1.4	0.2	1.1	1.7
	Female	4.8	6.3	7.7	7.8	7.4	6.4	5.8	4.4	6.5

Variation in Activity time by season for Adults and children

ACTIVITY	SEX	ADULTS					CHILDREN				
		Visit 3	Visit 5	Visit 7	Visit 9	Visit 11	Visit 3	Visit 5	Visit 7	Visit 9	Visit 11
		May	July	Sept	Nov	Jan	May	July	Sept	Jan	May
Fetching Water	Male	1.2	1.3	2.0	1.3	0.9	2.0	2.0	2.4	2.1	1.8
	Female	5.0	7.0	7.6	8.0	6.0	6.4	6.1	7.3	5.9	6.2

Percentage Distribution of Activity Time By age and location

ACTIVITY	SEX	Small Villages		Barolong Farms		Large Village	
		AGE 7-14	AGE 15+	AGE 7-14	AGE 15+	AGE 7-14	AGE 15+
Fetching water	Male	1.8	1.4	1.4	2.2	3.4	1.9
	Female	6.0	7.1	3.3	6.1	4.8	5.4

Tables extracted from Tables 3.1, 3.2, 3.3, 3.4, 3.5, 3.6 of Eva Mueller 1985 P.32-41