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C. Chauvet

264.0 9150

GWSC ASSISTANCE PROJECT

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INTERNATIONAL REFERENCE CENTRE
FOR COMMUNITY WATER SUPPLY AND
SANITATION (IRC)

**SOCIO-ECONOMIC SURVEY
WILLINGNESS TO PAY SURVEY**

FIELD PAPER # 4

**J. HUGHES
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1 PROJECT DESCRIPTION

A questionnaire was developed and field tested with the purpose of gathering information on existing household water and use and demand for improved services. The questionnaire included questions on: willingness to pay for different levels of service, service preferences, payment scheme preferences, and household attitudinal information regarding a variety of water system issues such as who should manage the systems.

1.1 PROJECT TEAM

Team members included John Perry, Team Supervisor; Amadu Mahama, Survey Manager; and Jeff Hughes, Survey Advisor.

1.2 THE SCHEDULE

1.2.1 FIELD VISIT

The Project team spent a day visiting various areas of a small town in order to gather first hand information on some of the most common water problems facing households.

1.2.2 PROJECT TEAM DISCUSSIONS

The Project team held discussions on all aspects of the questionnaire and survey. Crucial decisions regarding the scope and content of the questionnaire were arrived at by consensus. In developing the questionnaire, special attention was given to satisfying specific informational requests from a variety of individuals, including a Gender Equity Specialist and the GAP Project Manager. A first draft of the questionnaire was prepared.

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1.2.3 GROUP DISCUSSIONS

The team arranged an informal discussion group in Savelugu, a town similar in size and existing water use to most of the survey towns. The group, comprised of men and women from the town, provided the team with valuable advice on specific questions as well necessary survey protocol. Many of the participant's recommendations were incorporated into the questionnaire.

1.2.4 TRAINING OF INTERVIEWERS

Further corrections and revisions were made throughout the interviewer training sessions. The interviewers were able to provide valuable input on the phrasing of many of the questions.

1.2.5 FIELD TESTING.

Both the interviewers and the questionnaire were tested in a section of Yendi, one of the project towns. After this "pre-test", certain problems within the questionnaire were corrected. A final version was prepared and sent for printing.

1.3 QUESTIONNAIRE STRUCTURE

The questionnaire is divided into the following four major sections:

1.3.1 INTRODUCTION

The questions in this section identified exactly who was being interviewed. Questions on household size, compound size, and tenancy status of respondent were also included in the first section.

1.3.2 EXISTING WATER SITUATION

This section was designed to gather information on existing water use practices including information on current water sources, current water expenditures, and household perceptions of systems reliability and water quality.

1.3.3 WILLINGNESS TO PAY (WTP)

The third section contained many of the most important survey questions. It was designed to measure household demand for improved levels of water service. In addition to the WTP bidding games, section three included questions on household preferences concerning service levels and tariff payment plans.

1.3.4 SOCIO-ECONOMIC INFORMATION

The final section was used to gather socio-economic data relevant to water use and water demand such as education, wealth, and water disease information.

1.4 QUESTIONNAIRE DEVELOPMENT METHODOLOGY

Some of the major issues addressed during the questionnaire development are discussed below.

1.4.1 WHO SHOULD BE INTERVIEWED?

One of the first questions to be addressed by the Project team was the question of who to actually interview. It was decided that whenever possible, both the male head of household and an important household female was to be interviewed together. Whenever a man and woman are interviewed together, there is a danger in the men will control all of the responses even for questions concerning water collection in which they are normally not qualified to answer. The interviewers were instructed to address many of the questions directly to the female respondents. The interviewers were also asked to periodically record whether it was the men or women who responded to the different sections.

1.4.2 THE SCOPE OF THE EXISTING WATER SECTION

Designing a single water section which could be used to gather existing water use in all three regions required careful planning. The large seasonal variation in water use patterns required including questions on both the primary dry season and primary rainy season water sources. In addition to primary source questions, the section included questions on sources such as private connections, public standpipes, and water vendors which all may be very important secondary sources. For each water source it was necessary to determine the extent to which households exploited the source, the amount of work, money and time required to use the source, and the household's perception the source's taste and appearance. Households were also asked to identify their most common water supply problems.

1.4.3 THE SCOPE OF THE BIDDING GAME

The objective of the study was to provide the GAP Project with information on as many financial issues as possible. It was decided to measure household demand with willingness to pay questions in the context of a contingent valuation survey. Several bidding games options were considered in during the development of the questionnaire including those involving household willingness to pay for initial tap installation and household willingness to pay for water on a per unit basis (per barrel or per bucket). Based on the proposals presently being considered, questions concerning information on monthly contributions for different service levels were given priority. Two bidding games concerning two different service levels were included.

Everyone without an existing private connection was asked to complete a bidding game for access to public standpipe service. Respondents were asked to state the maximum they would be willing to contribute per month in order to have access to water from public standpipes. A second bidding game included questions on private connection service. Careful attention was given to presenting respondents with a realistic picture of what private connection service would include. It was also explained that if a compound did not have an existing private connection it would have to pay to have one installed. The installation cost cited in the questionnaire was based on actual cost information from GWSC.

1.4.4 BIAS CONSIDERATIONS

The successful completion of any household survey requires the careful attention be given to the problem of biased responses. The most important goal of any survey should be to solicit truthful responses and accurate information. There exist several types of common bias's which must be designed for in any survey. Some of the more important bias's are discussed below.

1.4.5 STRATEGIC BIAS

One of the most important bias problems facing a contingent valuation survey is strategic bias. There is a very understandable tenancy for people to attempt to answer survey questions in ways they think will provide them with the most benefits. Special attention was made to insure that it was not obvious to the respondents how untruthful responses could provide benefits. Careful attention was given to explaining the purpose behind important questions such as the bidding games. The following statement was read before the start of the bidding games:

"We need some information to help your community plan an improved water supply system. I'm going to ask you some questions concerning your feelings towards an improved system. Some of the questions will require you giving estimates of how much you could contribute to the Community Water Committee for access to different levels of water service. Please try to tell us what you are actually prepared to pay for these options. If you tell us an amount that is higher than you are actually prepared to pay the community may receive

a water supply system that it cannot afford to maintain. If you tell us an amount that is much lower than you can really afford, the system designed for your community may not meet all your needs. In either case, if you are not truthful, the community system may not be properly designed and you will not have improved access to water."

1.4.6 HYPOTHETICAL BIAS

It is often difficult to insure that respondents provide accurate information when the respondents do not take the survey seriously and view it simply as some type of hypothetical exercise. It is difficult for respondents to take a survey seriously unless it has clear relevance to their lives. This type of hypothetical bias was not a problem in our survey. Water is a very pressing issue in most of the respondent's lives and the questions in the survey all related to systems and service levels that were very familiar to the respondent's. All of the descriptions and questions in the survey were based on the most realistic water system options currently being considered.

1.4.7 COMPLIANCE BIAS

Invariably, some respondents will simply tell the interviewer what they think the interviewer or the supporting agency wants to hear. The interviewers were trained to watch out for this compliance bias problem and were directed that under no circumstances should they guide the respondents into making specific responses. The interviewers were also asked to rate the interviews based on the truthfulness and seriousness of the respondents. Interviews rated as poor were deleted from the sample.

1.4.8 QUESTIONS BIAS

In some cases, the way in which a question is presented can bias the way in which a respondent answers. For example, the initial starting point and overall structure of the bidding game can influence the final bids. It is difficult to avoid this type of bias completely, but once it is identified it can be incorporated into the presentation of the results. Another type of question bias concerns the actual wording of statements. The most effective method of avoiding this type of bias is through careful training of the interviewers. Considering that very few interviews were actually done in English, it was very important that the interviewers knew the purpose behind each of the English composed survey questions. Language specialists participated in the training and made recommendations on translating the survey questions into the many languages actually used to carry out the interviews.

1.5 TRAINING

1.5.1 INTERVIEWER TRAINING

It was essential that the interviewers be able to communicate with survey respondents. Because of language differences in the three regions it was necessary to train separate interviewers in each region. All interviewers went through at least four days of training. The first day of training included an introduction of the GAP Project, an explanation of purpose of the survey, and a detailed discussion of the entire questionnaire. Each of the interviewers were asked to fill out one survey before the second day of training. On the second day of training, the results of the interviewers practice interview were discussed and simulated interviews were carried out among the interviewers. The trainers monitored these "role-play" sessions and critiques the interviewers question-asking techniques. The method in which the interviewers actually filled out the questionnaires was also monitored. The interviewers were tested in the field on the third day of training. Each interviewer was asked to complete at least three surveys. Trainers observed actual interviews and carefully reviewed all the completed questionnaires. Discussions were held with each of the interviewers go after reviewing the questionnaires.

1.5.2 TRAINING OF SUPERVISORS

Each of the three regions had at least one supervisor who was to be ultimately responsible for the work of the survey teams in the field. It was the responsibility of the supervisors along with the survey manager to review all completed questionnaires and periodically meet with each interviewer to discuss any problems which aroused. The supervisors also worked with the Survey Manager to arrange all the logistical support for the survey teams. The supervisors went through the same training as the interviewers, however, the supervisors for the Upper East and Upper West regions were trained in other regions prior to their regional training so that they would be familiar with the questionnaire and survey process.

1.6 SAMPLE SIZE

The size of the sample in each town was determined by both statistical and logistical considerations. Small sample sizes below 50 were avoided even in very small towns (populated less than 2500) because of the desire to have valid sub-group information. It was important to be able to distinguish the difference in behaviour and preferences for various sub-groups of populations such as respondents with private taps and respondents without private taps. The upper limit of the sample size in each town was Government by several considerations. An important consideration which could not be overlooked in most of the survey towns, was the need to spend as little time in each town as was possible. A survey team can not help make a "visible presence" in a small town and once word has passed through the town as to the exact content of the questionnaire it is ill advised to continue with the interviews because people may begin to try to pre-plan their responses. It is advised that survey teams spend not more than four days in one town and even less if there is evidence that respondents have too much prior knowledge concerning questionnaire specifics. These considerations restrict the sample sizes to a range of about 75 to 175 per town. Large towns which are more heterogeneous should have sample sizes closer to the upper limit.

1.7 SAMPLING PROCEDURES

In some towns, detailed household lists were available and efforts were made to randomly select respondents before entering a town. In most cases pre-selecting a sample was impossible and interviewers were simply assigned to different sections of the town and given careful criteria for randomly selecting households based on household addresses

1.8 DATA ANALYSIS

After being reviewed by the team supervisors, completed questionnaires were given to the data management team consisting of a statistician and data entry personal. Analysis was done at least three levels. Summary statistics were produced for each town. The same information was also produced at the regional level and finally as one aggregate group. The aggregated groups' statistics will be slightly biased toward the small towns because on a household percentage basis, a higher percent of small town household were sampled than large towns.

1.9 ADVANCED ANALYSIS

The survey database has much more information than can easily be obtained through simple statistics. Advanced data analysis could provide valuable insight into water use behaviour. Careful examination of the factors influencing household willingness to pay bids can be obtained through regression analysis and cross frequency tabulations.

1.10 RECOMMENDATIONS FOR USING RESULTS

All socio-economic surveys are subject to certain limitations. The results of the survey must be taken in the context of the environment in which it was administered. For example, because of the early rains, many of the surveys were conducted during a period when rainy season water sources were available. Despite making careful attempts to distinguish between seasons, information can not help be biased toward rainy season attitudes.

There is no substitute for the real thing. Realistic options were presented in the questionnaire, yet when future systems are actually working, people's attitudes may change. If the system is reliable, household demand will probably be greater than predicted by the survey. If on the other hand, the systems fall short of people's expectations and the questionnaire's promised level of service, the demand will probably be lower.

Careful attention needs to be given to the issue of connection costs. The results of the survey show that the demand for private connections will be highly dependent on the installation costs of installing a tap. Variations in installations costs and payment plan opportunities could cause large changes in demand for private connections.

Presentation of statistical results should always adhere to statistical principles. If differences between sub-groups are presented, the sub-group sample size must be carefully monitored. Avoid generalizations based on very small sample sizes.

GAP WTP STUDY
PRELIMINARY PLAN: DESCRIPTIVE STATISTICS

All descriptive statistics will be presented at four levels:

1. By Town - 37 individual towns, 37 output packages
2. By Region - 3 Regions (Northern, Upper East, and Upper West), 3 outputs
3. By Population Category - 4 Categories 3 outputs
4. Complete Data Set, 1 output

Simple frequency distributions will be produced for all variables and mean, maximum, and minimum values will be produced for all continuous variables.

Each "output package" will include the following descriptive statistics:

EXISTING WATER SITUATION STATISTICS

1. Primary dry season water source: W1A

W1A=1: Neighbor	W1A=8: Spring
W1A=2: Public handpump	W1A=9: Vendor(away from home)
W1A=3: Public standpipe	W1A=10: Private connection
W1A=4: Public hand dug well	W1A=11: Private well
W1A=5: Pond/Reservoir/Dam	W1A=12: Rain catchment
W1A=6: Stream/River	W1A=13: Vendor (home delivery)
W1A=7: Shallow dug pit	W1A=14: Tanker truck

2. One way travel time (minutes) to dry season source: TIMED

IF W6A > 0 THEN TIMED = W6A * 60
ELSE IF W6B > 0 THEN TIMED = W6B
ELSE IF W3 = 0 THEN TIMED = 0
ELSE TIMED = "MV"

3. Distance (meters) to dry season source: DISTD

IF W5A > 0 THEN DISTD = W5A * _____
ELSE IF W5B > 0 THEN DISTD = W5B * _____
ELSE IF W3 = 0 THEN DISTD = 0
ELSE DISTD = "MV"

4. Time (minutes) waiting in line at dry season source: WAITD

IF W7A > 0 THEN WAITD = W7A * 60
ELSE IF W7B > 0 THEN WAITD = W7B
ELSE IF W3 = 0 THEN WAITD = 0
ELSE WAITD = "MV"

5. Dry Season Water Consumption (litres) (based on answers to primary source questions): WTRCOND

```
IF W10A > 0 AND W16 = 1 THEN WTRCOND = W10A * _____
ELSE IF W10A > 0 AND W16 = 2 THEN WTRCOND = W10A * _____
ELSE IF W10A > 0 AND W16 = 3 THEN WTRCOND = W10A * _____

IF W10B > 0 AND W16 = 1 THEN WTRCOND = W10B * _____
ELSE IF W10B > 0 AND W16 = 2 THEN WTRCOND = W10B * _____
ELSE IF W10B > 0 AND W16 = 3 THEN WTRCOND = W10B * _____
```

6. Dry season per capita consumption (litres/day): CWTRCOND
CWTRCOND = WTRCOND / W32

7. Total dry season monthly expenditures (cedis): DRYEXP

```
IF W11 = 0 THEN PDEXP = 0
ELSE IF W11 = 1 AND W13 > 0 AND W12A > 0 AND W10A > 0 THEN
  PDEXP = (W10A * W12A * 30 + W13) / 2
ELSE IF W11 = 1 AND W13 > 0 AND W12B > 0 AND W10B > 0 THEN
  PDEXP = (W10B * W12B * 30 + W13) / 2
ELSE IF W11 = 1 AND W13 <= 0 AND W12A > 0 AND W10A > 0 THEN
  PDEXP = W10A * W12A * 30
ELSE IF W11 = 1 AND W13 <= 0 AND W12B > 0 AND W10B > 0 THEN
  PDEXP = W10B * W12B * 30
ELSE PDEXP = W13
```

```
IF W46A > 0 AND W47A > 0 THEN VDEXP = W46A * W47A * 4
ELSE IF W46B > 0 AND W47B > 0 THEN VDEXP = W46B * W47B * 4
ELSE IF W43 = 0 OR W51A = 0 THEN VDEXP = 0
ELSE VDEXP = "MV"
```

```
TDEXP = W38A
SDEXP = W59A
```

```
DRYEXP = PDEXP + VDEXP + TDEXP + SDEXP
```

8. Primary rainy season water source: W2A

W2A=1: Neighbor	W2A=8: Spring
W2A=2: Public handpump	W2A=9: Vendor (away from home)
W2A=3: Public standpipe	W2A=10: Private connection
W2A=4: Public hand dug well	W2A=11: Private well
W2A=5: Pond/Reservoir/Dam	W2A=12: Rain catchment
W2A=6: Stream/River	W2A=13: Vendor (home delivery)
W2A=7: Shallow dug pit	W2A=14: Tanker truck

9. One way travel time (minutes) to rainy season source: TIMER

```
IF W20A > 0 THEN TIMER = W20A * 60
ELSE IF W20B > 0 THEN TIMER = W20B
ELSE IF W17 = 0 THEN TIMER = 0
ELSE TIMER = "MV"
```

10. Distance (meters) to rainy season source: DISTR

```
IF W19A > 0 THEN DISTR = W19A * _____
ELSE IF W19B > 0 THEN DISTR = W19B * _____
ELSE IF W17 = 0 THEN DISTR = 0
ELSE DISTR = "MV"
```

11. Time (minutes) waiting in line at rainy season source: WAITR

```
IF W21A >= 0 THEN WAITR = W21A * 60
ELSE IF W21B >= 0 THEN WAITR = W21B
ELSE IF W17 = 0 THEN WAITR = 0
ELSE WAITR = "MV"
```

12. Rainy Season Water Primary Source Consumption (litres) (based on answers to primary source questions): WTRCONR

```
IF W24A > 0 AND W30 = 1 THEN WTRCONR = W24A * _____
ELSE IF W24A > 0 AND W30 = 2 THEN WTRCONR = W24A * _____
ELSE IF W24A > 0 AND W30 = 3 THEN WTRCONR = W24A * _____

IF W24B > 0 AND W30 = 1 THEN WTRCOND = W24B * _____
ELSE IF W24B > 0 AND W30 = 2 THEN WTRCOND = W24B * _____
ELSE IF W24B > 0 AND W30 = 3 THEN WTRCOND = W24B * _____
```

13. Rainy season per capita consumption (litres/day): CWTRCOND

```
CWTRCONR = WTRCONR / W32
```

14. Total rainy season monthly expenditures (cedis): RAINEXP

```
IF W25 = 0 THEN PREXP = 0
ELSE IF W25 = 1 AND W27 > 0 AND W26A > 0 AND W24A > 0 THEN
    PREXP = (W24A * W26A * 30 + W27) / 2
ELSE IF W25 = 1 AND W27 > 0 AND W26B > 0 AND W24B > 0 THEN
    PREXP = (W24B * W26B * 30 + W27) / 2
ELSE IF W25 = 1 AND W27 <= 0 AND W26A > 0 AND W24A > 0 THEN
    PREXP = W24A * W26A * 30
ELSE IF W25 = 1 AND W27 <= 0 AND W26B > 0 AND W24B > 0 THEN
    PREXP = W24B * W26B * 30
ELSE PREXP = W13
ELSE PREXP = "MV"
```

IF W49A > 0 AND W50A > 0 THEN VREXP = W49A * W50A * 4
ELSE IF W49B > 0 AND W50B > 0 THEN VREXP = W49B * W50B * 4
ELSE IF W43 = 0 OR W51B = 0 THEN VREXP = 0
ELSE VREXP = "MV"

TREXP = W38A
SDEXP = W59A

DRYEXP = PDEXP + VDEXP + TDEXP + SDEXP

15. Private connection: W32

W32 = 1: Have private connection
W32 = 0: Do not have private connection

16. Working private connections: W33

W33 = 1: Have had water flowing in last 5 months
W33 = 0: Have had no water from tap during last 5 months

17. Water vendor purchases: W43

W43 = 1: Purchase water from vendors
W43 = 0: Do not purchase water from vendors

18. Standpipe usage: SPIPE

IF W1A = 3 OR W2A = 3 OR W60A > 0 OR W60B > 0 THEN SPIPE = 1 (some usage)
ELSE SPIPE = 0 (no standpipe usage)

19. Most Common Water Problems: List the percentage of people who indicated the specific problems listed below. Weight first and second problem equally.

W66 = 1: High cost	W66 = 5: Limited storage capacity
W66 = 2: Water shortage	W66 = 6: Taste
W66 = 3: Cleanliness of water	W66 = 7: Other
W66 = 4: Distance to Source	W66 = 8: Long queue

20. Who pays for water: B1

B1 = 0: Do not purchase water
B1 = 1: Men purchase water
B1 = 2: Women purchase water
B1 = 3: Both purchase water

WILLINGNESS TO PAY AND USER PREFERENCE STATISTICS

21. Public standpipe bids: B3,B3V

B3	Range	B3V*
1	-3	-3
2	0-299	150 (eq. IF B3=2 THEN B3V=150)
3	300-599	450 (eq. IF B3=3 THEN B3V=450)
4	600-899	750
5	900-1199	1050
6	1200-1499	1350
7	1500-1799	1650
8	1800-	1950

22. Open ended standpipe contributions: B4

23. Preferred payment method for standpipe water: B6

- B6=1: Prefer to pay per unit used
- B6=2: Prefer to pay flat fee
- B6=3: Refuse to pay
- B6=4: Other

24. Interest in private connections: B8

- B8=1: Interested in private connections
- B8=0: Not interested in private connections as described in bidding game

25. Interest if tap installation is financed: B9B

- B9B=1: Would be interested only if tap was financed
- B9B=0: Would not be interested even if tap was financed

26. Private tap bids: B10,B10V

B10	Range	B10V*
1	-3	-3
2	0-499	250 (eq. IF B3=2 THEN B3V=150)
3	500-999	750 (eq. IF B3=3 THEN B3V=450)
4	1000-1499	1250
5	1500-1999	1750
6	2000-2499	2250
7	2500-2999	2750
8	3000- 3250	

27. Open ended private tap contribution: B11

28. Preferred financing scheme for private taps (80,000): B12

- B12=1: Would choose to pay lump sum
- B12=2: Prefers to pay 20,000/month for 4 months
- B12=3: Prefers to pay 8,000/month for 10 months
- B12=4: Prefers to pay 5,400/month for 15 months

29. Preferred method of private tap billing: B14

- B14=1: Prefer to pay per unit used (meters)
- B14=2: Prefer to pay flat monthly fee

30. The affect of GWSC (and not a Community Water Committee)running system: B16

- B16=1: People would pay more for their water
- B16=2: People would pay less for their water
- B16=3: People would pay same regardless of who operated system

31. The affect of the rainy season on revenue: B17

- B17=1: People would pay more for their water
- B17=2: People would pay less for their water
- B17=3: People would pay same regardless of season

32. Who should operate system: B18

- B18=1: GWSC
- B18=2: Community Water Committee
- B18=3: Does not matter
- B18=4: Joint GWSC/Community Committee

33. Who should collect water bill: B19

- B19=1: GWSC
- B19=2: Community Water Committee
- B19=3: Does not matter
- B19=4: Joint GWSC/Community Committee

34. Service level selection (list amounts used for comparison): B20

- B20=1: Would choose public standpipe service
- B20=2: Would choose private connection service
- B20=3: Would choose handpump service
- B20=3: Would choose to get water from other sources

35. Who answered most bidding questions: B21

- B21=1: Men
- B21=2: Women
- B21=3: Both Men and Women

RESPONDENT SOCIO-ECONOMIC STATISTICS

36. Description of respondent(s): T5

T5=1: Male interviewed only

T5=2: Female interviewed only

T5=3: Both Male and Female Interviewed

37. Tenancy status: T14

T14=1: Renter

T14=0: Non-Renter

38. Household size: T9

39. Compound size: COMPSIZE

IF T17=1 THEN AND T9>0 COMPSIZE=T9

ELSE IF T17>1 AND T18>T9 THEN COMPSIZE=T18

ELSE COMPSIZE="MV"

40. Electricity service (only for towns with electricity): H3

H3=1: Have electricity service

H3=0: Do not have electricity service

41. Number of people with severe diarrhoea during last year: H10

42. Number of people with Guinea worm during last year: H11

43. Number of workers contributing to expenses: WORKERS

WORKERS=H12+H14

44. Literacy: H19

H19=1: Can read newspaper

H19=0: Can not read newspaper

45. Membership in community organizations: ORGAN

IF H24A>0 OR H25A>0 THEN ORGAN=1

ELSE ORGAN=0

46. Wealth(Cedis) based on questionnaire indicators:WEALTH

WEALTH = 27*20000 + h28*120000 + h29*50000 + h30*25000 +
h31*200000 + h32*2000000 + H33*400000 + h34*15000 +
h35*1000

47. Household cash expenditures: H37

48. Who controlled interview: H40

H40=1: Men

H40=2: Women

H40=3: Both contributed

ADDITIONAL STATISTICS

Mean values of:

Per Capita Water Usage Dry (CWTRCOND)
Per Capita Water Usage Rainy (CWTRCONR)
Household water expenditures dry (WTREXPD)
Household water expenditures rainy (WTREXPR)
Standpipe Contribution - bidding game (B3V)
Standpipe Contribution - open ended (B4)
Private connection contribution - bidding game (B10V)
Private connection contribution - open ended (B11)

By:

Dry water source (W1A)
Rainy water source (W2A)
Household dry season water expenditures categories (WTREXPD)
Household rainy season water expenditure categories (WTREXPR)
Wealth categories (WEALTH)
Dry season Distance categories (DISTD)
Rainy season Distance categories (DISTR)
Dry season waiting time categories (WAITD)
Rainy season waiting time categories (WAITR)
Household Size categories (T9)
Who answered bidding game questions (B21)

MORE TO BE DETERMINED LATER

GWSC Assistance Project WTP Survey

Section 1: Introduction

Enumerator: Unless otherwise noted, all questions use the following codes

- 0 = NO for all YES/NO questions.
- 1 = YES for all YES/NO questions.
- 1 = Respondent does not know answer and can not estimate.
- 2 = Respondent does not want to answer question.
- 3 = The question does not apply to respondent.

T1. Town _____

Ward _____

T2. Date _____

T3. Name of Enumerator _____

House number or Family name _____

T5. Who is being interviewed? MALE(s)=1 FEMALE(s)=2 BOTH=3

T6. Is the male household head among those interviewed? YES=1 NO=0

T7. Is one of the most important household females among those interviewed? (either female household head or spouse of male head)
YES=1 NO=0

T8. Sex of head of household? MALE 1 FEMALE 2

T9. How many people normally live in this household and share water?

T10. How many males between 10 and 65 years?

T11. How many females between 10 and 65 years?

T12. How many elderly people over 65?

T13. How many children under 10?

T14. Are you a tenant? YES=1 NO=0...go to T17

T15. What is your monthly rent? CEDIS/MONTH

T16. Does your landlord live in the compound/house? YES=1 NO=0

T17. How many households live in this compound?

**If only one household go to W1 on page 2

T18. Approximately how many people live in this compound?

T19. Are most of the households related to each other? YES=1 NO=0

T22. Is head of entire compound being interviewed? YES=1 NO=0

**If head of compound is being interviewed make sure they are answering questions for their household, if they insist on answering for entire

Section 2: Existing Water Situation

Enumerator, please read: Now I would like to ask you some questions concerning your household's existing water situation.

W1. Where does your household get its water during the dry season?
 MAIN DRY SEASON SOURCE
 SECONDARY DRY SEASON SOURCE

W2. Where does your household get its water during the rainy season?
 MAIN RAINY SEASON SOURCE
 SECONDARY RAINY SEASON SOURCE

**DO NOT READ SOURCES, LET RESPONDENT ANSWER FREELY.

SOURCES OUTSIDE OF COMPOUND		SOURCES INSIDE COMPOUND		WATER VENDOR DELIVERY TO COMPOUND	
NEIGHBOUR	1	PRIVATE TAP	10	WATER CARRIERS	13
PUBLIC HANDPUMP	2	PRIVATE WELL	11	TANKER TRUCK	14
PUBLIC STANDPIPE	3	RAIN CATCHMENT	12		
PUB HAND DUG WELL	4				
POND/RESERVOIR/DAM	5				
STREAM/RIVER	6				
SHALLOW DUG PIT	7				
SPRING	8				
VENDOR DROP OFF	9				

MAIN Dry Season Source

W3. Is MAIN dry season source outside of compound? YES=1 NO=0 go to W10

W4. If MAIN dry source is from your neighbour, what is their MAIN source.
 NEIGHBOUR'S MAIN DRY SOURCE

W5. How far away is your MAIN dry season source?
 MILES TO DRY SEASON MAIN SOURCE
 OR
 FEET TO DRY SEASON MAIN SOURCE

W6. How long does it take to get to MAIN dry season source(ONE WAY ONLY)?
 HOURS TO DRY SEASON MAIN SOURCE
 OR
 MINUTES TO DRY SEASON MAIN SOURCE

W7. How long does one usually have to wait in line at the source?
 HOURS WAITING AT DRY SEASON MAIN SOURCE
 OR
 MINUTES WAITING AT DRY SEASON MAIN SOURCE

W8. How is water usually carried back from MAIN dry season source?
 ON FOOT 1 BICYCLE 3 OTHER 5
 ON BACK OF ANIMAL 2 PUSH CART 4 TRACTOR 6

W10. How much water do you use from the dry season MAIN source each day during the dry season?
 (All references to buckets refer to NUMBER 34 buckets.)
 BUCKETS/DAY
 OR
 BARRELS/DAY

W11. How do you pay for water from the dry season source?

NO COST=0

PER UNIT=1

FLAT FEE/YEAR=3

FLAT FEE/MONTH=2 OTHER=4

W12. If you pay per unit, what is the price for one of the above containers during the dry season? (-3 if payment not per unit)

CEDIS PER BUCKET

OR

CEDIS PER BARREL

W13. What is your average monthly expenditure for dry season water from dry season source?

CEDIS/MONTH

** DON'T KNOW=-1 (DO NOT CALCULATE COST IF PEOPLE WHO BUY PER UNIT DO NOT HAVE ANY IDEA OF MONTHLY TOTAL)

W14. Does water from MAIN dry season source taste good? YES=1 NO=0

W15. Is water from MAIN dry season source clean looking? YES=1 NO=0

W16. How much water of your total dry season water do you get from your MAIN dry season source during the dry season?

HALF=1 MOST=2 ALL=3

Rainy Season MAIN Source

W17. Is MAIN rainy season source outside of compound? YES=1 NO=0. goto W24

W18. If MAIN rainy source is from your neighbour, what is there MAIN source.

NEIGHBOUR'S MAIN RAINY SOURCE

W19. How far away is your MAIN rainy season source?

MILES TO RAINY SEASON MAIN SOURCE

OR

FEET TO RAINY SEASON MAIN SOURCE

W20. How long does it take to get to MAIN rainy season source (ONE WAY ONLY)?

HOURS TO RAINY SEASON MAIN SOURCE

OR

MINUTES TO RAINY SEASON MAIN SOURCE

W21. How long does one usually have to wait in line at the source?

HOURS WAITING AT RAINY SEASON MAIN SOURCE

OR

MINUTES WAITING AT RAINY SEASON MAIN SOURCE

W22. How is water usually carried back from MAIN rainy season source?

ON FOOT 1

BICYCLE

3

OTHER 5

ON BACK OF ANIMAL 2

PUSHCART

4

TRACTOR 6

W24. How much water do you usually use from the rainy season source each day during the rainy season?

BUCKETS/DAY

OR

BARRELS/DAY

W25. How do you pay for water from the rainy season source?
NO COST=0 PER UNIT=1 FLAT FEE/YEAR=3
FLAT FEE/MONTH=2 OTHER=4

W26. If you pay per unit, what is the price for one of the above containers during the dry season?
CEDIS PER BUCKET
OR
CEDIS PER BARREL

W27. What is the average expenditures per month for rainy season water from rainy season source?
CEDIS/MONTH
** DON'T KNOW=-1 (DO NOT CALCULATE COST IF PEOPLE WHO BUY PER UNIT DO NOT HAVE ANY IDEA OF MONTHLY TOTAL)

W28. Does water from MAIN rainy season source taste good? YES=1 NO=0

W29. Is water from MAIN rainy season source clean looking? YES=1 NO=0

W30. How much of your total rainy season water do you get from your MAIN rainy season source? HALF=1 MOST=2 ALL=3

General MAIN source questions

W31. Who answered most of the above MAIN water source questions?
MALE(s)=1 FEMALE(s)=2 BOTH=3

W32. How many people normally use all the water discussed above?

Private Connection questions

W33A. Does your household have any type of water connection?
YES 1.... No 0.....GO TO W43

cross out
public standpipes
bidding game, page 8

W33B. Have you had any running water from your tap over the last 5 months?
YES 1 NO 0.....GOTO W43

W34. On average how many days a month do you have running water?
DAYS/MONTH DURING DRY SEASON
DAYS/MONTH DURING RAINY SEASON

W35. On average, how many hours a day do you have running water on days when the water is running?
HOURS/DAY DURING DRY SEASON
HOURS/DAY DURING RAINY SEASON

W36. Is private tap the MAIN source during either the dry season or rainy season?
YES=1....GO TO W43 NO=0

W37. How do you pay for tap water?
PAY NOTHING=1 PER UNIT(METER)=2 MONTHLY FLAT TARIFF 3

W38. How much does your household usually pay per month for tap water?
CEDIS/MONTH DRY SEASON
CEDIS/MONTH RAINY SEASON

W39. The above payments normally provide water for how many people?

W40. Does water from tap taste good? YES=1 NO=0

W41. Is water from tap clean looking? YES=1 NO=0

W42. How much water of your total water do you get from your tap?
AMOUNT OF WATER FROM TAP DURING DRY SEASON
AMOUNT OF WATER FROM TAP DURING RAINY SEASON
NONE=0 QUARTER=1 HALF=2 THREE QUARTERS=3 ALL=4

WATER VENDOR QUESTIONS

W43A. Does your household buy any water from vendors (home delivery or vendor drop off)? YES 1 NO 0....go to W54/

W43B. Is most of the water you buy from vendors delivered directly to your home? YES=1 NO=0....GO TO W45

W44. How do water vendors deliver water to your home?
ON FOOT 1 BICYCLE 3 TANKER TRUCK 5
ON BACK OF ANIMAL 2 PUSHCART 4 OTHER 6 _____

W45. Are vendors (vendor drop off or water carriers) the main dry season source? YES=1.....go to w48 NO=0

W46. How much water do you usually buy from vendors (vendor drop off and water carriers) EACH WEEK during the dry season?
BUCKETS/WEEK
OR
BARRELS/WEEK

W47. What is the cost per unit during the dry season of the water you buy from vendors (vendor drop off and water carriers) ?
CEDIS PER BUCKET
OR
CEDIS PER BARREL

W48. Are vendors (vendor drop off or water carriers) the MAIN rainy season source? YES=1.....GO TO W51 NO=0

W49. How much water do you usually buy from vendors (vendor drop off and water carriers) EACH WEEK during the RAINY season.
BUCKETS/WEEK
OR
BARRELS/WEEK

W50. What is the cost per unit during the RAINY season of the water you buy from vendors (vendor drop off and water carriers)?
CEDIS PER BUCKET
OR
CEDIS PER BARREL

W51. How much of your total water comes from water vendors? (home delivery and vendor drop off)
AMOUNT OF DRY SEASON WATER
AMOUNT OF RAINY SEASON WATER
NONE=0 QUARTER=1 HALF=2 THREE QUARTERS=3 ALL=4

PUBLIC STANDPIPE QUESTIONS

W54. How far is the nearest public standpipe from your house?

MILES
or
FEET

W55. On average how many days a month do the standpipes have running water?
DAYS/MONTH DURING DRY SEASON
DAYS/MONTH DURING RAINY SEASON

W56. On average, how many hours a day do the standpipes have running water
on days they are turned on? HOURS/DAY DURING DRY SEASON
HOURS/DAY DURING RAINY SEASON

W52. Is a public standpipe either the MAIN dry season or MAIN rainy season
source? YES=1. GO TO W61 NO=0

W57. Does the public standpipe water taste good? YES=1 NO=0

W58. Is the public standpipe water clean looking? YES=1 NO=0

W59. How much do you normally pay for standpipe water per month?
CEDIS/MONTH DRY SEASON
CEDIS/MONTH RAINY SEASON

W60. How much water of your total water do you get from standpipes?
AMOUNT OF WATER FROM STANDPIPES DURING DRY SEASON
AMOUNT OF WATER FROM STANDPIPES DURING RAINY SEASON
NONE=0 QUARTER OR LESS=1 HALF=2 THREE QUARTERS=3 ALL=4

General Water questions

W61. How many of the following containers does your household use to store
most of your water?

- NUMBER OF SMALL CLAY POTS
- NUMBER OF LARGE CLAY POTS
- NUMBER OF BARRELS
- GROUND LEVEL TANKS _____ GALLONS
- OVER HEAD TANKS _____ GALLONS

W62. How many people normally use the water stored in your containers?

W63. Excluding rain drainage, does your household ever have drainage
problems associated with household water use such as dish washing,
clothes washing? YES=1 NO=0

W64. Is the amount of water your household presently consumes sufficient?
YES 1 NO 0

W65. Are you satisfied with your present water situation? YES 1 NO 0

W66. What are the biggest water problems facing your household?
FIRST PROBLEM
SECOND PROBLEM

**DO NOT READ PROBLEMS, LET RESPONDENT RESPOND FREELY
HIGH COST=1 DISTANCE TO SOURCE=4 OTHER=7
WATER SHORTAGE=2 STORAGE CAPACITY=5 LONG QUEUE=8
CLEANLINESS=3 TASTE=6

W67. Use the codes below to complete the following by filling in the most common source for each activity. (Remember to use -3 if not applicable)

Activities	Dry Season Source	Rainy Season Source
A. drinking		
B. cooking and dish washing		
C. bathing		
D. washing clothes		
E. building and plastering		
F. watering animals		
G. brewing pito		
H. preparing food to sell		

- | | | | | | |
|--------------------|---|----------------|----|----------------|----|
| NEIGHBOUR | 1 | PRIVATE TAP | 10 | WATER CARRIERS | 13 |
| PUBLIC HANDPUMP | 2 | PRIVATE WELL | 11 | TANKER TRUCK | 14 |
| PUBLIC STANDPIPE | 3 | RAIN CATCHMENT | 12 | | |
| PUB HAND DUG WELL | 4 | | | | |
| POND/RESERVOIR/DAM | 5 | | | | |
| STREAM/RIVER | 6 | | | | |
| SHALLOW DUG PIT | 7 | | | | |
| SPRING | 8 | | | | |
| VENDOR DROP OFF | 9 | | | | |

Section 3: Willingness to Pay

Your community presently has a piped water system consisting of public standpipes and private taps. Water is available from the standpipes and private connections only on some days because there is not enough money to buy fuel for the engine(s) and chemicals for the treatment works.

The intention is for the community to be responsible for operation and maintenance of the water supply system. A Community Water Committee consisting of local community members will be formed for that purpose. The Project will help the community rehabilitate the present water supply system.

The people who use the water will pay for the operation and maintenance of the system by contributing money to the Community Water Committee. This money will be used to operate the engine, to pay the salaries of the operators and to pay for repairs.

We need some information to help your community plan an improved water supply system. I'm going to ask you some questions concerning your feelings toward an improved system. Some of the questions will require you giving estimates of how much you could contribute to the Community Water Committee for access to different levels of water service. Please try to tell us what you are actually prepared to pay for these options. If you tell us an amount that is higher than you are actually prepared to pay the community may receive a water supply system that it cannot afford to maintain. If you tell us an amount that is much lower than you can really afford, the system designed for your community may not meet all your needs. In either case, if you are not truthful, the community system may not be properly designed and you will not have improved access to water.

B1. Who pays for household water? DO NOT PAY=0 MEN=1 WOMEN=2 BOTH=3

Public Standpipes Bidding Game

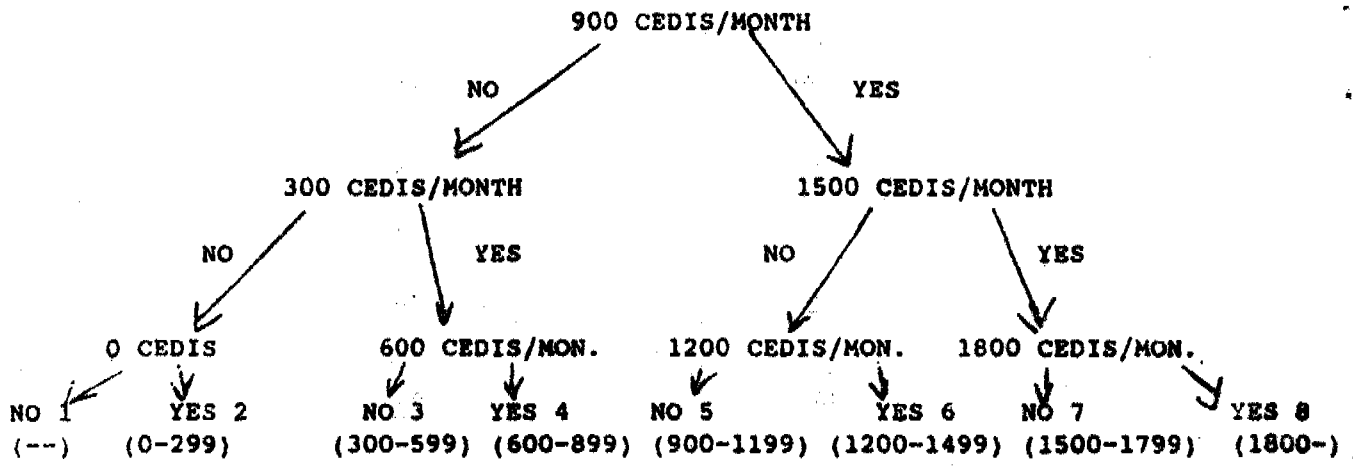
One option for your community is the improvement of the public standpipes service. The improved system would have the following characteristics:

1. The standpipes will be within 500 feet of your home (use local landmark)
2. Each standpipes will be shared by about 20 compounds
3. Water will be available at least 12 hours a day
4. Standpipes users will contribute money to the community water committee to pay for the operation and maintenance of the system.
5. The community water committee will decide on the actual user-fee and method of payment based on the actual cost of operating the system.
6. Water from any existing handpumps will still be available.

B2. Do you understand the system I have described to you? YES=1 NO=0

B3. **Enumerator read statement for each appropriate bidding game amount.

Would your particular household be willing to contribute _____ cedis/month in order to be able to get water from the standpipes?



B4. What is the maximum amount you would be willing to contribute per month to get your household water from the standpipes? CEDIS/MONTH

B5. If below 150 cedis, why can't you contribute more?
PREFER PRIVATE CONNECTION=1 OTHER _____ 4
GOVERNMENT SHOULD PROVIDE FREE=2 SATISFIED WITH PRESENT SYSTEM=5
SYSTEM WILL NOT BE RELIABLE=3

B6. How would you like to pay for standpipes water?
BY THE BUCKET 1 WILL PAY NOTHING 3
PAY FLAT MONTHLY TARIFF 2 OTHER _____ 4.

Private Connection Bidding Game

One option for your community is the provision of a more reliable piped water system consisting of both public standpipes and private connections. The improved system would have the following characteristics:

1. There will be standpipes within 500 feet of your home (use local landmark to illustrate distance)
2. Each standpipes will be shared by about 20 compounds.
3. Water will be available from the system for 12 hours a day.
4. You can have water delivered directly to your house by installing a private tap.
5. If YOUR COMPOUND does not have a private tap now and would like one, it will have to install one at a cost of about 80,000 cedis.
6. Private tap users will not be allowed to sell water to their neighbors.
7. Users who decide not to install a private tap will have access to the public standpipes by making contributions of at least 500 cedis/month to the community water committee.
8. Households with a private tap will have to pay a higher contribution than people who will only have access to public standpipes.
9. The community water committee will decide on the actual user-fee and payment method based on the actual cost of operating the system.

B7. Do you understand the system I described? YES=1 NO=0.

B8. Are you interested in private connections? YES=1..goto B10 NO=0

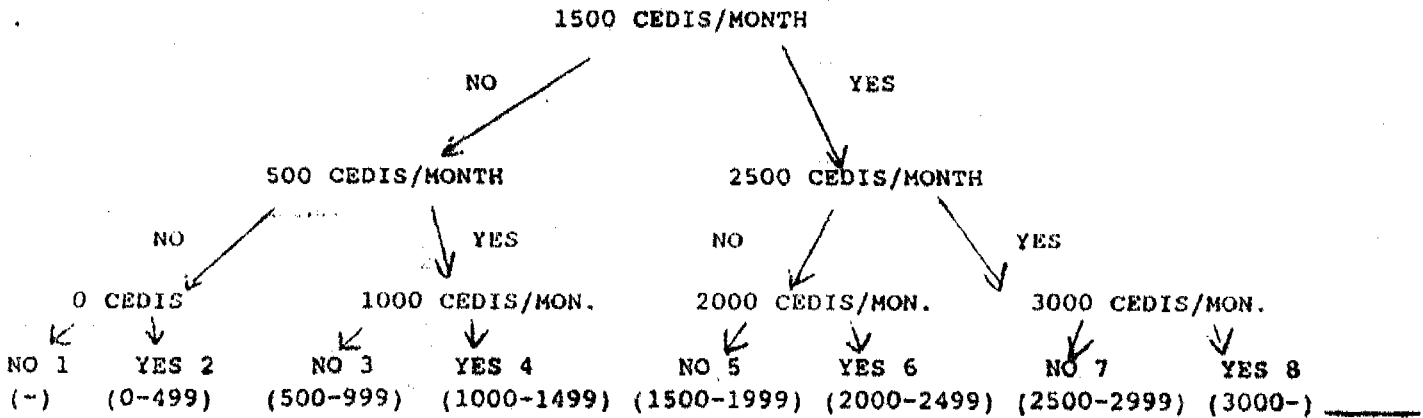
B9. If not interested in private connection system what is reason?

CAN NOT AFFORD INSTALLATION COST=1 OTHER _____ =4
 NOT RELIABLE=2 DO NOT OWN HOUSE=5
 SATISFIED WITH PRESENT SYSTEM=3

B9B. Would you be interested if you could pay the 80,000 installation cost in instalments? YES=1 NO=0...GOTO B15

B10. ** Read statement for each appropriate bidding game amount

Would you choose to have a private connection if it required your particular household contributing _____ Cedis a month to the water committee? This contribution would cover operation and maintenance costs and would be separate from the cost of installing the actual tap!!!!



B11. What is the maximum amount your particular household could contribute each month to have access to a private water connection? CEDIS/MONTH

**If respondent has existing private tap goto B14

B12. How would you like to pay the 80,000 cedis installation cost?
 PAY LUMP SUM CASH=1 PAY 5,400 MONTH FOR 15 MONTHS=4
 20,000/MONTH FOR 4 MONTHS=2 OTHER=5
 8,000/MONTH FOR 10 MONTHS=3

B14. How would you like to pay for your private tap water?
 PER UNIT USED=1 FLAT MONTHLY FEE=2

General Bidding Game questions

- B15. If you are in a multi-household compound, do you think the other households in your compound could contribute approximately more, less, or the same as you per month?
 MORE 1 LESS 2 SAME 3 BIDS WERE FOR ENTIRE COMPOUND 4
- B16. Would you be willing to contribute more, less, or the same as you indicated in the bidding games if GWSC operated the town water system, instead of a Community Water Committee. MORE 1 LESS 2 SAME 3
- B17. Would you be willing to contribute more, less, or the same if it were the rainy season instead of the dry season? MORE 1 LESS 2 SAME 3
- B18. Who do you think should operate the water system?
 GWSC=1 COMMUNITY WATER COMMITTEE=2 DOES NOT MATTER=3
 JOINT GWSC/COMMUNITY WATER COMMITTEE=4
- B19. Who should collect the water payments?
 GWSC=1 COMMUNITY WATER COMMITTEE=2 DOES NOT MATTER=3
 JOINT GWSC/COMMUNITY WATER COMMITTEE=4
- B20. If you were able to have access to water, from handpumps at existing cost, from a standpipes by paying 500 cedis/month or from a private connection by paying 1500 cedis a month, which would you choose?
- | | | | |
|--------------------|---|---------------------|----|
| Standpipes | 1 | (HAND PUMP | 3) |
| PRIVATE CONNECTION | 2 | NONE OF THE CHOICES | 4 |
- B21. Who answered most of the bidding questions? MALE=1 FEMALE=2 BOTH=3

Section 4: Household Socio-economic Information

Housing Information

**Enumerator, try to answer some of the following questions by observing the house.

- H1. The roof of the house is made of the following:
MUD 1 THATCH 2 CORRUGATED METAL 3 OTHER 4
- H3. Does the house have electricity service? YES 1 NO 0....goto H5
- H4. How much do you normally pay each month for electricity ?
CEDIS/MONTH
- H5. The walls of the house are made of:
MUD 1 CONCRETE BLOCKS 3
THATCH 2 MUD/CONCRETE MIXTURE 4 OTHER 5
- H6. Does the house have indoor plumbing? YES 1 NO 0
- H7. What type of latrine does the house?
NO LATRINE=0 PIT LATRINE=1 INDOOR WC=2 BUCKET LATRINE=3
- H9. How many rooms does your household live in not including the kitchen?

General Information

- H10. How many people in your household have had severe diarrhoea during the last year?
- H11. How many people in your household have had guinea worm during the last year?
- H12. How many total resident household members contribute to household expenditures?
- H13. How many of the contributors are women?
- H14. How many non-residents send money or assistance in kind to support the maintenance of the household?
** If no non-resident contributors GOTO H17
- H15. How many of non-resident contributors live outside of Ghana?
- H17. What is the age of the head of household (or if not present oldest respondent).
- H18. What is the educational level of?

MALE HEAD OF HOUSEHOLD
FEMALE RESPONDENT
MOST EDUCATED FAMILY MEMBER

NONE=0 ELEMENTARY=1 SECONDARY=2, POST/SEC=3, UNIVERSITY=4

H19. Can respondents read a newspaper? YES=1 NO=0

H20. What is the religion of head of household?
(MUSLIM=1, CHRISTIAN=2 OTHER=3)

H21. What is the ethnic group of the head of household(or first respondent)? DAGARTI=1, WALA=2, DAGOMBA=3, KUSASI=4, KONKOMBA=5, CHOKOSSI=6, NANUMBA=7, MAMPRUSSI=8, FRAFRA=9, KASENA=10, BULSA=11, GONJA=12, OTHERS=13 SISALA=14

H22. What do household members do to earn a living?
HEAD OF HOUSEHOLD'S MAIN JOB
SPOUSE'S MAIN JOB

(farmer=1, craftsman=2, market seller=3, labourer=4, artisan=5, healthworker=6, owner-employer=7, teacher=8, other gov. worker=9, manages home=10, other=11)

H24. What organizations do household men belong to? ORGANIZATION 1
ORGANIZATION 2

H25. What organizations do household women belong to? ORGANIZATION 1
ORGANIZATION 2

BELONG TO NOTHING=0 TRIBAL ORGANIZATION=6
DISTRICT ASSEMBLY=1 WOMAN'S 31ST DEC=7
C.D.R.=2 OTHER=8
COMMITTEE FOR DISABLED=3
TRADE ORGANIZATION=4
HEALTH/WATER COMMITTEE=5

H26. Did you talk to anyone else who we interviewed before now? YES=1 NO=0

List the number of the following assets:

- H27. RADIO
- H28. FRIDGE
- H29. TV
- H30. BICYCLE
- H31. MOTORCYCLE
- H32. TRACTOR/CAR
- H33. POWER TILLER
- H34. LARGE LIVESTOCK*
- H35. POULTRY*

*Ask for only approximate numbers (5, 10, 20 etc.)

H37. What do you estimate to be your total average monthly expenditures?
CEDIS/MONTH

THE END--THANK YOU VERY MUCH

***Enumerator please fill answer the following questions yourself

H38. Were there people besides the respondents present during the interview? YES=1 NO=0

H39. How would you judge the interview? VERY GOOD 1 GOOD 2 BAD 3

H40. How were the man and woman answering the questions?
Male(s) CONTROLLING 1 Females controlling=2 BOTH CONTRIBUTING=3