

Dar es Salaam
Transport Policy and System Development
Master Plan

Technical Report 8

Traffic Survey Performance Reports

June 2008

JAPAN INTERNATIONAL COOPERATION AGENCY

PACIFIC CONSULTANTS INTERNATIONAL
CONSTRUCTION PROJECT CONSULTANTS

E I
J R
08-009

Dar es Salaam City Council
The United Republic of Tanzania

Dar es Salaam
Transport Policy and System Development
Master Plan

Technical Report 8

Traffic Survey Performance Reports

June 2008

JAPAN INTERNATIONAL COOPERATION AGENCY

PACIFIC CONSULTANTS INTERNATIONAL
CONSTRUCTION PROJECT CONSULTANTS

Table of Contents

Chapter 1 Household Interview Survey

1.1	Scope of Work.....	1 - 1
1.1.1.	Objective of the Household Interview Survey.....	1 - 1
1.1.2.	HIS Area.....	1 - 1
1.1.3.	Stated Preference Survey (SPS).....	1 - 3
1.1.4.	Work Items.....	1 - 3
1.1.5.	Survey Method.....	1 - 4
1.1.6.	Products.....	1 - 9
1.1.7.	Schedule.....	1 - 9
1.1.8.	Reports.....	1 - 9
1.2	Performance of the HIS.....	1 - 10
1.2.1	Executing Organization.....	1 - 10
1.2.2	Activities Taken so far.....	1 - 10
1.2.3	Publicity.....	1 - 11
1.2.4	Survey Team Organization.....	1 - 12
1.2.5	Targeted Samples and Sampling Method.....	1 - 15
1.2.6	Data Coding System.....	1 - 15
1.2.7	Data Flow and Data Check.....	1 - 16
1.2.8	Additional Opinion Survey (SPS).....	1 - 17
1.2.9	Collected and Processed Samples.....	1 - 19
	Appendix-1.1: HIS Survey Forms.....	1 - 20
	Appendix-1.2: Targeted Number of Sample Households by Ward/Subward.....	1 - 27
	Appendix-1.3: HIS Zoning System.....	1 - 33

Chapter 2 Traffic Count Survey

2.1	Scope of Work.....	2 - 1
2.1.1	Cordon Line Survey.....	2 - 1
2.1.2	Screen Line Survey.....	2 - 6
2.1.3	Traffic and Pedestrian Counts at Major Intersection.....	2 - 10
2.2	Survey Performance.....	2 - 14
2.2.1	Screen Line Survey.....	2 - 14
2.2.2	Traffic and Pedestrian Count at Major Intersections.....	2 - 18
2.2.3	Cordon Line Survey.....	2 - 22
	Appendix-2.1: Screen Line Survey Forms and Instruction Material.....	2 - 25
	Appendix-2.2: Traffic and Pedestrian Count Survey Forms.....	2 - 29

Appendix-2.3: Cordon Line Survey Forms.....	2 - 33
Chapter 3 Traffic Generation Survey in CBD	
3.1 Scope of Work.....	3 - 1
3.1.1 Survey Area.....	3 - 1
3.1.2 Survey Elements.....	3 - 2
3.1.3 Survey Hours and Days.....	3 - 3
3.1.4 Sampling.....	3 - 4
3.1.5 Interview Survey Items.....	3 - 4
3.1.6 Survey Method.....	3 - 4
3.1.7 Survey Forms.....	3 - 5
3.2 Survey Performance.....	3 - 6
3.2.1 Executing Organization.....	3 - 6
3.2.2 Survey Team Organization.....	3 - 6
3.2.3 Preparatory Works.....	3 - 6
3.2.4 Pilot Survey.....	3 - 7
3.2.5 Full-Scale Survey.....	3 - 8
3.2.6 Publicity.....	3 - 10
3.2.7 Data Entry.....	3 - 10
3.2.8 Collected Data.....	3 - 10
Appendix-3: Survey Forms and Instruction Materials.....	3 - 12
Chapter 4 Freight Traffic Generation Survey	
4.1 Scope of Work.....	4 - 1
4.1.1 Survey Area.....	4 - 1
4.1.2 Survey Day.....	4 - 1
4.1.3 Survey Hours.....	4 - 1
4.1.4 Sampling.....	4 - 2
4.1.5 Survey Method.....	4 - 3
4.1.6 Survey Forms.....	4 - 4
4.2 Survey Performance.....	4 - 5
4.2.1 Training.....	4 - 5
4.2.2 Survey Forms.....	4 - 5
4.2.3 Progress.....	4 - 5
Appendix-4: Survey Forms.....	4 - 8
Chapter 5 Travel Speed Survey	
5.1 Scope of Work.....	5 - 1
5.1.1 Survey Routes.....	5 - 1

5.1.2	Survey Hours	5 - 1
5.1.3	Survey Days.....	5 - 1
5.1.4	Survey Content	5 - 1
5.1.5	Survey Method	5 - 3
5.1.6	Survey Forms.....	5 - 3
5.2	Survey Performance	5 - 3
5.2.1	Executing Organization	5 - 3
5.2.2	Survey Team Organization.....	5 - 3
5.2.3	Preparatory Works.....	5 - 3
5.2.4	Pilot Survey	5 - 4
5.2.5	Full-Scale Survey	5 - 6
5.2.6	Publicity.....	5 - 6
5.2.7	Data Entry.....	5 - 6
Appendix-5: Survey Forms and Instruction Materials		5 - 7
Chapter 6 Bus Passenger Opinion Survey		
6.1	Scope of Work.....	6 - 1
6.1.1	Survey Locations	6 - 1
6.1.2	Survey Hours	6 - 1
6.1.3	Survey Days.....	6 - 1
6.1.4	Sampling.....	6 - 1
6.1.5	Survey Method	6 - 3
6.1.6	Survey Forms.....	6 - 3
6.2	Survey Performance	6 - 3
Appendix-6: Survey Forms		6 - 7

Chapter 1 Household Interview Survey

1.1 Scope of Work

1.1.1. Objective of the Household Interview Survey

The Household Interview Survey (HIS) aims to principally acquire comprehensive information of the travel pattern and characteristics of the residents in the Study area. The survey also shall collect information of socio-economic characteristics of the households and individual household members in the Study area.

The interview items include in general:

- Household demographic information;
- Household economic conditions (assets, housing type, household income, etc.);
- Individual attributes (social status, income, etc.) of each household members; and
- Trip (or travel) information of each household member.

1.1.2. HIS Area

As illustrated in Figure 1.1.1, the HIS area includes the whole area of Dar es Salaam City, which is composed of the three municipalities: Kinondoni, Ilala, and Temeke.

The population of the Study Area is estimated at about 3 million in 2007, and the total number of households is estimated at about 0.6 million.

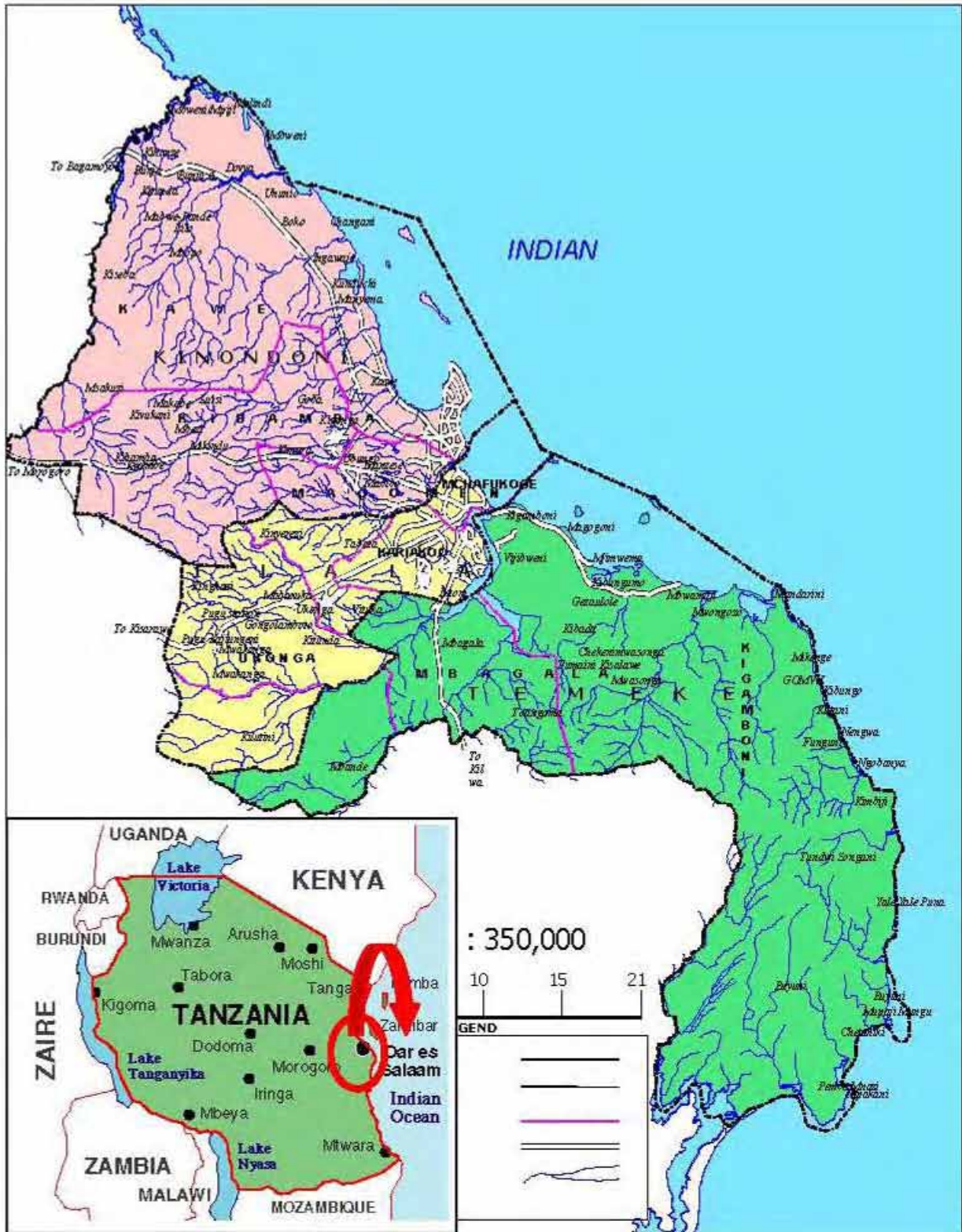


Figure 1.1.1 Survey Area

1.1.3. Stated Preference Survey (SPS)

A supplemental (additional) interview to the selected household (a part of the HIS samples: 1,000 households in total) shall be made. There are three important elements that will be discussed based on the SPS.

1) Willingness to using new public transport mode (Bus Rapid Transit System)

The SPS shall collect the information of people's willingness to using (or paying to) the existing and future public transport systems such as Bus Rapid Transit running along the Morogoro road. The existing car users and Dala-dala bus users are main target of this survey (questionnaire).

2) No trip makers

The SPS shall collect additional information from those who did not or could not make any trips on a designated day. Such person shall be identified during the HIS. The SPS shall collect his or her physical (bad access due to a heavy rain, etc) and non-physical constraints (urgent family issues, sick, day-off, no job, no money, etc.) or any other reasons that made him/her not to make the trips.

1.1.4. Work Items

The survey works are composed of the following work items.

(1) Preparatory Works

- Site investigation (contact to head of each sub-ward to ask cooperation to the survey);
- Sampling (random selection of households to be surveyed);
- Preparation of survey forms;
- Preparation of zoning maps and tables indicating landmarks as reference for trip information (trip origin – destination data: OD data) coding;
- Public relation (advertisement by newspaper, poster, radio etc.);
- Recruiting of survey team members (supervisors, surveyors, editors and coders);
- Training of surveyors by the supervisors; and
- Organizing survey teams.

(2) Field Survey

- Conducting a pilot HIS by the supervisors as a part of training programs for the supervisors;
- Improvement of the HIS forms and survey team management system if necessary;
- Conducting the HIS in full-scale; and
- Periodic reporting to the JICA Study Team about the work progress.

(3) Data Processing

- Verification of the collected information;

- Data coding (convert to traffic zone based information);
- Data input; and
- Validation of the information and logical error check.

1.1.5. Survey Method

(1) Sampling

Sampling method and the number of samples for the HIS

About 10,000 households (about 50,000 persons), shall be selected within the study area as the sample households through the “Area Sampling” technique.

A HIS zone system (based on administrative boundary) and the expected number of households to be sampled in each zone shall be given by the JICA Study team.

The number of samples for the SPS

The SPS will be administered to about 1,000 households immediately following the HIS. The sampled households for the SPS will be selected according to their answer of the HIS interview. The criteria for the selection of SPS target will be confirmed by the discussion with the Study team later.

(2) HIS Zoning System and Coding

The HIS asks trip origin and destination information (OD information) of the residents. The location information of trip OD (expressed by address) should be converted into the HIS zoning system of this Study.

The consultant is requested to prepare a zone-coding table which includes identification (ID) numbers of the sub-wards, landmarks, name of roads crossing the zone, postal codes and any relevant information that can be used as a reference for identification of the HIS zoning system.

(3) Survey Team Organization and Required Performance

The consultant is expected to establish a survey organization depicted in Figure 1.1.2.

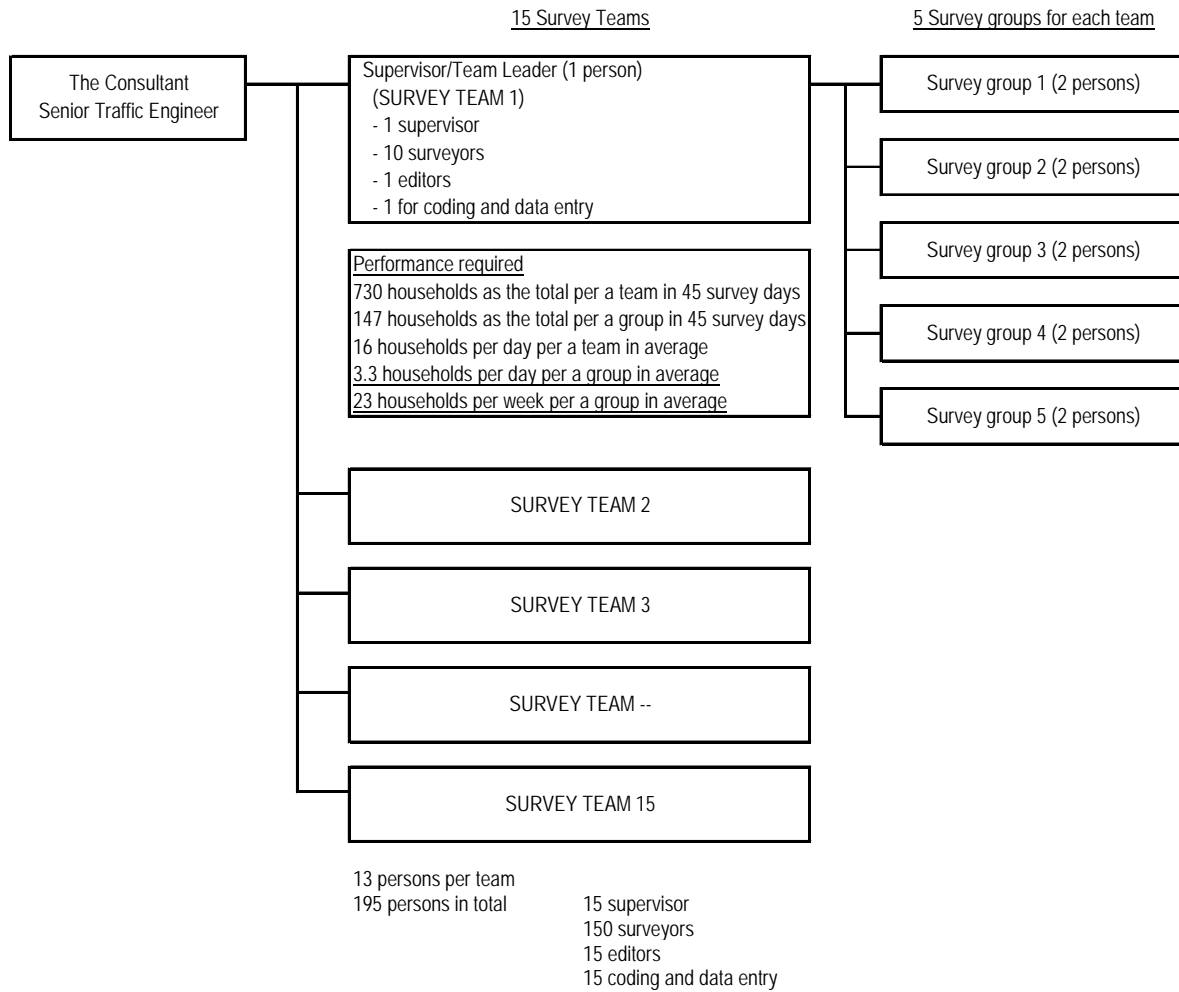


Figure 1.1.2 Suggested Survey Team Organization

The organization is composed of 15 survey teams and managed by the consultant in every aspect. Each survey team is composed of 13 persons in total, including 1 supervisor (team leader), 10 field surveyors, 1 data editor, and 1 data coding and entry persons. In each survey team there are five (5) survey groups, each of them is composed of 2 persons. The two persons of a group should work together in order to avoid any security problems and other violations.

Each team should collect the information of 730 households in the 45 effective survey days, which indicates that each survey group (2 persons) should conduct the HIS with 23 households in a week in average.

The expected tasks of each study team member are described as follows:

- Senior Traffic Engineer of the Consultant (Project Manager)
He or she is fully in charge of the HIS in terms of management of the survey.
- Supervisor (Team Leader)
A supervisor, as the leader of the survey team, control his/her surveyors and manage the HIS in the field and

associated work in the office. Periodical report should be made by the supervisors to the Senior Traffic Engineer of the Consultant (Project Manager).

- Surveyor

Surveyors are requested to visit the selected households to carry out the interview survey.

- Editor

Editors check the filled survey forms when they receive the forms from the surveyors. If they find any numerical and logical errors or missing items in the survey form, they will report this to the supervisor. The supervisors may ask the surveyors to re-visit the site to collect the true information.

- Coder

Address information of trip origins and destinations shall be converted into the HIS zoning system by the coders. Consequently the information shall be kept in the form of database such as MS-Access.

(4) Survey forms

The Study team will provide the survey forms in English. The consultant is encouraged to discuss and improve the contents of survey forms and it is his duty to translate the survey forms into Swahili. The survey form includes the following items.

Form 1: Household Information

- Resident address;
- Number of household members;
- Number of vehicles of the household by type (vehicle ownership);
- Type of housing, number of rooms and ownership of living quarter;
- Monthly household income;
- Ownership of consumer durables (TV, microwave, etc.); and
- Electricity consumption (availability).

Form 2: Household Member's Information

- Occupation category by economic activity (types of job, school, etc.);
- Individual monthly income;
- Address of working or school place;
- Availability of driving license;
- Car ownership;
- Expenses for the car use;
- Public transport expenses;

- Working hour and holiday; and
- Number of trips on the survey day.

Form 3: Trip Information

- Origin place and departure time of a trip
- Destination place and arrival time of a trip
- Trip purpose
- Transport modes used during the trip, access/egress time, waiting time, travel cost, travel time and transfer point
- Car parking place and amount of parking fee, if the person drives a car.

Form 4: Opinions and Preferences

- Preference to new public transport mode.
- Preference to new traffic management scheme.
- Opinion on the current dwelling and transport condition

(5) Execution of the survey

Recruitment and training of survey teams

The JICA Study Team will provide an instruction manual in English to the consultant. Prior to the survey execution, manuals for survey instructions in Swahili should be prepared and submitted to the JICA Study Team by the consultant. The JICA Study Team may give instructions to the consultant in preparing the manuals. Using this manual necessary training shall be given to the surveyors by the supervisors.

Permission and ID cards

The consultant should prepare official permissions and ID cards for the surveyors before pre-survey and full-scale survey execution time. The surveyors must bring their ID cards when they visit the sampled household.

Management of the Surveys

To control the time schedule of the HIS is very important. The JICA Study Team will check the schedule management system of the consultant as per necessity. The consultant is requested to directly manage the field survey, its quality and results. The consultant is requested to report the progress of the survey to the JICA Study Team every week.

The supervisors will check the survey activities every day and will double-check facts regarding the visit as well as content of the survey form by telephoning or re-visiting the sampled household and will regularly inspect the content of the survey forms.

Pilot survey

The pilot survey shall be conducted by the supervisors before the full-scale survey. The main purposes of the pilot survey are as follows.

- To know any difficulties of the survey that the surveyors may face with.
- To develop an effective training program for the surveyors.
- To check effectiveness of the survey forms (easiness to understand the questions by the interviewees).

The purpose of the pilot survey is not to obtain statistically valid information, but to optimize survey procedures and to complete the survey manuals for the surveyors. A group of two supervisors shall make a pilot survey with three different types of household, namely low-, middle- and high income households. So the pilot survey should entail about 20-30 households.

Given that the full-scale HIS is scheduled to commence in mid-May, the pilot survey should begin during the first week of May.

Field survey by surveyors

The surveyors are requested to visit each sampled household under the supervision of the team leader. The data shall be obtained through direct interviews with all the household members of more than 4 years old, but not through a delivery/collection method.

If a member of the household is absent when a surveyor visits a house, the surveyor should call back up to three times visits to complete the interview. Even three times call-back can not succeed to complete the interview of all members, a surveyor should select the next target household in order to satisfy the designated number of samples.

Public relations

The consultant is expected to carry out public relation activities through various media such as TV, radio, newspapers and specific pamphlets. Timing of the public relations should be prior to the full-scale HIS.

DCC and The JICA Study Team will support this public relation activities if necessary. The cost of using mass medias shall be included in the cost proposal by the consultant.

(6) Day of travel information

Travel information on a week day is necessary. Those of holidays and other day-off should not be accepted as effective data.

(7) Data Processing

Data processing should be started by other teams after one week from commencement of the field survey. The information collected in the field shall be coded and verified by the editors and coders. If the interview information is not satisfactory (judged by the editor), the submitted survey forms are returned to the survey team and the surveyors must visit the household again to collect appropriate answers.

For the data processing purpose, the consultant is requested to use MS-Access.

The JICA Study Team will provide a series of data error checking statements, which shall be interpreted into MS-Access language by the consultant. Using this error-checking program, the consultant is requested to clean the HIS data by the middle of July 2007.

1.1.6. Products

At the completion of the survey, the following materials should be submitted to the JICA Study Team.

- Digital files of the survey data;
- Original survey forms collected from the field;
- Summary performance report showing the number of sampled households and effective samples by HIS zone.

1.1.7. Schedule

The HIS schedule is shown as follow. The final (clean) data must be given to the JICA Study Team in the form of CD-ROM before the last week of July, 2007.

	May	June	July
1. Preparation Works			
a) survey form design by JICA Study Team			
b) recruitment			
c) training			
2. Implementation			
a) pilot survey by supervisor			
b) re-design of survey			
c) full-scale survey			
3. Data Coding			
a) training			
b) editing and coding			
4. Data entry and logical error check			
5. Reporting			

1.1.8. Reports

The Contractor should submit two (2) copies of the Inception Report, Weekly Progress Report (one copy for every week during the HIS), one copy of the Draft Final Report, three (3) copies of the Final Survey Report, three (3) copies of CDs including the survey data and the final survey report and the original survey sheets/forms. The report size should be A4 and should be written in English. The Contractor should take pictures of survey situations of the home interview survey report and submit them to the JICA Study Team as a part of the progress report.

1.2 Performance of the HIS

1.2.1 Executing Organization

The HIS was awarded to BICO (Bureau for Industrial Cooperation, College of Engineering and Technology, University of Dar es Salaam) through competitive bidding among the short-listed local firms and organizations.

1.2.2 Activities Taken so far

Activities for HIS after signing of the contract agreement are summarized in Table 1.2.1.

The training session was held for three area coordinators and eighteen supervisors on 26th May all day. These coordinators and supervisors conducted a pilot survey in Mabibo sub-ward on 29th May, with the cooperation of sub-ward leaders, in order to examine how to select sample households and to practice interviews.

A series of training session for surveyors was conducted on 2nd, 4th, 7th and 8th of June. The supervisors lectured on details of the HIS survey to a total of 180 surveyors. During the training session the surveyors practiced interviews by themselves.

Three survey teams has started the field survey on 5th of June with limited surveyors and extended to the full-scale survey with 180 surveyors from 9th of June. As of 7th of June, four weeks have passed since the full-scale survey started.

On the other hand, reinforcements of the survey teams was decided based on the analysis of productivity and progress of the field survey during the first four weeks. Three teams that are consisted of three supervisors and 30 surveyors were given training on 2nd of July and dispatched to the field on the next day. These three survey teams conducted an additional opinion survey with the same households of HIS survey. Details of the additional survey are discussed later in this chapter.

The data processing work has started on 14th of June after editors and typists were trained on 11th of June. The data processing work has been continuing almost three weeks since then.

Table 1.2.1 Activities Taken so far

Date	Preparatory Work	Preparation Work	Training	Publicity	Field Survey	Data Processing
18 May	Agreement and kickoff meeting	O				
26 May	Training for supervisors		O			
29 May	Pilot survey				O	
31 May	Supervisor meeting	O				
2 June	Training for surveyors		O			
4 June	Training for surveyors		O			
5 June	Start of the field survey				O	
7 June	Training for surveyors		O			
8 June	Training for surveyors		O			
8 June	Publicity meeting with DCC			O		
9 June	Start of the full-scale field survey				O	
11 June	Training for editors and typists		O			
14 June	Start of editing					O
15 June	Start of publicity by media			O		
16 June	End of the full-scale field survey (1 st week)				O	
18 June	Start of data entry					O
21 June	Press conference			O		
23 June	End of the full-scale field survey (2 nd week)				O	
30 June	End of the full-scale field survey (3 rd week)				O	
2 July	Training of additional survey teams		O			
3 July	Start of additional field survey (HIS and SP)				O	
7 July	End of the full-scale field survey (4 th week)				O	

1.2.3 Publicity

Publicity is important for conducting the interview survey effectively, which is helpful in the field to ask cooperation and understanding of respondents. The first effort was made through a press conference held by Mr. Bakari Kingobi, City Director of Dar es Salaam, on 21st of June as a consequence of the publicity meeting held on 8th of June. Other publicity activities through media were arranged as shown in Table 1.2.2.

Table 1.2.2 Plan of Publicity

Week	Media		
	Television	Radio	Newspaper
15 June - 17 June	15 secs message (TVT 2)		Guardian (1), Alasiri (1)
18 June - 24 June	Segment (ITV 1), 15 secs message (TVT 1)	Radio One (1)	Nipashe (1)
25 June - 1 July		Radio One (1)	Guardian (1), Alasiri (1), Nipashe (1)
2 July - 8 July	15 secs message (TVT 3)	Radio One (1)	Alasiri (1)
9 July - 15 July			Guardian (1), Alasiri (1)
16 July - 22 July	15 secs message (TVT 1)	Radio One (1)	Nipashe (1)
23 July - 29 July	15 secs message (IVT 1)	Radio One (1)	Alasiri (1)

Note: Figures in parentheses mean the number of times.

1.2.4 Survey Team Organization

The organizational structure of the HIS team established as shown in Figure 1.2.1 after a series of careful discussions between BICO and the JICA Study team. The survey team is headed by a Project Manager/Senior Traffic Engineer who is under BICO's Project Coordinator and Director. The survey area was divided into three areas, in each of which one area coordinator is designated to control the field survey. Under administration of the area coordinator, 6 field survey teams were organized. Each survey team is composed of 11 persons in total, including 1 supervisor and 10 surveyors. Data processing work has been under the supervision of one data processing supervisor. The data processing work has been done by both editors and data entry/typists. The role and responsibility of each survey team member is summarized as follows:

- ① Project Manager
A project manager is fully responsible for conducting the HIS survey and its result quality.
- ② Area Coordinator
Area coordinators are responsible for planning and management of the field survey. They are also responsible for technical and administrative issues in each designated area.
- ③ Supervisors
Supervisors are expected to manage their teams under the administration of the area coordinator. They are also responsible for coping with any difficulties encountered in the field.
- ④ Surveyors
Surveyors shall conduct the interviews and collecting data in the field as per the survey schedule.
- ⑤ Data processing supervisor
A data processing supervisor is responsible for managing the data processing in order to have the quality data.
- ⑥ Editor
Editors shall check all the contents of the completed survey forms in terms of completeness, legibility, correctness and logical checks.
- ⑦ Typist/data entry staff
Typists shall entry data into the database. They shall also institute data cleaning procedures in the office (consistency and range checks, and computer editing)

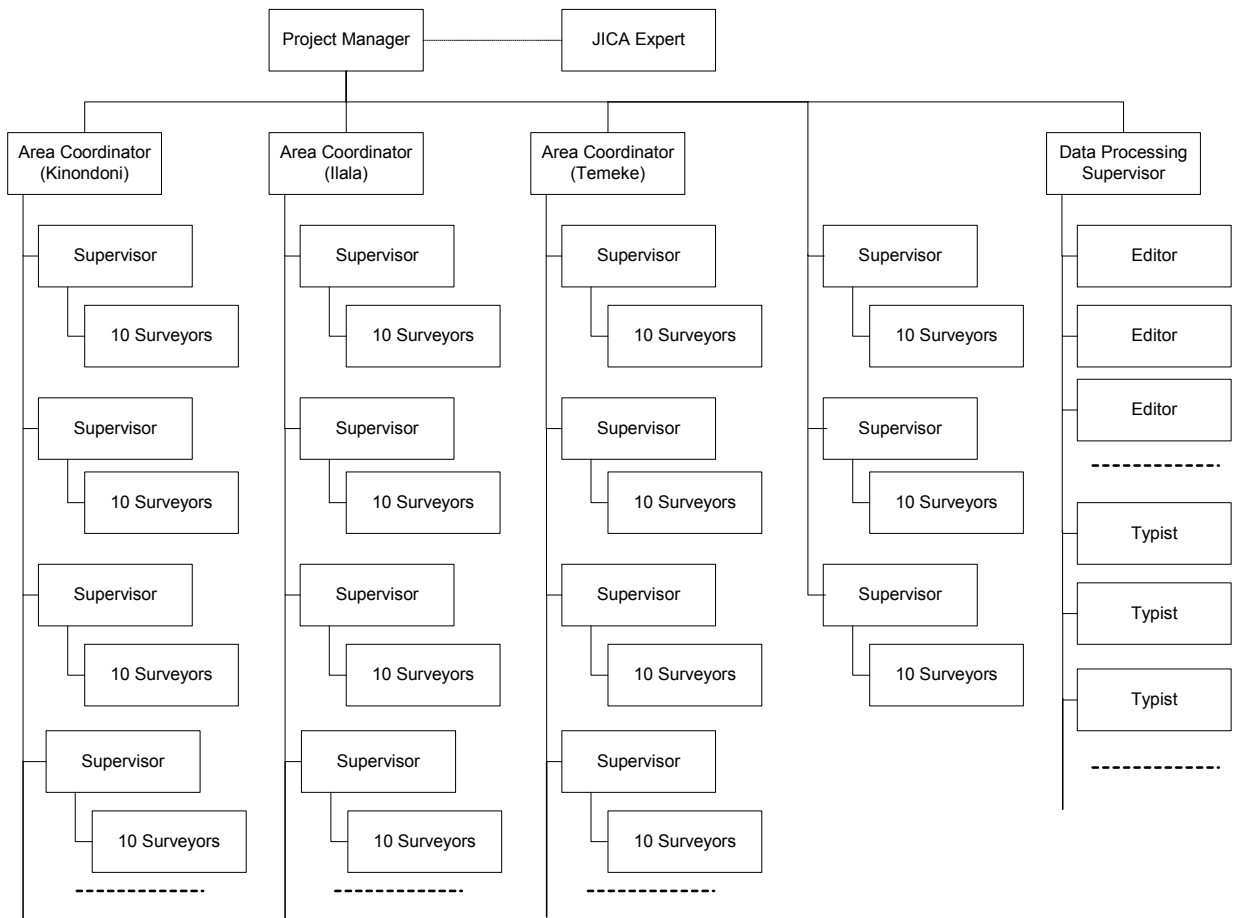


Figure 1.2.1 HIS Survey Team Organization

Table 1.2.3 Role of HIS Survey Team Members

HIS Activity	Project Manager	Area Coordinator	Supervisor	Surveyor	Data Processing Supervisor	Editor	Typist
Training	Overall Supervision	Assist Supervisors	Training of Surveyors		Training of Editors and Typists		
Planning of Field Survey		Planning of survey date and area					
Logistics		Preparing of survey team, materials and transportation					
Coordination with Sub-ward Leader		Coordination	Assist Area Coordinator				
Sample Selection in the Office		Setting the number of samples and the way of selection	Assist Area Coordinator				
Sample Selection in the Field		Assist Supervisors	Selection of sample H/Hs				
Interview			Assist Surveyors	Conduct of interviews			
Checking Completeness of Survey Forms		Completeness and legibility	Completeness, legibility and logical checks	Completeness and legibility	Completeness and logical checks with coded data	Completeness and logical checks with coded data	
Survey Forms		Transmission to Data Manager	Submit to Area Coordinator	Submit to Supervisor	Management of survey forms		
Monitoring of Survey Implementation		Check progress and report to Project Manager, update plan if necessary	Check progress in the field and report to Area Coordinator	Daily report to Supervisor			
Validation of Interviews			Random checks				
Coding				Partial coding	Supervision of coding	Coding	
Data Entry				Supervision of data entry		Data entry and data check by program	

1.2.5 Targeted Samples and Sampling Method

The number of sample households is to be 10,000 in the Study area. Samples are collected in proportion to the census population by sub-ward in the central area and by ward in the outskirts of the Study area. Indicative household numbers to be surveyed by municipality are given in Table 1.2.4 (see Appendix-13.2 for more details). Based on these target figures, the HIS implementation plan was designed.

Table 1.2.4 Number of Targeted Sample Households

Municipality	Number of Wards	Number of Sub-wards	Census Population in 2002	Number of Sample Households
Kinondoni	27	127	1,083,913	4,363
Ilala	22	80	634,924	2,547
Temeke	24	111	768,451	3,090
Total	73	318	2,487,288	10,000

Sampling method was one of the major issues discussed in the supervisor meeting after the pilot survey. In the pilot survey, two different sampling methods were examined:

To select enumeration areas beforehand in the designated sub-ward by using the census maps and visit the sample households selected in the enumeration areas.

To select one household out of 50 counted households along a street in the field.

It was found in the pilot survey that the former methodology took time for preparation work in the office, and longer time to identify roads shown in the map for finding the selected households. The later methodology, accordingly, was employed in order to achieve the target sampling figure. In case that houses are widely scattered in a sub-ward, suggestion by the sub-ward leaders was taken into consideration to find the samples.

1.2.6 Data Coding System

As part of the inquiry items of the HIS forms, there are several questions regarding locations including address of the residence, address of working place/school place, and origin and destination of trips. This information is obtained with the name of locations, and converted into numerical values or codes. This work is called “coding”. For the coding work, a reference table showing landmarks in the city was prepared. Using this landmark reference database, surveyors could identify the corresponding sub-ward in which the landmark is located.

The landmark database was elaborated based on the business entities data surveyed by National Bureau of Statistics (NBS), 2003-2005. This database includes a name of landmark, locations such as ward, sub-ward and a street, and HIS zoning system code (Refer Appendix-13.1.). The landmark database is also used by the editors to verify the locations and sub-ward code. Table 1.2.5 shows a data structure of landmark database.

Table 1.2.5 Landmark Database (sample)

Region	District	Ward Name	Area Name	Street Name	Business	Region	District	Ward	Sub-ward
Dar es Salaam	Ilala	Jangwani	MTAMBANI . B .	NYAMWEZI	4 ALIANCE SECURITY	07	2	12	03
Dar es Salaam	Ilala	Vingunguti	MIEMBENI	MACHINJIONI	4TH SUPPORT UNIT	07	2	08	04
Dar es Salaam	Ilala	Kisutu	SAMALANDA	INDIRA GHANDHI	A D ENTERPRISES LTD	07	2	14	01
Dar es Salaam	Ilala	Kisutu	SAMALANDA	INDIRA GHANDHI	A.K.S. LTD	07	2	14	01
Dar es Salaam	Ilala	Kisutu	POSTA MPYA	INDIA/UPANGA	AAR HEALTH SERVICE	07	2	14	01
Dar es Salaam	Ilala	Mchafukoge	MKUNGUNI	LIBYA	ABAS EMPORIUM	07	2	15	01
Dar es Salaam	Ilala	Kisutu	MTENDENI	LIBYA	ABAS EMPORIUM	07	2	14	02
Dar es Salaam	Ilala	Kariakoo	SABA SABA BAR.	MKUNGUNI STR	ABBAS RESTAURANT	07	2	11	02
Dar es Salaam	Ilala	Vingunguti	MIEMBENI	RELI	ABDALA ALLY	07	2	08	04
Dar es Salaam	Ilala	Segerea	MTAA WA SEGEEA	SANENE	ABDALAH HAJI	07	2	20	06
Dar es Salaam	Ilala	Kariakoo	SABA SABA BAR.	JANGWANI STR	ABDU KASSIMU	07	2	11	02
Dar es Salaam	Ilala	Jangwani	MNAZI MMOJA	UDOWE	ABDUL BASHIR	07	2	12	01
Dar es Salaam	Ilala	Kivukoni	KIVUKONI	AZIKIWE STR	ABM AGENCES	07	2	18	01
Dar es Salaam	Ilala	Mchafukoge	KITUMBINI	MOSQUE	ABOOD GROUUP	07	2	15	01
Dar es Salaam	Ilala	Vingunguti	MTAKUJA	BARABARA YA MTAKUJA	ABUJ WAZIRI PAZI	07	2	08	03
Dar es Salaam	Ilala	Kipawa	KIPAWA	PUGU RD/ NYERERE	ACE AUDIT CONTROL & EXPERTISE	07	2	09	02
Dar es Salaam	Ilala	Kisutu	MOROGORO	MOROGORO	ACEY SYSTEM LTD	07	2	14	01
Dar es Salaam	Ilala	Kisutu	POSTA MPYA	MAKTABA/AZIKIWE	ACNIEL SEM LTD	07	2	14	01
Dar es Salaam	Ilala	Kivukoni	KIVUKONI	SOKOINE DRIVE	ADILI CONSIL	07	2	18	01
Dar es Salaam	Ilala	Gerezani	OMARI LONDO	NKURUMAH	ADVENT CONSTRUCTION LTD	07	2	13	02
Dar es Salaam	Ilala	Ilala	KARUME	SHAURI MOYO	ADVERT INTERNATIONAL	07	2	06	01
Dar es Salaam	Ilala	Kisutu	POSTA MPYA	MAKTABA/AZIKIWE	AF CLEANING SERVICES	07	2	14	01
Dar es Salaam	Ilala	Kiwalani	KIWALANI	PUGU RD	AFINA GODOWN	07	2	19	03
Dar es Salaam	Ilala	Chanika	MAJOHE	KICHANGANI	AFISA MTENDAJI WA MAJONE	07	2	22	03

1.2.7 Data Flow and Data Check

Figure 1.2.2 indicates procedure of data processing. Each member of the survey team has the designated role of data checking as shown in Table 1.2.3. The checking procedure in the field is carried by supervisors, and cosequent checking procedures are carried in the office. If uncorrectable information or incompleteness is found in survey forms, the survey forms are referred to the supervisors to complement the shortage of information.

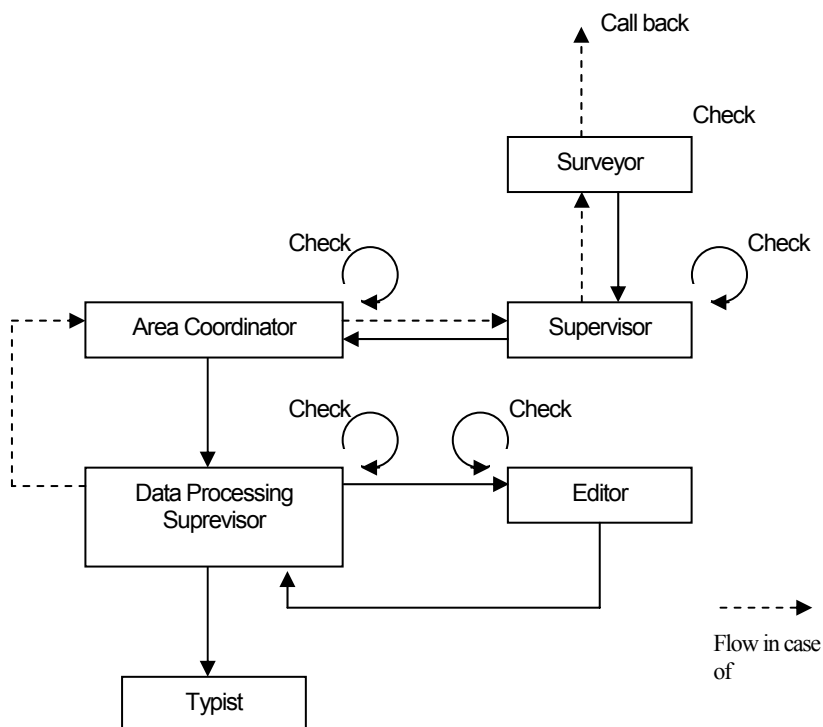


Figure 1.2.2 Flow of Collected Data

The data checking work by the survey team include following four aspects:

- **Completeness**
To ensure that all necessary answers and information are entered.
- **Legibility**
To ensure that all literal texts are clearly enough to read.
- **Clarity**
To examine whether there is no any ambiguous sentence.
- **Consistency**
To check if there is no discrepancy between the answers.

The final data checking will be done by the JICA Study Team by employing an error checking program. If any suspicious records are found, the original data shall be reviewed again by the contractor to clean the data with the relevant survey forms.

1.2.8 Additional Opinion Survey (SPS)

The HIS survey aims to obtain the information of trips which have been made by a respondent. An additional opinion survey was carried out right after interviewing to the respondents regarding to the trips. This additional survey aims to get the opinion and preferences of public transportation. The survey sheet for the additional survey consists of four parts:

- Part-1 Accessibility of Public Transport
- Part-2 Opinion on Public Transport
- Part-3 Preferences on Public Transport
- Part-4 Other Comment

The sample size is 1,000 households. Some sub-wards were selected in accordance with the following conditions for sampling purpose:

Areas where comparatively low income households reside, and

Areas along the public transport service corridors.

Table 1.2.6 Target Sub-ward for SP Survey

District	Ward	Subward	District	Ward	Subward		
Kinondoni	Kimara	-	Ilala	Ukonga	-		
	Kibamba	-		Pugu	-		
	Manzese	Kilimani			Kipawa	-	
		Mvuleni			Kinyerezi	Kipunguni	
		MnaziMmoja			Chanika	-	
		Uzuri			Msongola	-	
		Muongano			Vingunguti		
		Midizini			Buguruni		
	Mabibo	Mabibo		Temeke	Charambe	-	
		Jitegemee			Mbagala Kuu	-	
		Kanuni			Chamazi	-	
		Azimio			Tuangoma	-	
		Matokeo			Makangarawe	Mashine ya Maji	
	Mburahati	Mburahati Barafu				Buza	
		Kisiwani				Makangarawe	
		Mburahati N.H,C			Yombo Vituka	-	
	Ndugumbi	Ndugumbj-vigaeni			Keko	Keko Magurumbasi	
		Mikoroshini					
	Kigogo	Kigogo Mbuyuni					
		Kigogo Kati					
		Kigogo Mkwajuni					
	Kitunda	Kitunda Mwenagati					
	Mwananyamala	-					



Figure 1.2.3 Selected Ward for SP Survey

1.2.9 Collected and Processed Samples

The progress as of 7th of June, and productivity of the HIS survey are presented in this section.

Table 1.2.7 shows the achievement of interviews been conducted as the end of four weeks field survey. Total number of surveyed households is 6,865, which is 68.7% of the targeted number of households. It is anticipated that another two weeks will be needed to accomplish the interview survey.

Table 1.2.7 Achievement of Interviews as of 7th June

Area	Target Number of Households	Total Households Surveyed	Achievement Ratio (%)
Kinondoni	4,363	2,331	53.4
Ilala	2,547	2,276	89.4
Temeke	3,090	2,258	73.1
Study Area Total	10,000	6,865	68.7

Regarding the editing work, productivity has been increasing so that 6,624 households out of 6,865 surveyed households were edited as of 7th July. Besides, error ratio has been improved very much. On the other hand, achievement of data entry work is still one third of total as shown in Table 1.2.8. An increase of additional staff for the data entry work will be needed to complete the HIS database by the end of July.

Table 1.2.8 Result of Editing

Week	Number of Households without Error	Number of Households with Error	Total Number of Household Edited	Error Ratio (%)
14 June - 16 June	350	176	526	33.5
18 June - 23 June	882	383	1,265	30.3
25 June - 30 June	1,890	505	2,294	22.0
2 July - 7 July	24,00	149	2,539	5.9
Total	5,522	1,213	6,624	18.3

Table 1.2.9 Achievement of Data Entry

Week	Number of Households Entered	Cumulative Number of Households	Achievement Ratio (%)
18 June – 23 June	895	895	9.0
25 June – 30 June	1,304	2,199	22.0
2 July – 7 July	1,368	3,567	35.7
Total	3,567		

Appendix-1.1: HIS Survey Forms

HIS-1 Household Attributes Survey Form for the Head of Household

HIS-2 Household Member Information for 7 Years Old Above

HIS-3 Person Trip Information

Code Table for Household Member Information

Code Table for Trip Information

Additional Opinion Survey

CONFIDENTIAL

Mobile Phone Number of Contact Person in the Household (for "Call-back" purpose) - -

HIS-1 : HOUSEHOLD ATTRIBUTES SURVEY FOR THE HEAD OF HOUSEHOLD Dar es Salaam Transport Policy and System Development Master Plan Study

ADDRESS OF HOUSEHOLD

Name: Code:

Region (1) **Dar es Salaam** (2) **07**

District/Municipality (3) (4)

Ward (5) (6)

Sub-Ward (7) (8)

Landmark (9)

Sequential Sample (Household) No. (10)

Q 2. TYPE OF YOUR LIVING QUARTER

Ownership:

1. Owned by Household (21)

2. Not own (rented etc.) (22)

Type of Material:

1. Block Work (23)

2. Bricks (24)

3. Mud/Wood (25)

4. Others (Please specify) (26)

The Number of Rooms of your living quarter is rooms. (27)

Lighting of your household is:

1. Electricity / Solar electricity (28)

2. Gas / Paraffin (29)

3. Others (30)

if you chose 1,

Electricity Consumption (31) Tshs per month

Q 4. VEHICLE OWNERSHIP/ AVAILABLE VEHICLE AND PARKING SPACE

Vehicle Ownership	Other available vehicle
Motorcycle <input type="checkbox"/> (32)	<input type="checkbox"/> (33)
Passenger Car <input type="checkbox"/> (34)	<input type="checkbox"/> (35)
Pick-up/Van <input type="checkbox"/> (36)	<input type="checkbox"/> (37)
Truck <input type="checkbox"/> (38)	<input type="checkbox"/> (39)
Bicycle <input type="checkbox"/> (40)	<input type="checkbox"/> (41)
Bajaj <input type="checkbox"/> (42)	<input type="checkbox"/> (43)

* Other available vehicles: Rent-a-car, Company / Government vehicle

Number of parking lots in your site (excluding on-street parking) (44)

SURVEY DATE AND SURVEYOR

(Day / Month)

1st Visit (1) / Auditing (14) /

2nd Visit (2) / Coding (15) /

3rd Visit (3) / Data Entry (16) /

INTERVIEWER 1 (17)

INTERVIEWER 2 (18)

SUPERVISOR (19)

Q 3. TOTAL MONTHLY INCOME OF HOUSEHOLD (in Tshs per month)

1. Less than 10,000	8. 500,001 - 1,000,000
2. 10,001 - 20,000	9. 1,000,001 - 1,500,000
3. 20,001 - 50,000	10. 1,500,001 - 2,000,000
4. 50,001 - 100,000	11. 2,000,001 - 4,000,000
5. 100,001 - 150,000	12. 4,000,001 - 6,000,000
6. 150,001 - 200,000	13. 6,000,001 - 8,000,000
7. 200,001 - 500,000	14. More than 8,000,000

(30) * Total monthly income of all household members and from all resources

Q 5. OWNERSHIP OF DURABLE GOODS

Item	Not own	Own
1. Refrigerator / freezer	<input type="checkbox"/> (21)	<input type="checkbox"/> (22)
2. Washing machine	<input type="checkbox"/> (23)	<input type="checkbox"/> (24)
3. Air conditioner	<input type="checkbox"/> (25)	<input type="checkbox"/> (26)
4. Radio / radio cassette	<input type="checkbox"/> (27)	<input type="checkbox"/> (28)
5. Television	<input type="checkbox"/> (29)	<input type="checkbox"/> (30)
6. Satellite TV with dish antenna	<input type="checkbox"/> (31)	<input type="checkbox"/> (32)
7. Camera / video camera	<input type="checkbox"/> (33)	<input type="checkbox"/> (34)
8. Video tape recorder / CD player	<input type="checkbox"/> (35)	<input type="checkbox"/> (36)
9. DVD player / HD recorder	<input type="checkbox"/> (37)	<input type="checkbox"/> (38)
10. Telephone	<input type="checkbox"/> (39)	<input type="checkbox"/> (40)
11. Facsimile	<input type="checkbox"/> (41)	<input type="checkbox"/> (42)
12. Mobile phone (the household head)	<input type="checkbox"/> (43)	<input type="checkbox"/> (44)
13. Computer	<input type="checkbox"/> (45)	<input type="checkbox"/> (46)
14. Internet availability	<input type="checkbox"/> (47)	<input type="checkbox"/> (48)

Q 1. TOTAL NUMBER OF PERSON WHO LIVE TOGETHER IN YOUR LIVING QUARTER

	Total	7 years old & above				Disabled
		Under 6 years old	Working Persons	Student	Others	
Male	<input type="text"/> (23)	<input type="text"/> (24)	<input type="text"/> (25)	<input type="text"/> (26)	<input type="text"/> (27)	<input type="text"/> (28)
Female	<input type="text"/> (29)	<input type="text"/> (30)	<input type="text"/> (31)	<input type="text"/> (32)	<input type="text"/> (33)	<input type="text"/> (34)

*Working: Permanent job worker excluding housewife.
 *Others: Housewife, retired and unemployed.
 *Disabled: The person who can not move without assistance.

HIS-2 : HOUSEHOLD MEMBER INFORMATION FOR 7 YEARS OLD AND ABOVE Dar es Salaam Transport Policy and System Development Master Plan Study

Zone Code (1) **07** Household No. (2)

No.	Sex	Age	Occupation (Table-A)	Working Person and Student (Occupation: 1-18) only					Usual working / school hour (16) From: <input type="text"/> To: <input type="text"/>	Usual working / school days in a week (17) <input type="text"/> days	Main Industry (Table-B) (18) <input type="text"/>	Monthly Income (Table-C) (19) <input type="text"/>	Driving License (Table-D) (20) <input type="text"/>	Car Ownership (Table-E) (21) <input type="text"/>	Did you make a trip? (22) <input type="text"/>				
				Address of Working place (occupation 1-14 only) or School (occupation 15-18 only)															
(3)	(4)	(5)	(6)	(7) <input type="text"/>	(8) <input type="text"/>	(9) <input type="text"/>	(10) <input type="text"/>	(11) <input type="text"/>	(12) <input type="text"/>	(13) <input type="text"/>	(14) <input type="text"/>	(15) <input type="text"/>	(16) From: <input type="text"/> To: <input type="text"/>	(17) <input type="text"/> days	(18) <input type="text"/>	(19) <input type="text"/>	(20) <input type="text"/>	(21) <input type="text"/>	(22) <input type="text"/>
1	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
2	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
3	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
4	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
5	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
6	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
7	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
8	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

	INTERVIEWER 1	INTERVIEWER 2	
CONFIDENTIAL PHS 3 : PERSON TRIP INFORMATION Dar es Salaam Transport Policy and System Development Master Plan Study			
Zone Code (1) 07		Household No. (2)	Household Member No. (3) Survey Sheet No. (4)

Origin / Destination Place Information

Arrival at (5) ← 1: a.m. 2: p.m. (If origin of 1st trip, see note to 501(a))

Place (7) H.S.A. Address of the Place

1: Home Region (8) (13)

2: Usual working place (Worker Only) District (9) (14)

3: School/Institute (Student only) Municipality (10) (15)

4: Others (Please specify in right) Ward (11) (16)

Type of facility (Please specify in right) Sub-Ward (12) (17)

Landmark (18) (19)

Departure at (19) ← 1: a.m. 2: p.m.

↓ Trip Purpose (16) (Choose from Table-6)

Trip Information

Mode (Table-II)	Travel Time (min)	Public Transport Fare (Tshs)	Transfer Place (Name of bus stop, ferry terminal etc.)	Waiting Time (min)
1st	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
2nd	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
3rd	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
4th	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
5th	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
6th	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
7th	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

(Under includes walking to bus, bus to bus, bus to taxi, etc. and vice versa)

Did you drive by yourself? 1: Yes 2: No **Driver Only** (Indicate driver)

How many passengers? Passengers **Where did you park? (Table-4)** **How much did you pay?** Tshs

If you chose 2 or 4

Arrival at (5) ← 1: a.m. 2: p.m.

Place (7) H.S.A. Address of the Place

1: Home Region (8) (13)

2: Usual working place (Worker Only) District (9) (14)

3: School/Institute (Student only) Municipality (10) (15)

4: Others (Please specify in right) Ward (11) (16)

Type of facility (Please specify in right) Sub-Ward (12) (17)

Landmark (18) (19)

Departure at (19) ← 1: a.m. 2: p.m.

↓ Trip Purpose (16) (Choose from Table-6)

Trip Information

Mode (Table-II)	Travel Time (min)	Public Transport Fare (Tshs)	Transfer Place (Name of bus stop, ferry terminal etc.)	Waiting Time (min)
1st	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
2nd	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
3rd	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
4th	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
5th	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
6th	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
7th	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

(Under includes walking to bus, bus to bus, bus to taxi, etc. and vice versa)

Did you drive by yourself? 1: Yes 2: No **Driver Only** (Indicate driver)

How many passengers? Passengers **Where did you park? (Table-4)** **How much did you pay?** Tshs

If you chose 2 or 4

Arrival at (5) ← 1: a.m. 2: p.m.

Place (7) H.S.A. Address of the Place

1: Home Region (8) (13)

2: Usual working place (Worker Only) District (9) (14)

3: School/Institute (Student only) Municipality (10) (15)

4: Others (Please specify in right) Ward (11) (16)

Type of facility (Please specify in right) Sub-Ward (12) (17)

Landmark (18) (19)

Departure at (19) ← 1: a.m. 2: p.m.

↓ Trip Purpose (16) (Choose from Table-6)

Trip Information

Mode (Table-II)	Travel Time (min)	Public Transport Fare (Tshs)	Transfer Place (Name of bus stop, ferry terminal etc.)	Waiting Time (min)
1st	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
2nd	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
3rd	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
4th	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
5th	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
6th	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
7th	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

(Under includes walking to bus, bus to bus, bus to taxi, etc. and vice versa)

Did you drive by yourself? 1: Yes 2: No **Driver Only** (Indicate driver)

How many passengers? Passengers **Where did you park? (Table-4)** **How much did you pay?** Tshs

If you chose 2 or 4

Arrival at (5) ← 1: a.m. 2: p.m.

Place (7) H.S.A. Address of the Place

1: Home Region (8) (13)

2: Usual working place (Worker Only) District (9) (14)

3: School/Institute (Student only) Municipality (10) (15)

4: Others (Please specify in right) Ward (11) (16)

Type of facility (Please specify in right) Sub-Ward (12) (17)

Landmark (18) (19)

Departure at (19) ← 1: a.m. 2: p.m.

↓ Trip Purpose (16) (Choose from Table-6)

Trip Information

Mode (Table-II)	Travel Time (min)	Public Transport Fare (Tshs)	Transfer Place (Name of bus stop, ferry terminal etc.)	Waiting Time (min)
1st	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
2nd	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
3rd	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
4th	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
5th	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
6th	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
7th	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

(Under includes walking to bus, bus to bus, bus to taxi, etc. and vice versa)

Did you drive by yourself? 1: Yes 2: No **Driver Only** (Indicate driver)

How many passengers? Passengers **Where did you park? (Table-4)** **How much did you pay?** Tshs

If you chose 2 or 4

Arrival at (5) ← 1: a.m. 2: p.m.

Place (7) H.S.A. Address of the Place

1: Home Region (8) (13)

2: Usual working place (Worker Only) District (9) (14)

3: School/Institute (Student only) Municipality (10) (15)

4: Others (Please specify in right) Ward (11) (16)

Type of facility (Please specify in right) Sub-Ward (12) (17)

Landmark (18) (19)

Departure at (19) ← 1: a.m. 2: p.m.

↓ Trip Purpose (16) (Choose from Table-6)

Trip Information

Mode (Table-II)	Travel Time (min)	Public Transport Fare (Tshs)	Transfer Place (Name of bus stop, ferry terminal etc.)	Waiting Time (min)
1st	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
2nd	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
3rd	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
4th	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
5th	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
6th	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
7th	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

(Under includes walking to bus, bus to bus, bus to taxi, etc. and vice versa)

Did you drive by yourself? 1: Yes 2: No **Driver Only** (Indicate driver)

How many passengers? Passengers **Where did you park? (Table-4)** **How much did you pay?** Tshs

If you chose 2 or 4

CODE TABLE FOR HOUSEHOLD MEMBER INFORMATION Dar es Salaam Transport Policy and System Development Master Plan Study

Table-A : Occupation		Table-B : Main Industry		Table-C : Monthly Income	
	1. Legislators, Administrators, and Managers 2. Professionals 3. Tech. and Associate Professionals 4. Clerks 5. Small Business Managers 6. Service & Shop sales workers 7. Street Vendors 8. Craftsmen 9. Farmers 10. Livestock Keepers 11. Fishermen 12. Plant Operators, Assemblers 13. Element. Occupations 14. Other working		1. Agriculture 2. Forestry, Fishing & Other 3. Mining & Quarrying 4. Manufacturing 5. Electricity, Gas and Water 6. Construction 7. Raw food sales (Un-cooked) 8. Trade and Commerce 9. Transport and Communication 10. Finance & Insurance 11. Education 12. Public (Government) 13. Others		1. Less than 5,000 2. 5,001 - 10,000 3. 10,001 - 25,000 4. 25,001 - 50,000 5. 50,001 - 75,000 6. 75,001 - 100,000 7. 100,001 - 250,000 8. 250,001 - 500,000 9. 500,001 - 750,000 10. 750,001 - 1,000,000 11. 1,000,001 - 2,000,000 12. 2,000,001 - 3,000,000 13. 3,000,001 - 4,000,000 14. More than 4,000,001
Worker	15. Student (Elementary)				
Student	16. Student (Secondary)				
	17. Student (University/ Institute)				
Non-worker	18. Student (Others)				
	19. Not working but looking for work				
	20. Not working but not looking for work				
	21. Home Maker, Housewife				
	22. Retired / Too old, pensioner				
	23. Unable to work				
	24. Others				

Table-D : Driving License		Table-E : Car Ownership	
	1. Class A: Motorcycle 2. Class B: Saloon Car 3. Class C: All type of vehicle 4. Class D: Pick-up and station wagon 5. Class E: Trucks 6. Class F: Harvest Machines 7. Class G: Mining equipment and machines 8. Class H: Learner/ provisional license		1. One Car only 2. One Motorcycle only 3. 2 or more cars (includes motorcycle) 4. None
Own	9. None		
None			

CODE TABLE FOR TRIP INFORMATION Dar es Salaam Transport Policy and System Development Master Plan Study

Table-F: Facility		Table-G : Trip Purpose		Table-H : Transport Mode		Table-I: Parking Type	
	1. Residential 2. School/Institute 3. Religious/Cultural 4. Hospital/Medical centre 5. Private company office/bank 6. Government office 7. Market/shopping centre/shop 8. Restaurant/street stand 9. Hotel/Leisure facility 10. Factory/workshop/warehouse 11. Transport facility 12. Cultivated field 13. Construction site 14. Others		1. To go home 2. To go usual work place 3. To school/institute (student only) 4. Business activities (sale, delivering, meeting, etc.) 5. Back to working place 6. Private/social activities (eating, shopping etc.) 7. Pick up or send off (taking children to school and back etc.)		1. Walking 2. Bicycle 3. Motorcycle 4. Passenger Car 5. Pick-up, Van 6. Taxi 7. Bhajaj 8. Dala dala 9. Intercity bus 10. School/Company bus 11. 2 axles truck 12. 3 axles truck 13. Trailer truck, more than 3 axles truck 14. Railway 15. Ferry/boat		On-street: <ul style="list-style-type: none"> 1. On-street free parking 2. On-street pay parking Off-street: <ul style="list-style-type: none"> 3. Off-street free parking 4. Off-street pay parking 5. Residential garage Not use: <ul style="list-style-type: none"> 6. Not use parking

HOUSEHOLD INTERVIEW SURVEY	DAR ES SALAAM URBAN TRANSPORT POLICY AND SYSTEM DEVELOPMENT MASTER PLAN	DCC / PMO JICA																								
Zone Code <input style="width: 20px; height: 15px;" type="text"/> Household No. <input style="width: 20px; height: 15px;" type="text"/> Individual No. <input style="width: 20px; height: 15px;" type="text"/>	<table border="1" style="margin: auto; border-collapse: collapse;"> <tr><td style="width: 20px; height: 15px;"></td><td style="width: 20px; height: 15px;"></td><td style="width: 20px; height: 15px;"></td><td style="width: 20px; height: 15px;"></td><td style="width: 20px; height: 15px;"></td><td style="width: 20px; height: 15px;"></td></tr> <tr><td style="width: 20px; height: 15px;"></td><td style="width: 20px; height: 15px;"></td><td style="width: 20px; height: 15px;"></td><td style="width: 20px; height: 15px;"></td><td style="width: 20px; height: 15px;"></td><td style="width: 20px; height: 15px;"></td></tr> <tr><td style="width: 20px; height: 15px;"></td><td style="width: 20px; height: 15px;"></td><td style="width: 20px; height: 15px;"></td><td style="width: 20px; height: 15px;"></td><td style="width: 20px; height: 15px;"></td><td style="width: 20px; height: 15px;"></td></tr> </table>																									
PART 1. ACCESSIBILITY TO PUBLIC TRANSPORT																										
<p>Q1. Distance from your house to the nearest bus stop?</p> <ol style="list-style-type: none"> 1. Less than 500 m 2. 500 m - 1 km 3. 1 km - 2 km 4. 2 km - 3 km 5. 3 km - 4 km 6. More than 4 km 7. I don't know. 	<p>Q4-1. How do you evaluate the access road to the bus stop? (Circle number.)</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;"></td> <td style="text-align: center;">Never accepted</td> <td style="text-align: center;">Not satisfied</td> <td style="text-align: center;">Fair</td> <td style="text-align: center;">Satisfied</td> <td style="text-align: center;">Very satisfied</td> </tr> <tr> <td></td> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> </tr> <tr> <td style="text-align: right;">Degree of satisfaction</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> </tr> </table>			Never accepted	Not satisfied	Fair	Satisfied	Very satisfied							Degree of satisfaction	1	2	3	4	5						
	Never accepted	Not satisfied	Fair	Satisfied	Very satisfied																					
Degree of satisfaction	1	2	3	4	5																					
<p>Q2. How long does it take for you to walk to the bus stop?</p> <ol style="list-style-type: none"> 1. Less than 5 minutes 2. 5 - 10 minutes 3. 10 - 20 minutes 4. 20 - 30 minutes 5. More than 30 minutes 6. I don't know. 	<p>Q4-2. What is the reason of dissatisfaction if you're not satisfied?</p> <div style="border: 1px solid black; width: 100%; height: 15px; margin-bottom: 5px;"></div> <p>ex.</p> <ul style="list-style-type: none"> Bad condition to walk Difficulty in rainy day Problem when you carry articles 																									
<p>Q3. What is the condition of access road to the bus stop?</p> <ol style="list-style-type: none"> 1. Paved road with foot path 2. Paved road with no foot path 3. Gravel road 4. Mixture of above (partially paved) 5. Other <div style="margin-left: 20px;"> <input style="width: 100px; height: 15px;" type="text"/> </div>	<p>Q5. Are there any access services to the bus stop?</p> <ol style="list-style-type: none"> 1. No service available. -----> Go to Q7. 2. Bajaj is available. -----> Go to Q6-1. 3. Other <div style="margin-left: 20px;"> <input style="width: 100px; height: 15px;" type="text"/> </div>																									
<p>Q6-1. How much do you pay for the access service?</p> <div style="margin-left: 20px;"> <input style="width: 80px; height: 15px;" type="text"/> Tshs. per ride </div>																										
<p>Q6-2. How long does it take to the bus stop by Bajaj?</p> <div style="margin-left: 20px;"> <input style="width: 80px; height: 15px;" type="text"/> minutes for waiting <input style="width: 80px; height: 15px;" type="text"/> minutes for riding </div>																										
PART 2. OPINION ON OF PUBLIC TRANSPORT																										
<p>Q7. How many trips do you make from home a week?</p> <ol style="list-style-type: none"> 1. Every day 2. All weekdays (5 days) 3. 2 - 3 days a week 4. Once a week 5. Less than once a week 	<p>Q8. What is the principal purpose of the trip?</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Trip origin place</td> <td style="width: 33%;">Trip purpose</td> <td style="width: 33%;"></td> </tr> <tr> <td>① Home</td> <td>4. To go home</td> <td></td> </tr> <tr> <td>2. Usual work place</td> <td>2. To go usual work place</td> <td></td> </tr> <tr> <td>3. School</td> <td>3. To school/institute</td> <td></td> </tr> <tr> <td>4. Others</td> <td>4. Business activities</td> <td></td> </tr> <tr> <td></td> <td>5. Back to working place</td> <td></td> </tr> <tr> <td></td> <td>6. Private/social activities</td> <td></td> </tr> <tr> <td></td> <td>7. Pick up or send off</td> <td></td> </tr> </table>		Trip origin place	Trip purpose		① Home	4. To go home		2. Usual work place	2. To go usual work place		3. School	3. To school/institute		4. Others	4. Business activities			5. Back to working place			6. Private/social activities			7. Pick up or send off	
Trip origin place	Trip purpose																									
① Home	4. To go home																									
2. Usual work place	2. To go usual work place																									
3. School	3. To school/institute																									
4. Others	4. Business activities																									
	5. Back to working place																									
	6. Private/social activities																									
	7. Pick up or send off																									
<p>The following questions ask the trip interviewed in HIS survey.</p> <p>Q9. What was your major travel mode of this particular trip on the survey day?</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%;">1. Car / Taxi</td> <td style="width: 10%; text-align: center;">-----></td> <td style="width: 50%;">Go to Q10. (Car User)</td> </tr> <tr> <td>2. Bus (Daladala)</td> <td style="text-align: center;">-----></td> <td>Go to Q13. (Bus User)</td> </tr> <tr> <td>3. Walk / Bicycle</td> <td style="text-align: center;">-----></td> <td>Go to Q16. (NMV User)</td> </tr> <tr> <td>4. I did not make any travel on the survey day</td> <td style="text-align: center;">-----></td> <td>Go to Q18. (No Trip)</td> </tr> </table>			1. Car / Taxi	----->	Go to Q10. (Car User)	2. Bus (Daladala)	----->	Go to Q13. (Bus User)	3. Walk / Bicycle	----->	Go to Q16. (NMV User)	4. I did not make any travel on the survey day	----->	Go to Q18. (No Trip)												
1. Car / Taxi	----->	Go to Q10. (Car User)																								
2. Bus (Daladala)	----->	Go to Q13. (Bus User)																								
3. Walk / Bicycle	----->	Go to Q16. (NMV User)																								
4. I did not make any travel on the survey day	----->	Go to Q18. (No Trip)																								

<p style="text-align: right;">(Car User)</p> <p>Q10. Why did you use the car for your travel?</p> <ol style="list-style-type: none"> 1. Bus was not available. 2. Bus is discomfort (get dirty, sweat, etc.) 3. Bus is inconvenient (long waiting, etc.) 4. Bus is unsafe. 5. Bus is not reliable (not punctual). 6. Other ↳ <input style="width: 100px;" type="text"/> <p>Q11. How often do you use bus in your daily life?</p> <ol style="list-style-type: none"> 1. Almost every day -----> Go to Q20. 2. 2 - 3 times a week 3. A few -----> Go to Q12. 4. Never use <p>Q12. Which element do you think should be improved for you to choose buses rather than car in case? (Select at most 3 elements.)</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <ol style="list-style-type: none"> 1. Routing 2. Operation hours 3. Frequency 4. Travel speed (time) 5. Fare level 6. Access to bus stops </td> <td style="width: 50%; vertical-align: top;"> <ol style="list-style-type: none"> 7. Waiting time at bus stop 8. On boards comfort 9. On board security 10. Driver's driving behavior 11. Conductors' manner of services 12. Other ↳ <input style="width: 100px;" type="text"/> </td> </tr> </table> <p style="text-align: right;">-----> Go to Q20.</p>	<ol style="list-style-type: none"> 1. Routing 2. Operation hours 3. Frequency 4. Travel speed (time) 5. Fare level 6. Access to bus stops 	<ol style="list-style-type: none"> 7. Waiting time at bus stop 8. On boards comfort 9. On board security 10. Driver's driving behavior 11. Conductors' manner of services 12. Other ↳ <input style="width: 100px;" type="text"/> 	<p style="text-align: right;">(Bus User)</p> <p>Q13. Why did you travel by bus?</p> <ol style="list-style-type: none"> 1. I have no choice other than buses. (No licence, no car, etc) 2. A car was not available on that particular day. (Usually car is available.) 3. Bus is preferable than car. 4. Other ↳ <input style="width: 100px;" type="text"/> <p>Q14. How do you evaluate the current bus services (degree of satisfaction)? (Circle number.)</p> <table style="width: 100%; border: none;"> <thead> <tr> <th style="width: 80%;"></th> <th style="width: 5%;"></th> <th style="width: 5%;">Never accepted</th> <th style="width: 5%;">Not satisfied</th> <th style="width: 5%;">Fair</th> <th style="width: 5%;">Satisfied</th> <th style="width: 5%;">Very satisfied</th> </tr> </thead> <tbody> <tr> <td>1. Routing</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td></td> </tr> <tr> <td>2. Operation hours</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td></td> </tr> <tr> <td>3. Frequency</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td></td> </tr> <tr> <td>4. Travel speed (time)</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td></td> </tr> <tr> <td>5. Fare level</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td></td> </tr> <tr> <td>6. Access to bus stops</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td></td> </tr> <tr> <td>7. Waiting time at bus stop</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td></td> </tr> <tr> <td>8. On boards comfort</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td></td> </tr> <tr> <td>9. On board security</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td></td> </tr> <tr> <td>10. Driver's driving behavior</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td></td> </tr> <tr> <td>11. Conductors' manner of services</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td></td> </tr> <tr> <td>12. Overall evaluation</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td></td> </tr> </tbody> </table> <p>Q15. Which element do you think should be improved? (Select at most 3 elements.)</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <ol style="list-style-type: none"> 1. Routing 2. Operation hours 3. Frequency 4. Travel speed (time) 5. Fare level 6. Access to bus stops </td> <td style="width: 50%; vertical-align: top;"> <ol style="list-style-type: none"> 7. Waiting time at bus stop 8. On boards comfort 9. On board security 10. Driver's driving behavior 11. Conductors' manner of services 12. Other ↳ <input style="width: 100px;" type="text"/> </td> </tr> </table> <p style="text-align: right;">-----> Go to Q20.</p>			Never accepted	Not satisfied	Fair	Satisfied	Very satisfied	1. Routing	1	2	3	4	5		2. Operation hours	1	2	3	4	5		3. Frequency	1	2	3	4	5		4. Travel speed (time)	1	2	3	4	5		5. Fare level	1	2	3	4	5		6. Access to bus stops	1	2	3	4	5		7. Waiting time at bus stop	1	2	3	4	5		8. On boards comfort	1	2	3	4	5		9. On board security	1	2	3	4	5		10. Driver's driving behavior	1	2	3	4	5		11. Conductors' manner of services	1	2	3	4	5		12. Overall evaluation	1	2	3	4	5		<ol style="list-style-type: none"> 1. Routing 2. Operation hours 3. Frequency 4. Travel speed (time) 5. Fare level 6. Access to bus stops 	<ol style="list-style-type: none"> 7. Waiting time at bus stop 8. On boards comfort 9. On board security 10. Driver's driving behavior 11. Conductors' manner of services 12. Other ↳ <input style="width: 100px;" type="text"/>
<ol style="list-style-type: none"> 1. Routing 2. Operation hours 3. Frequency 4. Travel speed (time) 5. Fare level 6. Access to bus stops 	<ol style="list-style-type: none"> 7. Waiting time at bus stop 8. On boards comfort 9. On board security 10. Driver's driving behavior 11. Conductors' manner of services 12. Other ↳ <input style="width: 100px;" type="text"/> 																																																																																															
		Never accepted	Not satisfied	Fair	Satisfied	Very satisfied																																																																																										
1. Routing	1	2	3	4	5																																																																																											
2. Operation hours	1	2	3	4	5																																																																																											
3. Frequency	1	2	3	4	5																																																																																											
4. Travel speed (time)	1	2	3	4	5																																																																																											
5. Fare level	1	2	3	4	5																																																																																											
6. Access to bus stops	1	2	3	4	5																																																																																											
7. Waiting time at bus stop	1	2	3	4	5																																																																																											
8. On boards comfort	1	2	3	4	5																																																																																											
9. On board security	1	2	3	4	5																																																																																											
10. Driver's driving behavior	1	2	3	4	5																																																																																											
11. Conductors' manner of services	1	2	3	4	5																																																																																											
12. Overall evaluation	1	2	3	4	5																																																																																											
<ol style="list-style-type: none"> 1. Routing 2. Operation hours 3. Frequency 4. Travel speed (time) 5. Fare level 6. Access to bus stops 	<ol style="list-style-type: none"> 7. Waiting time at bus stop 8. On boards comfort 9. On board security 10. Driver's driving behavior 11. Conductors' manner of services 12. Other ↳ <input style="width: 100px;" type="text"/> 																																																																																															
<p style="text-align: right;">(NMV User)</p> <p>Q16. Why did you travel by walking?</p> <ol style="list-style-type: none"> 1. Destination is enough close to walk. 2. Bus was not available. 3. Walking is preferable than bus. 4. Other ↳ <input style="width: 100px;" type="text"/> <p>Q17. Which element do you think should be improved for you to choose buses for making the same trip of the survey day? (Select at most 3 elements.)</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <ol style="list-style-type: none"> 1. Routing 2. Operation hours 3. Frequency 4. Travel speed (time) 5. Fare level 6. Access to bus stops </td> <td style="width: 50%; vertical-align: top;"> <ol style="list-style-type: none"> 7. Waiting time at bus stop 8. On boards comfort 9. On board security 10. Driver's driving behavior 11. Conductors' manner of services 12. Other ↳ <input style="width: 100px;" type="text"/> </td> </tr> </table>	<ol style="list-style-type: none"> 1. Routing 2. Operation hours 3. Frequency 4. Travel speed (time) 5. Fare level 6. Access to bus stops 	<ol style="list-style-type: none"> 7. Waiting time at bus stop 8. On boards comfort 9. On board security 10. Driver's driving behavior 11. Conductors' manner of services 12. Other ↳ <input style="width: 100px;" type="text"/> 	<p style="text-align: right;">(No Trip)</p> <p>Q18-1. Why didn't you make a travel on the survey day?</p> <ol style="list-style-type: none"> 1. No necessity. -----> Go to Q19. 2. Necessary but there were constraints. -----> Go to Q18-2. <p>Q18-2. What was the major constraints?</p> <ol style="list-style-type: none"> 1. Accessibility to the bus stop. 2. Natural condition (heavy rain, flood, etc.). 3. Monetary condition (no money for bus ride, etc.). 4. Physical constraints (need help for moving). 5. Other ↳ <input style="width: 100px;" type="text"/> <p>Q19. Which element do you think should be improved for you to choose buses for making your trip in general? (Select at most 3 elements.)</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <ol style="list-style-type: none"> 1. Routing 2. Operation hours 3. Frequency </td> <td style="width: 50%; vertical-align: top;"> <ol style="list-style-type: none"> 7. Waiting time at bus stop 8. On boards comfort 9. On board security </td> </tr> </table>	<ol style="list-style-type: none"> 1. Routing 2. Operation hours 3. Frequency 	<ol style="list-style-type: none"> 7. Waiting time at bus stop 8. On boards comfort 9. On board security 																																																																																											
<ol style="list-style-type: none"> 1. Routing 2. Operation hours 3. Frequency 4. Travel speed (time) 5. Fare level 6. Access to bus stops 	<ol style="list-style-type: none"> 7. Waiting time at bus stop 8. On boards comfort 9. On board security 10. Driver's driving behavior 11. Conductors' manner of services 12. Other ↳ <input style="width: 100px;" type="text"/> 																																																																																															
<ol style="list-style-type: none"> 1. Routing 2. Operation hours 3. Frequency 	<ol style="list-style-type: none"> 7. Waiting time at bus stop 8. On boards comfort 9. On board security 																																																																																															

PART 3. PREFERENCES ON PUBLIC TRANSPORT

Q20. Which do you prefer Bus Rapid Transit (BRT) or Dala dala for each case given below?
 (For example, UBUNGO to POSTA)

1 (1-1)

	Dala dala		BRT	
	Fare	Travel Time	Fare	Travel Time
case 1	300	60	300	40
case 2	300	60	400	40
case 3	300	60	500	40
case 4	300	60	600	40
case 5	300	60	800	40
case 6	300	60	1000	40
case 7	300	60	1200	40

Dala dala BRT

or

or

or

or

or

or

or

Travel time includes "waiting time", "riding time", and "access/egress time (fixed to 10 minutes)".
 1 transfer (change bus) is assumed for every case.

Q21. Which do you prefer Bus Rapid Transit (BRT) or Dala dala to make a same trip for each case given below?
 (For example, UBUNGO to POSTA)

	Dala dala		BRT	
	Fare	Travel Time	Fare	Travel Time
case 1	600	90	600	45
case 2	600	90	800	45
case 3	600	90	1000	45
case 4	600	90	1300	45
case 5	600	90	1500	45

Dala dala BRT

or

or

or

or

or

PART 4. OTHER OPINION

Any comments and suggestions about public transport services in Dar es Salaam



Appendix-1.2: Targeted Number of Sample Households by Ward/Subward

Seq. No.	Municipality	Ward Name	Subward Name	Population in 2002	No. of Sample H/Hs
1	Kinondoni	Magomeni	Makuti-'B'	5,881	24
2	Kinondoni	Magomeni	Makuti-'A'	5,751	23
3	Kinondoni	Magomeni	Idrisa	2,158	9
4	Kinondoni	Magomeni	Dosi	1,934	8
5	Kinondoni	Magomeni	Suna	6,802	27
6	Kinondoni	Makurumla	Kimamba	11,915	48
7	Kinondoni	Makurumla	Mianzini	10,221	41
8	Kinondoni	Makurumla	Kwa Jongo ¹⁾	13,320	53
9	Kinondoni	Makurumla	Kilimahewa	8,644	35
10	Kinondoni	Makurumla	Sjsi kwa Sisi	3,610	15
11	Kinondoni	Makurumla	Kagera ¹⁾	5,858	24
12	Kinondoni	Ndugumbi	Ndugumbj-vigaeni	9,826	40
13	Kinondoni	Ndugumbi	Makanya	6,338	25
14	Kinondoni	Ndugumbi	Kagera Mikoroshini	9,629	39
15	Kinondoni	Ndugumbi	Mpakani	11,460	46
16	Kinondoni	Tandale	Sokoni	11,339	46
17	Kinondoni	Tandale	Pakacha	4,055	16
18	Kinondoni	Tandale	KwaPakacha	1,925	8
19	Kinondoni	Tandale	Muhalitani	4,881	20
20	Kinondoni	Tandale	Mtogole	6,816	27
21	Kinondoni	Tandale	Mkunduge	5,685	23
22	Kinondoni	Tandale	KwaTumbo	10,152	41
23	Kinondoni	Mwananyamala	Mwinjuma	6,724	27
24	Kinondoni	Mwananyamala	Kambangwa	6,533	26
25	Kinondoni	Mwananyamala	Msisiri'B' ²⁾	9,232	37
26	Kinondoni	Mwananyamala	Msisiri'A'	9,468	38
27	Kinondoni	Mwananyamala	Bwawani	4,863	20
28	Kinondoni	Mwananyamala	Kwa Kopa	7,524	30
29	Kinondoni	Msasani	Makangira	5,728	23
30	Kinondoni	Msasani	Mikoroshini	10,740	43
31	Kinondoni	Msasani	Bonde la Mpunga	16,430	66
32	Kinondoni	Msasani	Masaki	5,750	23
33	Kinondoni	Msasani	Oyster Bay	4,621	19
34	Kinondoni	Kinondoni	Kinondoni-Mjini	5,754	23
35	Kinondoni	Kinondoni	Kinondoni-Shamba	8,765	35
36	Kinondoni	Kinondoni	Kumbu kumbu	2,714	11
37	Kinondoni	Kinondoni	Ada Estate	4,171	17
38	Kinondoni	Mzimuni	Makumbusho	2,678	11
39	Kinondoni	Mzimuni	Idrisa	7,329	29
40	Kinondoni	Mzimuni	Mwinyi Mkuu	7,081	28
41	Kinondoni	Mzimuni	Mtambani	8,054	32
42	Kinondoni	Kigogo	Kigogo Mbuyuni	9,960	40

Seq. No.	Municipality	Ward Name	Subward Name	Population in 2002	No. of Sample H/Hs
43	Kinondoni	Kigogo	Kigogo Kati	13,571	55
44	Kinondoni	Kigogo	Kigogo Mkwajuni	14,267	57
45	Kinondoni	Mabibo	Mabibo	26,852	108
46	Kinondoni	Mabibo	Jitegemee	18,810	76
47	Kinondoni	Mabibo	Kanuni	13,824	56
48	Kinondoni	Mabibo	Azimio	6,437	26
49	Kinondoni	Mabibo	Matokeo	7,716	31
50	Kinondoni	Manzese	Kilimani	13,464	54
51	Kinondoni	Manzese	Mvuleni	6,657	27
52	Kinondoni	Manzese	MnaziMmoja	9,158	37
53	Kinondoni	Manzese	Uzuri	15,274	61
54	Kinondoni	Manzese	Muongano	5,899	24
55	Kinondoni	Manzese	Midizini	16,091	65
56	Kinondoni	Ubungo	Ubungo N.H.C	9,590	39
57	Kinondoni	Ubungo	Jbungo Kisiwani	10,421	42
58	Kinondoni	Ubungo	Ubungo Kibo -	10,642	43
59	Kinondoni	Ubungo	Ubungo Msewe	9,734	39
60	Kinondoni	Ubungo	Chuo Kikuu ²⁾	3,727	15
61	Kinondoni	Kibamba		17,945	72
62	Kinondoni	Goba		8,469	34
63	Kinondoni	Kawe	Mzimuni	28966	116
64	Kinondoni	Kawe	Ukamani	14775	59
65	Kinondoni	Kawe	MbeziJuu ²⁾	18434	74
66	Kinondoni	Kawe	Makongo	8453	34
67	Kinondoni	Kawe	Mlalakuwa	7973	32
68	Kinondoni	Kawe	Changanyikeni ²⁾	5316	22
69	Kinondoni	Kawe	Lugalo	10249	41
70	Kinondoni	Kunduchi		72,575	292
71	Kinondoni	Mbweni		3,463	14
72	Kinondoni	Bunju		20,652	83
73	Kinondoni	Makuburi	Mwongozo	15,926	64
74	Kinondoni	Makuburi	Kibangu	9,105	37
75	Kinondoni	Makuburi	Makoka	9,435	38
76	Kinondoni	Mburahati	Mburahati Barafu	11,142	45
77	Kinondoni	Mburahati	Kisiwani	2,681	11
78	Kinondoni	Mburahati	Mburahati N.H.C	7,714	31
79	Kinondoni	Makumbusho	Kisiwani	18,784	76
80	Kinondoni	Makumbusho	Mchangani	10,644	43
81	Kinondoni	Makumbusho	Minazini	7,308	29
82	Kinondoni	Makumbusho	Makumbusho	8,573	34
83	Kinondoni	Makumbusho	Mbuyuni	10,123	41
84	Kinondoni	Sinza	Sinza 'C'	9,869	40
85	Kinondoni	Sinza	Sinza 'A'	5,864	24

Seq. No.	Municipality	Ward Name	Subward Name	Population in 2002	No. of Sample H/Hs
86	Kinondoni	Sinza	Sinza 'B'	5,522	22
87	Kinondoni	Sinza	Sinza block 'E'	8,611	35
88	Kinondoni	Sinza	Sinza block 'D'	6,457	26
89	Kinondoni	Kijitonyama	Bwawani	4,032	16
90	Kinondoni	Kijitonyama	Ali Maua 'A'	8,896	36
91	Kinondoni	Kijitonyama	Ali Maua 'B'	6,464	26
92	Kinondoni	Kijitonyama	Kijitonyama	7,118	29
93	Kinondoni	Kijitonyama	Mpakani 'B'	6,093	24
94	Kinondoni	Kijitonyama	Mpakani 'A'	3,628	15
95	Kinondoni	Kijitonyama	Mwenge	10,687	43
96	Kinondoni	Kimara		65,938	265
97	Kinondoni	Mikocheni	Regent Estate ²⁾	3,096	13
98	Kinondoni	Mikocheni	Mikocheni 'A'	13,517	54
99	Kinondoni	Mikocheni	Mikocheni 'B' ²⁾	10,541	43
100	Kinondoni	Mbezi		32,539	131
101	Kinondoni	Hananasif	Hananasif	13,169	53
102	Kinondoni	Hananasif	Mkunguni	12,199	49
103	Kinondoni	Hananasif	Kisutu	6,515	26
104	Ilala	Ukonga		74,706	300
105	Ilala	Pugu		14,603	59
106	Ilala	Msongola		7,268	29
107	Ilala	Tabata	Mandela	5,034	20
108	Ilala	Tabata	Matumbi	4,439	19
109	Ilala	Tabata	Msimbazi	13,202	53
110	Ilala	Tabata	Tenge	5,522	22
111	Ilala	Tabata	Tabata	8,902	36
112	Ilala	Tabata	Kisiwani	8,540	34
113	Ilala	Tabata	Bima	354	0
114	Ilala	Kinyerezi		5,752	23
115	Ilala	Ilala	Sharifu Shamba ²⁾	9,359	38
116	Ilala	Ilala	Karume	5,353	22
117	Ilala	Ilala	Kasulu	9,463	38
118	Ilala	Ilala	Mafuriko	8,478	34
119	Ilala	Mchikichini	Msimbazi Bondeni	7,064	28
120	Ilala	Mchikichini	Ilala quarters	7,666	31
121	Ilala	Mchikichini	Mission quarters	4,669	19
122	Ilala	Vingunguti	Kombo	20,152	81
123	Ilala	Vingunguti	Mtambani	20,364	82
124	Ilala	Vingunguti	Mtakuja	14,402	58
125	Ilala	Vingunguti	Miembeni	13,739	55
126	Ilala	Kipawa	Mogo-Majumba Sita	13,209	53
127	Ilala	Kipawa	Mogo	6,219	25
128	Ilala	Kipawa	Karakata	9,539	38
129	Ilala	Kipawa	Kipawa	8,376	34

Seq. No.	Municipality	Ward Name	Subward Name	Population in 2002	No. of Sample H/Hs
130	Ilala	Kipawa	Mabomba Matatu	384	0
131	Ilala	Kipawa	Kipunguni	11,556	46
132	Ilala	Buguruni	Mnyamani	17,177	69
133	Ilala	Buguruni	Buguruni Kisiwani	24,940	100
134	Ilala	Buguruni	Malapa	13,169	53
135	Ilala	Buguruni	Madenge	11,520	46
136	Ilala	Kariakoo	Kariakoo-Kaskazini	3,083	12
137	Ilala	Kariakoo	Kaiakoo-Mashariki	4,002	16
138	Ilala	Kariakoo	Kaiakoo-Maghaibi	2,284	9
139	Ilala	Janguwani	Mtambani 'B'	2,578	10
140	Ilala	Janguwani	Ukombozi	3,747	15
141	Ilala	Janguwani	MnaziMmoja	2,312	9
142	Ilala	Janguwani	Mtambani 'A' ¹⁾	7,022	28
143	Ilala	Gerezani	Gerezani Mashariki	2,233	9
144	Ilala	Gerezani	Gerezani Magharibi	3,350	13
145	Ilala	Kisutu	Kisutu	3,350	13
146	Ilala	Kisutu	Mtendeni	2,987	12
147	Ilala	Mchafukoge	Kitumbini	3,712	15
148	Ilala	Mchafukoge	Mchafukoge	3,929	16
149	Ilala	Upanga Mashariki	Kibasila	4,652	19
150	Ilala	Upanga Mashariki	Kitonga	2,715	11
151	Ilala	Upanga Magharibi	Charambe ²⁾	4,929	20
152	Ilala	Upanga Magharibi	Mfaume	2,423	10
153	Ilala	Upanga Magharibi	Fire	1,869	8
154	Ilala	Kibukoni	Kivukoni ²⁾	2,278	9
155	Ilala	Kibukoni	Seaview	2,529	10
156	Ilala	Kiwalani	Kiwalani	8,572	34
157	Ilala	Kiwalani	Minazi Mirefu	24,852	100
158	Ilala	Kiwalani	Yombo	13,736	55
159	Ilala	Kiwalani	Kigilagila	14,593	59
160	Ilala	Segerea	Kimanga	11,751	47
161	Ilala	Segerea	Darajani ¹⁾	13,938	56
162	Ilala	Segerea	Liwiti	9,706	39
163	Ilala	Segerea	Amani	5,470	22
164	Ilala	Segerea	Segerea	8,829	35
165	Ilala	Segerea	Ugombolwa	9,198	37
166	Ilala	Segerea	Kisukuru	4,311	17
167	Ilala	Segerea	Migombani	4,839	19
168	Ilala	Segerea	Tembo Mgwaza	7,453	30
169	Ilala	Kitunda		23,300	94
170	Ilala	Chanika		23,272	94
171	Temeke	Kigamboni		36,597	147
172	Temeke	Vijibweni		5,148	21

Seq. No.	Municipality	Ward Name	Subward Name	Population in 2002	No. of Sample H/Hs
173	Temeke	Kibada		3,295	13
174	Temeke	Kisarawe II		4,253	17
175	Temeke	Somangira		10,749	43
176	Temeke	Kimbiji		3,647	15
177	Temeke	Mbagala	Kiburugwa	16,720	67
178	Temeke	Mbagala	Kingugi	4,660	19
179	Temeke	Mbagala	Kwa Nyoka	12,058	48
180	Temeke	Mbagala	Mangaya	7,361	30
181	Temeke	Mbagala	Kizinga	16,720	67
182	Temeke	Mbagala	Mbagala	8,122	33
183	Temeke	Mbagala	Moringe	4,385	18
184	Temeke	Chamazi		8,286	33
185	Temeke	Yombo Vituka	Barabara ya Mwinji	10,234	41
186	Temeke	Yombo Vituka	Kilakala	14,433	58
187	Temeke	Yombo Vituka	Yombo Vituka ¹⁾	11,456	46
188	Temeke	Yombo Vituka	Sigara ²⁾	8,270	33
189	Temeke	Yombo Vituka	Machimbo	15,346	62
190	Temeke	Charambe		83,098	334
191	Temeke	Tuangoma		13,596	55
192	Temeke	Miburani	Keko-Machungwa	12,466	50
193	Temeke	Miburani	Mgulani Keko Juu ¹⁾	6,426	26
194	Temeke	Miburani	Uwanja wa Taifa	7,816	31
195	Temeke	Miburani	Miburani	5,314	21
196	Temeke	Miburani	Wailes	8,574	34
197	Temeke	Miburani	Mgulani JWTZ	461	0
198	Temeke	Temeke	Temeke	9,000	36
199	Temeke	Temeke	Matumbi	5,214	21
200	Temeke	Temeke	Maganga	6,638	27
201	Temeke	Temeke	Njaro	6,906	28
202	Temeke	Mtoni	Sabasaba	23,382	94
203	Temeke	Mtoni	Bustani	8,289	33
204	Temeke	Mtoni	Mtoni	9,198	37
205	Temeke	Mtoni	Relini	6,916	30
206	Temeke	Keko	Keko 'B'	4,520	20
207	Temeke	Keko	Keko Mwanga 'B' ²⁾	12,727	47
208	Temeke	Keko	Keko Mwanga 'A'	4,409	18
209	Temeke	Keko	Keko Magurumbasi 'A'	7,071	28
210	Temeke	Keko	Keko Magurumbasi 'B'	3,424	14
211	Temeke	Kurasini	Mivinjeni	8,932	36
212	Temeke	Kurasini	Kiungani	4,642	19
213	Temeke	Kurasini	Kurasini ²⁾	7,086	28
214	Temeke	Kurasini	Minazini	3,256	13
215	Temeke	Kurasini	Shimo la udongo	10,454	42
216	Temeke	Azimio	Mjimpya	8,423	34

Seq. No.	Municipality	Ward Name	Subward Name	Population in 2002	No. of Sample H/Hs
217	Temeke	Azimio	Kichangani	7,419	30
218	Temeke	Azimio	Mtongani	9,095	37
219	Temeke	Azimio	Mbuyuni	10,285	41
220	Temeke	Azimio	Tambuka reli	9,689	39
221	Temeke	Azimio	Azimio Kusini	8,175	33
222	Temeke	Azimio	Azimio Kaskazini	7,848	32
223	Temeke	Tandika	Maguruwe	6,627	27
224	Temeke	Tandika	Tamla	5,822	23
225	Temeke	Tandika	Tandika	7,378	30
226	Temeke	Tandika	Kilimahewa	10,391	42
227	Temeke	Tandika	Nyambwera	4,442	18
228	Temeke	Tandika	Mabatini	7,167	29
229	Temeke	Sandali	Sandali	11,644	47
230	Temeke	Sandali	Mwembeladu	5,197	21
231	Temeke	Sandali	Mamboleo 'A'	13,357	54
232	Temeke	Sandali	Mamboleo 'B'	5,110	21
233	Temeke	Sandali	Mpogo	3,582	14
234	Temeke	Chang'ombe	Chang'ombe 'B' ²⁾	4,861	20
235	Temeke	Chang'ombe	Chang'ombe 'A'	3,983	16
236	Temeke	Chang'ombe	Toroli	7,958	32
237	Temeke	Chang'ombe	Bora	2,573	10
238	Temeke	Mbagala Kuu		69,523	280
239	Temeke	Makangarawe	Yombo Dovy	16,159	65
240	Temeke	Makangarawe	Mashine ya Maji	2,037	8
241	Temeke	Makangarawe	Buza	11,836	48
242	Temeke	Makangarawe	Kitunda Mwenagati	1,544	6
243	Temeke	Makangarawe	Makangarawe	10,593	43
244	Temeke	Pemba Mnazi		5,152	21
245	Temeke	Mjimwema		9,026	36
Study Area Total				2,487,288	10,000

Note: The number of sample households is distributed to ward in the outskirts of the Study area based on the population in 2002 Census, while distributed to sub-ward in the central area.

¹⁾ Population is calculated with adding up the population of sub-wards, mtaa and villages.

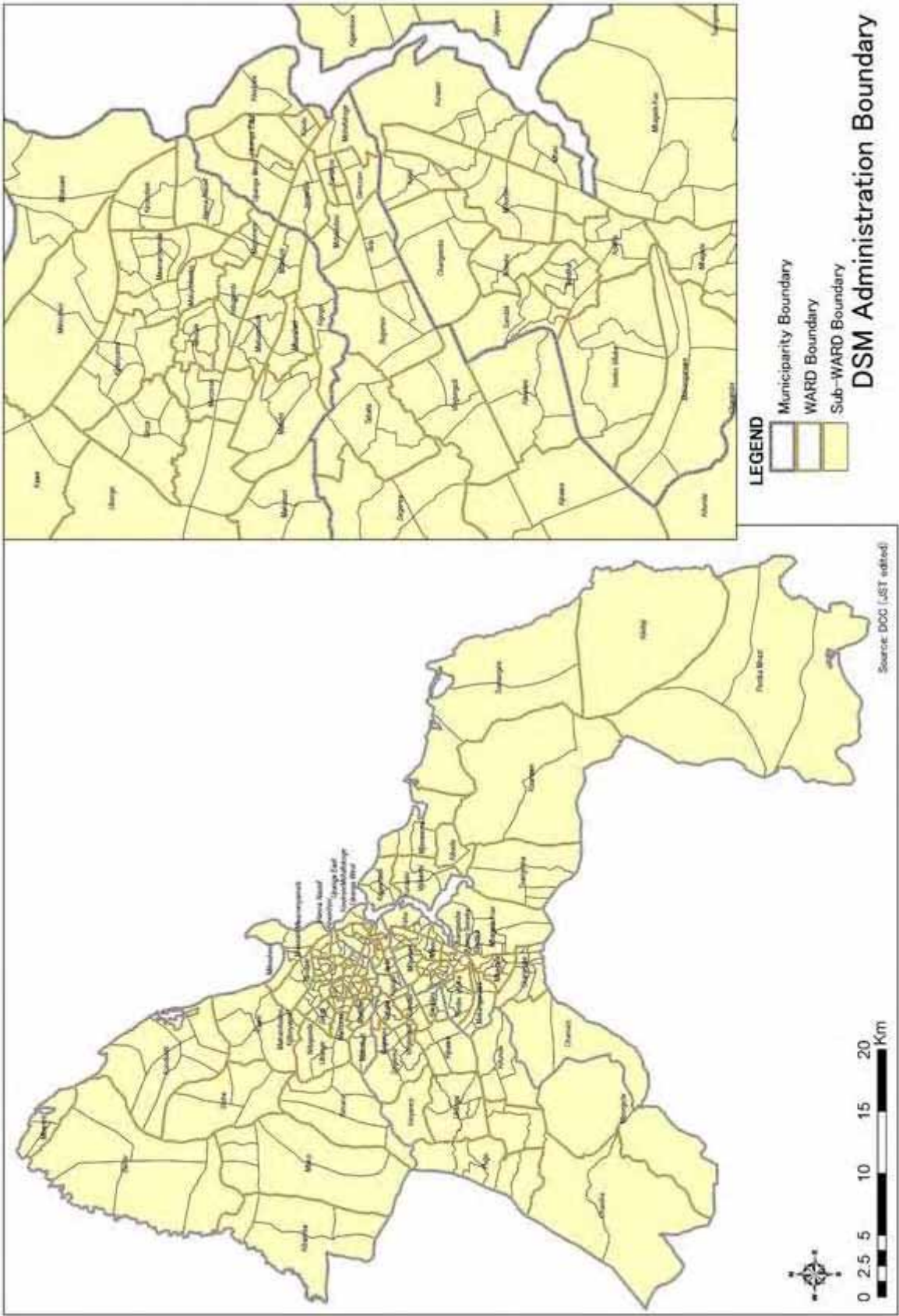
²⁾ Population includes the number of homeless and institutional.

Appendix-1.3: HIS Zoning System

Sub-ward Map

District/Municipality Code (Region/Country)

Ward/Sub-ward Code Code (Study Area)



District/Municipality Code (Region/Country)

Region/ Country Name	District/ Municipality Name	Region/ Country Code	District/ Municipality Code	Region/ Country Name	District/ Municipality Name	Region/ Country Code	District/ Municipality Code
Dodoma	Condoa	01	1	Tabora	Nzegga	14	1
Dodoma	Mpwapawa	01	2	Tabora	Igunga	14	2
Dodoma	Kongwa	01	3	Tabora	Uyui	14	3
Dodoma	Dodoma	01	4	Tabora	Urambo	14	4
Arusha	Monduli	02	1	Tabora	Sikonge	14	5
Arusha	Arumeru	02	2	Tabora	Tabora	14	6
Arusha	Arusha	02	3	Rukwa	Mpanda	15	1
Arusha	Karatu	02	4	Rukwa	Sumbawanda	15	2
Arusha	Ngorongoro	02	5	Rukwa	Nkasi	15	3
Kilimanjaro	Rombo	03	1	Kigoma	Kibondo	16	1
Kilimanjaro	Mwanga	03	2	Kigoma	Kasulu	16	2
Kilimanjaro	Same	03	3	Kigoma	Kigoma	16	3
Kilimanjaro	Moshi	03	4	Shinyanaga	Bariadi	17	1
Kilimanjaro	Hai	03	5	Shinyanaga	Maswa	17	2
Tanga	Lushoto	04	1	Shinyanaga	Shinyanga	17	3
Tanga	Korogwe	04	2	Shinyanaga	Kahama	17	4
Tanga	Muheza	04	3	Shinyanaga	Bukombe	17	5
Tanga	Tanga	04	4	Shinyanaga	Meatu	17	6
Tanga	Pangani	04	5	Shinyanaga	Shinyanga	17	7
Tanga	Handeni	04	6	Shinyanaga	Kahama	17	8
Tanga	Kilindi	04	7	Kagera	Karagwe	18	1
Morogoro	Kilosa	05	1	Kagera	Bukoba	18	2
Morogoro	Morogoro	05	2	Kagera	Muleba	18	3
Morogoro	Kilombero	05	3	Kagera	Biharamulo	18	4
Morogoro	Ulanga	05	4	Kagera	Ngara	18	5
Morogoro	Mvomero	05	6	Mwanza	Ukerewe	19	1
Coast	Bagamoyo	06	1	Mwanza	Magu	19	2
Coast	Kibaha	06	2	Mwanza	Nyamagana	19	3
Coast	Kisarawe	06	3	Mwanza	Kwimba	19	4
Coast	Mkuranga	06	4	Mwanza	Sengerema	19	5
Coast	Rufiji	06	5	Mwanza	Geita	19	6
Coast	Mafia	06	6	Mwanza	Misungwi	19	7
Lindi	Kilwa	08	1	Mwanza	Ilemela	19	8
Lindi	Lindi	08	2	Mara	Tarime	20	1
Lindi	Nachingwea	08	3	Mara	Senengeti	20	2
Lindi	Liwale	08	4	Mara	Musoma	20	3
Lindi	Runangwa	08	5	Mara	Bunda	20	4
Mtwara	Mtwara	09	1	Manyara	Babati	21	1
Mtwara	Newala	09	2	Manyara	Hanang	21	2
Mtwara	Masasi	09	3	Manyara	Mbulu	21	3
Mtwara	Tandahimba	09	4	Manyara	Simanjiro	21	4
Ruvuma	Tunduru	10	1	Manyara	Kiteto	21	5
Ruvuma	Songea	10	2	North Unguja	North 'A'	22	1
Ruvuma	Mbinga	10	3	North Unguja	North 'B'	22	2
Ruvuma	Namtumbo	10	5	South Unguha	Central	23	1
Iringa	Iringa	11	1	South Unguha	South	23	2
Iringa	Mufindi	11	2	Urban West	West	24	1

Region/ Country Name	District/ Municipality Name	Region/ Country Code	District/ Municipality Code	Region/ Country Name	District/ Municipality Name	Region/ Country Code	District/ Municipality Code
Iringa	Makete	11	3	Urban West	Town	24	2
Iringa	Njombe	11	4	North Pemba	Wete	25	1
Iringa	Ludewa	11	5	North Pemba	Micheweni	25	2
Iringa	Kilolo	11	7	South Pemba	Chake Chake	26	1
Mbeya	Chunya	12	1	South Pemba	Mkoani	26	2
Mbeya	Mbeya	12	2	Kenya	-	31	x
Mbeya	Kyela	12	3	South Africa	-	32	x
Mbeya	Rungwe	12	4	Zambia	-	33	x
Mbeya	Ileje	12	5	Other Africa	-	40	x
Mbeya	Mbozi	12	6	Middle East	-	50	x
Mbeya	Mbarali	12	7	Europe	-	60	x
Singida	Iramba	13	1	South America	-	70	x
Singida	Singida	13	2	North America	-	80	x
Singida	Manyoni	13	3	Asia	-	90	x

Ward/Sub-ward Code Code (Study Area)

District Code	Municipality Name	Ward Code	Ward Name	Subward Name	Subward Code
1	Kinondoni	1	Magomeni	Suna	01
1	Kinondoni	1	Magomeni	Dosi	02
1	Kinondoni	1	Magomeni	Idrisa	03
1	Kinondoni	1	Magomeni	Makuti A	04
1	Kinondoni	1	Magomeni	Makuti B	05
1	Kinondoni	2	Makurumla	Kibamba	01
1	Kinondoni	2	Makurumla	Mianzini	02
1	Kinondoni	2	Makurumla	Kagera	03
1	Kinondoni	2	Makurumla	Kwajongo	04
1	Kinondoni	2	Makurumla	Sisi Kwa Sisi	05
1	Kinondoni	2	Makurumla	Kilimahewa	06
1	Kinondoni	3	Ndugumbi	Vigaeni	01
1	Kinondoni	3	Ndugumbi	Makanya	02
1	Kinondoni	3	Ndugumbi	Mikoroshini	03
1	Kinondoni	3	Ndugumbi	Mapakani	04
1	Kinondoni	4	Tandale	Mkunduge	01
1	Kinondoni	4	Tandale	Kwa Tumbo	02
1	Kinondoni	4	Tandale	Mtongole	03
1	Kinondoni	4	Tandale	Pakacha	04
1	Kinondoni	4	Tandale	Mharitani	05
1	Kinondoni	4	Tandale	Sokoni	06
1	Kinondoni	5	Mwananyamala	Bwawani	01
1	Kinondoni	5	Mwananyamala	Kambangwa	02
1	Kinondoni	5	Mwananyamala	Mwinjuma	03
1	Kinondoni	5	Mwananyamala	Msisiri A	04
1	Kinondoni	5	Mwananyamala	Kwa Kopa	05
1	Kinondoni	5	Mwananyamala	Msisiri B	06
1	Kinondoni	6	Msasani	Masaki	01
1	Kinondoni	6	Msasani	Oysterbay	02
1	Kinondoni	6	Msasani	Makangira	03
1	Kinondoni	6	Msasani	Bonde la Mpunga	04
1	Kinondoni	6	Msasani	Mikoroshini	05
1	Kinondoni	7	Kinondoni	Ada Estate	01
1	Kinondoni	7	Kinondoni	Kinondoni Shamba	02
1	Kinondoni	7	Kinondoni	Kumbukumbu	03
1	Kinondoni	7	Kinondoni	Kinondoni Mjini	04
1	Kinondoni	8	Mzimuni	Idrisa	01
1	Kinondoni	8	Mzimuni	Mwinyimkuu	02
1	Kinondoni	8	Mzimuni	Makumbusho	03
1	Kinondoni	8	Mzimuni	Mtambani	04
1	Kinondoni	9	Kigogo	Mbuyuni	01
1	Kinondoni	9	Kigogo	Kigogo Kati	02
1	Kinondoni	9	Kigogo	Mkwajuni	03
1	Kinondoni	10	Mabibo	Jitegemee	01
1	Kinondoni	10	Mabibo	Azimio	02
1	Kinondoni	10	Mabibo	Kanuni	03
1	Kinondoni	10	Mabibo	Matokeo	04

District Code	Municipality Name	Ward Code	Ward Name	Subward Name	Subward Code
1	Kinondoni	10	Mabibo	Mabibo	05
1	Kinondoni	11	Manzese	Uzuri	01
1	Kinondoni	11	Manzese	Mvuleni	02
1	Kinondoni	11	Manzese	Muongano	03
1	Kinondoni	11	Manzese	Midizini	04
1	Kinondoni	11	Manzese	Kilimani	05
1	Kinondoni	11	Manzese	Mnazi Mmoja	06
1	Kinondoni	12	Ubungo	NHC	01
1	Kinondoni	12	Ubungo	Ubungo Kisiwani	02
1	Kinondoni	12	Ubungo	Chuo Kikuu	03
1	Kinondoni	12	Ubungo	Msewe	04
1	Kinondoni	12	Ubungo	Kibo	05
1	Kinondoni	13	Kibamba	Kibamba	01
1	Kinondoni	13	Kibamba	Kibwegere	02
1	Kinondoni	13	Kibamba	Kiluvya	03
1	Kinondoni	13	Kibamba	Kwembe	04
1	Kinondoni	14	Goba	Goba	01
1	Kinondoni	14	Goba	Kinzudi	02
1	Kinondoni	14	Goba	Kulangwa	03
1	Kinondoni	14	Goba	Matosa	04
1	Kinondoni	15	Kawe	Mzimuni	01
1	Kinondoni	15	Kawe	Ukwamani	02
1	Kinondoni	15	Kawe	Mbezi Juu	03
1	Kinondoni	15	Kawe	Changanyikeni	04
1	Kinondoni	15	Kawe	Makongo	05
1	Kinondoni	15	Kawe	Mlakuwa	06
1	Kinondoni	16	Kunduchi	Kilongawima	01
1	Kinondoni	16	Kunduchi	Madale	02
1	Kinondoni	16	Kunduchi	Mtongani	03
1	Kinondoni	16	Kunduchi	Sala sala	04
1	Kinondoni	16	Kunduchi	Tegeta	05
1	Kinondoni	16	Kunduchi	Ununio	06
1	Kinondoni	16	Kunduchi	Wazo	07
1	Kinondoni	17	Mbweni	Mpiji	01
1	Kinondoni	17	Mbweni	Maputo	02
1	Kinondoni	17	Mbweni	Mbweni	03
1	Kinondoni	18	Bunju	Bunju A	01
1	Kinondoni	18	Bunju	Bunju B	02
1	Kinondoni	18	Bunju	Mabwe Pande	03
1	Kinondoni	18	Bunju	Mbopo	04
1	Kinondoni	18	Bunju	Boko	05
1	Kinondoni	19	Makuburi	Makoka	01
1	Kinondoni	19	Makuburi	Kibangu	02
1	Kinondoni	19	Makuburi	Mwongozo	03
1	Kinondoni	20	Mburahati	Barafu	01
1	Kinondoni	20	Mburahati	Kisiwani	02
1	Kinondoni	20	Mburahati	NHC	03
1	Kinondoni	21	Makumbusho	Makumbusho	01
1	Kinondoni	21	Makumbusho	Minazini	02

District Code	Municipality Name	Ward Code	Ward Name	Subward Name	Subward Code
1	Kinondoni	21	Makumbusho	Mbuyuni	03
1	Kinondoni	21	Makumbusho	Mchangani	04
1	Kinondoni	21	Makumbusho	Kisiwani	05
1	Kinondoni	22	Sinza	Sinza E	01
1	Kinondoni	22	Sinza	Sinza D	02
1	Kinondoni	22	Sinza	Sinza B	03
1	Kinondoni	22	Sinza	Sinza A	04
1	Kinondoni	22	Sinza	Sinza C	05
1	Kinondoni	23	Kijitonyama	Bwawani	01
1	Kinondoni	23	Kijitonyama	Ali Maua A	02
1	Kinondoni	23	Kijitonyama	Ali Maua B	03
1	Kinondoni	23	Kijitonyama	Kijitonyama	04
1	Kinondoni	23	Kijitonyama	Mpakani A	05
1	Kinondoni	23	Kijitonyama	Mpakani B	06
1	Kinondoni	23	Kijitonyama	Mwenge	07
1	Kinondoni	24	Kimara	Matangini	01
1	Kinondoni	24	Kimara	Kimara Baruti	03
1	Kinondoni	24	Kimara	Baruti	04
1	Kinondoni	24	Kimara	Mavurunza	05
1	Kinondoni	24	Kimara	Kimara B	06
1	Kinondoni	25	Mikocheni	Regent State	01
1	Kinondoni	25	Mikocheni	Mikocheni A	02
1	Kinondoni	25	Mikocheni	Mikocheni B	03
1	Kinondoni	26	Mbezi	Temboni	01
1	Kinondoni	26	Mbezi	Mbezi	02
1	Kinondoni	26	Mbezi	Msakuzi	03
1	Kinondoni	26	Mbezi	Mpiji Magohe	04
1	Kinondoni	26	Mbezi	Msumi	05
1	Kinondoni	27	Hananasif	Mkunguni	01
1	Kinondoni	27	Hananasif	Kisutu	02
1	Kinondoni	27	Hananasif	Hanna Nassif	03
2	Ilala	1	Ukonga	Mongola Ndege	01
2	Ilala	1	Ukonga	Mwembe Madafu	02
2	Ilala	1	Ukonga	Mazizini	03
2	Ilala	1	Ukonga	Ulongani	04
2	Ilala	1	Ukonga	Gongo la Mboto	05
2	Ilala	1	Ukonga	Markasi	06
2	Ilala	1	Ukonga	Guluka Kwalala	07
2	Ilala	2	Pugu	Bangulo	01
2	Ilala	2	Pugu	Station	02
2	Ilala	2	Pugu	Kichani	03
2	Ilala	2	Pugu	Bomani	04
2	Ilala	2	Pugu	Kigogo	05
2	Ilala	2	Pugu	Kinyamwezi	06
2	Ilala	3	Msongola	Yangeyange	01
2	Ilala	3	Msongola	Mbondole	02
2	Ilala	3	Msongola	Mvuleni	03
2	Ilala	3	Msongola	Kigonga	04
2	Ilala	3	Msongola	Kidole	05
2	Ilala	3	Msongola	Mkera	06

District Code	Municipality Name	Ward Code	Ward Name	Subward Name	Subward Code
2	Ilala	3	Msongola	Sangara	07
2	Ilala	3	Msongola	Uwanja wa Nyani	08
2	Ilala	3	Msongola	Kiboga	09
2	Ilala	4	Tabata	Mandela	01
2	Ilala	4	Tabata	Matumbi	02
2	Ilala	4	Tabata	Tabata Kisiwani	03
2	Ilala	4	Tabata	Tabata	04
2	Ilala	4	Tabata	Msimbazi	05
2	Ilala	4	Tabata	Tenge	06
2	Ilala	5	Kinyerezi	Bongokwa	01
2	Ilala	5	Kinyerezi	Kinyerezi	02
2	Ilala	5	Kinyerezi	Kifuru	03
2	Ilala	6	Ilala	Karume	01
2	Ilala	6	Ilala	Sharif Shamba	02
2	Ilala	6	Ilala	Kasulu	03
2	Ilala	6	Ilala	Mafuriko	04
2	Ilala	7	Mchikichini	Misheni Kota	01
2	Ilala	7	Mchikichini	Ilala Kota	02
2	Ilala	7	Mchikichini	Msimbazi Bondeni	03
2	Ilala	8	Vingunguti	Kombo	01
2	Ilala	8	Vingunguti	Mtambani	02
2	Ilala	8	Vingunguti	Mtakuja	03
2	Ilala	8	Vingunguti	Miembeni	04
2	Ilala	9	Kipawa	Karakata	01
2	Ilala	9	Kipawa	Kipawa	02
2	Ilala	9	Kipawa	Mogo	03
2	Ilala	9	Kipawa	Kipunguni	04
2	Ilala	10	Buguruni	Kisiwani	01
2	Ilala	10	Buguruni	Malapa	02
2	Ilala	10	Buguruni	Madenge	03
2	Ilala	10	Buguruni	Mnyamani	04
2	Ilala	11	Kariakoo	Kariakoo Mashariki	01
2	Ilala	11	Kariakoo	Kariakoo Kaskazini	02
2	Ilala	11	Kariakoo	Kariakoo Magharibi	03
2	Ilala	12	Jangwani	Mnazi Mmoja	01
2	Ilala	12	Jangwani	Ukombozi	02
2	Ilala	12	Jangwani	Mtambani B	03
2	Ilala	12	Jangwani	Mtambani A	04
2	Ilala	13	Gerezani	Gerezani Mashariki	01
2	Ilala	13	Gerezani	Gerezani Magharibi	02
2	Ilala	14	Kisutu	Kisutu	01
2	Ilala	14	Kisutu	Mtendeni	02
2	Ilala	15	Mchafukoge	Kitumbini	01
2	Ilala	15	Mchafukoge	Mchafukoge	02
2	Ilala	16	Upanga Mashariki	Kitonga	01
2	Ilala	16	Upanga Mashariki	Kibasila	02
2	Ilala	17	Upanga Magharibi	Mfaume	01
2	Ilala	17	Upanga Magharibi	Fire	02
2	Ilala	17	Upanga Magharibi	Charambe	03

District Code	Municipality Name	Ward Code	Ward Name	Subward Name	Subward Code
2	Ilala	18	Kivukoni	Kivukoni	01
2	Ilala	18	Kivukoni	Sea View	02
2	Ilala	19	Kiwalani	Minazi Mirefu	01
2	Ilala	19	Kiwalani	Yombo	02
2	Ilala	19	Kiwalani	Kiwalani	03
2	Ilala	19	Kiwalani	Kigilagila	04
2	Ilala	20	Segerea	Kimanga Darajani	01
2	Ilala	20	Segerea	Amani	02
2	Ilala	20	Segerea	Liwiti	03
2	Ilala	20	Segerea	Kimanga Kusini	04
2	Ilala	20	Segerea	Ugombolwa	05
2	Ilala	20	Segerea	Segerea	06
2	Ilala	20	Segerea	Kisukuru	07
2	Ilala	20	Segerea	Migonbani	08
2	Ilala	20	Segerea	Tembomgwaza	09
2	Ilala	21	Kitunda	Kitunda	01
2	Ilala	21	Kitunda	Mzinga	02
2	Ilala	21	Kitunda	Kipunguni	03
2	Ilala	21	Kitunda	Kivule	04
2	Ilala	22	Chanika	Mji mpya	01
2	Ilala	22	Chanika	Kichangani	02
2	Ilala	22	Chanika	Mahole	03
2	Ilala	22	Chanika	Zavala	04
2	Ilala	22	Chanika	Mgeule	05
2	Ilala	22	Chanika	Kigezi	06
2	Ilala	22	Chanika	Nyeburu	07
2	Ilala	22	Chanika	Yongwe	08
2	Ilala	22	Chanika	Vikongoro	09
2	Ilala	22	Chanika	Tungini	10
2	Ilala	22	Chanika	Lukooni	11
2	Ilala	22	Chanika	Lubakaya	12
2	Ilala	22	Chanika	Kimwani	13
2	Ilala	22	Chanika	Zingiziwa	14
2	Ilala	22	Chanika	Nzasa	15
3	Temeke	1	Kigamboni	Tuamoyo	01
3	Temeke	1	Kigamboni	Fery	02
3	Temeke	1	Kigamboni	Kigamboni	03
3	Temeke	1	Kigamboni	Tungi	04
3	Temeke	2	Vijibweni	Kisiwani	01
3	Temeke	2	Vijibweni	Mkwajuni	02
3	Temeke	2	Vijibweni	Vijibweni	03
3	Temeke	2	Vijibweni	Kibene	04
3	Temeke	3	Kibada	Sokoni	01
3	Temeke	3	Kibada	Kichangani	02
3	Temeke	3	Kibada	Kifurukwe	03
3	Temeke	3	Kibada	Kiziza	04
3	Temeke	3	Kibada	Uvumba	05
3	Temeke	4	Kisarawe II	Chekeni Mwasonga	01
3	Temeke	4	Kisarawe II	Kichangani	02
3	Temeke	4	Kisarawe II	Kigogo	03

District Code	Municipality Name	Ward Code	Ward Name	Subward Name	Subward Code
3	Temeke	4	Kisarawe II	Lingato	04
3	Temeke	4	Kisarawe II	Mkamba	05
3	Temeke	4	Kisarawe II	Mwaninga	06
3	Temeke	4	Kisarawe II	Ukooni	07
3	Temeke	5	Somangira	Gezaulole	01
3	Temeke	5	Somangira	Mwongozo	02
3	Temeke	5	Somangira	Amani Gomvu	03
3	Temeke	6	Kimbiji	Kizito Huonjwa	01
3	Temeke	6	Kimbiji	Gorani	02
3	Temeke	6	Kimbiji	Kijaka	03
3	Temeke	6	Kimbiji	Kwa Chale	04
3	Temeke	6	Kimbiji	Mikenge	05
3	Temeke	6	Kimbiji	Ngabanya	06
3	Temeke	7	Mbagala	Kizinga	01
3	Temeke	7	Mbagala	Mangaya	02
3	Temeke	7	Mbagala	Mbagala	03
3	Temeke	7	Mbagala	Moringe	04
3	Temeke	7	Mbagala	Kwanyoka	05
3	Temeke	7	Mbagala	Kiburugwa	06
3	Temeke	7	Mbagala	Kingugi	07
3	Temeke	8	Chamazi	Msufini	01
3	Temeke	8	Chamazi	Mwembe Bamia	02
3	Temeke	8	Chamazi	Kiponza	03
3	Temeke	8	Chamazi	Rufu	04
3	Temeke	8	Chamazi	Magengeni	05
3	Temeke	8	Chamazi	Kisewe	06
3	Temeke	9	Yombo Vituka	Kilakala	01
3	Temeke	9	Yombo Vituka	Vituka	02
3	Temeke	9	Yombo Vituka	Barabara ya Mwinyi	03
3	Temeke	9	Yombo Vituka	Machimbo	04
3	Temeke	9	Yombo Vituka	Sigara	05
3	Temeke	10	Charambe	Kibondemaji	01
3	Temeke	10	Charambe	Mchikichini	02
3	Temeke	10	Charambe	Kibangulile	03
3	Temeke	10	Charambe	Rangi Tatu	04
3	Temeke	10	Charambe	Mianzini	05
3	Temeke	10	Charambe	Kurasini Mjimpya	06
3	Temeke	10	Charambe	Nzasa B	07
3	Temeke	10	Charambe	Machinjioni	08
3	Temeke	10	Charambe	Kwazomboko	09
3	Temeke	10	Charambe	Nzasa A	10
3	Temeke	10	Charambe	Majimatitu	11
3	Temeke	11	Tuangoma	Changanyikeni	01
3	Temeke	11	Tuangoma	Goroka	02
3	Temeke	11	Tuangoma	Kongowe	03
3	Temeke	11	Tuangoma	Malela	04
3	Temeke	11	Tuangoma	Masaki	05
3	Temeke	11	Tuangoma	Masuliza	06
3	Temeke	11	Tuangoma	Mikwambe	07

District Code	Municipality Name	Ward Code	Ward Name	Subward Name	Subward Code
3	Temeke	11	Tuangoma	Mwapemba	08
3	Temeke	11	Tuangoma	Ponde	09
3	Temeke	11	Tuangoma	Toangoma	10
3	Temeke	11	Tuangoma	Vikunai	11
3	Temeke	12	Miburani	Keko Machungwa	01
3	Temeke	12	Miburani	Keko Juu	02
3	Temeke	12	Miburani	Uwanja Wa Taifa	03
3	Temeke	12	Miburani	Walesi	04
3	Temeke	12	Miburani	Miburani	05
3	Temeke	13	Temeke	Temeke	01
3	Temeke	13	Temeke	Matumbi	02
3	Temeke	13	Temeke	Njaro	03
3	Temeke	13	Temeke	Maganga	04
3	Temeke	14	Mtoni	Sabasaba	01
3	Temeke	14	Mtoni	Relini	02
3	Temeke	14	Mtoni	Mtoni	03
3	Temeke	14	Mtoni	Bustani	04
3	Temeke	15	Keko	Keko Mwanga B	01
3	Temeke	15	Keko	Keko Mwanga A	02
3	Temeke	15	Keko	Keko Magurumbasi A	03
3	Temeke	15	Keko	Keko Magurumbasi A	04
3	Temeke	15	Keko	Keko B	05
3	Temeke	16	Kurasini	Mivinjeni	01
3	Temeke	16	Kurasini	Kiungani	02
3	Temeke	16	Kurasini	Shimo la Udongo	03
3	Temeke	16	Kurasini	Kurasini	04
3	Temeke	16	Kurasini	Minazini	05
3	Temeke	16	Kurasini	Relini	06
3	Temeke	17	Azimio	Mji Mpya	01
3	Temeke	17	Azimio	Azimio Kichangani	02
3	Temeke	17	Azimio	Azimio Kaskazini	03
3	Temeke	17	Azimio	Azimio Mbuyuni	04
3	Temeke	17	Azimio	Tambukareli	05
3	Temeke	17	Azimio	Mtongani	06
3	Temeke	18	Tandika	Tandika	01
3	Temeke	18	Tandika	Tamla	02
3	Temeke	18	Tandika	Kilimahewa	03
3	Temeke	18	Tandika	Maguruwe	04
3	Temeke	18	Tandika	Mabatini	05
3	Temeke	18	Tandika	Nyambwela	06
3	Temeke	19	Sandali	Sandali	01
3	Temeke	19	Sandali	Mwembeladu	02
3	Temeke	19	Sandali	Mamboleo A	03
3	Temeke	19	Sandali	Mpogo	04
3	Temeke	19	Sandali	Mamboleo B	05
3	Temeke	20	Chang'ombe	Toroli	01
3	Temeke	20	Chang'ombe	Chang'ombe A	02
3	Temeke	20	Chang'ombe	Bora	03
3	Temeke	20	Chang'ombe	Chang'ombe B	04
3	Temeke	21	Mbagala Kuu	Kijichi	01

District Code	Municipality Name	Ward Code	Ward Name	Subward Name	Subward Code
3	Temeke	21	Mbagala Kuu	Misheni	02
3	Temeke	21	Mbagala Kuu	Makuka	03
3	Temeke	21	Mbagala Kuu	Kizuiani	04
3	Temeke	21	Mbagala Kuu	Kibondemaji B	05
3	Temeke	21	Mbagala Kuu	Mbagala Kuu	06
3	Temeke	21	Mbagala Kuu	Kichemchem	07
3	Temeke	21	Mbagala Kuu	Mgeni Nani	08
3	Temeke	21	Mbagala Kuu	Mwanamtoti	09
3	Temeke	22	Makangarawe	Dovya	01
3	Temeke	22	Makangarawe	Makangarawe	02
3	Temeke	22	Makangarawe	Mashine ya Maji	03
3	Temeke	22	Makangarawe	Buza	04
3	Temeke	23	Pemba Mnazi	Buyuni	01
3	Temeke	23	Pemba Mnazi	Yale yale Puna	02
3	Temeke	23	Pemba Mnazi	Pemba Mnazi	03
3	Temeke	23	Pemba Mnazi	Tundwi Songani	04
3	Temeke	24	Mjimwema	Maweni	01
3	Temeke	24	Mjimwema	Mjimwema	02
3	Temeke	24	Mjimwema	Ungindoni	03
3	Temeke	24	Mjimwema	Kibugumo	04

Chapter 2 Traffic Count Survey

2.1 Scope of Work

2.1.1 Cordon Line Survey

(1) General

The HIS will establish information on trips made by residents of the Study Area. However, on any given day, non-residents of Dar Es Salaam, that is, living outside of the Study Area, will enter the Study Area. These are not interviewed by the HIS. A cordon line survey has therefore been designed to collect trip information of such non-residents as they enter or leave Dar es Salaam.

The Cordon Line survey, most of which were conducted along the boundary of the Study Area, consists of several elements:

- A traffic count program;
- A road-side interview survey with a sample of drivers and passengers regarding their trip origin, destination, and purpose;
- A vehicle occupancy survey, that is, counting persons inside vehicles;
- Counts of, and interviews with, domestic and international passengers at Nyerere (Dar Es Salaam) International Airport. The interviews, conducted with passengers in the boarding (leaving) direction, address issues such as trip origin, destination, as well as purpose; and,
- Counts of, and interviews with, passengers at the Zanzibar / Pemba Ferry Terminal. The interviews, conducted with passengers in the boarding (leaving) direction, address issues such as trip origin, destination, as well as purpose.

(2) Survey Locations

1) Roadside traffic count survey, interview survey, and vehicle occupancy survey

The locations of the surveys are set on all arterial roads crossing the study area boundary. This is referred to as the external cordon. Five locations were selected including Morogoro Road, Kilwa,

Road, Bagamoyo Road, Nyerere Road, and Mjimwema Road. The traffic count, interview and occupancy counting surveys were carried out at the same locations and at the same time for each single location.

2) Passenger count and interview survey at Nyerere (Dar es Salaam) International Airport

The passenger count and the interview survey should be carried out at the departure area in the airport terminal. It was highly recommended that statistics of daily air passengers be obtained from airport authorities first; if such data are available in advance, the passenger count survey may not be necessary.

3) Passenger count and interview survey at Zanzibar/Pemba Ferry terminal

The passenger count survey should be carried out at the main entrance gate: the interview survey be carried out onboard the ferries prior to their departure. If the statistics of daily passengers is available in advance, the passenger count survey should not be necessary.

Survey locations are shown in Figure 2.1.1.

(3) Survey Hours

24 hours for traffic count as well as 12 hours for vehicle occupancy and interview survey (from 0600 to 1800) at the Morogoro Road boundary location. At all other road locations, 16 hours of traffic count as well as 12 hours of vehicle occupancy and interview surveys. Survey hours at Nyerere International Airport and the Zanzibar/Pemba Ferry terminal will be determined based on the operating hours. The survey durations are summarized in Table 2.1.1.

Table 2.1.1 Coverage of Cordon Line Survey

Survey Location		Survey Extent (hours)			
Number	Name	Traffic Count	Vehicle Occupancy	Interview	Passenger Count
CL-1	Bagamoyo Road	16	12	12	
CL-2	Morogoro Road	24	12	12	
CL-3	Nyerere Road	16	12	12	
CL-4	Kilwa Road	16	12	12	
CL-5	Mjimwema Road	16	12	12	
CL-6	Nyerere International Airport	-	-	12	24 ¹⁾
CL-7	Zanzibar/Pemba Ferry Terminal	-	-	12	24 ¹⁾

Note: ¹⁾ Survey hours are determined according to business hours.

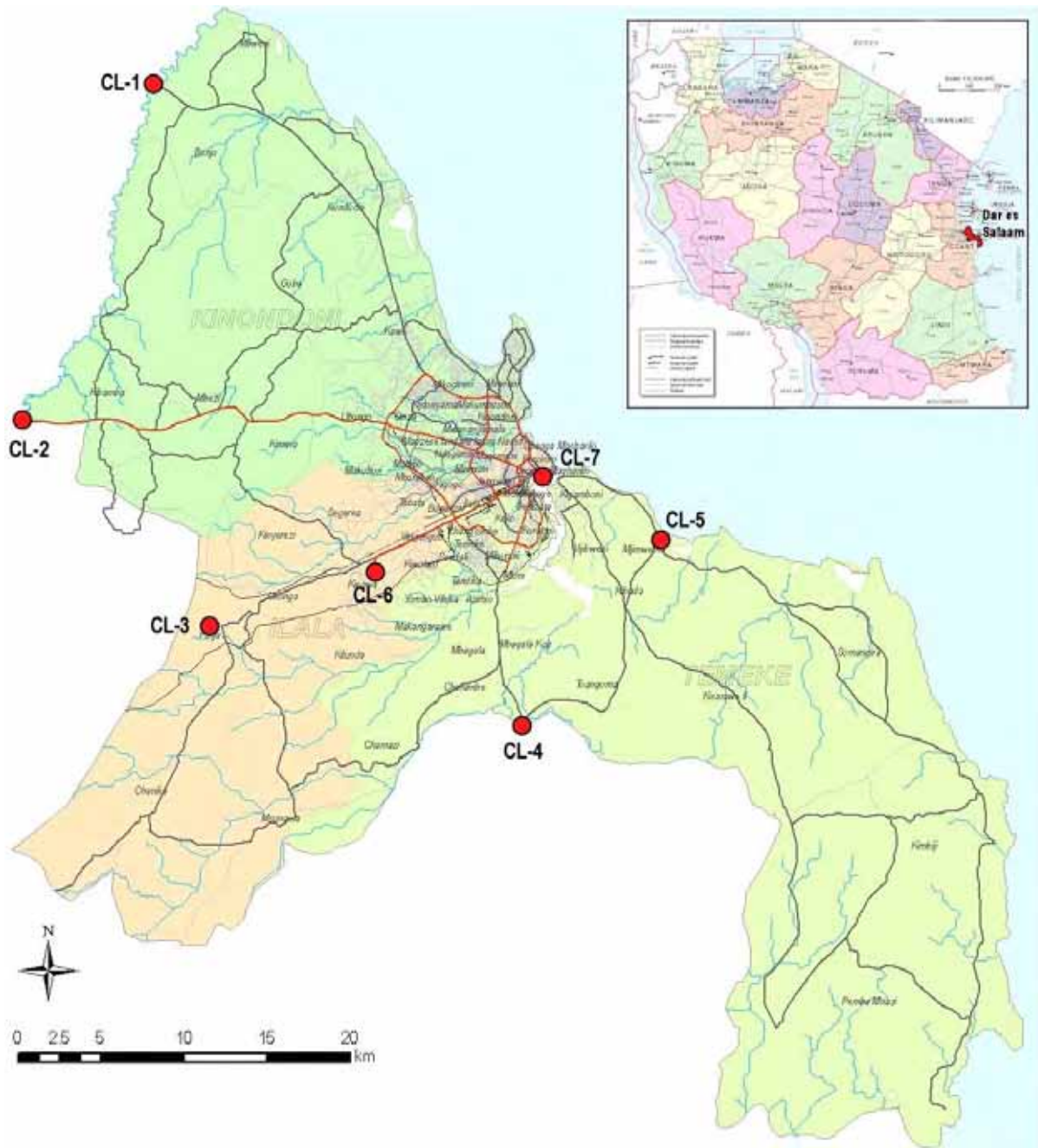


Figure 2.1.1 Cordon Survey Locations

(4) Survey Days

At each survey location, all three surveys shall be conducted concurrently on one weekday selected from Monday to Thursday. Public holidays must be excluded from the survey.

(5) Sampling

The sampling rates are as follows:

- Number of interviewed drivers/passengers at roadside not less than 20% for each vehicle type and for each direction of travel.
- Number of interviewed passengers at airport and ferry not less than 10% of boarding passengers.
- Traffic counting will be continuous for 100% of all vehicles in both directions of travel.
- Vehicle occupancy counting is on a sample basis, and as many vehicle occupancies as possible should be surveyed, but certainly not less than 50% (one-half) of passing vehicles. This sample size must be observed for all vehicle types in both directions of travel.

(6) Interview Survey Items

The survey forms require the collection for information on:

- Survey time;
- Vehicle type;
- Origin and destination of the trip;
- Trip purpose;
- Address of passengers;
- Number of passengers in the vehicle including the driver;
- Commodity type and classification (only for trucks);
- Commodity volume and loading condition (only for trucks); and
- Access mode to the airport or ferry terminal

(7) Vehicle Types for Counting Survey at Roadside

The types of vehicles for the counting survey are classified into 10 categories.

- Passenger car
- Taxi
- Light commodity vehicle (pickup and vans).
- Public buses (Dala-dala)
- Inter-city buses

- Organization bus (school bus, company and tourist bus).
- 2 Axles truck
- 3 Axles truck
- Heavy truck (over three axles, trailer, semi-trailer).
- Motorcycle
- Others (including bicycle)

(8) Survey Method

The detailed survey method will be determined after the discussion with the Study Team. However, following general guidelines apply.

1) Traffic Count Survey

- Surveyors should continuously count the number of vehicles by direction and by type of vehicle.
- Surveyors will count the number of vehicles manually or using traffic counters.
- It is strongly urged that the survey team have, if at all possible, at their disposal mechanical, hand-held, push-button, counting devices (“clickers”) for tabulating vehicles.
- The number of vehicles by direction and by vehicle type will be recorded on a summary form every fifteen (15) minutes.

2) Vehicle Occupancy Observation Survey

- The surveyors for the Vehicle Occupancy survey observe the occupancy of each vehicle by vehicle type and by direction. This survey is on a sample basis, and as many vehicle occupancies as possible should be surveyed, but certainly not less than 50% (one-half) of passing vehicles. This sample must be observed for all vehicle types in both directions of travel.

3) Interview Survey

- The survey group led by the supervisor sets up the interview area at specified roadside. This will be done jointly with the traffic police officer.
- The survey will be conducted in both directions of travel.
- Supervisor or team leader selects sampled vehicles at random for interviewing.
- Policemen stop the selected vehicles and direct them to the designated area for roadside interview survey.
- Surveyors interview the drivers and/or passengers and fill in the interview form.
- Military vehicles, police cars, and ambulance will be excluded from the roadside interview survey.

4) Interview Survey at Airport and Ferry Terminal

- Surveyors interview the selected passengers (sample) who will depart from airport and the ferry terminal at random basis, and fill in the interview form.

5) Passenger Count Survey

- Surveyors count departing passengers continuously at the airport and the ferry terminal, recording totals on the survey form. This count may not prove necessary if adequate passenger statistics are obtained from relevant authorities.

(9) Survey Forms

English language survey forms were given by the JICA Study Team (See Appendix):

- CLS Form 1 is for summarizing recorded vehicle movement counts every 15 minutes.
- CLS Form 2 is for conducting the roadside interview survey.
- CLS Form 3 is for recording roadside vehicle occupancies.
- CLS Form 4 is for summarizing person counts every 15 minutes at airport and ferry.
- CLS Form 5 is for conducting the passenger interviews at airport and ferry.

The following form was seen as a “fall back” position if availability of hand held counting devices (“clickers”) is not possible.

- CLS Form 6 for continuous vehicle counting (manual check-offs).

2.1.2 Screen Line Survey

The screen line survey obtains traffic volume by counting the number of vehicles at several locations along imaginary lines (screen lines) which divide the study area into parts. The traffic volume counted by the screen line survey are used not only for evaluating traffic congestion at each location but also for calibrating the current trip origin and destination information surveyed by the household interview survey in terms of vehicular and passenger travel. Accordingly, in order to obtain the data, the following three surveys were conducted: namely (a) traffic count survey, (b) vehicle occupancy count survey, and, in two cases (c) passenger count survey.

(1) Survey Locations

The screen line survey includes 15 locations at river and railway crossings, as described in Table 2.1.2 and illustrated in Figure 2.1.2. In addition, counts will be conducted on the access road to Nyerere (Dar Es Salaam) International Airport and the (sea) port of Dar Es Salaam.

Table 2.1.2 Listing of Screen Line Survey Locations

Survey Station		Coverage (hours)	
Number	Road Name	Vehicle Count	Vehicle Occupancy
SL1-1	Old Bagamoyo Road	14	12
SL1-2	Bagamoyo Road	14	12
SL1-3	Morogoro Road	14	12
SL1-4	Nyerere Road	14	12
SL1-5	Kilwa Road	14	12
SL2-6	Ali Hassan Mwinyi Road	24	12
SL2-7	Morogoro Road	24	12
SL2-8	Rashid Kawawa Road	14	12
SL2-9	Nelson Mandela Road	14	12
SL3-10	Uhuru Street	14	12
SL3-11	Nyerere Road	24	12
SL3-12	Bandari Road	14	12
SL3-13	Kigamboni Ferry Terminal	14	12
SL-14	Nyerere (DES) Intl. Airport	All counts for 24 hours as determined by operating schedules. Occupancy counts for 12 hours	
SL-15	Seaport of Dar Es Salaam		



Figure 2.1.2 Screen line Survey Locations

(2) Survey Duration

The traffic count survey is conducted for 24 hours at three road stations, the airport and seaport; and 14 hours (from 0600 to 2000) at all other stations. The occupancy count is conducted for 12 hours at all locations. All surveys shall be conducted on a weekday selected from Monday through Thursday excluding public holidays. The hours of coverage of the screen line survey are summarized in the previous Table 2.1.2.

(3) Vehicle Classifications

The types of vehicles to be counted are classified into the following eleven categories.

- Passenger car
- Taxi.
- Light commodity vehicle (pickup and vans).
- Public buses (Dala-dala).
- Inter-city buses
- Organization buses (school bus, company and tourist bus).
- 2 Axles truck.
- 3 Axles truck.
- Heavy truck (over three axles, trailer, semi-trailer).
- Motorcycle
- Others (including bicycle)

(4) Survey Method

The detailed survey method will be determined after the discussion with the Study Team. However, following general guidelines apply.

A survey team led by a supervisor sets up the survey point at each location.

- The surveyors for the Traffic Count survey count continuously the number of vehicles by direction and by vehicle type at roadside.
- The surveyors record the number of vehicles by direction and by vehicle type on survey sheet every fifteen (15) minutes.
- The surveyors for the Vehicle Occupancy survey observe the occupancy of each vehicle by vehicle type and by direction, and record it to survey sheet every fifteen (15) minutes. This survey is on a sample basis, and as many vehicle occupancies as possible should be surveyed, but certainly not less than 50% (one-half) of passing vehicles. This sample must be observed for all vehicle types in both directions of travel.

- The supervisors should pay attention to find out the count mistake of the vehicle type. The counting and observation survey should not be interrupted by meal or rest.
- It is strongly urged that the survey team have, if at all possible, at their disposal mechanical, hand-held, push-button, counting devices (“clickers”) for tabulating vehicles.

(5) Survey Forms

English language survey forms are given in Appendix:

- SLS Form 1 is for summarizing recorded vehicle movement counts every 15 minutes.
- SLS Form 2 is for recording vehicle occupancy counts.

The following form is seen as a “fall back” position if availability of hand held counting devices (“clickers”) is not possible.

- SLS Form 3 is for continuous vehicle counting (manual check-offs).

2.1.3 Traffic and Pedestrian Counts at Major Intersection

The traffic count survey was carried out at ten major intersections. The survey process consists of three elements: (a) vehicle counting; (b) signal monitoring; and (c) pedestrian counting.

(1) Survey Locations

The selected **10 intersections** are shown in Figure 2.1.3, and described in Table 2.1.3.

Table 2.1.3 Listing of Intersection Traffic Count Locations

Code	Intersection Name	Main Road	Secondary Road
IC-1	Mwenge	Bagamoyo	Sam Nujoma
IC-2	Ubungo	Morogoro	Nelson Mandela
IC-3	Tazara	Nyerere	Nelson Mandela
IC-4	Uhasibu	Nelson Mandela	Kilwa
IC-5	Morocco	Ali Hassan	Rashid Kawawa
IC-6	Magomeni	Morogoro	Rashid Kawawa
IC-7	Chang’Ombe	Nyerere	Chang Ombe
IC-8	Bandari	Bandari	Kilwa
IC-9	Selanda Bridge	Ali Hassan Mwinyi	Kinondoni
IC-10	Mnazimmoza	Uhuru	Bibi Titi Mohamed



Figure 2.1.3 Intersection Traffic Count Survey Locations

(2) Survey Hours

Total survey hours are **six hours**: three hours in the morning peak (0600-0900) and three hours in the afternoon peak (1600-1900).

(3) Survey Days

At each intersection, the survey will be performed on **one weekday** selected from Monday through Thursday excluding public holidays.

(4) Vehicle Classifications

The types of vehicles to be counted are classified into the following **11 categories**.

- Passenger car
- Taxi.
- Light commodity vehicle (pickup and vans).
- Public buses (Daladala).
- Inter-city buses
- Organization bus (school bus, company bus and tourist bus).
- 2 Axles truck.
- 3 Axles truck.
- Heavy truck (over three axles, trailer, semi-trailer).
- Motorcycle.
- Other (including bicycle)

(5) Survey Method

The detailed survey method was finalized after discussion with the JICA Study team. In general:

- A survey team led by a supervisor sets up the survey point at each intersection. Each team will have three elements: a vehicle traffic count group, a signal monitoring group, and a pedestrian counting group.
- The supervisors are responsible for accuracy of all data.
- It is strongly urged that the survey team have, if at all possible, at their disposal mechanical, hand-held, push-button, counting devices (“clickers”) for tabulating vehicles and pedestrians.

1) Vehicle Traffic Count Group

- Team members must be so placed at roadside as to have an unobstructed view of the intersection and vehicles traveling through the intersection.

- The surveyors count continuously (100% sample) during the survey period. The survey should not be interrupted for meal or rest purposes.
- Each approaching directional movement (right turn, left turn, u-turn, through) for each of the intersection approaches (legs) will be counted and recorded separately. Each of the approach directional movements will be broken down by vehicle type as per Article (4).
- The number of vehicles for all intersection movements will be counted continuously, and recorded on a survey sheet every fifteen minutes.

2) Signal Monitoring Group

- Prepare a simple schematic sketch of the intersection layout showing number of lanes (right turn, left turn, through), dimensions (approx. lane width, length of storage lanes, if any), location of nearby bus stops, location and width of median islands, locations of signal poles, and similar items.
- Prepare a sketch that depicts the number of signal phases, and which movements are permitted during each signal phase. In case of manual police control, indicate the phases as permitted by the police.
- During the period of the survey use a stop-watch (or similar) to time each individual signal phase (minutes, seconds) recording each phase length on a survey sheet.

3) Pedestrian Counting Group

- Team members must be so placed at roadside as to have an unobstructed view of the intersection and pedestrians crossing the intersection.
- The surveyors count continuously during the survey period. The survey should not be interrupted for meal or rest purposes. For counting purposes, it is assumed that the intersection impact area extends for about 5 car lengths, or about 30 meters, from the intersection. Persons crossing within this area are defined as crossing at the intersection.
- The numbers of pedestrians crossing each of the intersection approaches will be counted continuously, and recorded on a survey sheet every fifteen minutes.

(6) Survey Forms

English-language survey forms were prepared by the JICA Study Team (see Appendix):

- ITC Form 1 is for summarizing recorded vehicle movement counts every 15 minutes.
- ITC Form 2 is for summarizing recorded pedestrian counts every 15 minutes.
- ITC Form 3 is for assistance in sketching the intersection layout.
- ITC Form 4 is for recording signal phases and cycle lengths.

The following form is seen as a “fall back” position if availability of hand held counting devices (“clickers”) is not possible.

- ITC Form 5 is for continuous vehicle counting (manual check-offs).

2.2 Survey Performance

2.2.1 Screen Line Survey

(1) Activities

The activities for conducting Screen Line survey is summarized in Table 2.2.1. The following issues had been discussed between the contractor and the JICA Study team expert during the period from 7th to 14th June, for elaborating a survey program.

- Methodology of the survey
- Composition of a survey crew
- Survey location
- Implementation schedule

After the site observation conducted on 9th and 13th June, the survey program was finalized as shown in Appendix. More than 200 teachers and students of NIT were trained for two days. Surveyors were selected and survey teams for conducting the field survey at five locations were organized. The field survey was conducted on 19th, 21st and 25th June. Detail is discussed in the later section.

Table 2.2.1 Activities Taken for Screen Line Survey

Activity	June																														July					
	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6			
	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F			
1. Preparation Works																																				
a) Site observation																																				
b) Survey program																																				
c) Survey forms and manuals																																				
d) Recruiting																																				
e) Training and organizing																																				
2. Field Survey																																				
3. Data Processing																																				

Note: Arrows indicate the initial plan of period and black bands indicate activities completed.

(2) Survey Crew

The composition of a survey crew depends on the traffic observation method employed at each site. Table 2.2.2 shows survey crew composition for one shift by direction at a survey location, which was elaborated after the discussion between NIT and the JICA Study Team. Three manual traffic counters were needed to count the traffic volumes and one observer to count the number of onboard passengers (vehicle occupancy survey). Moreover, one reserve person was prepared for help or replacement in case. In total eleven persons, six (6) counters, two (2) observers, two (2) reserves and one (1) supervisor, were recruited for a shift at one survey location. For the location of 24 hours survey, 33 persons are needed in total for three shifts.

Table 2.2.2 Survey Crew Composition

Type of Survey	Surveyor	Methodology	Task
Traffic Count	Counter-1	Count by clicker	To count traffic of 2 vehicle types (passenger car, taxi)
	Counter-2	Count by clicker	To count traffic of 2 vehicle types (small bus, large bus)
	Counter-3	Manual count	To count traffic of the rest of vehicle types
Vehicle Occupancy	Observer	Visual observation	To estimate the number of passengers by 6 type of vehicles (passenger car, taxi, pickup, small bus, large bus, inter-city bus)

13 categories of vehicle types were applied for the traffic count survey, while 6 categories for vehicle occupancy survey (Refer Appendix). For the counting survey, two different methodologies were applied. A clicker was used for counting heavy traffic such as passenger cars and dala dala buses. Manual counting was applied for the rest of vehicle types. Therefore, different survey forms were prepared corresponding to the counting methodologies.

(3) Survey Implementation

The survey was planned to conduct the traffic count at five location on a same day originally. However, there were some cases that could not be done as scheduled.

There was a case which was postponed from the original survey date. The survey at Dar es Salaam Seaport was postponed because the permission was not given before the planned survey date.

And there was another case which was redone due to some mistakes in the field.

In case of Ali Hassan Mwinyi, there was a shortage of survey forms and surveyors, so that an extra fourth shift of the survey was added. Namely, the survey was conducted for 32 hours and the information in 24 hours will be available.

Table 2.2.3 Implementation of Screen Line Survey

Survey Date	Survey Point	Location Name	Survey Duration
19 June, Tuesday	SL2-6 Ali Hassan Mwinyi road	Salender Bridge	32 hours
	SL2-7 Morogoro road	Jangwani Konoike	24 hours
	SL3-11 Nyerere road	Darajani/Shoprite	24 hours
	SL14 DES International Airport	Terminal 1/Terminal 2	24 hours
21 June, Thursday	SL1-1 Old Bagamoyo road	Mlalakuwa Junction	14 hours (6:00-20:00)
	SL1-2 Bagamoyo road	Makongo	14 hours (6:00-20:00)
	SL1-3 Morogoro road	Kibo	14 hours (6:00-20:00)
	SL1-4 Nyerere road	Tazara	14 hours (6:00-20:00)
	SL1-5 Kilwa road	Mbagala Misherni	14 hours (6:00-20:00)
25 June, Monday	SL2-8 Rashid Kawawa road	Kigogo Sambusa	14 hours (6:00-20:00)
	SL2-9 Nelson Mandela road	Sukita	14 hours (6:00-20:00)
	SL3-10 Uguru street	Breweries TLB	14 hours (6:00-20:00)
	SL3-12 Bandari road	Railway Bridge	14 hours (6:00-20:00)
	SL3-13 Kigamboni Ferry	Ferry terminal road	14 hours (6:00-20:00)
3 July, Tuesday	SL15 DES Seaport	Gate 3 and Gate 5	24 hours

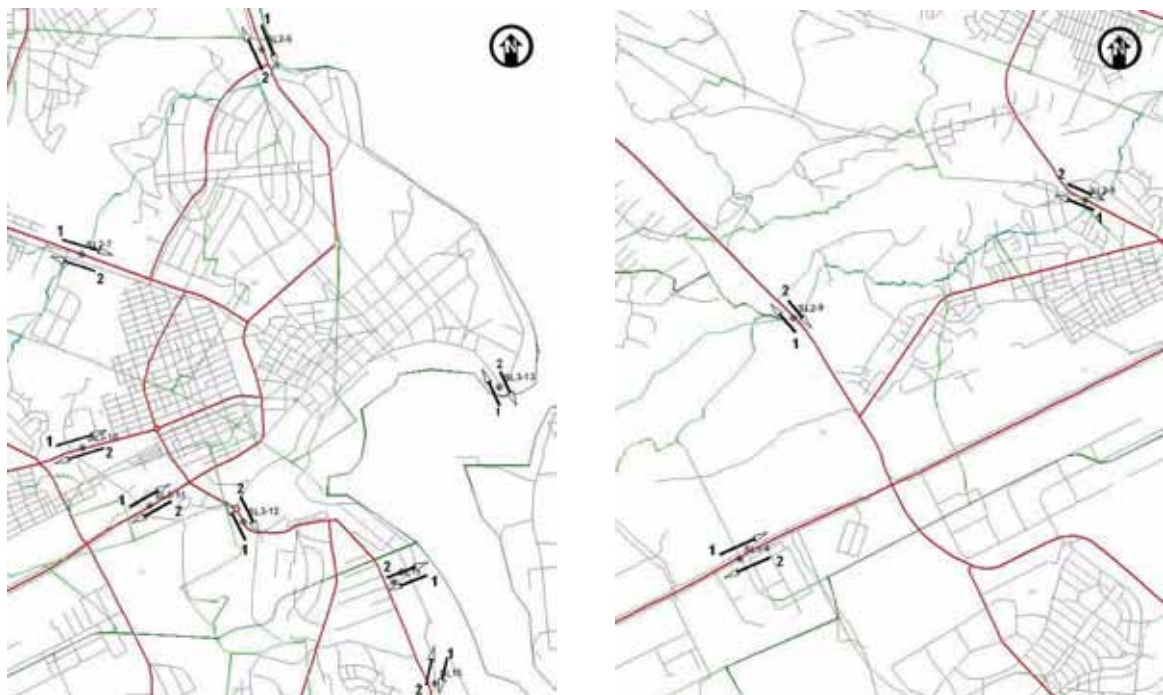


Figure 2.2.1 Screen Line Survey Locations

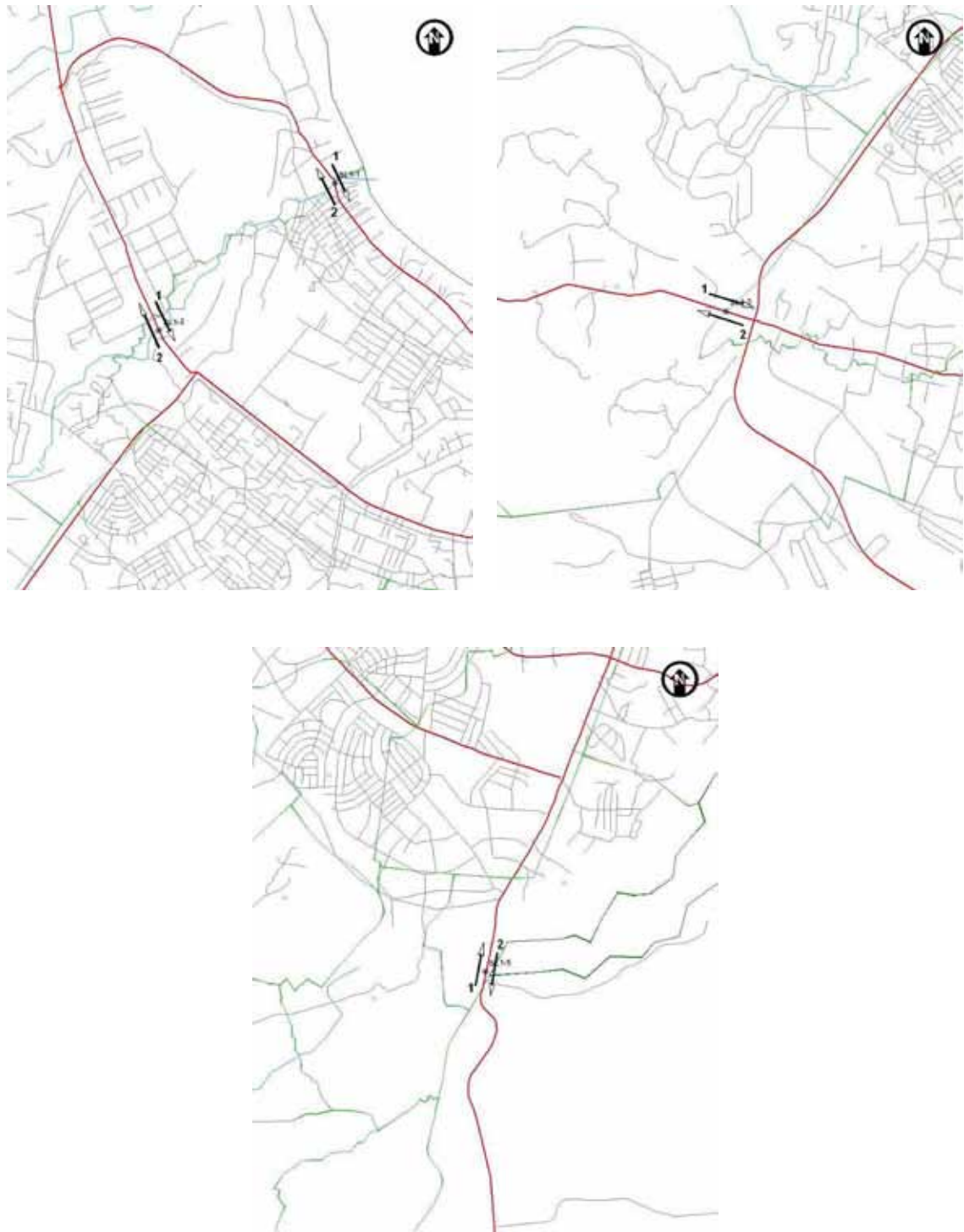


Figure 2.2.2 Screen Line Survey Locations (Continued)

2.2.2 Traffic and Pedestrian Count at Major Intersections

(1) Activities

For the pre-site observation, two survey locations: Ubungu intersection and Magomeni intersection were selected to in order to finalize the survey program and determine the following points in the survey program:

- Methodologies for directional traffic flow counting;
- Staffing indication by location; and
- Precise point for the observation

The training session was held for two days on 23rd and 26th June prior to the field survey. It was scheduled to conduct the actual survey on 27th and 28th June, however, extra survey efforts was made in the following two days to obtain complete information.

Table 2.2.4 Activities Taken for Intersection Survey

Activity	June															July																
	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	
1. Preparation Works																																
a) Site observation																																
b) Survey program																																
c) Survey forms and manuals																																
d) Recruiting																																
e) Training and organizing																																
2. Field Survey																																
3. Data Processing																																

Note: Arrows indicate the initial plan of period and black bands indicate activities completed.

(2) Survey Crew

The survey crew composition is more diverse than that of the screen line survey. Table 2.2.5 shows the survey crew composition for the traffic and pedestrian count survey.

For the counting vehicular traffic volume, two counters were prepared to count through-inflow-traffic, while two counters for count turning right and left traffic respectively. Two persons were prepared for counting pedestrians crossing the road section within the area of about 30 m radius from the center of junction. At the same time signal phasing was recorded by using a stopwatch. This crew unit was for one leg of an intersection, so twenty-nine (29) including one supervisor were needed at a typical four-legs intersection in one shift.

Table 2.2.5 Survey Crew Composition

Type of Survey	Surveyor	Methodology	Task
Traffic Count	Counter-1	Count by clicker	To count through traffic of 2 vehicle type (cars, buses)
	Counter-2	Manual count	To count through traffic of 2 vehicle type (small bus, large bus)
	Counter-3	Manual count	To count right turn traffic
	Counter-4	Manual count	To count left turn traffic
Pedestrian Count	Counter-1	Manual count	To count crossing pedestrians
	Counter-2	Manual count	To count crossing pedestrians
Signal Phase	Observer	Measure by stop watch	To measure and record signal phase

(3) Vehicle Categories

Thirteen (13) groups of vehicle type were applied for the Screen Line survey. These categories were aggregated into 5 groups for simplifying the counting tasks. The vehicle categories applied for the intersection survey is as follows.

Table 2.2.6 Vehicle Categories

No.	Screen Line Survey	Intersection Survey
1	Passenger car	Passenger cars
2	Taxi	
3	Pickup and van	
4	Small dala dala bus	Buses
5	Large dala dala bus	
6	Inter-city bus	
7	Other buses	
8	2 axels truck	2 axels truck
9	3 axels truck	3 axels truck and more
10	Trailer and more than 3 axels truck	
11	Motorcycle	Others
12	Bajaj	
13	Bicycle	

(4) Signal Phase Observation

It was found in the survey field that the signal phase observation was difficult in case of police control. The time period is not always given at a uniform and equal duration by a police. Moreover, with only one surveyor it was difficult to observe signal phase of every direction so that signal timing was not able to record. To overcome this problem, the JICA study team expert recorded police control by a video camera at the same time.

(5) Survey Implementation

The survey at major intersections was initially planned to complete in two days. The survey at Bandari junction was not able to begin as scheduled due to some logistic problems. There was a case that some directional traffic flow were not counted in the beginning of the field survey, for example, Ubungo intersection in the morning peak hours and Magomeni both in the morning and evening peak hours. Therefore, the survey at Bandari junction was postponed to 29th June and the survey at Ubungo and Magomeni intersection was re-carried out on 2nd July as shown in Table 2.2.7.

The location for IC-9 was amended from the Kinondoni intersection specified in the TOR to the United Nations Intersection considering the impact of tidal flow management that has been implemented during the survey period.

Table 2.2.7 Implementation of Intersection Survey

Survey Date	Intersection Name	Main Road	Secondary Road	Survey Duration
27 June, Wednesday	IC-1 Mwenge	New Bagamoyo road	Sam Nujoma road	6:00-9:00, 16:00-19:00
	IC-2 Ubungo	Morogoro road	Nelson Mandela road	6:00-9:00, 16:00-19:00
	IC-3 Tazara	Nyerere road	Nelson Mandela road	6:00-9:00, 16:00-19:00
	IC-4 Uhasibu	Nelson Mandela road	Kilwa road	6:00-9:00, 16:00-19:00
	IC-5 Morocco	Ali Hassan Mwinyi road	Rashid Kawawa road	6:00-9:00, 16:00-19:00
28 June, Thursday	IC-6 Magomeni	Morogoro road	Rashid Kawawa road	6:00-9:00, 16:00-19:00
	IC-7 Chang'oimbe	Nyerere road	Chang'ombe road	6:00-9:00, 16:00-19:00
	IC-9 Salender Bridge	Ali Hassan Mwinyi road	United Nations road	6:00-9:00, 16:00-19:00
	IC-10 Mnazi Mmoja	Uhuru street	Bibi Titi Mohamed road	6:00-9:00, 16:00-19:00
29 June, Friday	IC-8 Bandari	Bandari road	Kilwa road	6:00-9:00, 16:00-19:00
2 July, Monday ¹⁾	IC-2 Ubungo	Morogoro road	Nelson Mandela road	6:00-9:00
	IC-6 Magomeni	Morogoro road	Rashid Kawawa road	6:00-9:00, 16:00-19:00

Note: ¹⁾ Redo of the survey.

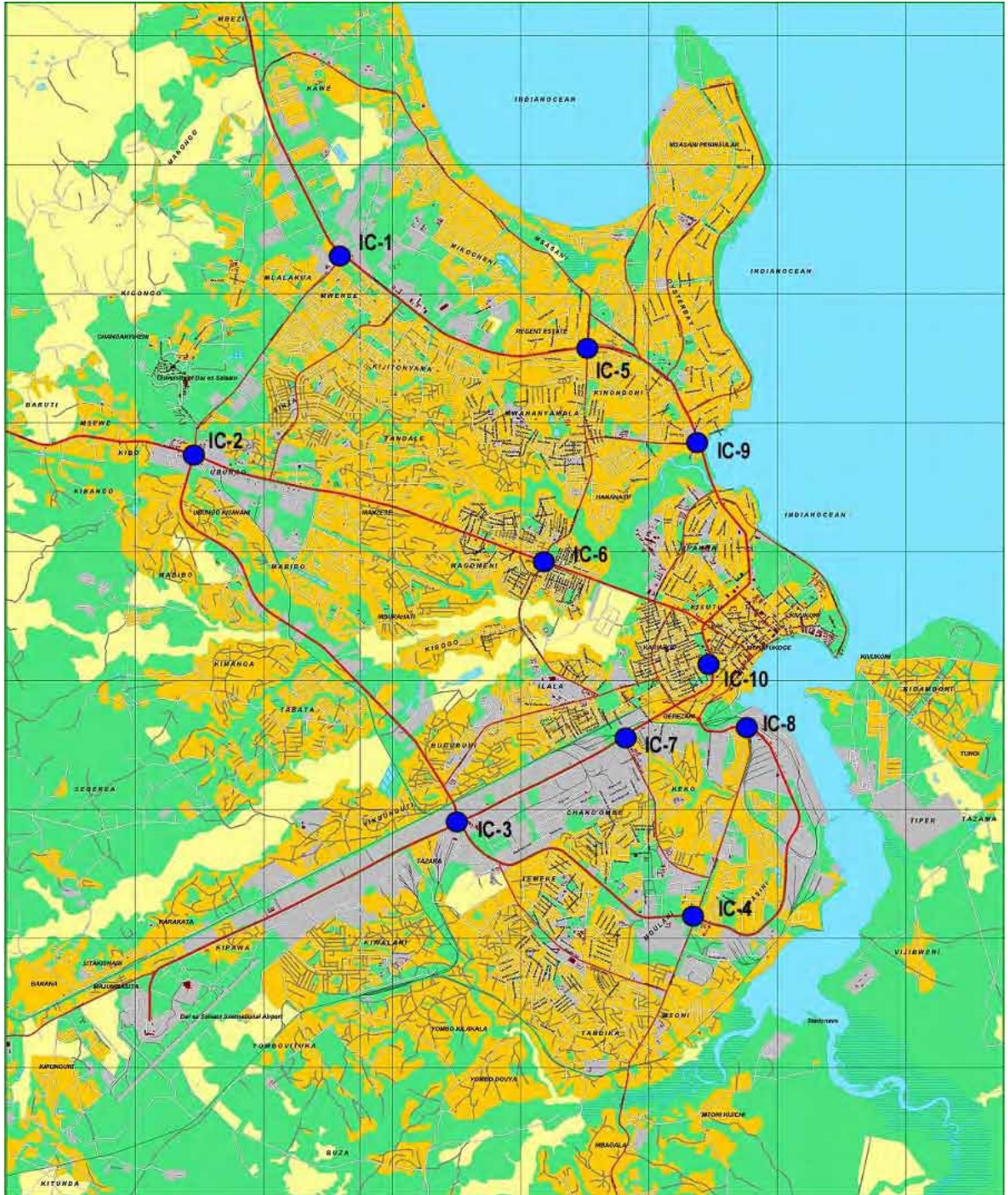


Figure 2.2.3 Intersection Survey Locations

2.2.3 Cordon Line Survey

(1) Activities

The preparation work for the Cordon Line survey started on 28th June. To elaborate a survey program, NIT and JICA Study team had a series of discussions during the first week from the commencement. The Cordon Line survey requires interviews with drivers/passengers crossing the cordon line. So the additional training is necessary for the surveyors to learn the objectives and technique for the interview. In the training course held on 7th July, these issues were explained well and teachers were recruited as interviewers. The field survey at two locations was conducted on 11th and 12th July, and it is scheduled to conduct on 16th and 17th July for other locations.

Table 2.2.8 Activities Taken for Cordon Line Survey

Activity	June							July																														
	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29			
	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S			
1. Preparation Works																																						
a) Site observation																																						
b) Survey program																																						
c) Survey forms and manuals																																						
d) Recruiting																																						
e) Training and organizing																																						
2. Field Survey																																						
3. Data Processing																																						

Note: Arrows indicate the initial plan of period and black band indicates activities completed.

(2) Interview Items and Survey Forms

Information from the interview includes:

- Individual attribute
 - Residence area (whether you live in the Study area or outside)
- Trip information
 - Purpose of the trip
 - Origin and destination of the trip
 - Access and egress mode in case of bus passengers

Four different survey forms were prepared for passenger car drivers, bus drivers, bus passengers, and passengers at DES Airport and Zanzibar Ferry (Refer Appendix-14.3.).

(3) Survey Crew

Table 2.2.9 shows the composition of a survey crew by direction at one survey location. Three surveyors shall count the traffic, one surveyor shall count the number of passengers in sampled vehicles and three interviewers shall make interviews with drivers/passengers.

Table 2.2.9 Survey Crew Composition

Type of Survey	Surveyor	Methodology	Task
Traffic Count	Counter-1	Count by clicker	To count traffic of 2 vehicle types (passenger car, taxi)
	Counter-2	Count by clicker	To count traffic of 2 vehicle types (small bus, large bus)
	Counter-3	Manual count	To count traffic of the rest of vehicle types
Vehicle Occupancy	Observer	Visual observation	To estimate the number of passengers by 6 type of vehicles (passenger car, taxi, pickup, small bus, large bus, inter-city bus)
Roadside Interview	Interviewer-1	Interview	To interview a driver of cars and trucks
	Interviewer-2	Interview	To interview a bus driver and passengers
	Interviewer-3	Interview	To interview passengers in buses

(4) Survey Implementation

The Cordon Line survey was planned to conduct at two locations per day. The survey on Kilwa road and Mjimwema road were conducted first on 11th July, followed by Bagamoyo road and Nyerere road on 12th July. The survey at Morogoro road was conducted on 16th July and followed by at Nyerere Airport and Zanzibar Ferry terminal as indicated in Table 2.2.10.

Table 2.2.10 Implementation of Cordon Line Survey

Survey Date	Survey Location	Survey Duration	Survey Coverage			
			Traffic Count	Vehicle Occupancy	Interview	Passenger Count
11 July, Wednesday	CL-4 Kilwa road	16 hours (6:00-22:00)	○	○	○	
	CL-5 Mjimwema road	16 hours (6:00-22:00)	○	○	○	
12 July, Thursday	CL-1 Bagamoyo road	16 hours (6:00-22:00)	○	○	○	
	CL-3 Nyerere road	16 hours (6:00-22:00)	○	○	○	
16 July, Monday	CL-2 Morogoro road	24 hours	○	○	○	
	CL-6 DES International Airport	24 hours			○	○
17 July, Tuesday	CL-7 Zanzibar Ferry Terminal	16 hours			○	○

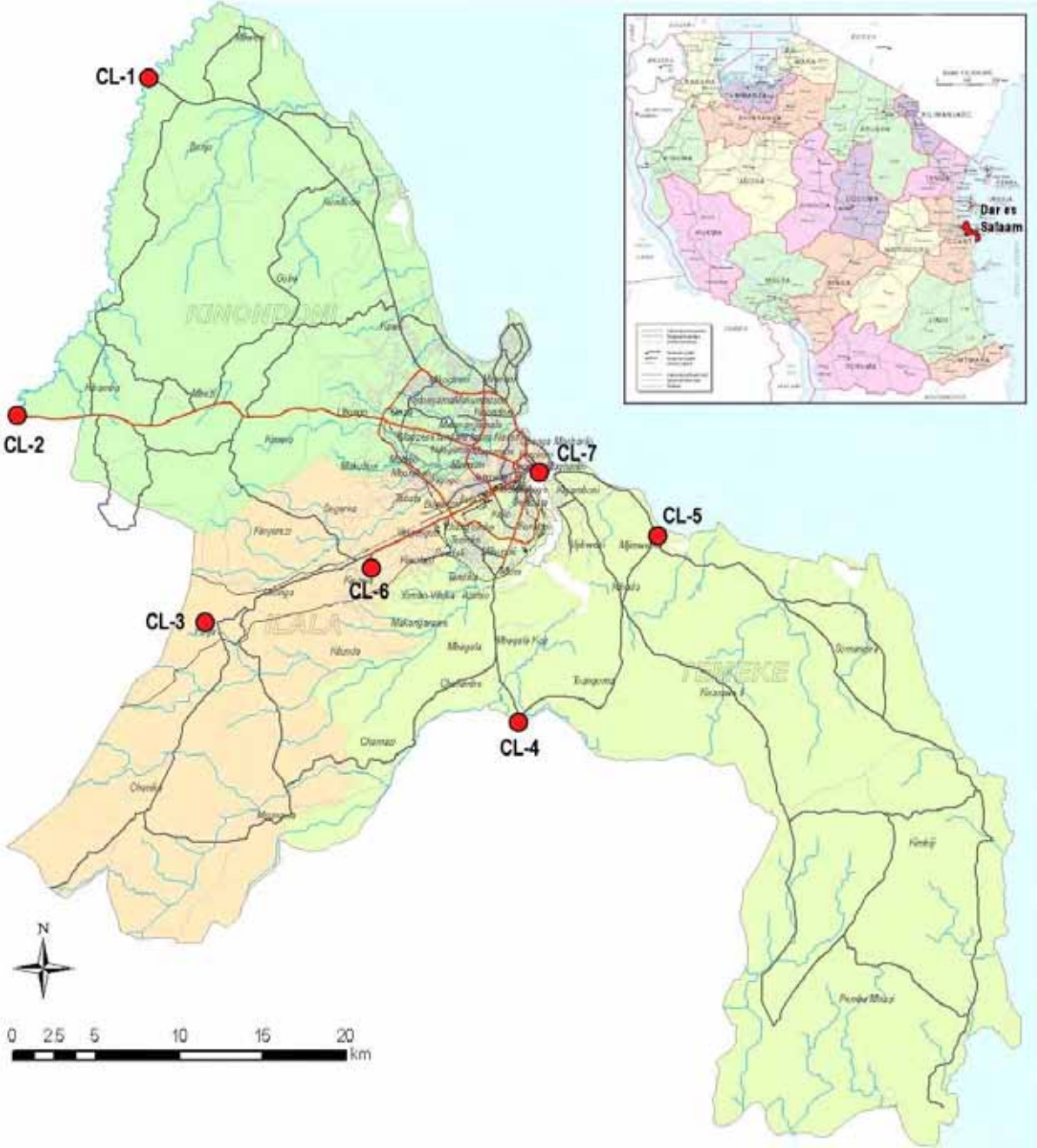


Figure 2.2.4 Cordon Line Survey Locations

Appendix-2.1: Screen Line Survey Forms and Instruction Material

Vehicle Count Survey Form for Count by Clicker

Vehicle Count Survey Form for Manual Count

Vehicle Type Classification

SLS-1: TRAFFIC COUNT AT SCREEN | **Dar es Salaam Transport Policy and System Development Master Plan**

Survey (1) Location Direction (2) 1:inbound 2:outbound Sheet No. (3) 1 Enumerator (4) Supervisor (5)

Survey (1) Location	Direction (2) 1:inbound 2:outbound	Passenger Car	Taxi	Pick-up, Van	Data data (small)	Data data (Medium)	Inter-city bus	School bus, Company bus	2 Axles truck	3 Axles truck	Trailer truck, more than 3 axles	Motorcycle	Bhajang	Bicycl
6:00 - 6:15														
6:15 - 6:30														
6:30 - 6:45														
6:45 - 7:00														
7:00 - 7:15														
7:15 - 7:30														
7:30 - 7:45														
7:45 - 8:00														
8:00 - 8:15														
8:15 - 8:30														
8:30 - 8:45														
8:45 - 9:00														
9:00 - 9:15														
9:15 - 9:30														
9:30 - 9:45														
9:45 - 10:00														
10:00 - 10:15														
10:15 - 10:30														
10:30 - 10:45														
10:45 - 11:00														
11:00 - 11:15														
11:15 - 11:30														
11:30 - 11:45														
11:45 - 12:00														
12:00 - 12:15														
12:15 - 12:30														
12:30 - 12:45														
12:45 - 13:00														
13:00 - 13:15														
13:15 - 13:30														
13:30 - 13:45														
13:45 - 14:00														

SLS-1: TRAFFIC COUNT AT SCREEN		Dar es Salaam Transport Policy and System Development Master Plan													
Survey (1) Location	Direction (2) 1:inbound 2:outbound	Vehicle Class (3)	Sheet No. (3)	Enumerator (4)	Supervisor (5)	2 axles truck		3 axles truck		Trailer truck, more than 3 axles truck		Motorcycle		Bhaja	
6:00 - 6:15															
6:15 - 6:30															
6:30 - 6:45															
6:45 - 7:00															

VEHICLE CATEGORY FOR TRAFFIC COUNT SURVEY				
1: Passenger Car (Private Car)				
 Sedan	 4WD		 Wagon	
2: Taxi		3: Pickup and Van (Commercial vehicle)		
 Sedan with white license Plate		 Pick-up	 Station Wagon	 Van
4: Dala dala (Small:15 passengers)		5: Dala dala (Medium (25 - 35 passengers)		
 Slide door		 Automatic door		
6: Inter-city Bus		7: Other buses (School bus, company bus etc.)		
				
8: 2 axles truck				
				
9: 3 axles truck				
				
10: Trailer truck, more than 3 axles				
 Trailer	 Articulated trailer	 Tank lorry (4 axles)		
11: Motorcycle		12: Bhajaj	13: Bicycle	
				

Appendix-2.2: Traffic and Pedestrian Count Survey Forms

Vehicle Count Survey Form for Count by Clicker

Vehicle Count Survey Form for Manual Count

Pedestrian Count Survey Form

ITC-1: TRAFFIC COUNT AT INTERSECTION
Dar es Salaam Transport Policy and System Development Master Plan Study

Survey (1)

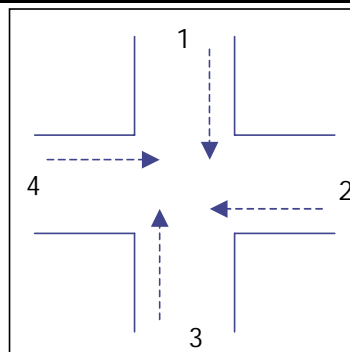
Location

Direction (2) (3)
 From

Direction (4) (5)
 To

Enumerator (6)

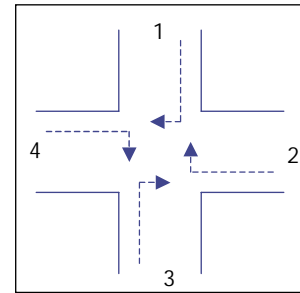
Supervisor (7)



Morning Peak	Passenger Car / Taxi / Pick-up / Van	Dala dala and Other buses	2 axles truck	3 axles truck and more, trailer truck	Others (Bhaja, Motorcycle)
6:00 - 6:15					
6:15 - 6:30					
6:30 - 6:45					
6:45 - 7:00					
7:00 - 7:15					
7:15 - 7:30					
7:30 - 7:45					
7:45 - 8:00					
8:00 - 8:15					
8:15 - 8:30					
8:30 - 8:45					
8:45 - 9:00					

Evening Peak	Passenger Car / Taxi / Pick-up / Van	Dala dala	2 axles truck	3 axles truck	Others (Bhaja, Motorcycle)
16:00 - 16:15					
16:15 - 16:30					
16:30 - 16:45					
16:45 - 17:00					
17:00 - 17:15					
17:15 - 17:30					
17:30 - 17:45					
17:45 - 18:00					
18:00 - 18:15					
18:15 - 18:30					
18:30 - 18:45					
18:45 - 19:00					

ITC-1: TRAFFIC COUNT AT INTERSECTION
 Dar es Salaam Transport Policy and System Development Master Plan Study



Survey (1)
 Location

Direction (2) (3)
 From

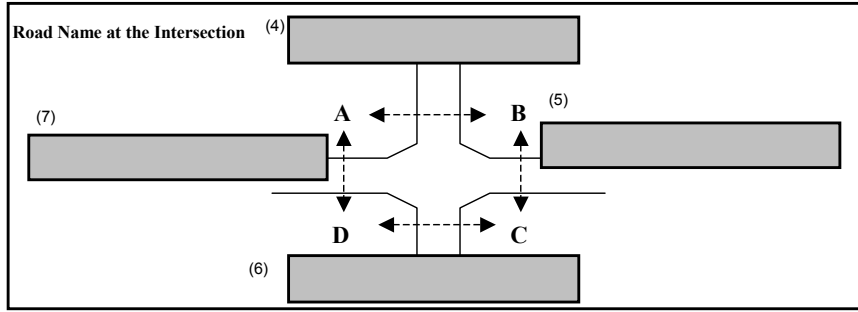
Direction (4) (5)
 To

Enumerator (6) Supervisor (7)

Morning Peak	Passenger Car / Taxi / Pick-up / Van												
6:00 - 6:15													
6:15 - 6:30													
6:30 - 6:45													
6:45 - 7:00													
7:00 - 7:15													
7:15 - 7:30													
7:30 - 7:45													
7:45 - 8:00													
8:00 - 8:15													
8:15 - 8:30													
8:30 - 8:45													
8:45 - 9:00													

ITC-2 : PEDESTRIAN COUNTS SURVEY AT THE INTERSECTION
Dar es Salaam Transport Policy and System Development Master Plan Study

Survey Location (1) Enumerator (2) Supervisor (3)



from to from to

6:00 - 6:15																			
6:15 - 6:30																			
6:30 - 6:45																			
6:45 - 7:00																			
7:00 - 7:15																			
7:15 - 7:30																			
7:30 - 7:45																			
7:45 - 8:00																			
8:00 - 8:15																			
8:15 - 8:30																			
8:30 - 8:45																			
8:45 - 9:00																			

Appendix-2.3: Cordon Line Survey Forms

Survey Form for Person Count at Airport/Ferry

Cordon Line Interview Survey Form (Roadside)

Cordon Line Interview Survey Form (Bus Driver)

Cordon Line Interview Survey Form (Bus Passenger)

Cordon Line Interview Survey Form (Airport/Ferry)

Code Table for Cordon Line Interview Survey

Dar es Salaam Transport Policy and System Development Master Plan Study

CLS-4 : PERSON COUNT AT AIRPORT/FERRY

Survey (1) Gate (2)
 Location No.

Enumerator (3)

Supervisor (4)

	In			Out		
6:00 - 6:15						
6:15 - 6:30						
6:30 - 6:45						
6:45 - 7:00						
7:00 - 7:15						
7:15 - 7:30						
7:30 - 7:45						
7:45 - 8:00						
8:00 - 8:15						
8:15 - 8:30						
8:30 - 8:45						
8:45 - 9:00						
9:00 - 9:15						
9:15 - 9:30						
9:30 - 9:45						
9:45 - 10:00						
10:00 - 10:15						
10:15 - 10:30						
10:30 - 10:45						
10:45 - 11:00						
11:00 - 11:15						
11:15 - 11:30						
11:30 - 11:45						
11:45 - 12:00						
12:00 - 12:15						
12:15 - 12:30						
12:30 - 12:45						
12:45 - 13:00						
13:00 - 13:15						
13:15 - 13:30						
13:30 - 13:45						
13:45 - 14:00						

	In			Out		
14:00 - 14:15						
14:15 - 14:30						
14:30 - 14:45						
14:45 - 15:00						
15:00 - 15:15						
15:15 - 15:30						
15:30 - 15:45						
15:45 - 16:00						
16:00 - 16:15						
16:15 - 16:30						
16:30 - 16:45						
16:45 - 17:00						
17:00 - 17:15						
17:15 - 17:30						
17:30 - 17:45						
17:45 - 18:00						
18:00 - 18:15						
18:15 - 18:30						
18:30 - 18:45						
18:45 - 19:00						
19:00 - 19:15						
19:15 - 19:30						
19:30 - 19:45						
19:45 - 20:00						
20:00 - 20:15						
20:15 - 20:30						
20:30 - 20:45						
20:45 - 21:00						
21:00 - 21:15						
21:15 - 21:30						
21:30 - 21:45						
21:45 - 22:00						

CLS-2 :CORDON LINE INTERVIEW SURVEY (ROADSIDE)				Dar es Salaam Transport Policy and System Development Master Plan Study					
Survey Location ⁽¹⁾		Direction ⁽²⁾		Interviewer ⁽³⁾		Supervisor ⁽⁴⁾		Sheet No. ⁽⁵⁾	
		1. Inbound 2. Outbound							
No.	(6)	1	(8)	2	(10)	3	(12)	4	(14)
Trip Purpose (Table-A)	(7)		(9)		(11)		(13)		(15)
Number of Passengers (including driver)	(8)		(10)		(12)		(14)		(16)
Vehicle Type (Table-B)	(9)		(11)		(13)		(15)		(17)
Region	(10)		(12)		(14)		(16)		(18)
District/ Municipality	(11)		(13)		(15)		(17)		(19)
Ward	(12)		(14)		(16)		(18)		(20)
Sub-Ward	(13)		(15)		(17)		(19)		(21)
Landmark	(14)		(16)		(18)		(20)		(22)
Trip End in Dar es Salaam	(15)		(17)		(19)		(21)		(23)
Trip End Outside of Dar es Salaam	(16)		(18)		(20)		(22)		(24)
Name of Region or Country	(17)		(19)		(21)		(23)		(25)
Name of District / Municipality in Tanzania	(18)		(20)		(22)		(24)		(26)
Name of District / Municipality in Tanzania	(19)		(21)		(23)		(25)		(27)
Name of District / Municipality in Tanzania	(20)		(22)		(24)		(26)		(28)
Address of Residence (or Company in case of truck)	(21)		(23)		(25)		(27)		(29)
Region/Country	(22)		(24)		(26)		(28)		(30)
District/ Municipality	(23)		(25)		(27)		(29)		(31)
Ward	(24)		(26)		(28)		(30)		(32)
Sub-Ward	(25)		(27)		(29)		(31)		(33)
Landmark	(26)		(28)		(30)		(32)		(34)
Type of Commodity (Table-C)	(27)		(29)		(31)		(33)		(35)
Mode 5, 11-13 only	(28)		(30)		(32)		(34)		(36)
Interview Time	(29)		(31)		(33)		(35)		(37)
	(30)		(32)		(34)		(36)		(38)
	(31)		(33)		(35)		(37)		(39)
	(32)		(34)		(36)		(38)		(40)
	(33)		(35)		(37)		(39)		(41)
	(34)		(36)		(38)		(40)		(42)
	(35)		(37)		(39)		(41)		(43)
	(36)		(38)		(40)		(42)		(44)
	(37)		(39)		(41)		(43)		(45)
	(38)		(40)		(42)		(44)		(46)
	(39)		(41)		(43)		(45)		(47)
	(40)		(42)		(44)		(46)		(48)
	(41)		(43)		(45)		(47)		(49)
	(42)		(44)		(46)		(48)		(50)
	(43)		(45)		(47)		(49)		(51)
	(44)		(46)		(48)		(50)		(52)
	(45)		(47)		(49)		(51)		(53)
	(46)		(48)		(50)		(52)		(54)
	(47)		(49)		(51)		(53)		(55)
	(48)		(50)		(52)		(54)		(56)
	(49)		(51)		(53)		(55)		(57)
	(50)		(52)		(54)		(56)		(58)
	(51)		(53)		(55)		(57)		(59)
	(52)		(54)		(56)		(58)		(60)
	(53)		(55)		(57)		(59)		(61)
	(54)		(56)		(58)		(60)		(62)
	(55)		(57)		(59)		(61)		(63)
	(56)		(58)		(60)		(62)		(64)
	(57)		(59)		(61)		(63)		(65)
	(58)		(60)		(62)		(64)		(66)
	(59)		(61)		(63)		(65)		(67)
	(60)		(62)		(64)		(66)		(68)
	(61)		(63)		(65)		(67)		(69)
	(62)		(64)		(66)		(68)		(70)
	(63)		(65)		(67)		(69)		(71)
	(64)		(66)		(68)		(70)		(72)
	(65)		(67)		(69)		(71)		(73)
	(66)		(68)		(70)		(72)		(74)
	(67)		(69)		(71)		(73)		(75)
	(68)		(70)		(72)		(74)		(76)
	(69)		(71)		(73)		(75)		(77)
	(70)		(72)		(74)		(76)		(78)
	(71)		(73)		(75)		(77)		(79)
	(72)		(74)		(76)		(78)		(80)
	(73)		(75)		(77)		(79)		(81)
	(74)		(76)		(78)		(80)		(82)
	(75)		(77)		(79)		(81)		(83)
	(76)		(78)		(80)		(82)		(84)
	(77)		(79)		(81)		(83)		(85)
	(78)		(80)		(82)		(84)		(86)
	(79)		(81)		(83)		(85)		(87)
	(80)		(82)		(84)		(86)		(88)
	(81)		(83)		(85)		(87)		(89)
	(82)		(84)		(86)		(88)		(90)
	(83)		(85)		(87)		(89)		(91)
	(84)		(86)		(88)		(90)		(92)
	(85)		(87)		(89)		(91)		(93)
	(86)		(88)		(90)		(92)		(94)
	(87)		(89)		(91)		(93)		(95)
	(88)		(90)		(92)		(94)		(96)
	(89)		(91)		(93)		(95)		(97)
	(90)		(92)		(94)		(96)		(98)
	(91)		(93)		(95)		(97)		(99)
	(92)		(94)		(96)		(98)		(100)

CLS-2B-2 : CORDON LINE INTERVIEW SURVEY (BUS DRIVER ONLY) Dar es Salaam Transport Policy and System Development Master Plan Study

Survey Location ⁽¹⁾ <input type="text"/>		Direction ⁽²⁾ <input type="checkbox"/> 1. inbound <input type="checkbox"/> 2. outbound		Interviewer ⁽³⁾ <input type="text"/>		Supervisor ⁽⁴⁾ <input type="text"/>	
Interview Time	<input type="text"/> (5) <input type="text"/> (6) <input type="text"/> (7) <input type="text"/> (8)	<input type="text"/> (9) <input type="text"/> (10) <input type="text"/> (11) <input type="text"/> (12)	<input type="text"/> (13) <input type="text"/> (14) <input type="text"/> (15) <input type="text"/> (16)	<input type="text"/> (17) <input type="text"/> (18) <input type="text"/> (19) <input type="text"/> (20)	<input type="text"/> (21) <input type="text"/> (22) <input type="text"/> (23) <input type="text"/> (24)	<input type="text"/> (25) <input type="text"/> (26) <input type="text"/> (27) <input type="text"/> (28)	<input type="text"/> (29) <input type="text"/> (30) <input type="text"/> (31) <input type="text"/> (32)
Bus No. (Sample No.)	<input type="text"/> (33) <input type="text"/> (34) <input type="text"/> (35) <input type="text"/> (36)	<input type="text"/> (37) <input type="text"/> (38) <input type="text"/> (39) <input type="text"/> (40)	<input type="text"/> (41) <input type="text"/> (42) <input type="text"/> (43) <input type="text"/> (44)	<input type="text"/> (45) <input type="text"/> (46) <input type="text"/> (47) <input type="text"/> (48)	<input type="text"/> (49) <input type="text"/> (50) <input type="text"/> (51) <input type="text"/> (52)	<input type="text"/> (53) <input type="text"/> (54) <input type="text"/> (55) <input type="text"/> (56)	<input type="text"/> (57) <input type="text"/> (58) <input type="text"/> (59) <input type="text"/> (60)
Type of Bus	<input type="checkbox"/> (61)	<input type="checkbox"/> (62)	<input type="checkbox"/> (63)	<input type="checkbox"/> (64)	<input type="checkbox"/> (65)	<input type="checkbox"/> (66)	<input type="checkbox"/> (67)
	8: Data data type (capacity 15-20) 9: Inter-city medium and large bus 10: Other buses (ex. tourist bus)						
Number of Crews	<input type="checkbox"/> (68)	<input type="checkbox"/> (69)	<input type="checkbox"/> (70)	<input type="checkbox"/> (71)	<input type="checkbox"/> (72)	<input type="checkbox"/> (73)	<input type="checkbox"/> (74)
	including driver and conductor						
Number of Passengers on-board	<input type="checkbox"/> (75)	<input type="checkbox"/> (76)	<input type="checkbox"/> (77)	<input type="checkbox"/> (78)	<input type="checkbox"/> (79)	<input type="checkbox"/> (80)	<input type="checkbox"/> (81)
	excluding driver, conductor and children less than 7 years old						
Bus Terminal In Dar es Salaam	Region	<input type="text"/> (82)	<input type="text"/> (83)	<input type="text"/> (84)	<input type="text"/> (85)	<input type="text"/> (86)	<input type="text"/> (87)
	District/ Municipality	<input type="text"/> (88)	<input type="text"/> (89)	<input type="text"/> (90)	<input type="text"/> (91)	<input type="text"/> (92)	<input type="text"/> (93)
	Ward	<input type="text"/> (94)	<input type="text"/> (95)	<input type="text"/> (96)	<input type="text"/> (97)	<input type="text"/> (98)	<input type="text"/> (99)
	Sub-Ward	<input type="text"/> (100)	<input type="text"/> (101)	<input type="text"/> (102)	<input type="text"/> (103)	<input type="text"/> (104)	<input type="text"/> (105)
	Landmark	<input type="text"/> (106)					
Bus Terminal Outside of Dar es Salaam	Name of Region or Country	<input type="text"/> (107)	<input type="text"/> (108)	<input type="text"/> (109)	<input type="text"/> (110)	<input type="text"/> (111)	<input type="text"/> (112)
	Name of District / Municipality in Tanzania	<input type="text"/> (113)	<input type="text"/> (114)	<input type="text"/> (115)	<input type="text"/> (116)	<input type="text"/> (117)	<input type="text"/> (118)
Travel time from terminal of departure to terminal of end	hours and	<input type="text"/> (119)	<input type="text"/> (120)	<input type="text"/> (121)	<input type="text"/> (122)	<input type="text"/> (123)	<input type="text"/> (124)
	minutes	<input type="text"/> (125)	<input type="text"/> (126)	<input type="text"/> (127)	<input type="text"/> (128)	<input type="text"/> (129)	<input type="text"/> (130)

CLS-2B-2: CORDON LINE INTERVIEW SURVEY (BUS PASSENGER ONLY) Dar es Salaam Transport Policy and System Development Master Plan Study									
Survey (1) Location		Direction (2)		Survey (3) Time		Bus No. (4) (Sample No.)		Supervisor (5)	
1. aboard 2. subboard		1. a.m. 2. p.m.							
Interviewer (15)		Interviewer (15)		Interviewer (15)		Interviewer (15)		Supervisor (5)	
Passenger No.	(7)	1	(7)	2	(7)	3	(7)	4	(7)
Trip Purpose (Table-A)	(8)		(8)		(8)		(8)		(8)
Number of Accompanying Person on-board. (incl. person himself)	(9)		(9)		(9)		(9)		(9)
Previous mode before this bus (Table-B)	(10)		(10)		(10)		(10)		(10)
Next mode after this bus (Table-B)	(11)		(11)		(11)		(11)		(11)
Region	(12)		(12)		(12)		(12)		(12)
District/ Municipality	(13)		(13)		(13)		(13)		(13)
Ward	(14)		(14)		(14)		(14)		(14)
Sub-Ward	(15)		(15)		(15)		(15)		(15)
Landmark	(16)		(16)		(16)		(16)		(16)
Trip End Outside of Dar es Salaam	(17)		(17)		(17)		(17)		(17)
Name of Region or Country	(21)		(21)		(21)		(21)		(21)
Name of District / Municipality in Tanzania	(22)		(22)		(22)		(22)		(22)
Name of District / Municipality in Tanzania	(23)		(23)		(23)		(23)		(23)
Name of District / Municipality in Tanzania	(24)		(24)		(24)		(24)		(24)
Address of Residence	(25)		(25)		(25)		(25)		(25)
Region/Country	(26)		(26)		(26)		(26)		(26)
District/ Municipality	(27)		(27)		(27)		(27)		(27)
Ward	(28)		(28)		(28)		(28)		(28)
Sub-Ward	(29)		(29)		(29)		(29)		(29)
Landmark	(30)		(30)		(30)		(30)		(30)

CLS-5 :CORDON LINE INTERVIEW SURVEY (AIRPORT & FERRY TERMINAL)				Dar es Salaam Transport Policy and System Development Master Plan Study			
Survey Location ⁽¹⁾	<input type="text"/>	Direction ⁽²⁾	<input type="text"/> 1. inbound <input type="text"/> 2. outbound	Interviewer ⁽³⁾	<input type="text"/>	Supervisor ⁽⁴⁾	<input type="text"/>
	1	2	3	4			
No.	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Trip Purpose (Table-A)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Number of Accompanying Person (incl. person himself)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Access Mode to the Airport/Ferry Terminal (Table-B)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Egress Mode from the Airport/Ferry Terminal (Table-B)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Region	(11)	(12)	(13)	(14)	(15)	(16)	(17)
District/ Municipality	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Ward	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Sub-Ward	(14)	(15)	(16)	(17)	(18)	(19)	(20)
Landmark	(15)	(16)	(17)	(18)	(19)	(20)	(21)
Trip End Outside of Dar es Salaam	(20)	(21)	(22)	(23)	(24)	(25)	(26)
Name of Region or Country	(21)	(22)	(23)	(24)	(25)	(26)	(27)
Name of District/ Municipality in Tanzania	(22)	(23)	(24)	(25)	(26)	(27)	(28)
Name of District/ Municipality in Tanzania	(23)	(24)	(25)	(26)	(27)	(28)	(29)
Region/Country	(24)	(25)	(26)	(27)	(28)	(29)	(30)
District/ Municipality	(25)	(26)	(27)	(28)	(29)	(30)	(31)
Ward	(26)	(27)	(28)	(29)	(30)	(31)	(32)
Sub-Ward	(27)	(28)	(29)	(30)	(31)	(32)	(33)
Landmark	(28)	(29)	(30)	(31)	(32)	(33)	(34)
Interview Time	(31)	(32)	(33)	(34)	(35)	(36)	(37)
	(32)	(33)	(34)	(35)	(36)	(37)	(38)

CODE TABLE FOR CORDON LINE INTERVIEW SURVEY Dar es Salaam Transport Policy and System Development Master Plan Study

Table-A: Trip Purpose

- To go home
- To go usual work place
- To school/institute (student only)
- Business activities
(sale, delivering, meeting, conference, etc.)
- Back to working place
- Private/social activities
(eating, shopping, sight seeing etc.)
- Pick up or send off
(taking children to school and back etc.)

Table-B: Transport Mode

- Walking
- Bicycle
- Motorcycle
- Passenger Car
- Pick-up, Van
- Taxi
- Bhujaj
- Dala dala
- Intercity bus
- School/Company bus
- 2 axles truck
- 3 axles truck
- Trailer truck, more than 3 axles truck
- Railway
- Ferry/boat
- Others

Table-C: Type of Commodity (ROADSIDE ONLY)

- Agriculture and livestock
- Food stuff and animal food
- Solid fuels
- Petrol and petrol distilled products
- Metal residues and mining products
- Metallurgical products
- Raw materials and derivations
- Fertilizers
- Chemical products
- Machines, vehicles, diverse non-classified cargo

