



MCA - Tanzania

IMPACT EVALUATION STUDY

**Evaluating the Impact of Trunk Road Upgrades Financed
by the Millennium Challenge Account - Tanzania**

INSTRUCTIONS FOR THE LISTING TEAM

December 2008

1. INTRODUCTION

EDI has been contracted by the Millennium Challenge Account – Tanzania (MCA-T) to organise a survey to evaluate the socioeconomic impact of rural road upgrades. It is EDI's job to send its interviewer teams out to the field to collect high-quality, reliable data that can be analysed by researchers on the project.

The conclusions from this research are of extreme importance for the Tanzanian Government, the Millennium Challenge Corporation and the Donor Community in general. They will be used to plan future projects and plan the further development of the nation's infrastructure. The role of the interviewer is key in this process. You, as an interviewer, are the source of the data and the quality of the research and resulting policies will stand or fall depending on your job.

This job of high responsibility needs strict guidelines and strict discipline. Unless you follow these guidelines to the letter the data you collect will be of no value. This document, the interviewer's manual, will form what you should regard as the 'constitution' of the survey. It should answer any queries you have about your job as an interviewer and about the way the data should be collected. You should know this constitution by heart. You should have this constitution with you at all times during your work. During discussions with fellow interviewers, your supervisor or the project management it will be the manual that has the last word and final authority.

But remember too that the manual is a working document and just as a country passes new laws and amends old ones so this manual can be adapted and changed by the project management. This will happen through addendums. Whenever a new addendum appears you will be given official notification and your supervisor will sit with you to review its contents. You are instrumental in formulating these addendums. If you find omissions, situations that are not adequately covered, or anything that you find unclear or think is wrong, notify your supervisor or the project management so that your query can be reviewed and, if necessary, the laws governing the survey altered through an addendum.

2. BACKGROUND TO THE PROJECT

The 2005 National Strategy for Growth and the Reduction of Poverty in Tanzania (MKUKUTA) identifies the poor state of the rural road network as one of the major impediments to growth and poverty reduction. In this light, the Government of Tanzania has adopted the 10-year Transport Sector Investment Programme (2007/8 – 2017/18; TSIP). The TSIP identifies nine rural trunk roads – “development corridors” – that are important for opening up the country, spurring economic growth and alleviating rural poverty. The development corridors embrace 10,300 km of roads of which approximately 40% is currently bituminized. The challenge set forth by TSIP is to bituminize the remaining 60%.

In the framework of TSIP, the *Millennium Challenge Corporation* (US development cooperation) will – through its local branch *Millennium Challenge Account Tanzania* – upgrade three important stretches of road on three development corridors (see Figure 1):

- **Tanga to Horohoro road** (the green line in Figure 1): A 68 km stretch of road linking the port of Tanga to the border with Kenya in Horohoro (Tanga region in northeast Tanzania). This is part of the northeast development corridor that will facilitate production of cash and subsistence crops, tourism and mining.
- **Tunduma to Sumbawanga road** (the yellow line in Figure 1): A 224 km stretch of road linking Tunduma at the Zambian border to the regional centre of Sumbawanga (Rukwa region). This is part of the western development corridor linking Zambia (Tunduma border) to Kigoma (Burundi border). Main economic activities along this corridor are agriculture, tourism, mining, fishing and gold smiting.
- **Mtwara corridor** (the two blue lines in Figure 1): Upgrading of two sections of the southern development corridor consisting of (1) the 61 km stretch of road between Namtumbo and Songea and (2) the 78 km stretch of road between the Peramiho junction (approximately 20 km west of Songea) and Mbinga. This corridor will promote agricultural production including livestock and

fishing, mining and trade. This corridor will also open up the yet unexploited steel and coal mines of Liganga and Mchuchuma.

3. BACKGROUND TO THE EVALUATION SURVEY

To examine whether the financing of the road upgrades are good investments, Millennium Challenge Account – Tanzania has contracted EDI to undertake an *impact evaluation* of the road upgrades. Broadly speaking, an impact evaluation examines the effects of a specific policy intervention on a specific outcome of interest. In this fashion, EDI will evaluate the impact of better roads on the socio-economic situation of the people living in the villages along the roads. Good roads are widely believed to have large benefits through the reduction of transport costs (and time) and a better access to schools, markets, hospitals... Through this project EDI will investigate whether the road upgrades financed by MCC did indeed have such beneficial effects.

EDI has adopted a “*treatment and comparison group*” design to evaluate the impacts of the road upgrades. The *treatment group* consists of villages along the roads that will be upgraded by MCA, while the *comparison group* consists of villages along roads that will not be upgraded. In this way, we will have two groups of villages that are similar, except that one group will receive a *treatment* (the road upgrades) while the other group will not. If after the *treatment* (the road upgrades), the treatment group is different than the comparison group, the road upgrades will have had an impact.

During the survey, the field teams will visit 100 villages in mainland Tanzania (50 treatment villages and 50 comparison villages – see Appendix A). Per village, two *vitongoji* will be surveyed. The total sample size will thus be 200 *vitongoji*, spread over four Regions: Tanga, Mbeya, Rukwa and Ruvuma. In each of the *vitongoji*, the field teams will administer a Community Profile Questionnaire. Next, 15 households will be randomly selected in each *kitongoji* to participate in a Focus Group Discussion called the *Ladder of Life*. The participants to the *Ladder of Life* will also be administered a Short Household Questionnaire. Hence, there are **three** instruments to complete for each *kitongoji*:

- 1) the Community Profile
- 2) the Ladder of Life
- 3) the Short Household Questionnaire.

4. LISTING

For this particular survey, the listing team will carry out two listing exercises before the start of the actual interviews. First, for each village in which the survey takes place the listing team (which consists of two people) will make a complete list of all *vitongoji* in the village. Per village, the *vitongoji* will be divided in two groups, depending on whether the time to walk from the *kitongoji* centre to the treatment or comparison road is **less than 30 minutes** or **at least 30 minutes**. In this way, each village in the sample will be divided in two groups of *vitongoji*: the *close* group and the *far* group. The supervisor will then randomly sample one *kitongoji* from each group. Proceeding as such, we will survey one *close kitongoji* and one *far kitongoji* in each village.

IMPORTANT REMARK:

1. The *kitongoji* centre does not refer to the GEOGRAPHICAL but rather to the SOCIAL centre of the *kitongoji*, that is, a place where people come together and trade goods and get services. If the *kitongoji* does not have a clearly demarcated social centre, ask how long it takes to walk from the MOST POPULATED POINT OF THE *KITONGOJI* TO THE ROAD.

In order to collect these data for every village in the sample, the listing will first need to visit each village and complete a short listing form that asks the above questions (the first visit to the *kitongoji*). Depending on the answers to these questions *vitongoji* will be placed into exactly one group (the *close* group or the *far* group). From each of the two groups (strata) one *kitongoji* will be sampled.

It is possible that all *vitongoji* within a village are located along the road. In this case, all *vitongoji* fall in stratum 1 (time to walk from the *kitongoji* centre to the road is less than 30 minutes for all *vitongoji* in the village). In such cases, you will adopt the following protocol:

- ✓ Rank all *vitongoji* according to their distance to the road. The *kitongoji* whose centre is closest to the road (in terms of the time it takes to walk from the centre to the road) gets rank 1, the *kitongoji* whose centre is furthest away from the road gets the highest rank;
- ✓ Divide the *vitongoji* in 2 groups: a 'low-rank' group and a 'high-rank' group;
- ✓ Randomly sample one *kitongoji* from each group.

This protocol is programmed in the electronic survey software.

Following the sampling of the *vitongoji*, the listing team will visit – per village – the two selected *vitongoji*. The second listing exercise will take place in each selected *kitongoji*. The coordinator will ask the *kitongoji* chairman to draw up a list of all households in the *kitongoji*. Two days later, the listing team will revisit (the second visit to the *kitongoji*) each *kitongoji* to pick up and verify the list of households, and randomly sample 20 households (15 households to be interviewed and 5 reserve households) from the list in each *kitongoji*. This sampling will be based on forms with randomly generated numbers that will be distributed to the listing team.

4.1 Vitongoji Listing Procedure

Prior to the actual interviews, the listing team will visit all villages in the sample. In each village, the listing team will contact the VEO to fill in the short **Vitongoji Listing Form**. If the VEO is absent, the listing team will contact a person who holds authority in the village office. The listing team will follow the **Vitongoji Listing Form** (Appendix B):

1. Village Information

Question 1: Record the village in which the listing is done. Select the village name from a drop down menu in the survey software.

Questions 2 to 5 will automatically be filled in by the survey software (based on the village in question 1). Do NOT ask these questions to the VEO.

Question 6: Ask the VEO how many *vitongoji* there are in the village. Note this number in the UMPC.

2. Vitongoji Information

Once you have answered question 6, begin with listing the name of each *kitongoji* in the survey software. Be sure you list the *vitongoji* in **ALPHABETICAL** order (this is very important for the subsequent sampling procedure!). Once all *vitongoji* have been listed, ask the respondent (VEO) how much time it takes to walk from the *kitongoji* centre to the road specified in question 3 or question 4 (the specific treatment or comparison road). Begin with the first *kitongoji* and then proceed until you have asked this question for every *kitongoji*. Mark the time in number of minutes.

Once question 2.3 has been answered, the survey software will automatically divide the *vitongoji* in 2 strata depending on their distance to the road. The survey software will also randomly sample one *kitongoji* in each stratum.

3. Traffic Counts

During the actual interviews, EDI will gather data on traffic volume on the treatment and comparison roads. This is not only an important variable for the initial matching procedure, but also an important

outcome variable. During your first visit to the village, you will ask the VEO whether there is **someone reliable** in the village who is literate and has **a good knowledge of basic calculus**. Once the VEO – if necessary in collaboration with other knowledgeable people in the village – has identified such a person, ask the VEO to contact this person. If possible, try to see this person during the first visit to the village. If impossible, make an appointment with this person for the second visit.

When meeting this person, ask whether he/she is available the day that the survey teams will interview the village. If yes, ask the person whether he/she is willing to record the traffic flow on the specific road during that day. The person will be remunerated by EDI for his/her work. If the person is available and willing to work for one day for EDI, you will explain him/her how to fill in the **traffic count form** (appendix D). This form consists of seven pages. Each page represents a specific vehicle:

- Page 1: Normal (saloon) cars
- Page 2: Pick Up's and vans
- Page 3: Light Lorries
- Page 4: Medium Lorries
- Page 5: Heavy Lorries
- Page 6: Small (mini)buses
- Page 7: Large Buses

To standardize the traffic counts, we add pictures of every type of vehicle to the traffic count form (see Appendix). If for instance the person performing the traffic counts doubts whether the lorry that passed by was a 'medium' or a 'heavy' lorry, he/she can consult the pictures before making a decision.

The form allows a maximum traffic count of 100 per vehicle type. This should be sufficient given existing traffic counts from TANROADS. Instruct the person who will be carrying out the traffic counts to record all traffic on a specific **road between noon (12 am) and 4 pm**. The person will record the traffic coming from **both directions** on the relevant road. Instruct the person to count only the traffic **THAT PASSES LITERALLY BEFORE HIM/HER**. The person must not record traffic that he/she can see further up/down the road but does not pass before him/her.

Instructions to fill in the form: The first time a vehicle of a specific type passes by, mark an 'X' in the box next to the number 1 on the page dedicated to this specific type of vehicle. Also mark the LAST TWO NUMBERS OF THE VEHICLE'S LICENCE PLATE. The next time that a vehicle of this type passes by, mark an 'X' in the box next to the number 2 on the page dedicated to this specific type of vehicle. For instance, if the first vehicle to pass by is a minibus, mark an 'X' next to the number 1 on Page 6. If the second vehicle to pass by is a pick-up and the third vehicle a minibus, mark an 'X' in the box next to the number 1 on Page 2 (pick-up) and an 'X' in the box next to the number 2 on Page 6 (minibus). For each vehicle that passes by, the traffic counter should register the last 2 numbers of the licence plate.

The supervisor will collect and verify the traffic count form when the traffic count is finished. The supervisor will enter the traffic data in UMPC the same evening.

4. Road Quality: 5-km Drive Test

During the survey, EDI wishes to collect some indicative data on the current (pre-upgrade) quality of the treatment and comparison roads. These data will be used during the matching procedure (to match stretches of roads of comparable quality). EDI already has data on road quality collected by TANROADS. To supplement these data, an EDI team consisting of a supervisor and a driver will perform a 5-km drive test in every village in our sample. The team will follow these procedures:

1. The driver and the field supervisor will identify a 5-km stretch of road with 3 reference points: (1) the traffic count point; (2) a point 2.5 km to the left of the traffic count point; (3) a point 2.5 km to the right of the traffic count point. At points (2) and (3), the supervisor will put a reference sign/flag.
2. At the start of the 5-km stretch, the supervisor will mark a 50-m acceleration stroke. The driver will accelerate for 50 meters and then cross the first reference sign. The start of the acceleration stretch will be located 2.55 km from the traffic count point.
3. Starting at the acceleration stretch, the driver will accelerate. After 50 metres -when passing the first reference sign- the supervisor will start the stopwatch. 5 kilometres further on –when passing the second reference flag- the supervisor will stop the

stopwatch and the driver will slow down. **THE DRIVER MUSTN'T SLOW DOWN IN ANTICIPATION OF THE END OF THE 5-KM DRIVE!**

For reasons of comparability, each drive test will be administered by **the same driver in the same car**. This will avoid biases owing to differences in drive skills or car quality.

IMPORTANT REMARKS: If the stretch of road identified by the previous protocol has a considerable upward or downward slope, the supervisor and driver need to identify an alternative stretch of road. This stretch should be the *nearest* flat stretch of road of 5 kilometres.

4.2 Household Listing Procedure

Once the two *vitongoji* have been selected, the listing team will visit the *vitongoji* and contact the *kitongoji* chairman (this will be carried out immediately after the sampling of the two *vitongoji*). Explain the goal and purpose of the survey to the *kitongoji* chairman:

- The Millennium Challenge Account - Tanzania is financing upgrades of important trunk roads and wishes to undertake a survey to evaluate the impact of the road upgrades on the socioeconomic situation of people along the roads. His/her *kitongoji* has been selected to participate in the survey. The conclusions from this research will be used to plan future projects and plan the development of the nation's infrastructure.
- If the issue is raised, you can inform the *kitongoji* chairman that the survey is not concerned in any way with taxes, and all the information recorded will be regarded as confidential and covered by the obligation of statistical secrecy.

You will provide a **Household Listing Form** (Appendix E) to the *kitongoji* chairman. The listing team will fill in the first page of this form together with the *kitongoji* chairman. Ask the *kitongoji* chairman to draw up an exhaustive list of all households in the *kitongoji*, and to note the names of all household heads and their gender on the Household Listing Form. Ask the *kitongoji* chairman to have the list ready two days later, when you will revisit the *kitongoji* to pick up and verify the list. After the list has been verified, the listing team will draw a random sample of 20 households *per kitongoji* from the list of all households in the *kitongoji*. The first 15 of these 20 households will be invited for an interview, while the five others are reserve households. To sample the 20 households from the list, the listing team will run the following **do-file** in Stata:

```
clear
set obs N **(N is equal to the total number of households in the
              kitongoji; the answer to question 5 in the Household
              Listing Form)
gen number=_n
sample 20, count
list
```

This do-file will randomly select 20 numbers. The household heads who correspond to the numbers will be selected (ID in column 1 of the household list). The first 15 numbers (households) will be invited to participate in the Ladder of Life and the Short Household Questionnaire. The last 5 numbers are reserve households. Mark the sampled households with an 'X' in the last column of the table in the Household Listing Form.

IMPORTANT NOTE FOR LISTING TEAM: FOR EACH SAMPLING IN STATA (THAT IS: FOR EACH KITONGOJI), YOU MUST SAVE THE STATA OUTPUT WITH THE RANDOMLY GENERATED NUMBERS. GIVE EACH OUTPUT THE NAME OF THE KITONGOJI. IN THIS WAY, YOU WILL HAVE 200 STATA OUTPUTS, EACH LABELED WITH THE NAME OF THE KITONGOJI!

For the 15 households selected for the Ladder of Life and the Short Household Questionnaire, you will give invitation letters to the *kitongoji* chairman. These letters will specify the context and the goal of the survey, and will invite the household heads to come to a specific place at a specific date and time to participate in the survey. At the same time, you will give invitation letters and schedule an appointment with the *kitongoji wazee* (the knowledgeable persons of the *kitongoji*) to participate in the Community

Profile Questionnaire. This will be for the same day as the 15 selected households, but at an earlier time (in the morning).

IMPORTANT REMARK: 15 households get selected to participate in the interviews. If several of those 15 households are headed by one and the same person (a polygamous household head), you will keep the household that was sampled first and replace the other households of the same head with replacement households. This is to avoid interviewing households with the same household head.

Example: Imagine that there are 100 households in a kitongoji. The kitongoji chairman has listed these households on the Household Listing Form. STATA randomly selects 20 numbers (households):

Household Number
57
12
73
29
8
86
71
51
34
38
6
40
22
55
1
44
58
93
67
80

The first 15 households will participate in the interviews, while the last 5 shaded households are reserve households. Now, imagine that household 29 and household 55 are headed by the same person (a polygamous household head). Following the rule, household 29 will remain in the sample (this household was sampled first). Household 55 will be **replaced** by the first reserve household (household 44).

To summarize, the listing team will visit all *vitongoji* **twice**. During the FIRST visit, the listing team will contact the VEO, administer the Vitongoji Listing Form and randomly select two *vitongoji*. Then (still during the FIRST visit), the listing team will visit the two sampled *vitongoji* and give the Household Listing Form to the kitongoji chairman. Two days later, the listing team will visit the *vitongoji* for the SECOND time. During this visit, the listing team will verify the Household Listing Forms and sample 20 households from the list (15 core households and 5 reserve households). The listing team will also make clear appointments with the *kitongoji* wazee (to participate in the Community Questionnaire) and with the 15 households (to participate in the Ladder of Life and the Short Household Questionnaire).

When you (the listing team) leave the *kitongoji* after this second visit, be sure to have:

- The sample of 15 households and 5 reserve households
- A fixed and clear appointment with the kitongoji wazee who will participate in the Community Questionnaire
- Fixed and clear appointments with the 15 selected households who will participate in the Ladder of Life and the Short Household Questionnaire
- A competent person to carry out the traffic counts

Appendix B: Vitongoji Listing Form

Vitongoji Listing Form

1 Village Information

1. VILLAGE:

2. VILLAGE TYPE:

TREATMENT VILLAGE....1
COMPARISON VILLAGE...2

☐

*If treatment village, continue with question 3.
If comparison village, go to question 4.*

3. TREATMENT ROAD:

TUNDUMA - SUMBAWANGA TRUNK ROAD.....1
TANGA - HOROHORO TRUNK ROAD.....2
SONGEA - MBINGA TRUNK ROAD.....3
SONGEA - NAMTUMBO TRUNK ROAD.....4

☐

Go to question 5.

4. COMPARISON ROAD:

MLOWO - KAMSAMBA REGIONAL ROAD.....1
KAENGESA - KALE REGIONAL ROAD.....2
OLD TRUNK ROAD BETWEEN MKIMA AND MALONJE.....3
MABOKWENI - BOMBOMTONI REGIONAL ROAD.....4
LUMECHA - KITANDA REGIONAL ROAD.....5
LIKUYUFUSI - MITOMONI REGIONAL ROAD.....6
PERAMIHO - LIGANGA DISTRICT ROAD.....7
KITAI - LITUHI REGIONAL ROAD.....8

☐

4. DISTRICT:

Write in full (BLOCK letters):

MBOZI.....1
SUMBAWANGA RURAL....2
NAMTUMBO.....3
SONGEA RURAL.....4
MBINGA.....5
MKINGA.....6
TANGA.....7

☐

5. REGION:

MBEYA.....1
RUKWA.....2
RUVUMA.....3
TANGA.....4

☐

6. HOW MANY VITONGOJI ARE THERE IN THIS VILLAGE:

2. Vitongoji Information

Make an ALPHABETICAL list of all *vitongoji* in the village. Write the names of the *vitongoji* in full. List all *vitongoji* BEFORE moving on to questions 3 and 4. Make sure that the number of *vitongoji* listed in the table matches the number in question 6!

1. ID	2. Name of <i>kitongoji</i> (write in full and list ALPHABETICALLY)	3. How long does it take to walk from the centre of the <i>kitongoji</i> to the [ROAD] (question 3 or 4). Note in number of minutes	4. Does the <i>kitongoji</i> belong to the close group or to the far group? CLOSE...1 FAR.....2
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			

5. NAME OF KITONGOJI SAMPLED IN GROUP 1 (write in BLOCK letters):

6. NAME OF KITONGOJI SAMPLED IN GROUP 2 (write in BLOCK letters):

Appendix C: Predefined Sampling Form

Number of vitotongoji in group 1	Sample
N=1	1
N=2	1
N=3	2
N=4	2
N=5	4
N=6	1
N=7	4
N=8	3
N=9	3
N=10	5
N=11	10
N=12	7
N=13	2
N=14	2
Number of vitotongoji in group 2	Sample
N=1	1
N=2	2
N=3	1
N=4	2
N=5	4
N=6	4
N=7	4
N=8	2
N=9	9
N=10	1
N=11	11
N=12	8
N=13	11
N=14	5

Appendix D: TRAFFIC COUNT FORM



MCA - Tanzania

IMPACT EVALUATION STUDY

TRAFFIC COUNT FORM

This **TRAFFIC COUNT FORM** consists of seven pages. Each page corresponds to a particular type of vehicle:

1. Ordinary (saloon) cars
2. Pick-Up's and Vans
3. Light Lorries
4. Medium Lorries
5. Heavy Lorries
6. Minibuses (daladala)
7. Large Buses

Each page allows a maximum traffic count of 360. This should be sufficient given the current traffic volume on Tanzanian roads.

INSTRUCTIONS TO FILL IN THE FORMS: The first time a vehicle of a specific type passes by, mark an 'X' in the box next to the number 1 on the page dedicated to this specific type of vehicle. The next time that a vehicle of this type passes by, mark an 'X' in the box next to the number 2 on the page dedicated to this specific type of vehicle. For instance, if the first vehicle to pass by is a minibus, mark an 'X' next to the number 1 on Page 6. If the second vehicle to pass by is a pick-up and the third vehicle a minibus, mark an 'X' in the box next to the number 1 on Page 2 (pick-up) and an 'X' in the box next to the number 2 on Page 6 (minibus).

TRAFFIC COUNT: CARS

Village:	Day:	Date: DD: MM: YY:
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1	41	81	121	161	201	241	281	321
2	42	82	122	162	202	242	282	322
3	43	83	123	163	203	243	283	323
4	44	84	124	164	204	244	284	324
5	45	85	125	165	205	245	285	325
6	46	86	126	166	206	246	286	326
7	47	87	127	167	207	247	287	327
8	48	88	128	168	208	248	288	328
9	49	89	129	169	209	249	289	329
10	50	90	130	170	210	250	290	330
11	51	91	131	171	211	251	291	331
12	52	92	132	172	212	252	292	332
13	53	93	133	173	213	253	293	333
14	54	94	134	174	214	254	294	334
15	55	95	135	175	215	255	295	335
16	56	96	136	176	216	256	296	336
17	57	97	137	177	217	257	297	337
18	58	98	138	178	218	258	298	338
19	59	99	139	179	219	259	299	339
20	60	100	140	180	220	260	300	340
21	61	101	141	181	221	261	301	341
22	62	102	142	182	222	262	302	342
23	63	103	143	183	223	263	303	343
24	64	104	144	184	224	264	304	344
25	65	105	145	185	225	265	305	345
26	66	106	146	186	226	266	306	346
27	67	107	147	187	227	267	307	347
28	68	108	148	188	228	268	308	348
29	69	109	149	189	229	269	309	349
30	70	110	150	190	230	270	310	350
31	71	111	151	191	231	271	311	351
32	72	112	152	192	232	272	312	352
33	73	113	153	193	233	273	313	353
34	74	114	154	194	234	274	314	354
35	75	115	155	195	235	275	315	355
36	76	116	156	196	236	276	316	356
37	77	117	157	197	237	277	317	357
38	78	118	158	198	238	278	318	358
39	79	119	159	199	239	279	319	359
40	80	120	160	200	240	280	320	360

TRAFFIC COUNT: PICK-UPS AND VANS

Village:	Day:	Date: DD:	MM:	YY:
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1	41	81	121	161	201	241	281	321
2	42	82	122	162	202	242	282	322
3	43	83	123	163	203	243	283	323
4	44	84	124	164	204	244	284	324
5	45	85	125	165	205	245	285	325
6	46	86	126	166	206	246	286	326
7	47	87	127	167	207	247	287	327
8	48	88	128	168	208	248	288	328
9	49	89	129	169	209	249	289	329
10	50	90	130	170	210	250	290	330
11	51	91	131	171	211	251	291	331
12	52	92	132	172	212	252	292	332
13	53	93	133	173	213	253	293	333
14	54	94	134	174	214	254	294	334
15	55	95	135	175	215	255	295	335
16	56	96	136	176	216	256	296	336
17	57	97	137	177	217	257	297	337
18	58	98	138	178	218	258	298	338
19	59	99	139	179	219	259	299	339
20	60	100	140	180	220	260	300	340
21	61	101	141	181	221	261	301	341
22	62	102	142	182	222	262	302	342
23	63	103	143	183	223	263	303	343
24	64	104	144	184	224	264	304	344
25	65	105	145	185	225	265	305	345
26	66	106	146	186	226	266	306	346
27	67	107	147	187	227	267	307	347
28	68	108	148	188	228	268	308	348
29	69	109	149	189	229	269	309	349
30	70	110	150	190	230	270	310	350
31	71	111	151	191	231	271	311	351
32	72	112	152	192	232	272	312	352
33	73	113	153	193	233	273	313	353
34	74	114	154	194	234	274	314	354
35	75	115	155	195	235	275	315	355
36	76	116	156	196	236	276	316	356
37	77	117	157	197	237	277	317	357
38	78	118	158	198	238	278	318	358
39	79	119	159	199	239	279	319	359
40	80	120	160	200	240	280	320	360

TRAFFIC COUNT: LIGHT LORRIES

Village:	Day:	Date: DD:	MM:	YY:
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1	41	81	121	161	201	241	281	321
2	42	82	122	162	202	242	282	322
3	43	83	123	163	203	243	283	323
4	44	84	124	164	204	244	284	324
5	45	85	125	165	205	245	285	325
6	46	86	126	166	206	246	286	326
7	47	87	127	167	207	247	287	327
8	48	88	128	168	208	248	288	328
9	49	89	129	169	209	249	289	329
10	50	90	130	170	210	250	290	330
11	51	91	131	171	211	251	291	331
12	52	92	132	172	212	252	292	332
13	53	93	133	173	213	253	293	333
14	54	94	134	174	214	254	294	334
15	55	95	135	175	215	255	295	335
16	56	96	136	176	216	256	296	336
17	57	97	137	177	217	257	297	337
18	58	98	138	178	218	258	298	338
19	59	99	139	179	219	259	299	339
20	60	100	140	180	220	260	300	340
21	61	101	141	181	221	261	301	341
22	62	102	142	182	222	262	302	342
23	63	103	143	183	223	263	303	343
24	64	104	144	184	224	264	304	344
25	65	105	145	185	225	265	305	345
26	66	106	146	186	226	266	306	346
27	67	107	147	187	227	267	307	347
28	68	108	148	188	228	268	308	348
29	69	109	149	189	229	269	309	349
30	70	110	150	190	230	270	310	350
31	71	111	151	191	231	271	311	351
32	72	112	152	192	232	272	312	352
33	73	113	153	193	233	273	313	353
34	74	114	154	194	234	274	314	354
35	75	115	155	195	235	275	315	355
36	76	116	156	196	236	276	316	356
37	77	117	157	197	237	277	317	357
38	78	118	158	198	238	278	318	358
39	79	119	159	199	239	279	319	359
40	80	120	160	200	240	280	320	360

TRAFFIC COUNT: MEDIUM LORRIES

Village:	Day:	Date: DD: MM: YY:
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1	41	81	121	161	201	241	281	321
2	42	82	122	162	202	242	282	322
3	43	83	123	163	203	243	283	323
4	44	84	124	164	204	244	284	324
5	45	85	125	165	205	245	285	325
6	46	86	126	166	206	246	286	326
7	47	87	127	167	207	247	287	327
8	48	88	128	168	208	248	288	328
9	49	89	129	169	209	249	289	329
10	50	90	130	170	210	250	290	330
11	51	91	131	171	211	251	291	331
12	52	92	132	172	212	252	292	332
13	53	93	133	173	213	253	293	333
14	54	94	134	174	214	254	294	334
15	55	95	135	175	215	255	295	335
16	56	96	136	176	216	256	296	336
17	57	97	137	177	217	257	297	337
18	58	98	138	178	218	258	298	338
19	59	99	139	179	219	259	299	339
20	60	100	140	180	220	260	300	340
21	61	101	141	181	221	261	301	341
22	62	102	142	182	222	262	302	342
23	63	103	143	183	223	263	303	343
24	64	104	144	184	224	264	304	344
25	65	105	145	185	225	265	305	345
26	66	106	146	186	226	266	306	346
27	67	107	147	187	227	267	307	347
28	68	108	148	188	228	268	308	348
29	69	109	149	189	229	269	309	349
30	70	110	150	190	230	270	310	350
31	71	111	151	191	231	271	311	351
32	72	112	152	192	232	272	312	352
33	73	113	153	193	233	273	313	353
34	74	114	154	194	234	274	314	354
35	75	115	155	195	235	275	315	355
36	76	116	156	196	236	276	316	356
37	77	117	157	197	237	277	317	357
38	78	118	158	198	238	278	318	358
39	79	119	159	199	239	279	319	359
40	80	120	160	200	240	280	320	360

TRAFFIC COUNT: HEAVY LORRIES

Village:	Day:	Date: DD:	MM:	YY:
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1	41	81	121	161	201	241	281	321
2	42	82	122	162	202	242	282	322
3	43	83	123	163	203	243	283	323
4	44	84	124	164	204	244	284	324
5	45	85	125	165	205	245	285	325
6	46	86	126	166	206	246	286	326
7	47	87	127	167	207	247	287	327
8	48	88	128	168	208	248	288	328
9	49	89	129	169	209	249	289	329
10	50	90	130	170	210	250	290	330
11	51	91	131	171	211	251	291	331
12	52	92	132	172	212	252	292	332
13	53	93	133	173	213	253	293	333
14	54	94	134	174	214	254	294	334
15	55	95	135	175	215	255	295	335
16	56	96	136	176	216	256	296	336
17	57	97	137	177	217	257	297	337
18	58	98	138	178	218	258	298	338
19	59	99	139	179	219	259	299	339
20	60	100	140	180	220	260	300	340
21	61	101	141	181	221	261	301	341
22	62	102	142	182	222	262	302	342
23	63	103	143	183	223	263	303	343
24	64	104	144	184	224	264	304	344
25	65	105	145	185	225	265	305	345
26	66	106	146	186	226	266	306	346
27	67	107	147	187	227	267	307	347
28	68	108	148	188	228	268	308	348
29	69	109	149	189	229	269	309	349
30	70	110	150	190	230	270	310	350
31	71	111	151	191	231	271	311	351
32	72	112	152	192	232	272	312	352
33	73	113	153	193	233	273	313	353
34	74	114	154	194	234	274	314	354
35	75	115	155	195	235	275	315	355
36	76	116	156	196	236	276	316	356
37	77	117	157	197	237	277	317	357
38	78	118	158	198	238	278	318	358
39	79	119	159	199	239	279	319	359
40	80	120	160	200	240	280	320	360

TRAFFIC COUNT: SMALL BUSES (DALADALA)

Village:	Day:	Date: DD: MM: YY:
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1	41	81	121	161	201	241	281	321
2	42	82	122	162	202	242	282	322
3	43	83	123	163	203	243	283	323
4	44	84	124	164	204	244	284	324
5	45	85	125	165	205	245	285	325
6	46	86	126	166	206	246	286	326
7	47	87	127	167	207	247	287	327
8	48	88	128	168	208	248	288	328
9	49	89	129	169	209	249	289	329
10	50	90	130	170	210	250	290	330
11	51	91	131	171	211	251	291	331
12	52	92	132	172	212	252	292	332
13	53	93	133	173	213	253	293	333
14	54	94	134	174	214	254	294	334
15	55	95	135	175	215	255	295	335
16	56	96	136	176	216	256	296	336
17	57	97	137	177	217	257	297	337
18	58	98	138	178	218	258	298	338
19	59	99	139	179	219	259	299	339
20	60	100	140	180	220	260	300	340
21	61	101	141	181	221	261	301	341
22	62	102	142	182	222	262	302	342
23	63	103	143	183	223	263	303	343
24	64	104	144	184	224	264	304	344
25	65	105	145	185	225	265	305	345
26	66	106	146	186	226	266	306	346
27	67	107	147	187	227	267	307	347
28	68	108	148	188	228	268	308	348
29	69	109	149	189	229	269	309	349
30	70	110	150	190	230	270	310	350
31	71	111	151	191	231	271	311	351
32	72	112	152	192	232	272	312	352
33	73	113	153	193	233	273	313	353
34	74	114	154	194	234	274	314	354
35	75	115	155	195	235	275	315	355
36	76	116	156	196	236	276	316	356
37	77	117	157	197	237	277	317	357
38	78	118	158	198	238	278	318	358
39	79	119	159	199	239	279	319	359
40	80	120	160	200	240	280	320	360

TRAFFIC COUNT: LARGE BUSES

Village:	Day:	Date: DD:	MM:	YY:
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1	41	81	121	161	201	241	281	321
2	42	82	122	162	202	242	282	322
3	43	83	123	163	203	243	283	323
4	44	84	124	164	204	244	284	324
5	45	85	125	165	205	245	285	325
6	46	86	126	166	206	246	286	326
7	47	87	127	167	207	247	287	327
8	48	88	128	168	208	248	288	328
9	49	89	129	169	209	249	289	329
10	50	90	130	170	210	250	290	330
11	51	91	131	171	211	251	291	331
12	52	92	132	172	212	252	292	332
13	53	93	133	173	213	253	293	333
14	54	94	134	174	214	254	294	334
15	55	95	135	175	215	255	295	335
16	56	96	136	176	216	256	296	336
17	57	97	137	177	217	257	297	337
18	58	98	138	178	218	258	298	338
19	59	99	139	179	219	259	299	339
20	60	100	140	180	220	260	300	340
21	61	101	141	181	221	261	301	341
22	62	102	142	182	222	262	302	342
23	63	103	143	183	223	263	303	343
24	64	104	144	184	224	264	304	344
25	65	105	145	185	225	265	305	345
26	66	106	146	186	226	266	306	346
27	67	107	147	187	227	267	307	347
28	68	108	148	188	228	268	308	348
29	69	109	149	189	229	269	309	349
30	70	110	150	190	230	270	310	350
31	71	111	151	191	231	271	311	351
32	72	112	152	192	232	272	312	352
33	73	113	153	193	233	273	313	353
34	74	114	154	194	234	274	314	354
35	75	115	155	195	235	275	315	355
36	76	116	156	196	236	276	316	356
37	77	117	157	197	237	277	317	357
38	78	118	158	198	238	278	318	358
39	79	119	159	199	239	279	319	359
40	80	120	160	200	240	280	320	360

Appendix E: Household Listing Form

Household Listing Form

1. REGION:
2. DISTRICT:
3. VILLAGE:
4. KITONGOJI:
5. HOW MANY HOUSEHOLDS LIVE IN THE KITONGOJI:

Please make a complete list of all households in the *kitongoji*. For all households, mark the name of the household head and his/her gender. A *HOUSEHOLD* is one or more persons who usually sleep in the same dwelling and take their meals together. The HOUSEHOLD HEAD is the person identified by the household members themselves as the head. He/she is the person who is named in reply to the question: "Who is the head of this household?" Most often, but not always, it will be the person who is the main provider and who is familiar with all the activities and occupations of household members. The head of the household can be male or female.

ID	NAME OF HOUSEHOLD HEAD	GENDER OF HOUSEHOLD HEAD	SAMPLE
		MALE.....1 FEMALE...2	MARK X IF IN SAMPLE
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