

Chapter 3 Traffic Generation Survey in CBD

3.1 Scope of Work

The primary objective of this survey is to obtain trip generation data of 50 selected buildings in Dar Es Salaam city center. These buildings should intuitively be recognized as being major traffic generators in the central business district (CBD). In addition, a land use survey, pedestrian counts and pedestrian interviews shall also be carried out.

3.1.1 Survey Area

The survey is administered within the CBD of Dar Es Salaam, as identified in Figure 3.1.1.



Figure 3.1.1 Traffic Generation Survey Area in CBD

3.1.2 Survey Elements

The Traffic Generation Survey consists of several elements:

(1) Land use inventory

Information of land use (all buildings) in CBD and associated attributes including area of plot, the number of stories, gross floor area, and the number of parking lots shall be collected from Ilala municipality and through the field survey. The information shall be mapped using GIS. The base GIS format (Arc/View format) shall be provided by the Study Team.

(2) Special generator attributes

A total of 50 buildings shall be selected within the Study Area based on the findings of the land use survey. These building should intuitively be recognized as being major traffic generators in the CBD. Types of building use should include: 1) Government (public sector) office building, 2) Private sector office building (including mixed tenants), 3) Commercial building (shopping center, restaurant, etc), 4) Residential building (apartment), 5) Mixed use building (mix of residential, office and/or commercial uses), and 6) Hotel. Special uses such as mosques and churches shall be excluded.

Detailed information is needed for each of the selected facilities to include the number of employees in the entire building and facility attributes (number of stories, gross floor area, net leasable area, number of apartments, number of hotel rooms). The surveyors shall report all problems and difficulties encountered during the course of the survey to the Study Team.

(3) Person counts

A person (workers, visitors) count survey shall be carried out to continuously record the number of persons entering and leaving each of the selected high generator buildings. This will necessitate monitoring all ingress/egress points (doors) at each building.

(4) Person interviews

Concurrent with the person counts, interviews will be conducted with approximately 20% of persons entering the building.

(5) Vehicle traffic count at entry/exit points of the CBD survey area.

Vehicle traffic count survey is a supplemental survey of the traffic generation survey, and shall be conducted and controlled by the Study Team directly.

Vehicle traffic count survey will be executed at 7 locations on the cordon line of the Survey Area, that consists of 5 intersections and 2 road sections as shown in Figure 3.1.2. Uhuru st. – Bibi Titi Mohamed St. intersection shall be excluded because it is included in the Package 2 Survey (traffic

count survey at the intersection). The survey will be conducted in the peak hours; 6:30 – 9:00 a.m. and 3:00 – 7:00 p.m.

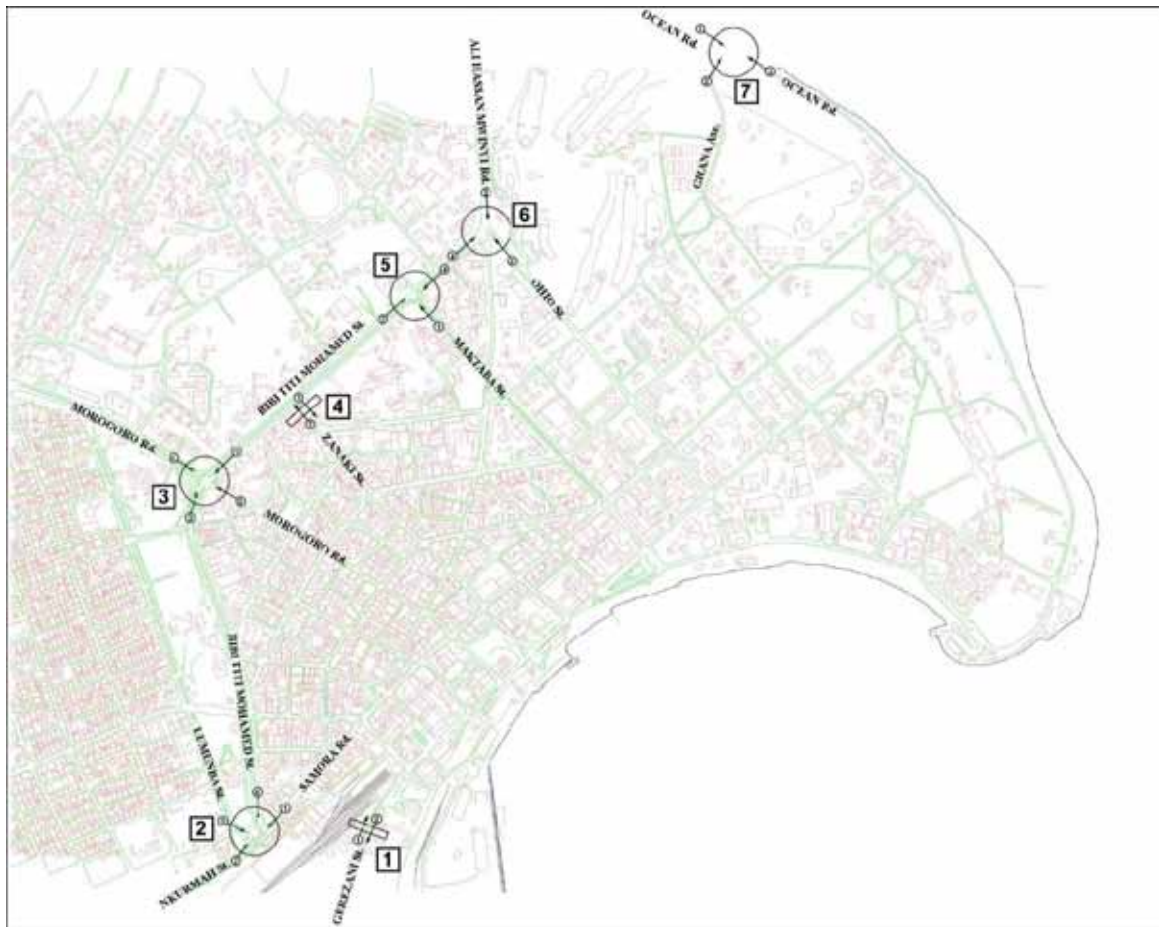


Figure 3.1.2 CBD Cordon Line Traffic Count Survey Location

3.1.3 Survey Hours and Days

- Land use inventory: at any time.
- Special generator attributes: at any time.
- Person counts: continuous counts, inbound and outbound direction, over a 14 hour weekday period (6:00 -20:00). The counts may be executed on any weekday from Monday to Thursday. Public holidays must be excluded from the survey.
- Person interviews: Concurrent with person counts. 20% sample must be maintained for consistency across all building entrance points (doors).
- Vehicle traffic count: Morning peak (6:30 – 9:00) and evening peak (15:00 – 19:00) on Monday to Thursday.

3.1.4 Sampling

- Person counts: continuous counts, inbound and outbound direction, over a 14 hour weekday period (6:00 - 20:00). 100% sample.
- Person interviews: 20% sample of persons entering building. Sample rate must be maintained across all building entrance points (doors).
- Vehicle traffic count: 100% sample except Bhajaj, motorcycle and bicycle.

3.1.5 Interview Survey Items

The person interviews require the collection for information on:

- Survey time
- Status (Employee / Visitor / Student)
- Origin of the trip (inside or outside of the City Center)
- Trip purpose (purpose of visit)
- Access mode

3.1.6 Survey Method

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

(1) Land Use Inventory

- Survey can proceed at any opportune time. The subdivision of the Study Area into grids of responsibility is suggested, with surveyors using a “check off” system as they proceed with the recording of information and/or transcribing information from public records. The task can be facilitated via information available from municipal authorities, governmental records or, in some cases, discussions with owners of buildings.

(2) Special Generator Attributes

- Survey can proceed at any opportune time, likely over a similar time frame as the land use inventory. A “rolling list” of high generator candidates will be prepared by JICA Study Team. The indicated total of 45 buildings is a preliminary estimate to be reviewed as findings of the land use inventory begin to emerge. The total sample could be less, but not more, than 50 buildings. Once established, it is recommended that contact be initiated with owners/managers of individual buildings to obtain details as to generator attributes. In some cases walk-through inspections, or governmental records, may facilitate this effort.

(3) Person Counts

- Surveyors count all entering and departing persons at each external ingress/egress point (door) of the survey building. Information is recorded on prepared forms.
- Care is required to ensure that all doors are monitored, as external ingress/egress may be possible at various levels of the building, particularly if the building features on-site parking facilities or a multi-level design. In some buildings, security procedures may be in place and thus likely to simplify the counting process considerably if all persons, employees and visitors alike, are channeled via defined security gates.
- Permission for conduct of person counts must be obtained from building owners/managers.

(4) Person Interviews

- The survey group led by the supervisor sets up the interview area at external ingress/egress points to coincide with the person count locations.
- The interviews will be conducted with entering (inbound direction) persons only.
- Supervisor or team leader selects sampled persons at random for interviewing.
- Surveyors conduct the interview and fill in the interview form.
- Permission for conduct of interviews must be obtained from building owners/managers.

(5) Vehicle Traffic Count

- Directional vehicular traffic count shall be conducted by type of vehicle. The types of vehicle are categorized into;
 - Passenger car including sedan, pick-up, van and 4WD,
 - Buses including dala dala and other buses, and
 - Trucks
- The traffic count shall be recorded by every 15 minutes during the survey period.
- Two different methods for traffic counting can be employed; namely, a manual traffic count method at site and a video recording method.

3.1.7 Survey Forms

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

- Form TGS -1 A is for recording building attributes.
- Form TGS - 1 B is for recording tenants' information in the building.
- Form TGS - 2 is for conducting the person interviews.

- Form TGS - 3 is for summarizing person counts every 15 minutes.
- Form RS series is for conducting manual traffic count survey.

3.2 Survey Performance

3.2.1 Executing Organization

The traffic generation and land use survey were executed by COWI (Consulting Engineers and Planners Ltd.)Tanzania. The survey team was headed by Mr. Patrick Kasera, Transportation Department, COWI, Tanzania.

The vehicle traffic count survey was conducted by the JICA Study Team.

3.2.2 Survey Team Organization

Figure 3.2.1 shows the survey team organization for the traffic generation and land use survey. The survey team consists of five units including one supervisor and surveyors.

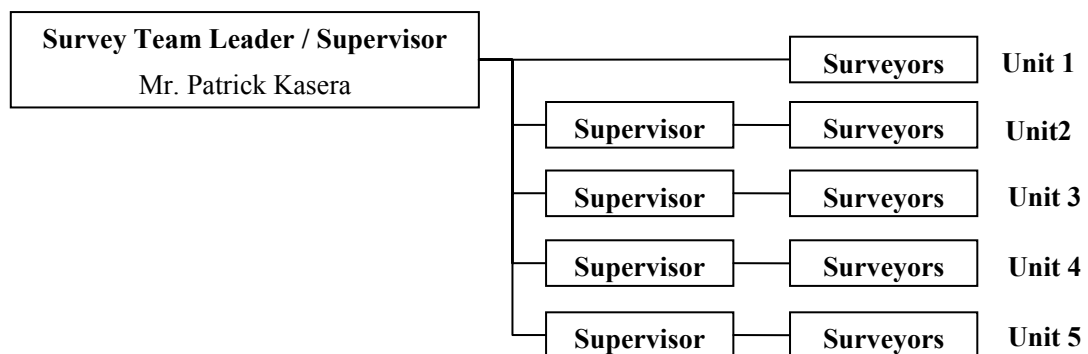


Figure 3.2.1 Survey Team Organization

3.2.3 Preparatory Works

Preparatory works for the traffic generation survey included;

- On 4th June, the first meeting was held with COWI at the study team office in DCC. The study team explained outline of the survey and confirmed GIS software availability.
- On 5th June, the Study Team gave draft survey forms and GIS data for the land use survey to COWI.
- On 8th June, a meeting regarding the publicity of the survey was held at DCC.
- On 9th June, COWI started the land use survey.

- On 14th June, COWI completed the land use survey. A discussion regarding the selection of the survey buildings was made.
- On 15th June, the study team delivered final survey forms and instruction materials to COWI.
- On 19th June, a survey instruction meeting was held at COWI.
- On 20th June, a pilot survey was carried out at DCC. COWI prepared a request letter for to ask permission of the survey, and delivered to the subject buildings.
- On 21st June, full-scale survey has commenced.

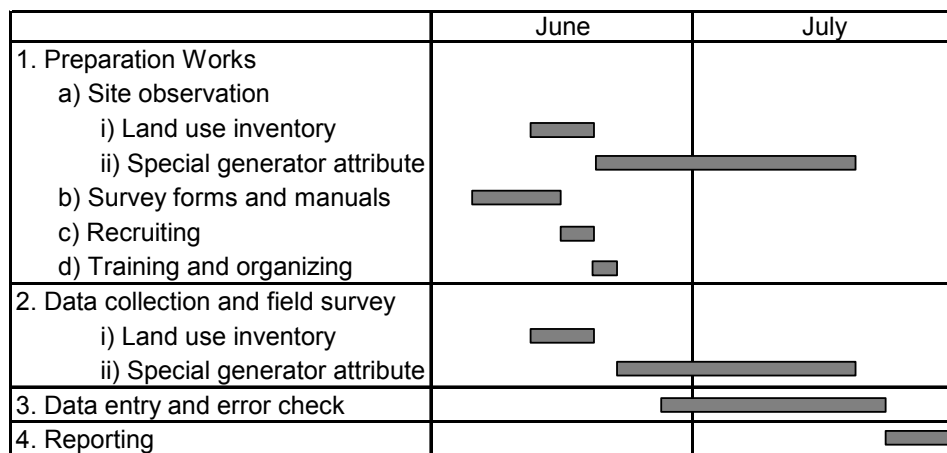


Figure 3.2.2 Survey Schedule for Traffic Generation Survey

For the vehicle traffic count survey, students of Dar es Salaam Institute of Technology (DIT) were invited as the surveyors. The instruction meeting was held on 9th July at DIT (see: instruction manual in Appendix).

3.2.4 Pilot Survey

(1) Pilot survey

A pilot survey on the person count and interview was carried out on 20th June 2007 at Dar es Salaam City Council (DCC). All supervisors and survey team members joined the pilot survey and learnt how to do the survey.

(2) Problems encountered

Two problems were found during the pilot survey.

- The idea of “trip” was not clearly understood by the surveyors in the beginning of the survey. Confusion of “trip origin” and “residential place” was observed. Accordingly, the JICA Study Team prepared a supplemental instruction material (see Appendix) and gave instruction to the

surveyors at the site.

- Following upon the understanding of the concept of “trip”, “transport mode” also should be understood. The supplemental instruction using the additional instruction was helpful in this regard.

The most difficult matter was to get a permission from building owners or managers. The survey team sent a letter on 20th June for asking building owners or managers for their cooperation with the survey. Actually it required a long time to obtain an approval.

(3) Suggestions to the full-scale survey

The survey period of 14 hours (6:00 – 20:00) is indicated in TOR, however, the actual survey hours should be determined in accordance with the business hours of each selected buildings. The business hours of each buildings was confirmed in advance by the survey team at the same time with checking of number of entrances

3.2.5 Full-Scale Survey

Full-scale survey has started from 21st June, and completed by 16th July. Figure 3.2.3 and Table 3.2.1 shows the location and schedule of survey.

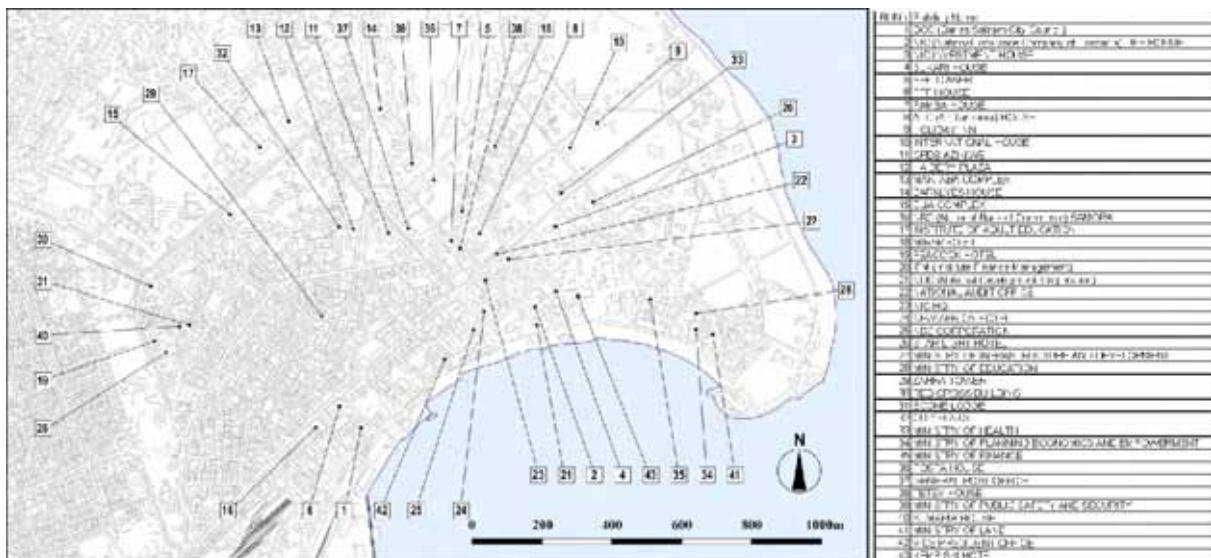


Figure 3.2.3 Location of Survey Buildings

Table 3.2.1 List of Survey Buildings

Survey Date	Day	No	Name of Building	Type of use						Remarks
				Government	Private Office	Commercial	Residential	Hotel	Others	
2007/6/20	Wed	1	City Hall	Yes						Pilot Survey
2007/6/21	Thu	2	N.I.C Life House		Yes					
		3	N.I.C. Investment House		Yes					
2007/6/22	Fri	4	SUKARI House		Yes					
		5	PPF Tower		Yes					
2007/6/25	Mon	6	PPF House	Yes	Yes					
		7	PAMBA House		Yes	Yes				
		8	ATC (Air Tanzania) House							
2007/6/26	Tue	9	Holiday Inn					Yes		
		10	International House		Yes					
		11	CRDB Bank		Yes					7:00 - 8:15 Security stopped survey (No data available)
2007/6/27	Wed	12	Haidery Plaza		Yes	Yes				
		13	MAKTABA House	Yes					National Library	
2007/6/28	Thu	14	Barkleys House	Yes	Yes					
		15	ELIA Complex		Yes		Yes			
		16	NBC Samora	Yes	Yes					
2007/6/29	Fri	17	Institute of Education						Institute	Survey at office entrance only
		18	MIRAMBO 50		Yes					
		19	Peacock Hotel					Yes		
2007/7/2	Mon	20	IFM						Institute	Survey at office entrance only
		21	NDC HQ		Yes					
2007/7/3	Tue	22	National Audit Office	Yes						
		23	NIC (National Insurance Company of Tanzania)		Yes					
2007/7/4	Wed	24	New Africa Hotel					Yes		
		25	National Bank of Commerce		Yes					
		26	Star Light Hotel					Yes		Visitor Interview was not allowed
2007/7/5	Thu	27	Ministry of Infrastructure	Yes						
		28	Ministry of Education	Yes						
2007/7/6	Fri	29	ZAHRA Tower		Yes		Yes			
		30	Red Cross (Under Construction)		Yes	Yes				Only shops and offices at ground floor because under construction
2007/7/9	Mon	31	Econo Rodge				Yes			
2007/7/10	Tue	32	City flats				Yes			
		33	Ministry of Health	Yes						
		34	Ministry of Planning and Economics Empowerment	Yes						
		35	Ministry of Finance	Yes						
2007/7/11	Wed	36	Posta House	Yes						
		37	General Post Office	Yes						
2007/7/12	Thu	38	TETEX House	Yes						
		39	Ministry of Public Safety and Security	Yes						
		40	SUMARIA House				Yes			
2007/7/13	Fri	41	Ministry of Land	Yes						
		42	Vice President Office	Yes						
2007/7/16	Mon	43	Kempiski Hotel					Yes		

The CBD cordon line vehicle traffic count survey has started from 10th July and will complete by 18th July. Table 3.2.2 shows the survey schedule.

Table 3.2.2 CBD Cordon Line Vehicular Traffic Count Schedule

No	Survey Location	Survey Period	Manual Counting	Video Shooting
1	Gerezani St. road section	6:30 - 9:00	12-July	-
		15:00 - 19:00	12-July	-
2	Samora Ave. - Bibi Titi Mohamed St. intersection	6:30 - 9:00	-	16-July
		15:00 - 19:00	-	16-July
3	Bibi Titi Mohamed St. - Morogoro Rd. intersection	6:30 - 9:00	-	17-July
		15:00 - 19:00	-	10-July
4	Zanaki St. road section	6:30 - 9:00	11-July	-
		15:00 - 19:00	11-July	-
5	Maktaba St. - Bibi Titi Mohamed St. intersection	6:30 - 9:00	-	12-July
		15:00 - 19:00	-	11-July
6	Ohio St. - Bibi Titi Mohamed St. intersection	6:30 - 9:00	-	18-July
		15:00 - 19:00	-	17-July
7	Ocean Rd. - Ghana Ave. intersection	6:30 - 9:00	12-July	-
		15:00 - 19:00	12-July	-

3.2.6 Publicity

A press conference was held at the DCC on 21st June 2007.

3.2.7 Data Entry

The study team prepared a Microsoft Access based data entry form and the associated instruction materials for the building attribute, tenants' information and person interview data entry. The land use data is entered into the GIS database directly, and the person traffic count data is handled by Microsoft Excel.

For the CBD cordon line vehicular traffic count survey, the JICA Study Team prepared an entry form using Excel for the manual counting data, while that of using Microsoft Access for the video counting. The instruction paper for data entry work is attached in Appendix.

3.2.8 Collected Data

(1) Land use inventory

Based on the land use survey, a gross floor area of the survey area can be estimated by footprint of each building and the number of stories by type of use. Some under construction buildings are included in the database. The information of these under construction will be updated based on the construction permission by municipality council holdings

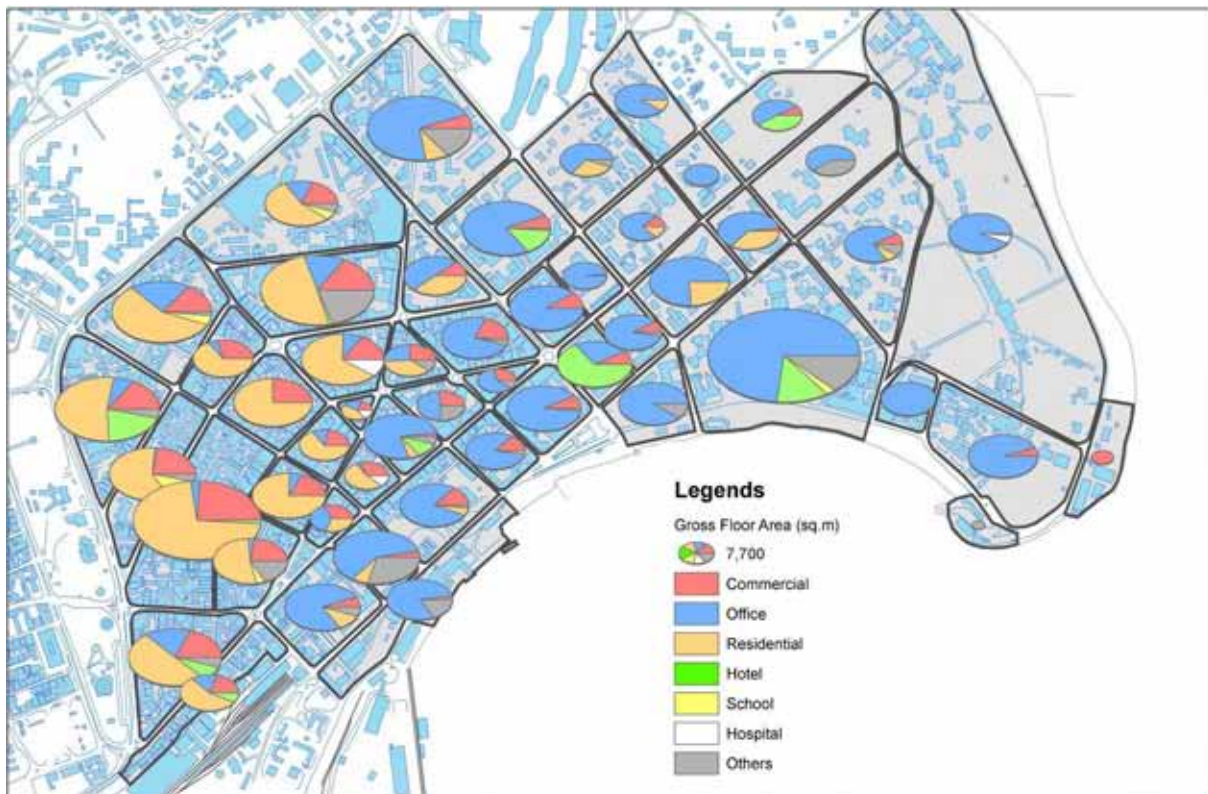
Table 3.2.3 shows the total gross floor area of the buildings in the survey area. The total floor area is about 1.7 million sq.m, 47% of which is occupied by office use, 28% by residential purpose.

As shown in Figure 3.2.4, a large proportion of residential area is observed in the area bounded by Bibi Titi Mohamed St. and India St.

Table 3.2.3 Estimated Total Gross Floor Area by Type of use

	Estimated Gross Floor Area ('000 sq.m)	Share
Commercial	190	11%
Office	809	47%
Residential	486	28%
Hotel	97	6%
School	15	1%
Hospital	8	0%
Others	108	6%
Total	1,713	100%

Source: JICA Study Team estimation



Source: JICA Study Team

Figure 3.2.4 Land use in the City Center by Block

Appendix-3: Survey Forms and Instruction Materials

Appendix 3.1: Survey form TGS-1A (for building attribute)

Appendix 3.2: Survey form TGS-1B (for tenants' information)

Appendix 3.3: Survey form TGS-2 (for person interview)

Appendix 3.4: Survey form TGS-3 (for person count)

Appendix 3.5: Instruction paper for trip generation survey

Appendix 3.6: Instruction paper for the data entry

Appendix 3.7: Supplemental instruction paper

Appendix 3.8: Survey form RS (for the manual traffic count at the intersection)

Appendix 3.9: Instruction for vehicle traffic counting

Dar es Salaam Transport Policy and System Development Master Plan Study
TGS-1A : TRIP GENERATION SURVEY (BUILDING ATTRIBUTE SURVEY)

Building No. ⁽¹⁾ Interviewer ⁽²⁾ Supervisor ⁽³⁾

NAME OF BUILDING
⁽⁴⁾

LOCATION OF BUILDING

Name	Code
Region ⁽⁵⁾ Dar es Salaam ⁽¹⁰⁾	0 7 ⁽¹¹⁾
District/ Municipality ⁽⁶⁾ <input type="text"/>	<input type="text"/> ⁽¹²⁾
Ward ⁽⁷⁾ <input type="text"/>	<input type="text"/> ⁽¹³⁾
Sub-Ward ⁽⁸⁾ <input type="text"/>	<input type="text"/>
Landmark ⁽⁹⁾ <input type="text"/>	

NUMBER OF STORIES

Above ground ⁽¹⁴⁾ stories, and Underground ⁽¹⁵⁾ stories

GROUND AREA (PLOTTAGE)

⁽¹⁶⁾ 1: Gross
⁽¹⁷⁾ 2: Net

⁽¹⁸⁾ 1: square feet
⁽¹⁹⁾ 2: square meter

GROUND FLOOR AREA (BUILDING FOOT PRINT)

⁽²⁰⁾ 1: Gross
⁽²¹⁾ 2: Net

⁽²²⁾ 1: square feet
⁽²³⁾ 2: square meter

PARKING FACILITY

Number of Parking Lots in the Plottage

Above ground ⁽²⁰⁾ lots
 Underground ⁽²¹⁾ lots

Parking Fee

1. Free
 2. Free (only for employee or resident) ⁽²²⁾
 3. Not free

if pay parking (2 or 3), parking fee is ⁽²³⁾ Tshs per hour

TYPE OF USE

1. Hotel or Residential building (proceed to "FORM-A") ⁽²⁴⁾
 2. Office, Commercial and Mixed use (proceed to "FORM-B")

FORM-A (Hotel and Residential building)

NUMBER OF ROOMS OR FLATS ⁽²⁵⁾

VACANT ROOMS OR FLATS AT PRESENT ⁽²⁶⁾
OR
AVERAGE OCCUPANCY ⁽²⁷⁾ %

FORM-B (Office, Commercial and Mixed use)

BUILDING OWNER, MANAGEMENT COMPANY NAME AND TELEPHONE NUMBER

⁽²⁸⁾ ⁽²⁹⁾ - -

TOTAL NET USABLE SPACE ⁽³⁰⁾ ⁽³¹⁾ 1: square feet
⁽³²⁾ 2: square meter

TOTAL NET USED SPACE ⁽³²⁾ ⁽³³⁾ 1: square feet
⁽³⁴⁾ 2: square meter

NUMBER OF TENANTS AT PRESENT

Government Office / Public Agency ⁽³⁴⁾ <input type="text"/>	agencies	} Proceed to TGS-1B and fill detail information of these tenants.
Private Company ⁽³⁵⁾ <input type="text"/>	firms	
Education ⁽³⁶⁾ <input type="text"/>	schools	
Shop, Restaurant and Others ⁽³⁷⁾ <input type="text"/>	lots	

Appendix 3.1 Survey form TGS-1A (for building attribute)

Dar es Salaam Transport Policy and System Development Master Plan Study									
TGS-1B : TRIP GENERATION SURVEY (TENANTS INFORMATION)									
Building No. ⁽¹⁾		Interviewer ⁽²⁾			Supervisor ⁽³⁾				
FIRM / LOT	NAME OF FIRM / SHOP	TYPE OF BUSINESS	NUMBER OF EMPLOYEE	TOTAL FLOOR AREA					
(4) 1	(5)	(6)	(7)	(8) 1: Gross ⁽⁹⁾	(10)	(11) 1: square feet	(12) 2: Net	(13)	(14) 2: square meter
(4) 2	(5)	(6)	(7)	(8) 1: Gross ⁽⁹⁾	(10)	(11) 1: square feet	(12) 2: Net	(13)	(14) 2: square meter
(4) 3	(5)	(6)	(7)	(8) 1: Gross ⁽⁹⁾	(10)	(11) 1: square feet	(12) 2: Net	(13)	(14) 2: square meter
(4) 4	(5)	(6)	(7)	(8) 1: Gross ⁽⁹⁾	(10)	(11) 1: square feet	(12) 2: Net	(13)	(14) 2: square meter
(4) 5	(5)	(6)	(7)	(8) 1: Gross ⁽⁹⁾	(10)	(11) 1: square feet	(12) 2: Net	(13)	(14) 2: square meter
(4) 6	(5)	(6)	(7)	(8) 1: Gross ⁽⁹⁾	(10)	(11) 1: square feet	(12) 2: Net	(13)	(14) 2: square meter
(4) 7	(5)	(6)	(7)	(8) 1: Gross ⁽⁹⁾	(10)	(11) 1: square feet	(12) 2: Net	(13)	(14) 2: square meter
(4) 8	(5)	(6)	(7)	(8) 1: Gross ⁽⁹⁾	(10)	(11) 1: square feet	(12) 2: Net	(13)	(14) 2: square meter
(4) 9	(5)	(6)	(7)	(8) 1: Gross ⁽⁹⁾	(10)	(11) 1: square feet	(12) 2: Net	(13)	(14) 2: square meter
(4) 10	(5)	(6)	(7)	(8) 1: Gross ⁽⁹⁾	(10)	(11) 1: square feet	(12) 2: Net	(13)	(14) 2: square meter
(4) 11	(5)	(6)	(7)	(8) 1: Gross ⁽⁹⁾	(10)	(11) 1: square feet	(12) 2: Net	(13)	(14) 2: square meter
(4) 12	(5)	(6)	(7)	(8) 1: Gross ⁽⁹⁾	(10)	(11) 1: square feet	(12) 2: Net	(13)	(14) 2: square meter
(4) 13	(5)	(6)	(7)	(8) 1: Gross ⁽⁹⁾	(10)	(11) 1: square feet	(12) 2: Net	(13)	(14) 2: square meter
(4) 14	(5)	(6)	(7)	(8) 1: Gross ⁽⁹⁾	(10)	(11) 1: square feet	(12) 2: Net	(13)	(14) 2: square meter
(4) 15	(5)	(6)	(7)	(8) 1: Gross ⁽⁹⁾	(10)	(11) 1: square feet	(12) 2: Net	(13)	(14) 2: square meter
(4) 16	(5)	(6)	(7)	(8) 1: Gross ⁽⁹⁾	(10)	(11) 1: square feet	(12) 2: Net	(13)	(14) 2: square meter
(4) 17	(5)	(6)	(7)	(8) 1: Gross ⁽⁹⁾	(10)	(11) 1: square feet	(12) 2: Net	(13)	(14) 2: square meter
(4) 18	(5)	(6)	(7)	(8) 1: Gross ⁽⁹⁾	(10)	(11) 1: square feet	(12) 2: Net	(13)	(14) 2: square meter
(4) 19	(5)	(6)	(7)	(8) 1: Gross ⁽⁹⁾	(10)	(11) 1: square feet	(12) 2: Net	(13)	(14) 2: square meter
(4) 20	(5)	(6)	(7)	(8) 1: Gross ⁽⁹⁾	(10)	(11) 1: square feet	(12) 2: Net	(13)	(14) 2: square meter
(4) 21	(5)	(6)	(7)	(8) 1: Gross ⁽⁹⁾	(10)	(11) 1: square feet	(12) 2: Net	(13)	(14) 2: square meter
(4) 22	(5)	(6)	(7)	(8) 1: Gross ⁽⁹⁾	(10)	(11) 1: square feet	(12) 2: Net	(13)	(14) 2: square meter
(4) 23	(5)	(6)	(7)	(8) 1: Gross ⁽⁹⁾	(10)	(11) 1: square feet	(12) 2: Net	(13)	(14) 2: square meter
(4) 24	(5)	(6)	(7)	(8) 1: Gross ⁽⁹⁾	(10)	(11) 1: square feet	(12) 2: Net	(13)	(14) 2: square meter
(4) 25	(5)	(6)	(7)	(8) 1: Gross ⁽⁹⁾	(10)	(11) 1: square feet	(12) 2: Net	(13)	(14) 2: square meter

Type of Business
 1. Government Office / Public Agency
 2. Private Company Office
 3. Education
 4. Shop / Retail / Money changer / Clinic / Pharmacy etc.
 5. Restaurant / Coffee shop

Appendix 3.2 Survey form TGS-1B (for tenants' information)

Dar es Salaam Transport Policy and System Development Master Plan Study
TGS-2:TRIP GENERATION SURVEY (VISITOR INTERVIEW SURVEY)

Building Code ⁽¹⁾	Location Code ⁽²⁾	Direction ⁽³⁾	1. Enter 2. Exit	Sheet No. ⁽⁴⁾	Interviewer ⁽⁵⁾
					Supervisor ⁽⁶⁾

No.	Status	Transport from/to this building (Choose from Table-A)	Purpose (Choose from Table-B)	Origin / Destination (Table-C)	Time
(7) 1	(8) 1. Employee 2. Visitor 3. Student	(9) (10)	(11) (12)	(13)	(14) 1: a.m. 2: p.m.
(7) 2	(8) 1. Employee 2. Visitor 3. Student	(9) (10)	(11) (12)	(13)	(14) 1: a.m. 2: p.m.
(7) 3	(8) 1. Employee 2. Visitor 3. Student	(9) (10)	(11) (12)	(13)	(14) 1: a.m. 2: p.m.
(7) 4	(8) 1. Employee 2. Visitor 3. Student	(9) (10)	(11) (12)	(13)	(14) 1: a.m. 2: p.m.
(7) 5	(8) 1. Employee 2. Visitor 3. Student	(9) (10)	(11) (12)	(13)	(14) 1: a.m. 2: p.m.
(7) 6	(8) 1. Employee 2. Visitor 3. Student	(9) (10)	(11) (12)	(13)	(14) 1: a.m. 2: p.m.
(7) 7	(8) 1. Employee 2. Visitor 3. Student	(9) (10)	(11) (12)	(13)	(14) 1: a.m. 2: p.m.
(7) 8	(8) 1. Employee 2. Visitor 3. Student	(9) (10)	(11) (12)	(13)	(14) 1: a.m. 2: p.m.
(7) 9	(8) 1. Employee 2. Visitor 3. Student	(9) (10)	(11) (12)	(13)	(14) 1: a.m. 2: p.m.
(7) 10	(8) 1. Employee 2. Visitor 3. Student	(9) (10)	(11) (12)	(13)	(14) 1: a.m. 2: p.m.
(7) 11	(8) 1. Employee 2. Visitor 3. Student	(9) (10)	(11) (12)	(13)	(14) 1: a.m. 2: p.m.
(7) 12	(8) 1. Employee 2. Visitor 3. Student	(9) (10)	(11) (12)	(13)	(14) 1: a.m. 2: p.m.
(7) 13	(8) 1. Employee 2. Visitor 3. Student	(9) (10)	(11) (12)	(13)	(14) 1: a.m. 2: p.m.
(7) 14	(8) 1. Employee 2. Visitor 3. Student	(9) (10)	(11) (12)	(13)	(14) 1: a.m. 2: p.m.
(7) 15	(8) 1. Employee 2. Visitor 3. Student	(9) (10)	(11) (12)	(13)	(14) 1: a.m. 2: p.m.
(7) 16	(8) 1. Employee 2. Visitor 3. Student	(9) (10)	(11) (12)	(13)	(14) 1: a.m. 2: p.m.
(7) 17	(8) 1. Employee 2. Visitor 3. Student	(9) (10)	(11) (12)	(13)	(14) 1: a.m. 2: p.m.
(7) 18	(8) 1. Employee 2. Visitor 3. Student	(9) (10)	(11) (12)	(13)	(14) 1: a.m. 2: p.m.
(7) 19	(8) 1. Employee 2. Visitor 3. Student	(9) (10)	(11) (12)	(13)	(14) 1: a.m. 2: p.m.
(7) 20	(8) 1. Employee 2. Visitor 3. Student	(9) (10)	(11) (12)	(13)	(14) 1: a.m. 2: p.m.

Table-A: Mode 1. Company bus 2. Dala dala 3. Bhujaj 4. Taxi 5. Car 6. Motorcycle 7. Bicycle 8. Walking 9. Others (please specify in (10))	Table-B: Purpose 1. To home 2. To 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.) 8. Others (please specify in (12))	Table-C: Origin / Destination 1. Inside of "City Center" bounded by BIBI TITI MOHAMED (or UWT) Street 2. Outside of "City Center"
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Appendix 3.3 Survey form TGS-2 (for person interview)

Dar es Salaam Transport Policy and System Development Master Plan
TGS-3 : PERSON COUNT FOR TRIP GENERATION SURVEY

Building (1) Survey (2) Director (3) 1: In Sheet No (4)
 Code Location 2: Out
 Enumerator (5) Supervisor (6)

	Number of visitors											
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												

Appendix 3.4 Survey form TGS-3 (for person count)

BUILDING ATTRIBUTE SURVEY SHEET

Dar es Salaam Transport Policy and System Development Master Plan Study
 TGS-1A: TRIP GENERATION SURVEY (BUILDING ATTRIBUTE SURVEY)

Building No. <input type="text"/>	Interviewer <input type="text"/>	Supervisor <input type="text"/>	
NAME OF BUILDING <input type="text"/>		PARKING FACILITY	
LOCATION OF BUILDING		Number of Parking Lots in the Plotage	
Region <input type="text"/>	Code <input type="text"/>	Above ground <input type="text"/> lots	<input type="text"/> lots
Municipality <input type="text"/>	Ward <input type="text"/>	PARKING FEE	
Sub-Ward <input type="text"/>	Landmark <input type="text"/>	1. Free <input type="text"/>	
NUMBER OF STOREYS		2. Free only for employee or resident <input type="text"/>	
Above ground <input type="text"/> storeys, and	Underground <input type="text"/> storeys	3. Not free <input type="text"/>	
GROUND AREA (PLOTAGE)		If pay parking (1 or 2), parking fee is <input type="text"/> Taka per hour	
<input type="text"/> 1. Gross <input type="text"/>	<input type="text"/> 2. Net <input type="text"/>	TYPE OF USE	
<input type="text"/> 3. square feet <input type="text"/>	<input type="text"/> 4. square meter <input type="text"/>	1. Hotel or Residential building (referred to "FORM-A") <input type="text"/>	
GROUND FLOOR AREA (BUILDING FOOT PRINT)		2. Office, Commercial and Mixed use (referred to "FORM-B") <input type="text"/>	
<input type="text"/> 1. Gross <input type="text"/>	<input type="text"/> 2. Net <input type="text"/>	FORM-A (Hotel and Residential building)	
<input type="text"/> 3. square feet <input type="text"/>	<input type="text"/> 4. square meter <input type="text"/>	NUMBER OF ROOMS OR FLATS <input type="text"/>	
BUILDING OWNER, MANAGEMENT COMPANY NAME AND TELEPHONE NUMBER		VACANT ROOMS OR FLATS AT PRESENT <input type="text"/>	
TOTAL NET USABLE SPACE <input type="text"/>		AVERAGE OCCUPANCY <input type="text"/> %	
TOTAL NET USED SPACE <input type="text"/>		FORM-B (Office, Commercial and Mixed use)	
NUMBER OF TENANTS AT PRESENT		BUILDING OWNER, MANAGEMENT COMPANY NAME AND TELEPHONE NUMBER	
Government Office / Public Agency <input type="text"/> agencies	Private Company <input type="text"/> firms	TOTAL NET USABLE SPACE <input type="text"/>	
Education <input type="text"/> schools	Shop, Restaurant and Others <input type="text"/> jobs	TOTAL NET USED SPACE <input type="text"/>	
Preceded by TGS-1B and fill detail information of these tenants.			

Dar es Salaam Transport Policy and System Development Master Plan Study
 TGS-1B: TRIP GENERATION SURVEY (TENANTS INFORMATION)

FIRM / LOT	NAME OF FIRM / SHOP	TYPE OF BUSINESS	NUMBER OF EMPLOYEES	TOTAL FLOOR AREA
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				

Types of Business

- Government Office / Public Agency
- Private Company / Office
- Education
- Shop / Retail / Money changer / Clinic / Pharmacy etc.
- Restaurant / Coffee shop

No need to fill these columns because we have GIS data and we can point by name of building.

These information will be obtained from Hala Municipality.

Building owner name will be obtained from Hala Municipality.

Number of tenants may be obtained from building owner, or site survey.

Total number of tenants should be same with tenants information.

Surveyor should visit each firms and lots, and ask them.

Number of employee is a number of working staff in target building.

Some information such as capacity of parking will be obtained from Hala Municipality. Parking fee information should be collected by site survey.

Hotel refuse to answer to current occupancy sometimes. In such case, surveyor should ask average occupancy.

Total net floor area and used area at present may be obtained from building owner or management company.

Appendix 3.5 Instruction paper for trip generation survey

VISITOR INTERVIEW SURVEY SHEET

Dar es Salaam Transport Policy and System Development Master Plan Study
 TGS-2: TRIP GENERATION SURVEY (VISITOR INTERVIEW SURVEY)

Building Code: [1] Location Code: [1] Description: [1] to [2] Street No.: [1] Interviewer: [Richard Doe]

No.	Name	Transport Mode (See Building Code from Table A)	Purpose (See Table B)	Age (See Table C)	Time
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Table A: Mode
 1. Footpath
 2. Public auto
 3. Private auto
 4. Taxi
 5. Motorcycle
 6. Bicycle
 7. Scooter
 8. Walking
 9. Other (specify in 15)

Table B: Purpose
 1. To work
 2. To attend school
 3. To attend school (student only)
 4. Business and other errands, shopping, meeting, etc.
 5. Back to working place
 6. Personal errands (shopping, shopping, etc.)
 7. Pick up or send off children to school and back etc.
 8. Other (specify in 15)

Table C: Age (in years)
 1. Under 10
 2. 10-19
 3. 20-29
 4. 30-39
 5. 40-49
 6. 50-59
 7. 60-69
 8. 70-79
 9. 80-89
 10. 90 and over

Incremental number.

If Mode 9 (Others), specify.

If Purpose is 8 (Others), specify.

Employee is a worker who working at this building.

VISITOR COUNT SURVEY SHEET

Dar es Salaam Transport Policy and System Development Master Plan Study
 TGS-2: TRIP GENERATION SURVEY (VISITOR COUNT SURVEY)

Building Code: [1] Location Code: [1] Description: [1] to [2] Street No.: [1] Interviewer: [John Doe] Supervisor: [Richard Doe]

Target Building

Number of visitors

Time	Number of visitors
8:00 - 8:30	231
8:30 - 9:00	2
9:00 - 9:30	
9:30 - 10:00	

Dar es Salaam Transport Policy and System Development Master Plan Study
 TGS-2: TRIP GENERATION SURVEY (VISITOR COUNT SURVEY)

Building Code: [1] Location Code: [1] Description: [1] to [2] Street No.: [1] Interviewer: [John Doe] Supervisor: [Richard Doe]

Target Building

Number of visitors

Time	Number of visitors
8:00 - 8:30	345
8:30 - 9:00	
9:00 - 9:30	
9:30 - 10:00	

Dar es Salaam Transport Policy and System Development Master Plan Study
 TGS-2: TRIP GENERATION SURVEY (VISITOR COUNT SURVEY)

Building Code: [1] Location Code: [1] Description: [1] to [2] Street No.: [1] Interviewer: [John Doe] Supervisor: [Richard Doe]

Target Building

Number of visitors

Time	Number of visitors
8:00 - 8:30	345
8:30 - 9:00	
9:00 - 9:30	
9:30 - 10:00	

Appendix 3.5 Instruction paper for trip generation survey (cont'd)

DATA ENTRY FOR TRIP GENERATION SURVEY

Data entry forms for Building Attribute, Tenant and Visitor Interview Survey are included in Microsoft Access File named "TGS Data Entry.mdb".

Tables

Table "BLDATT" is a database table for TGS-1A (Building Attribute).
 Table "TENANT" is for TGS-1B (Tenants Information).
 Table "VISITOR" is for TGS-2 (Visitor Interview Survey)

Forms

Form "BLD1" is a data entry form for table "BLDATT".
 Form "BLD2" is a data entry form for table "TENANT".
 Form "PSN" is a data entry form for table "VISITOR".

DATA ENTRY FOR BUILDING ATTRIBUTE

Form "BLD1"

- The data entry form is designed almost same layout with survey sheet.
- Each time "Enter" key on the keyboard is pressed, cursor moves to next column. If cursor is in the last column in the form, press "Enter" key means move to first column in next record.

- This database records one survey sheet as one record. Typist can back to previous record and reenter by using these buttons.
- Some columns has a rule. If you enter inadequate value, error message box will appear. Typist should check the value with survey sheet and reenter.

Appendix 3.6 Instruction paper for data entry

DATA ENTRY FOR TENANTS INFORMATION

Form "BLD1"

Increment Same number and name (default value)

Survey Form

Next column in the survey sheet is stored in next record in the database.

DATA ENTRY FOR VISITOR INTERVIEW

Form "PSN"

Increment Same number and name (default value)

Survey Form

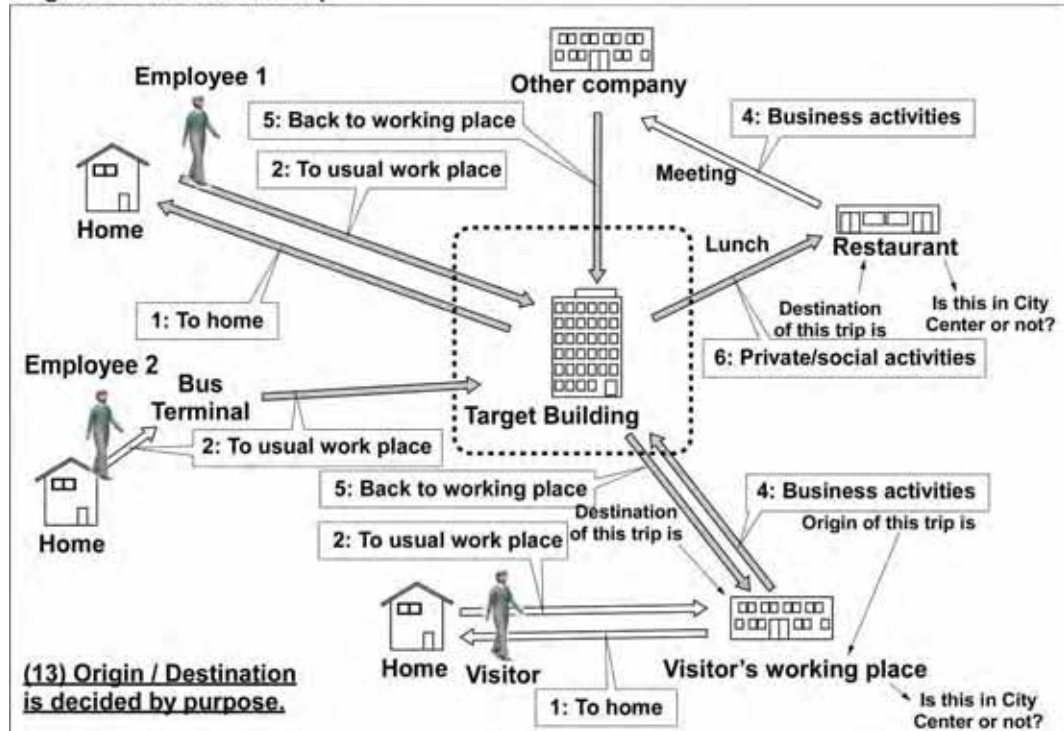
Next column in the survey sheet is stored in next record in the database.

*** Data entry of "Time Columns"**

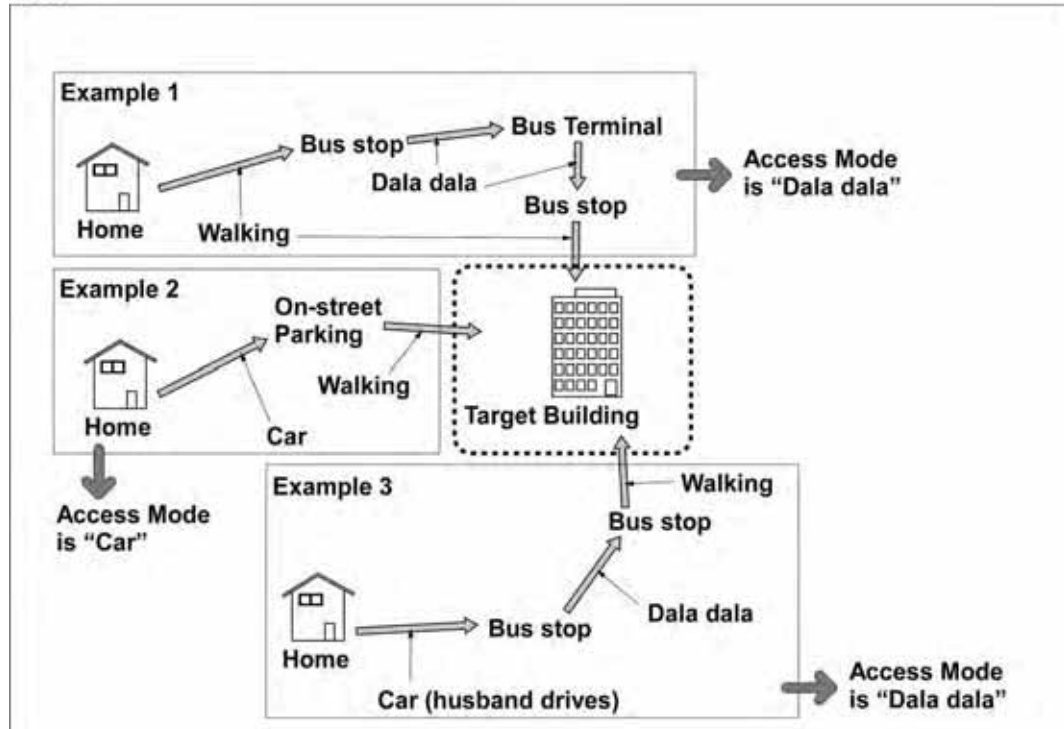
Survey Form	Enter	Data Entry Form
[7 : 05] 1	"7:05" or "7:05 am"	7:05 AM
Survey Form	Enter	Data Entry Form
[7 : 05] 2	"19:05" or "7:05 pm"	7:05PM

Appendix 3.6 Instruction paper for data entry (cont'd)

Origin / Destination and Trip



Mode



Appendix 3.7 Supplemental instruction paper

Instruction Paper for Traffic Count Survey at the Boundary of City Center

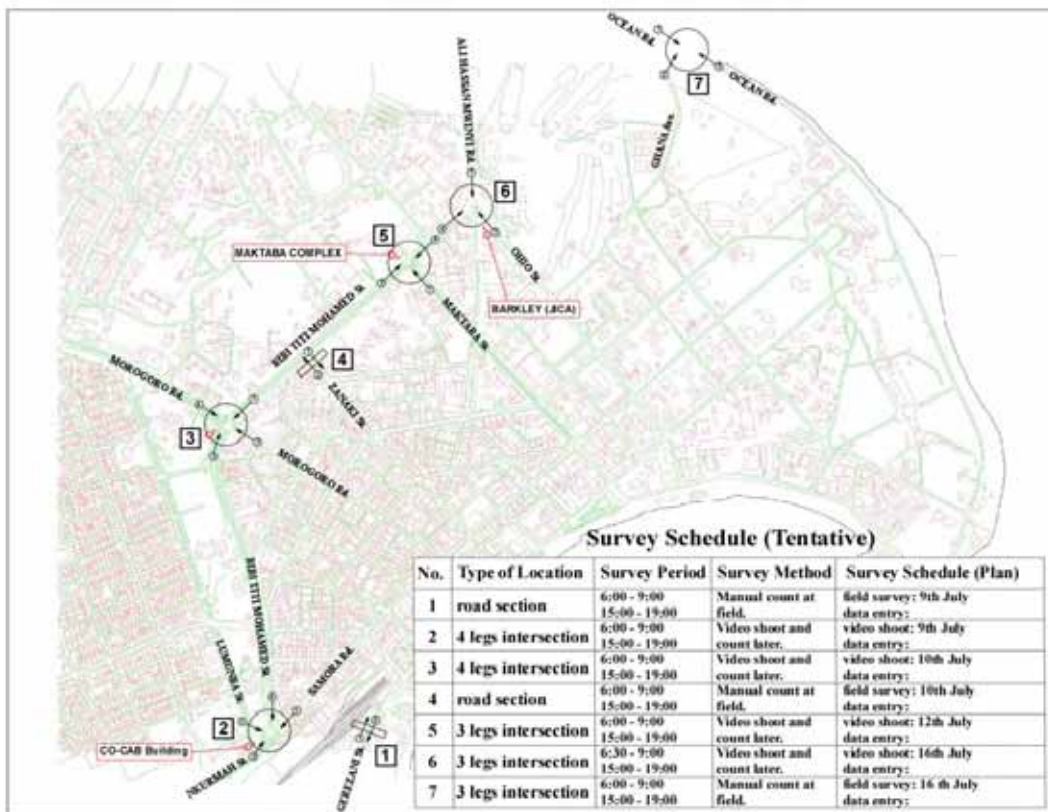
1. Objective

For the evaluation of current situation and considering future improvement plan of traffic management system in the City Center of Dar es Salaam, microscopic simulation is a effective tool. Microscopic simulation requires traffic volume flowing into the simulation network in order to calculate, thus, periodical traffic volume on the boundary of city center are required.

2. Survey Location and Survey Period

Survey locations are shown in the map below.

- 4 legs intersection : 2 locations,
- 3 legs intersection : 3 locations, and
- road section : 2 locations.



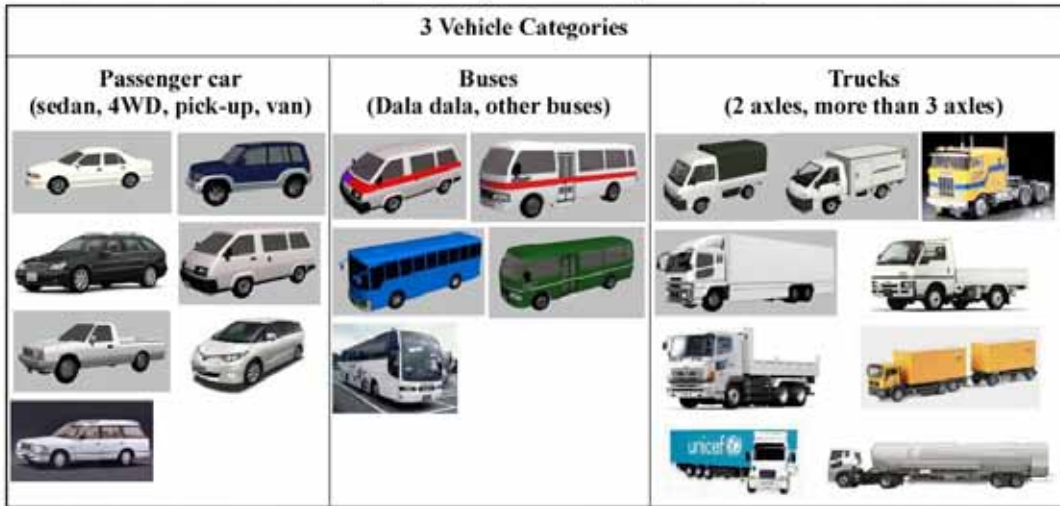
Survey Location and Direction for Intersection Traffic Count at Boundary of City Center

Survey period is basically 3 hours in morning peak (6:00 - 9:00) and 4 hours in evening peak (15:00 - 19:00) on Monday to Thursday.

Instruction Paper for Traffic Count Survey at the Boundary of City Center

3. Vehicle Category

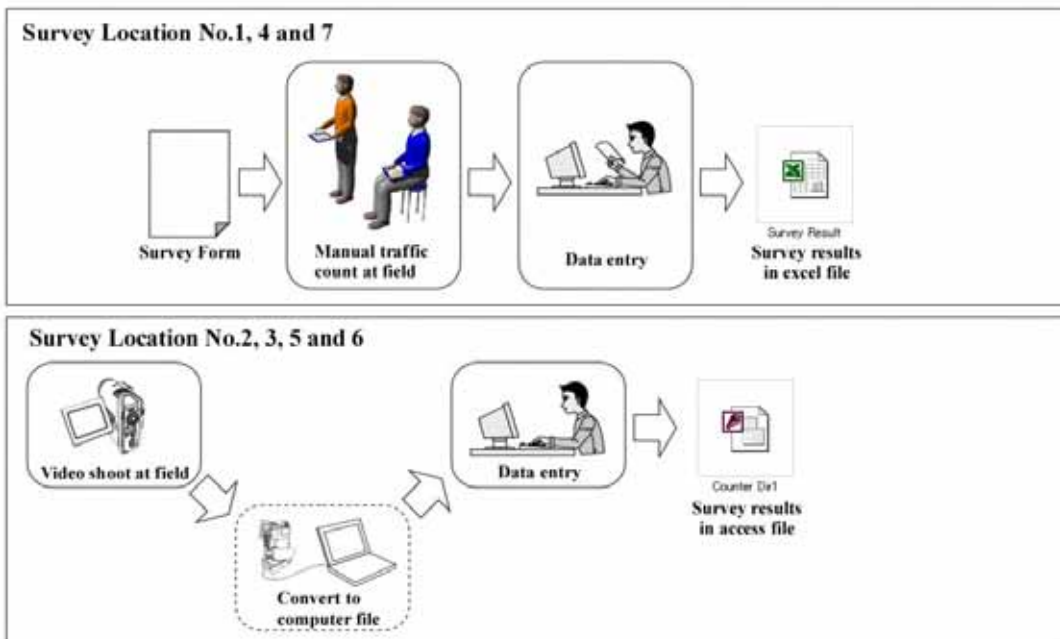
Traffic volume should be counted by following 3 vehicle categories and by direction.



excluding motorcycle, Bhajaj and bicycle.

4. Survey Methods

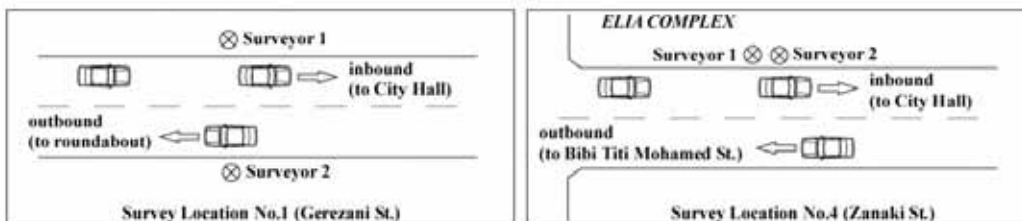
Traffic count method depends on the survey location. Following figures show the basic flow of survey.



Instruction Paper for Traffic Count Survey at the Boundary of City Center

(I) Survey Location No.1 and No.4

Two enumerators should be stationed along the street to count both directions. Following figures show the plan of arrangement.



Traffic count at the road section (Survey Location No.1 and No.4) should be carried out by manual count using survey form RSI and RS4 as shown in figure below.

Survey Form

Dar es Salaam Transport Policy and System Development Master Plan Study
 Survey Location : No.1 (Gerezani St. road section)
 Direction : 1 (Inbound)

AM Peak	Passenger Car, Pick up, Van, 4WD	Data data, Other buses	Trucks
6:00 - 6:15	27	20	2
6:15 - 6:30	38	28	1
6:30 - 6:45			

Step1: Mark a number of vehicle at field by vehicle category and direction every 15 minutes.

Step2: Count total number and write down on the form.

Data entry form (Survey Results.xls)

Dar es Salaam Transport Policy and System Development Master Plan Study
 Survey Location : No.1 (Gerezani St. road section)
 Direction : 1 (Inbound)

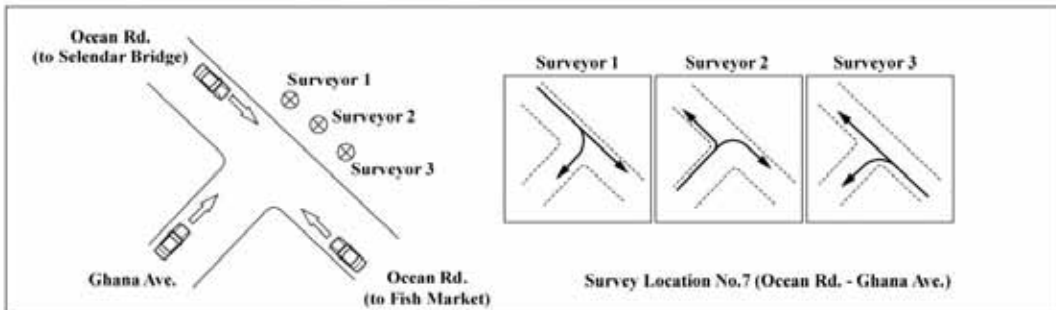
AM Peak	Passenger Car, Pick up, Van, 4WD	Data data, Other buses	Trucks
6:00 - 6:15	27	20	2
6:15 - 6:30	38	28	1
6:30 - 6:45			
6:45 - 7:00			
7:00 - 7:15			
7:15 - 7:30			
7:30 - 7:45			
7:45 - 8:00			
8:00 - 8:15			
8:15 - 8:30			
8:30 - 8:45			
8:45 - 9:00			

Step3: Enter a number of vehicles.

Instruction Paper for Traffic Count Survey at the Boundary of City Center

(2) Survey Location No.7

Three enumerators should be stationed at this intersection. Following figures show the plan of arrangement.



At the survey location No. 7, traffic count should be carried out by manual count using survey form IC7 as shown in figure below.

Survey form

Dar es Salaam Transport Policy and System Development Master Plan Study
 Survey Location : No.7 (Ocean Rd. - Ghana Ave. Intersection)
 Section 1 (North of Ocean Rd.)

Surveyor : _____

	Through Traffic (to Fish Market)				Right Turn (to Ghana Ave.)			
	Passenger Car, Pick up, Van, 4WD	Data data, buses	Truck		Passenger Car, Pick up, Van, 4WD	Data data, buses	Truck	
6:00 - 6:15								
	13	1			22			1
6:15 - 6:30								
	17	2			28			2
6:30 - 6:45								

Step1: Mark a number of vehicle at field by vehicle category and direction every 15 minutes.

Step2: Count total number and write down on the form.

Data entry form (Survey Results.xls)

Dar es Salaam Transport Policy and System Development Master Plan Study
 Survey Location : No.7 (Ocean Rd. - Ghana Ave. Intersection)

AM Peak	Section 1 (North of Ocean Rd.)				Section 2 (Westside of Intersection)			
	Through Traffic (to Fish Market)		Right Turn (to Ghana Ave.)		Left Turn (to Selendar Bridge)		Right Turn	
	Passenger Car, Pick up, Van, 4WD	Data data, buses	Truck	Passenger Car, Pick up, Van, 4WD	Data data, buses	Truck	Passenger Car, Pick up, Van, 4WD	Data data, buses
6:00 - 6:15	13	1		22				
6:15 - 6:30	17	2		28				
6:30 - 6:45								

Step3: Enter a number of vehicles.

Instruction Paper for Traffic Count Survey at the Boundary of City Center

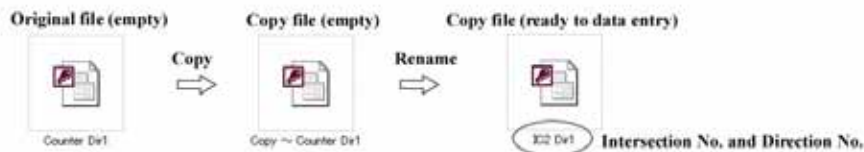
(3) Survey Location No. 2, 3, 5 and 6

Traffic count survey at other intersections (No. 2, 3, 5 and 6) should be carried out;

- video shoot at field in survey periods, and
- data entry while watching video.

The number of typists depends on the type of intersection. For example, in case of 4 legs intersection, at least five typists is required (including one replacement in case of typist leave a computer).

Before data entry, typists should make a copy of data entry file and rename in order to avoid over-write.



Each typist press “ten key” assigned in data entry form when they find vehicle.

Entered data is recorded into table include vehicle category, direction (from/to) and time. A time is computer time. Therefore, interruption is not accepted. If typist leave his work because of compelling reason, replacement take over his work.

Chapter 4 Freight Traffic Generation Survey

4.1 Scope of Work

The freight traffic generation survey shall be carried out at major factories / companies that generate freight traffic, or at locations where activity by large trucks is intense. There are two elements to the survey involving trucking companies: (a) an interview with management staff regarding activities of the company, and (b) after having obtained approval from management, a series of interviews with drivers to obtain information on trip (cargo pick-up/drop-off) patterns. In addition, a separate survey shall be also carried out with truck drivers at the (sea) Port of Dar Es Salaam.

4.1.1 Survey Area

The survey area for the freight traffic generation survey covers the whole Study Area, but, realistically centers on the more intermediate parts where factories and trucking companies tend to locate.

4.1.2 Survey Day

The company survey can be carried out on a weekday Tuesday through Friday. Since information regarding the previous days trucking activity should be obtained from drivers, the resultant trip data is valid for Monday through Thursday. The truck driver interviews at the Port of Dar Es Salaam, which, unlike the company survey, solicit trip information on the day of survey, can be carried out on any weekday Monday through Thursday.

4.1.3 Survey Hours

The factory/company survey can be carried out at any convenient time during the eligible weekdays, and is expected to require 3-4 hours per company including driver interviews. It is suggested company visits be so scheduled as to permit two visits per day (one morning, one afternoon) by a single survey team.

In case of the Port of Dar Es Salaam, the interview survey process shall extend over 24 hours.

4.1.4 Sampling

(1) Selection of Factories / Companies

Based on the directory of industry published by National Bureau of Statistics, fifty companies shall be selected within the study area at which the survey were conducted. The selection of these companies shall not be random but based upon a set of transport-relevant conditions. The companies shall be selected from different sectors of activity. These include:

- Transport, logistics services and packing companies;
- Food and agriculture production;
- Heavy industry (including chemical and petroleum sector);
- Automotive;
- Construction and construction materials;
- Wholesale and trading company; and
- Retail and final distribution sector (including supermarket)

(2) Interviews with Company Management

- Interviews with management shall be conducted with 100 percent of companies selected plus at the (sea) Port of Dar Es Salaam.

(3) Interviews with Company Drivers

- The number of interviews collected is highly dependent on the amount of cargo carried, the number of trucks in use, and availability of drivers for interviews. Some preliminary indications will be available following selection of companies, and initial contact therewith, and it may thus be possible to tailor the interview survey accordingly.
- In principle, the goal is to collect as many driver interviews as possible, but not to exceed 20 successful interviews from any one company.

(4) Interviews with Drivers at (sea) Port of Dar Es Salaam

- In principle, as many of available trucks as possible within available time frames.

4.1.5 Survey Method

There are several elements to the cargo survey.

(1) Sample Selection and Initial Contact

It will, in the first instance, be necessary to identify a sample of candidate companies for interviewing, and establishing contact with selected companies. During this initial contact, it will be necessary to confirm a time for the visit by the survey team, and obtain permission to interview drivers on-site. It is also suggested that during this preliminary contact an early indication as to types of information desired from company management be provided, thus allowing some time for assembly of data.

It will concurrently be necessary to establish contact with authorities at the (sea) Port of Dar Es Salaam, establish a meeting schedule, request port-related information and obtain permission for in-port interviews.

(2) Interview with Company Management and Dar Es Salaam Port Authorities

The intent is to obtain an overview of annual activity. Key data in this regard are:

- Company/organization profile.
- Truck fleet used (number, type).
- Annual cargo transported by type of cargo.
- Opinions on transportation problems and opportunities.

(3) Interviews with Company Drivers

An important element of the cargo survey is to obtain detailed information as to the actual activities (cargo pickups and deliveries) made by a sample of drivers during the previous day. For some companies, this information may be obtainable from truck manifests. This will depend upon each company, and can only be determined during the course of the interview with company management. If truck manifest information is available, driver interviews may not be required. This can only be decided on a case-by-case basis.

The type of information needed for the previous day's activities include:

- Complete record of each trip taken by the driver during the previous day from time of reporting to work to time of leaving work. It will be necessary to obtain the information for each stop (cargo pickup or cargo delivery) accurately according to an exact address or the nearest landmark to permit coding to a defined coding system. As noted in Part 1, section (4) of this Technical Specifications, the actual coding will be done by the Package I consultant following further coordination by the Study Team. However, all items other than the detailed locations will be coded by the Package III consultant.

- Information (as available) regarding activities at for the company, place or business for each stop at which cargo was picked up or delivered.
- Type and estimated volume of cargo carried.

(4) Interviews with Drivers at Dar Es Salaam Seaport

The approach to collecting information will be different from interviews with company drivers in that the port survey is intended to obtain information for the particular journey in question. This will include, in case of outbound (leaving the port) trucks, destination of the cargo loaded at the port. It will be necessary to obtain this information accurately according to an exact address or the nearest landmark to permit coding to a defined coding system. As noted in Part 1, section (4) of this TOR, the actual coding will be done by the Package I consultant following further coordination by the Study Team. However, all items other than the detailed locations will be coded by the Package III consultant.

The exact location of the interview within the port will be established following further consultation with the Study Team. In principle, it will be at a location (loading area, customs clearance area, or similar) which does not cause undue delay to the truck.

4.1.6 Survey Forms

English language survey forms are attached (see Appendix):

- Form CTS 1 is for interviews with company management staff and authorities at the Port of Dar Es Salaam.
- Form CTS 2 is for interviews with company truck drivers, or, where available, copying information from cargo manifests.
- Form CTS 3 is for interviews with drivers at the (sea) Port of Dar Es Salaam.

4.2 Survey Performance

4.2.1 Training

The training session for supervisors and surveyors of the Cargo transport survey was made on 20th June. Almost 30 persons were trained and organized into seven survey teams: one survey team consists of one supervisor who make interviews with management of the selected company, and surveyors who make interviews with truck drivers belonging to the company.

The material used in the training course was made in Swahili, which was translated from the English survey forms prepared by the JICA Study team.

4.2.2 Survey Forms

For the field survey, the following two survey forms were prepared.

- ① Survey form of the interview with management of a company includes:
 - Address of the company;
 - Type of industry;
 - Number of employees;
 - Number of cargo trucks owned;
 - Performance of truck operation;
 - Major cargo type;
 - Major destination by type of cargo.
- ② Survey form of the interview with truck drivers includes:
 - Load capacity of owned truck;
 - Ownership of vehicle;
 - Type of typical transport cargo;
 - Typical route of transportation.

The actual survey forms are shown in Appendix.

4.2.3 Progress

The field survey was initially planed to complete with five weekdays from 26th June to 4th July. However, appointments for the interviews couldn't be fully arranged as expected due to their refusal with some reasons. Accordingly the implementation of the survey was slightly behind the schedule for about one week. Table 4.2.1 and 4.2.2 show the achievement of field survey. 47 companies have been investigated, which is 76% of the target number of sample companies. The field survey was complete by 20th July.

Table 4.2.1 Target Companies for Interview

Unit: the number of company

Area	Done	Scheduled	Planned	Refused	Total
Nyerere Road	7	7	5	0	19
Mikocheni Industrial Area	2	3	3	0	8
Mbezi Industrial Area	3	0	2	1	6
Mbozi Road Chang'ombe	4	1	0	1	6
Nelson Mandela Road	0	2	4	0	6
Others	4	7	6	0	17
Total	20	20	20	2	62

Source: JICA Study Team

Table 4.2.2 Achievement of Interviews

No.	Name of Candidate Establishment	Road/Street Name	No. of Drivers Interviewed	Survey Status
1	SIMBA PLASTICS CO LTD	NYERERE ROAD	15	
2	ITAL FRAME	NYERERE ROAD	2	
3	SUPERDOLL TRAILLER MAN.CO LTD	NYERERE ROAD	6	
4	VITAFoAM (T) LTD	MBOZI ROAD CHANG'OMBE	9	
5	UNIVERSAL ELECTRONICS & HARDWARE LTD	MBEZI INDUSTRIAL AREA	3	
6	INTERCHIC CO LTD	MBEZI INDUSTRIAL AREA	6	
7	DOMUS WOOD WORKS	NYERERE ROAD	5	
8	IRON AND STEEL LTD	MIKOCHENI INDUSTRIAL AREA	25	
9	INSIGNIA LTD	MBOZI ROAD CHANG'OMBE	16	
10	GOLDSTAR PAINTS	MBOZI ROAD CHANG'OMBE	16	
11	KIOO LTD	MBOZI ROAD CHANG'OMBE	5	
12	JEJE INDUSTRIES LTD	MBOZI ROAD CHANG'OMBE	-	Refused
13	2000 INDUSTRIES LTD	MIKOCHENI INDUSTRIAL AREA	4	
14	TANPACK TISSUES LTD	MIKOCHENI INDUSTRIAL AREA	11	
15	TANZANIA ELECTRIC SUPPLY COMPANY LTD	MOROGORO ROAD	7	
16	TANZANIA CHINA FRIENDSHIP TEXTILE CO LTD	MOROGORO ROAD	13	
17	SHAMO INDUSTRIES &CO.TANZANIA LTD	MBEZI INDUSTRIAL AREA	-	Refused
18	RAFFIA BAGS TANZANIA LTD	MBEZI INDUSTRIAL AREA	3	
19	TANZANIA PORTLAND CEMENT CO LTD	MBEZI INDUSTRIAL AREA	23	
20	PALRAY LTD	KEKO MADAWA	8	
21	TANZANIA TEA BLENDERS	LUGODA-GEREZANI	15	
22	SBC (T) LTD	NYERERE ROAD	13	
23	TANZANIA SPRING INDUSTRIES & AUTOPARTS LTD	NYERERE ROAD	17	
24	UNOPLAST (T) LTD (BANCO)	NYERERE ROAD	21	
25	KWANZA BOTTLERS LTD (COCA-COLLA)	MIKOCHENI INDUSTRIAL AREA	24	
26	TANZANIA CIGARATTE CO. LTD	NYERERE ROAD	6	
27	TANZANIA BREWERIES LTD	UHURU ROAD	17	
28	M.M.INTEGRATED STEEL MILLS LTD	MIKOCHENI INDUSTRIAL AREA	-	Refused
29	TANZANIA PRINTING SERVICES LTD	MBOZI ROAD CHANG'OMBE	7	
30	BUSNESS PRINTERS LTD	LUGODA-GEREZANI	-	Refused

Table 4.2.2 Achievement of Interviews (Continued)

No.	Name of Candidate Establishment	Road/Street Name	No. of Drivers Interviewed	Survey Status
31	CHEMI & COTEX INDUSTRIES LTD	MBEZI INDUSTRIAL AREA	-	Refused
32	O.I.T (T) CO. LTD	MIKOCHENI INDUSTRIAL AREA	4	
33	BEN-ES-HAQ LTD	MIKOCHENI INDUSTRIAL AREA	-	Refused
34	EAST COAST	NELSON MANDELA ROAD	8	
35	COLOUR PRINT TANZANIA LTD	NELSON MANDELA ROAD	5	
36	SAAFA PLASTKS (T) LTD	NELSON MANDELA ROAD	-	Refused
37	BAKHESHA FOOD PRODUCTS	NYERERE ROAD	21	
38	BORA INDUSTRIES LTD	NYERERE ROAD	10	
39	JAMANA PRINTERS LTD	NYERERE ROAD	9	
40	TANZANIA OXYGEN (T) LTD	NYERERE ROAD	4	
41	METAL PRODUCTS LTD	NYERERE ROAD	12	
42	MATSUSHITA ELECTRICAL CO.EA LTD	NYERERE ROAD	-	Refused
43	SAID SALIM BAKHESA CO. LTD	NYERERE ROAD	-	Refused
44	ALAF LTD	NYERERE ROAD	10	
45	SADOLINI PAINTS	NYERERE ROAD	14	
46	AZAM BAKERY COMPANY LTD	NYERERE ROAD	-	Refused
47	QUALITY FOAM LTD	OLYMPIO/BIBI TITI	12	
48	MERRYWATER LTD	VICTORIA YARD	9	
49	PREMIER CASHEW INDUSTRIES LTD	VINGUNGUTI INDUATRIAL AREA	12	
50	OK PLAST LTD	VINGUNGUTI INDUATRIAL AREA	12	
51	CAOSTAL STILL INDUSTRY	MANDELA ROAD	-	Refused
52	SERENGETI BREWERIES	CHANG'OMBE/MANDELA ROAD	22	
53	PLASCO TANZANIA LIMITED	MBOZI ROAD	-	Refused
54	BERGER PAINTS	MBOZI ROAD	6	
55	ESTIM CONSTRUCTIONS	MIKOCHENI INDUSTRIAL AREA	-	Refused
56	KARIBU TEXTILES	MBAGALA	17	
57	MAC CONTRACTORS	MIKOCHENI	21	
58	MALAWI CARGO	KURASINI	13	
59	NUFAIKA DISTRIBUTORS	MANDELA ROAD	18	
60	SUPERSTAR FORWERDERS	NYERERE ROAD	-	Refused
61	TANZANIA PORTS AUTHORITY (TPA)	BANDARINI	-	Refused
62	DAR BREW - CHIBUKU	UBUNGO	12	
99	Port of Dar es Salaam		182	

Source: JICA Study Team

Appendix-4: Survey Forms

CTS-1 Cargo Transport Survey (Company Interview)

CTS-1 Cargo Transport Survey (Company Interview Continued)

CTS-2 Cargo Transport Survey (Truck Driver Interview)

CTS-2 Cargo Transport Survey (Truck Driver Interview Continued)

Dar es Salaam Transport Policy and System Development Master Plan Study																																															
CTS-1 :CARGO TRANSPORT SURVEY (COMPANY INTERVIEW)																																															
Company No. ⁽¹⁾ <input style="width: 40px; height: 20px;" type="text"/>	Interviewer ⁽²⁾ <input style="width: 150px; height: 20px;" type="text"/>	Supervisor ⁽³⁾ <input style="width: 150px; height: 20px;" type="text"/>																																													
<p>NAME OF COMPANY</p> <p>⁽⁴⁾ <input style="width: 250px; height: 20px;" type="text"/></p> <p>NAME OF CONTACT PERSON</p> <p>⁽⁵⁾ <input style="width: 250px; height: 20px;" type="text"/></p> <p>TELEPHONE NUMBER(ex. 012-345-6789)</p> <p>⁽⁶⁾ <input style="width: 40px; height: 20px;" type="text"/> - <input style="width: 40px; height: 20px;" type="text"/> - <input style="width: 60px; height: 20px;" type="text"/></p> <p>ADDRESS OF COMPANY</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">Region ⁽⁷⁾ <input style="width: 150px; height: 20px;" type="text" value="Dar es Salaam"/></td> <td style="width: 30%;">Code ⁽¹²⁾ <input style="width: 40px; height: 20px;" type="text" value="07"/></td> </tr> <tr> <td>District/ Municipality ⁽⁸⁾ <input style="width: 150px; height: 20px;" type="text"/></td> <td>⁽¹³⁾ <input style="width: 40px; height: 20px;" type="text"/></td> </tr> <tr> <td>Ward ⁽⁹⁾ <input style="width: 150px; height: 20px;" type="text"/></td> <td>⁽¹⁴⁾ <input style="width: 40px; height: 20px;" type="text"/></td> </tr> <tr> <td>Sub-Ward ⁽¹⁰⁾ <input style="width: 150px; height: 20px;" type="text"/></td> <td>⁽¹⁵⁾ <input style="width: 40px; height: 20px;" type="text"/></td> </tr> <tr> <td colspan="2">Landmark ⁽¹¹⁾ <input style="width: 200px; height: 20px;" type="text"/></td> </tr> </table> <p>NUMBER OF EMPLOYEES OF THE COMPANY</p> <p>⁽¹⁸⁾ <input style="width: 80px; height: 20px;" type="text"/></p> <p>OWNERSHIP</p> <p>1. Private</p> <p>2. Public</p> <p>3. Government (100%)</p> <p>4. Others (Please specify below)</p> <p>⁽¹⁷⁾ <input style="width: 20px; height: 20px;" type="text"/></p> <p>⁽¹⁸⁾ <input style="width: 200px; height: 20px;" type="text"/></p> <p><small>* Private : more than 50% of the share owned by private Public : more than 50% of the share owned by government</small></p> <p>TYPE OF INDUSTRY</p> <p>1. Transport Company ⁽¹⁹⁾ <input style="width: 40px; height: 20px;" type="text"/></p> <p>2. Food beverage and tobacco</p> <p>3. Textile and leather</p> <p>4. Wood and wood products</p> <p>5. Paper and paper products</p> <p>6. Chemical, petroleum, and plastic products</p> <p>7. Pottery, china, glass and non metallic products</p> <p>8. Basic metals industries</p> <p>9. Fabricated metal products Machinery and equipment</p> <p>10. Other manufacturing</p> <p>If manufacturing company (Industry 2 - 10), Please answer Area of Factory (Gross plottage area)</p> <p>⁽²⁰⁾ <input style="width: 100px; height: 20px;" type="text"/> square meters</p>	Region ⁽⁷⁾ <input style="width: 150px; height: 20px;" type="text" value="Dar es Salaam"/>	Code ⁽¹²⁾ <input style="width: 40px; height: 20px;" type="text" value="07"/>	District/ Municipality ⁽⁸⁾ <input style="width: 150px; height: 20px;" type="text"/>	⁽¹³⁾ <input style="width: 40px; height: 20px;" type="text"/>	Ward ⁽⁹⁾ <input style="width: 150px; height: 20px;" type="text"/>	⁽¹⁴⁾ <input style="width: 40px; height: 20px;" type="text"/>	Sub-Ward ⁽¹⁰⁾ <input style="width: 150px; height: 20px;" type="text"/>	⁽¹⁵⁾ <input style="width: 40px; height: 20px;" type="text"/>	Landmark ⁽¹¹⁾ <input style="width: 200px; height: 20px;" type="text"/>		<p>MEASURES OF CARGO TRANSPORT</p> <p>1. By company's own trucks</p> <p>2. Outsourcing</p> <p>3. Company's truck and outsourcing</p> <p>⁽²¹⁾ <input style="width: 20px; height: 20px;" type="text"/></p> <p>NUMBER OF CARGO TRUCK OWNED BY COMPANY</p> <p>Pick up truck, van ⁽²²⁾ <input style="width: 40px; height: 20px;" type="text"/></p> <p>2 Axles truck ⁽²³⁾ <input style="width: 40px; height: 20px;" type="text"/></p> <p>3 Axles truck ⁽²⁴⁾ <input style="width: 40px; height: 20px;" type="text"/></p> <p>More than 3 Axles / Trailer truck ⁽²⁵⁾ <input style="width: 40px; height: 20px;" type="text"/></p> <p>Others (Please specify) ⁽²⁶⁾ <input style="width: 40px; height: 20px;" type="text"/></p> <p>⁽²⁷⁾ <input style="width: 150px; height: 20px;" type="text"/></p> <p>AVERAGE NUMBER OF TRUCKS IN OPERATION PER DAY (Including company's truck and outsourcing)</p> <p>Pick up truck, van ⁽²⁸⁾ <input style="width: 40px; height: 20px;" type="text"/></p> <p>2 Axles truck ⁽²⁹⁾ <input style="width: 40px; height: 20px;" type="text"/></p> <p>3 Axles truck ⁽³⁰⁾ <input style="width: 40px; height: 20px;" type="text"/></p> <p>More than 3 Axles / Trailer truck ⁽³¹⁾ <input style="width: 40px; height: 20px;" type="text"/></p> <p>Others (Please specify) ⁽³²⁾ <input style="width: 40px; height: 20px;" type="text"/></p> <p>⁽³³⁾ <input style="width: 150px; height: 20px;" type="text"/></p> <p>MAJOR CARGO / FREIGHT (TOP 5)</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Out-going</th> <th style="width: 60%;">Name of commodity</th> <th style="width: 30%;">Share of total cargo by truck</th> </tr> </thead> <tbody> <tr> <td>1. ⁽³⁴⁾</td> <td><input style="width: 70%; height: 20px;" type="text"/></td> <td>⁽³⁵⁾ <input style="width: 40px; height: 20px;" type="text"/> %</td> </tr> <tr> <td>2. ⁽³⁶⁾</td> <td><input style="width: 70%; height: 20px;" type="text"/></td> <td>⁽³⁷⁾ <input style="width: 40px; height: 20px;" type="text"/> %</td> </tr> <tr> <td>3. ⁽³⁸⁾</td> <td><input style="width: 70%; height: 20px;" type="text"/></td> <td>⁽³⁸⁾ <input style="width: 40px; height: 20px;" type="text"/> %</td> </tr> <tr> <td>4. ⁽⁴⁰⁾</td> <td><input style="width: 70%; height: 20px;" type="text"/></td> <td>⁽⁴¹⁾ <input style="width: 40px; height: 20px;" type="text"/> %</td> </tr> <tr> <td>5. ⁽⁴²⁾</td> <td><input style="width: 70%; height: 20px;" type="text"/></td> <td>⁽⁴³⁾ <input style="width: 40px; height: 20px;" type="text"/> %</td> </tr> </tbody> </table> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">In-coming</th> <th style="width: 60%;">Name of commodity</th> <th style="width: 30%;">Share of total cargo by truck</th> </tr> </thead> <tbody> <tr> <td>1. ⁽⁴⁴⁾</td> <td><input style="width: 70%; height: 20px;" type="text"/></td> <td>⁽⁴⁵⁾ <input style="width: 40px; height: 20px;" type="text"/> %</td> </tr> <tr> <td>2. ⁽⁴⁶⁾</td> <td><input style="width: 70%; height: 20px;" type="text"/></td> <td>⁽⁴⁷⁾ <input style="width: 40px; height: 20px;" type="text"/> %</td> </tr> <tr> <td>3. ⁽⁴⁸⁾</td> <td><input style="width: 70%; height: 20px;" type="text"/></td> <td>⁽⁴⁸⁾ <input style="width: 40px; height: 20px;" type="text"/> %</td> </tr> <tr> <td>4. ⁽⁵⁰⁾</td> <td><input style="width: 70%; height: 20px;" type="text"/></td> <td>⁽⁵¹⁾ <input style="width: 40px; height: 20px;" type="text"/> %</td> </tr> <tr> <td>5. ⁽⁵²⁾</td> <td><input style="width: 70%; height: 20px;" type="text"/></td> <td>⁽⁵³⁾ <input style="width: 40px; height: 20px;" type="text"/> %</td> </tr> </tbody> </table>	Out-going	Name of commodity	Share of total cargo by truck	1. ⁽³⁴⁾	<input style="width: 70%; height: 20px;" type="text"/>	⁽³⁵⁾ <input style="width: 40px; height: 20px;" type="text"/> %	2. ⁽³⁶⁾	<input style="width: 70%; height: 20px;" type="text"/>	⁽³⁷⁾ <input style="width: 40px; height: 20px;" type="text"/> %	3. ⁽³⁸⁾	<input style="width: 70%; height: 20px;" type="text"/>	⁽³⁸⁾ <input style="width: 40px; height: 20px;" type="text"/> %	4. ⁽⁴⁰⁾	<input style="width: 70%; height: 20px;" type="text"/>	⁽⁴¹⁾ <input style="width: 40px; height: 20px;" type="text"/> %	5. ⁽⁴²⁾	<input style="width: 70%; height: 20px;" type="text"/>	⁽⁴³⁾ <input style="width: 40px; height: 20px;" type="text"/> %	In-coming	Name of commodity	Share of total cargo by truck	1. ⁽⁴⁴⁾	<input style="width: 70%; height: 20px;" type="text"/>	⁽⁴⁵⁾ <input style="width: 40px; height: 20px;" type="text"/> %	2. ⁽⁴⁶⁾	<input style="width: 70%; height: 20px;" type="text"/>	⁽⁴⁷⁾ <input style="width: 40px; height: 20px;" type="text"/> %	3. ⁽⁴⁸⁾	<input style="width: 70%; height: 20px;" type="text"/>	⁽⁴⁸⁾ <input style="width: 40px; height: 20px;" type="text"/> %	4. ⁽⁵⁰⁾	<input style="width: 70%; height: 20px;" type="text"/>	⁽⁵¹⁾ <input style="width: 40px; height: 20px;" type="text"/> %	5. ⁽⁵²⁾	<input style="width: 70%; height: 20px;" type="text"/>	⁽⁵³⁾ <input style="width: 40px; height: 20px;" type="text"/> %
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Dar es Salaam Transport Policy and System Development Master Plan Study

CFS-CARGO TRANSPORT SURVEY (COMPANY INTERVIEW- CONTINUED)

Company No. [] Interviewer [] Supervisor [] Direction []

CARGO HANDLING INFORMATION ABOUT MAJOR TYPES OF CARGO (OUT-GOING)

4th Major Commodity

No. [4] Name of Commodity []

Commodity Type (Table-A) [] Type of packing (Table-B) [] Annual (Previous Year) Cargo Volume (ton) []

Most Major Destination and Share

1. Sea port in Dar es Salaam [] and []
 2. Airport in Dar es Salaam [] and []
 3. Your Company [] and []
 4. Kalima Truck depot [] and []
 5. Others (Please specify below) [] and []

2nd Major Destination and Share

Region [] District/ Municipality [] Ward [] Sub-Ward [] Landmark []

5th Major Commodity

No. [5] Name of Commodity []

Commodity Type (Table-A) [] Type of packing (Table-B) [] Annual (Previous Year) Cargo Volume (ton) []

Most Major Destination and Share

1. Sea port in Dar es Salaam [] and []
 2. Airport in Dar es Salaam [] and []
 3. Your Company [] and []
 4. Kalima Truck depot [] and []
 5. Others (Please specify below) [] and []

2nd Major Destination and Share

Region [] District/ Municipality [] Ward [] Sub-Ward [] Landmark []

3rd Major Commodity

No. [3] Name of Commodity []

Commodity Type (Table-A) [] Type of packing (Table-B) [] Annual (Previous Year) Cargo Volume (ton) []

Most Major Destination and Share

1. Sea port in Dar es Salaam [] and []
 2. Airport in Dar es Salaam [] and []
 3. Your Company [] and []
 4. Kalima Truck depot [] and []
 5. Others (Please specify below) [] and []

2nd Major Destination and Share

Region [] District/ Municipality [] Ward [] Sub-Ward [] Landmark []

1st Major Destination and Share

1. Sea port in Dar es Salaam [] and []
 2. Airport in Dar es Salaam [] and []
 3. Your Company [] and []
 4. Kalima Truck depot [] and []
 5. Others (Please specify below) [] and []

3rd Major Destination and Share

Region [] District/ Municipality [] Ward [] Sub-Ward [] Landmark []

2nd Major Destination and Share

Region [] District/ Municipality [] Ward [] Sub-Ward [] Landmark []

- Table A: Commodity Code**
1. Agriculture and livestock
 2. Food stuff and animal food
 3. Solid fuels
 4. Perish and perish distilled products
 5. Mineral residues and mining products
 6. Metallurgical products
 7. Raw materials and derivations
 8. Fertilizers
 9. Chemical products
 10. Machines, vehicles, diverse unclassified cargo
- Table B: Type of packing**
1. Container
 2. Bag
 3. Baled products
 4. Bulk

CTS-2 :CARGO TRANSPORT SURVEY (TRUCK DRIVER INTERVIEW) Dar es Salaam Transport Policy and System Development Master Plan Study

Driver No. ⁽¹⁾ Interviewer ⁽²⁾ Supervisor ⁽³⁾

TRUCK DRIVER'S INFORMATION

<p>COMPANY NUMBER</p> <input type="text"/> ⁽⁵⁾ <p>(If the interview is made at the airport fill in "98", at the sea port then "99" and please specify below)</p>	<p>NAME OF COMPANY YOU BELONG TO</p> <input type="text"/> ⁽⁶⁾ <p>ADDRESS OF COMPANY</p> <p>Region <input type="text"/> ⁽¹¹⁾ Code <input type="text"/></p> <p>District/ Municipality <input type="text"/> ⁽⁷⁾ <input type="text"/> ⁽¹²⁾</p> <p>Ward <input type="text"/> ⁽⁸⁾ <input type="text"/> ⁽¹³⁾</p> <p>Sub-Ward <input type="text"/> ⁽⁹⁾ <input type="text"/> ⁽¹⁴⁾</p> <p>Landmark <input type="text"/> ⁽¹⁰⁾</p>	<p>HOME ADDRESS OF DRIVER</p> <p>Region <input type="text"/> ⁽¹¹⁾ Code <input type="text"/></p> <p>District/ Municipality <input type="text"/> ⁽⁷⁾ <input type="text"/> ⁽¹²⁾</p> <p>Ward <input type="text"/> ⁽⁸⁾ <input type="text"/> ⁽¹³⁾</p> <p>Sub-Ward <input type="text"/> ⁽⁹⁾ <input type="text"/> ⁽¹⁴⁾</p> <p>Landmark <input type="text"/> ⁽¹⁰⁾</p>	<p>TYPE OF TRUCK</p> <p>1. 2 Axles truck <input type="text"/> ⁽¹⁵⁾</p> <p>2. 3 Axles truck <input type="text"/></p> <p>3. More than 3 Axles / Trailer truck <input type="text"/></p>	<p>LOAD CAPACITY</p> <p>Empty Weight <input type="text"/> ⁽¹⁶⁾ kg</p> <p>Load Capacity <input type="text"/> ⁽¹⁷⁾ kg</p>	<p>VEHICLE OWNERSHIP</p> <p>1. Your (driver) property <input type="text"/></p> <p>2. Rent-a-car <input type="text"/></p> <p>3. Belongs to the company at survey site <input type="text"/></p> <p>4. Belongs to a company other than the company at survey site <input type="text"/></p> <p>5. Others <input type="text"/> ⁽¹⁸⁾</p>
<p>CODE TABLE FOR TRIP INFORMATION (NEXT PAGES)</p> <p>Table-A: Facility</p> <ol style="list-style-type: none"> 1. Sea Port 2. Airport 3. Railway Station 4. Truck Terminal 5. Factory 6. Retail shop/wholesale market 7. Warehouse 8. Restaurant/hotel 9. Construction site 10. Agriculture field 11. Office 12. Others 		<p>Table-B: Loading Condition</p> <ol style="list-style-type: none"> 1. Empty 2. Less than 25% loaded 3. 25% loaded 4. 50% loaded 5. 75% loaded 6. Full-load 		<p>Table-C: Commodity</p> <ol style="list-style-type: none"> 1. Agriculture and livestock 2. Food stuff and animal food 3. Solid fuels 4. Petrol and petrol distilled products 5. Metal residues and mining products 6. Metallurgical products 7. Raw materials and derivations 8. Fertilizers 9. Chemical products 10. Machines, vehicles, diverse non-classified cargo 	

CTS-2: CARGO TRANSPORT SURVEY (TRUCK DRIVER INTERVIEW)		Dar es Salaam Transport Policy and System Development Master Plan Study	
TRIP INFORMATION OF PREVIOUS WORKING DAY		Driver No. <input style="width: 50px;" type="text"/>	Supervisor <input style="width: 50px;" type="text"/>
(10)	(11)	(12)	(13)
Place No. (If origin of 1st trip, "0")	Type of facility (Choose from Table A)	Type of facility (Choose from Table A)	Sheet No. <input style="width: 50px;" type="text"/>
Place 1: Sea port in DAR 4: Kaitima truck depot 2: Airport in DAR 5: Your home 3: Your company 6: Others (please specify below)			
Region ⁽⁸⁾	District/ Municipality ⁽⁹⁾	Ward ⁽¹⁰⁾	Sub-Ward ⁽¹¹⁾
Landmark ⁽¹²⁾			
Loading Condition (Choose from Table B) ⁽¹⁷⁾	Type Commodity (Choose from Table C) ⁽¹⁸⁾		
Name of Major Road on the Route			
(19)	and	(20)	
Place No.	Type of facility (Choose from Table A)	Type of facility (Choose from Table A)	(7)
Place 1: Sea port in DAR 4: Kaitima truck depot 2: Airport in DAR 5: Your home 3: Your company 6: Others (please specify below)			
Region ⁽⁸⁾	District/ Municipality ⁽⁹⁾	Ward ⁽¹⁰⁾	Sub-Ward ⁽¹¹⁾
Landmark ⁽¹²⁾			
Loading Condition (Choose from Table B) ⁽¹⁷⁾	Type Commodity (Choose from Table C) ⁽¹⁸⁾		
Name of Major Road on the Route			
(19)	and	(20)	Next Sheet <input style="width: 50px;" type="text"/>

Chapter 5 Travel Speed Survey

5.1 Scope of Work

The travel speed survey shall be carried out: (a) to obtain the existing travel speed on the major corridors within the study area, (b) to identify the bottlenecks on the major corridors, and (c) to assess the existing traffic condition.

5.1.1 Survey Routes

14 route segments have conditionally been identified along major corridors in the study area. These include Bagamoyo Road, Morogoro Road, Nyerere Road, Kilwa Road, and Nelson Mandela Road, among others. The finalization of route segment monitoring process will be undertaken with the local consultant selected to conduct the survey; however, any adjustments are expected to be minor. The selected routes are specified in Figure 5.1.1.

5.1.2 Survey Hours

The survey should complete **three round trips** during both the morning (0600-0900) and evening (1600-1900) peak periods, as well as three round-trips during the off-peak (daytime) period (0900-1600). The trip legs may occur on different days due to traffic conditions.

5.1.3 Survey Days

The travel speed survey will be performed on normal **weekdays** from Monday through Thursday excluding public holidays.

5.1.4 Survey Content

Major information items to be collected during the course of the survey for each road segment include:

- Segment departure time and arrival time (clock time).
- Clock time and distance at all intermediate checkpoints.

- Frequency of stops.
- Duration of each stop and/or delay (minutes, seconds).
- Reasons for each stop and/or delay.



Figure 5.1.1 Travel Speed Survey Routes

5.1.5 Survey Method

The detailed survey method will be decided after discussions with the local consultant selected to carry out this survey. However, in principle,

- A passenger car will be used for the travel speed survey. A driver and an investigator board the survey car.
- The driver operates the survey car at the same general speed as that of the prevailing traffic condition. The sample car should neither excessively pass, nor fall behind, other vehicles in the traffic stream.
- The investigator records the departure time at begin of route, passing time and distance (odometer reading) at checkpoints (generally intersections), the reason and duration of each stop/delay, and time of arrival at end of route.
- It is noted that the last intersection encountered along the route is considered part of the route, and delays encountered approaching the last intersection will be noted.
- Data by each direction and for each route segment must be recorded separately for the morning peak, evening peak and off-peak periods.

5.1.6 Survey Forms

The English language survey form is attached (see Appendix):

- Form TSS 1 is for tabulation of all data.

5.2 Survey Performance

5.2.1 Executing Organization

The travel speed survey was executed by Inter-Consult. The survey team was headed by Eng. Bernard Msacky, Inter-Consult.

5.2.2 Survey Team Organization

One survey unit consists of driver and surveyor. Survey team recruited and organized 5 survey units.

5.2.3 Preparatory Works

Preparatory works for the travel speed survey included;

- On 13th June, JICA Study Team inform updated survey routes to the Inter-Consult.
- On 14th June, JICA Study Team gave a survey form for travel speed survey.

- On 19th June, JICA Study Team lent seven GPS devices to the survey team.
- On 9th July, the survey team has a meeting with JICA Study Team regarding the method of travel speed survey.
- On 10th July, the survey team conducted pilot survey.

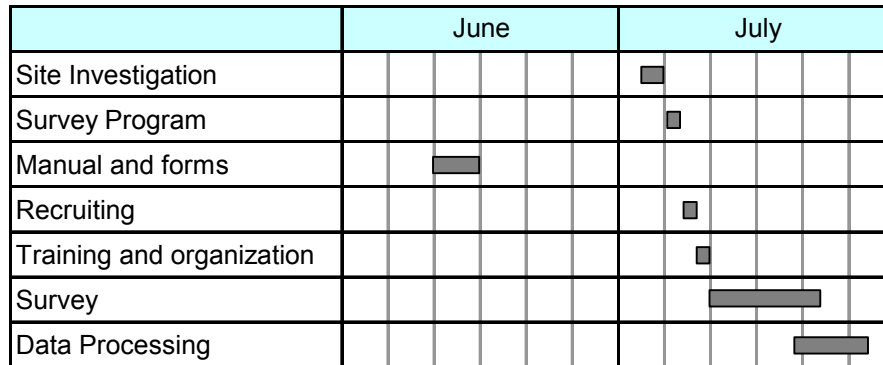


Figure 5.2.1 Survey Schedule for Travel Speed Survey

5.2.4 Pilot Survey

(1) Pilot Survey

On 10th July, the supervisor conducted pilot survey in order to learn how to use GPS device and survey form. The survey route was from Inter-Consultant office to DCC through Ali Hassan Mwinyi Rd.- Ohio St. (a segment of Route 2). According to the GPS log, starting time was 3:27 p.m. and end of time was 3:43 p.m.

(2) Problems encountered

The following two problems were observed at the pilot survey:

- The survey team set GPS unit for recording every 30 seconds, it seems too long to indicate congested point in CBD.
- The time recorded in GPS device and recorded in survey form were different.

The first problem will be solved by changing of GPS setting, and the second problem will be solved by recording of the starting time in the survey form.

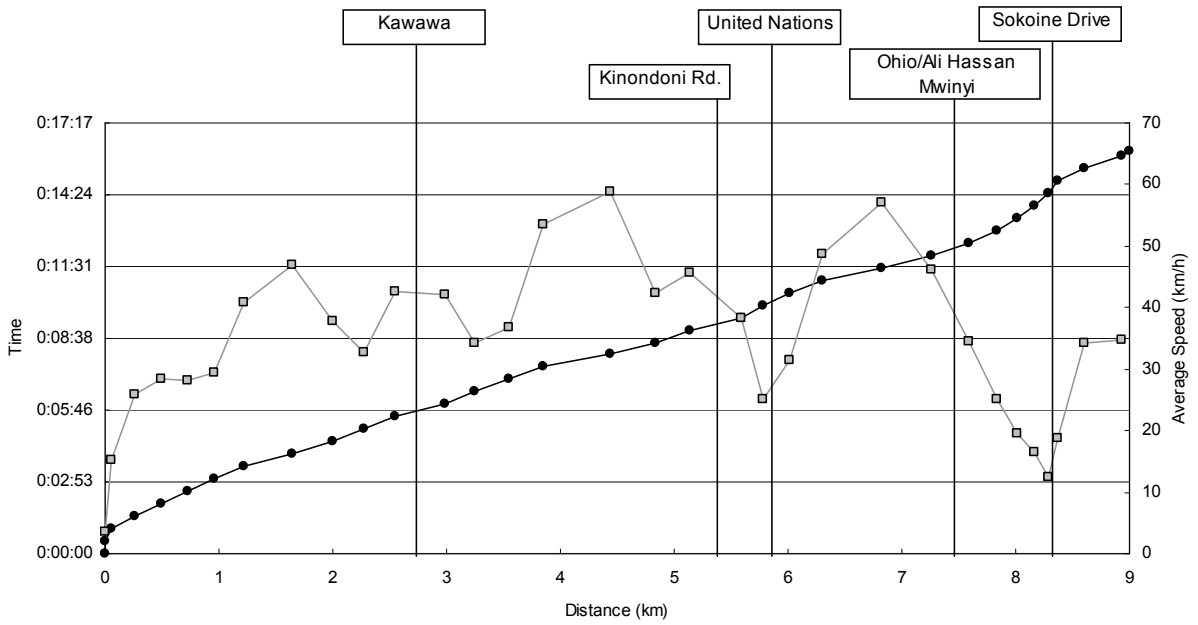


Figure 5.2.2 Results of Pilot Survey (GPS log)



Figure 5.2.3 Results of Pilot Survey (GPS log)

5.2.5 Full-Scale Survey

Full-scale survey has started from 11th July 2007 and completed by 19th July.

Table 5.2.1 Survey Date and Period of Full-scale Survey

Route	Direction	Trip	Starting Time			Route	Direction	Trip	Starting Time		
			AM Peak	Off Peak	PM Peak				AM Peak	Off Peak	PM Peak
1	1	1	6:17 16-July	11:36 16-July	15:56 16-July	7	1	1	6:40 12-July	10:20 12-July	15:45 12-July
		2	6:27 17-July	15:12 17-July	16:00 18-July			2	7:49 12-July	11:14 12-July	17:36 12-July
		3	6:31 18-July	14:04 18-July	17:33 18-July			3	5:56 16-July	11:59 12-July	16:28 19-July
	2	1	8:38 16-July	13:59 16-July	18:24 16-July		2	1	6:15 12-July	10:46 12-July	16:45 12-July
		2	7:56 19-July	13:45 17-July	16:41 18-July			2	7:09 12-July	11:37 12-July	18:04 12-July
		3	8:09 20-July	14:48 18-July	18:16 18-July			3	8:35 12-July	12:23 12-July	18:21 16-July
2	1	1	6:46 11-July	9:06 11-July	16:34 11-July	8	1	1	7:51 16-July	13:36 16-July	17:35 16-July
		2	6:10 12-July	11:15 11-July	18:03 11-July			2	7:55 17-July	12:05 17-July	17:43 17-July
		3	8:15 12-July	10:27 12-July	15:26 12-July			3	8:17 18-July	13:11 17-July	18:33 17-July
	2	1	7:40 11-July	9:39 11-July	15:59 11-July		2	1	6:45 16-July	12:32 16-July	16:32 16-July
		2	6:45 12-July	11:48 11-July	17:03 11-July			2	6:59 17-July	10:10 17-July	16:02 17-July
		3	9:00 12-July	10:55 12-July	15:52 12-July			3	7:06 18-July	12:39 17-July	18:04 17-July
3	1	1	6:23 11-July	11:43 11-July	15:53 16-July	9	1	1	6:47 18-July	10:20 18-July	17:03 18-July
		2	7:59 11-July	12:25 11-July	16:30 16-July			2	7:45 18-July	11:11 18-July	17:56 18-July
		3	8:37 11-July	13:07 11-July	17:10 16-July			3	8:47 18-July	16:17 18-July	18:36 18-July
	2	1	5:53 11-July	13:49 11-July	16:19 11-July		2	1	6:27 18-July	9:13 18-July	16:39 18-July
		2	6:48 11-July	14:26 11-July	17:09 11-July			2	7:24 18-July	10:49 18-July	17:26 18-July
		3	7:25 11-July	14:58 11-July	17:57 11-July			3	8:23 18-July	11:38 18-July	18:15 18-July
4	1	1	6:10 16-July	11:09 16-July	15:59 16-July	10	1	1	6:36 18-July	10:20 18-July	16:11 18-July
		2	6:01 17-July	13:59 16-July	15:59 17-July			2	7:25 18-July	11:04 18-July	17:01 18-July
		3	6:06 18-July	10:06 17-July	15:59 18-July			3	8:14 18-July	11:50 18-July	18:23 18-July
	2	1	8:03 16-July	12:32 16-July	17:26 16-July		2	1	6:13 18-July	9:44 18-July	15:46 18-July
		2	8:33 17-July	15:18 16-July	17:52 17-July			2	7:01 18-July	10:41 18-July	16:36 18-July
		3	7:50 18-July	11:52 17-July	17:44 18-July			3	7:49 18-July	11:27 18-July	17:27 18-July
5	1	1	7:12 16-July	9:14 16-July	16:33 17-July	11	1	1	7:18 16-July	13:18 16-July	17:15 16-July
		2	8:27 16-July	11:11 16-July	18:01 17-July			2	7:34 17-July	11:03 17-July	16:43 17-July
		3	7:10 17-July	12:26 16-July	15:28 19-July			3	7:59 18-July	11:46 17-July	17:24 17-July
	2	1	6:49 16-July	8:56 16-July	16:02 17-July		2	1	7:00 16-July	12:57 16-July	16:54 16-July
		2	8:01 16-July	9:45 16-July	17:02 17-July			2	7:14 17-July	10:36 17-July	16:23 17-July
		3	6:43 17-July	11:51 16-July	18:27 17-July			3	7:22 18-July	11:25 17-July	17:03 17-July
6	1	1	6:18 11-July	10:36 11-July	14:59 12-July	12	1	1	7:26 16-July	12:09 16-July	17:02 16-July
		2	8:38 11-July	12:58 11-July	16:52 12-July			2	8:01 17-July	14:57 16-July	17:03 17-July
		3	7:38 12-July	9:56 12-July	18:02 12-July			3	7:13 18-July	11:23 17-July	17:12 18-July
	2	1	8:08 11-July	10:04 11-July	16:24 12-July		2	1	7:09 16-July	11:53 16-July	16:46 16-July
		2	7:09 12-July	12:17 11-July	17:24 12-July			2	7:41 17-July	14:41 16-July	16:45 17-July
		3	9:25 12-July	11:21 12-July	18:33 12-July			3	6:55 18-July	11:07 17-July	16:54 18-July

5.2.6 Publicity

A press conference was held at the DCC on 21st June 2007.

5.2.7 Data Entry

The GPS log data is extracted by the JICA Study Team and the data of survey form will be recorded in Microsoft Excel file.

Appendix-5: Survey Forms and Instruction Materials

Appendix 5.1: Survey form TSS-1

Appendix 5.2: Instruction Material for Travel Speed Survey

TSS-1 : TRAVEL SPEED	Dar es Salaam Transport Policy and System Development Master		
Survey Route (1) <input style="width: 50px; height: 20px;" type="text"/>	Direction (2) <input style="width: 50px; height: 20px;" type="text"/>	1:inbound 2:outbound	Surveyor (3) <input style="width: 200px; height: 25px;" type="text"/>
			Supervisor (4) <input style="width: 200px; height: 25px;" type="text"/>

Check Point	Passing Time			Stopping time and reason															Distance km					
	hour	min	sec	1st stop			2st stop			3st stop			4st stop			5st stop								
				min	sec	reason	min	sec	reason	min	sec	reason	min	sec	reason	min	sec	reason						
0 Start point																								
1																								
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								
13																								
14																								
15																								
16																								
17																								
18																								
19																								
20																								

- REASON FOR
- 1 - WAITING FOR TRAFFIC SIGNAL (OR POLICE CONTROL) TO CHANGE
 - 2 - TRAFFIC ACCIDENT
 - 3 - CROSSING OF PEDESTRIANS
 - 4 - CONGESTION OF BUSES NEAR BUS STOP
 - 5 - TRAFFIC CONGESTION (TRAFFIC SPILLED BACK CONDITION)
 - 6 - MERGING FROM ALLEY
 - 7 - DIVERGING TO ALLEY
 - 8 - INFLUENCE OF THE CARS TURNING TO THE RIGHT
 - 9 - OTHERS (PARKING ON STREET, POOR PAVEMENT MAINTENANCE, UNDER CONSTRUCTION, ETC.)

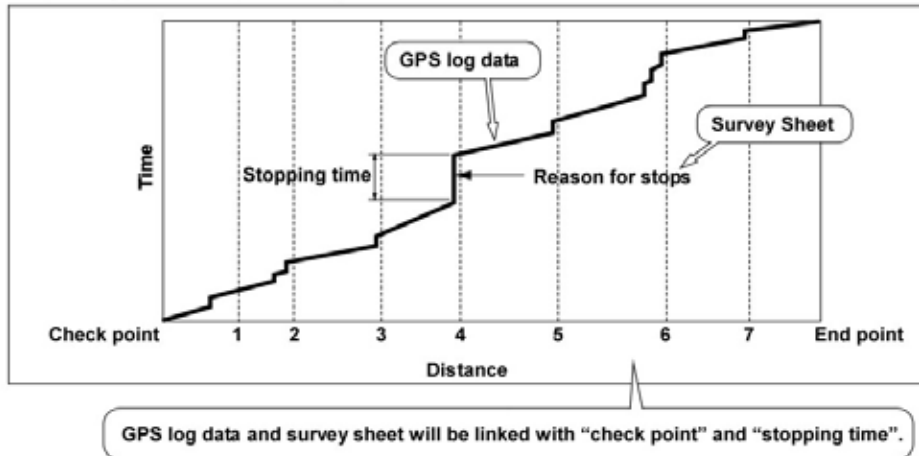
Appendix 5.1 Travel Speed Survey Form

INSTRUCTION PAPER FOR TRAVEL SPEED SURVEY

1. Objectives

The purposes of travel speed survey are identification of congested section (segment) and reason of that traffic congestion. The results of travel speed survey will be used as indicators of current traffic condition and material for consideration of future improvement plan.

Output Image of travel speed survey



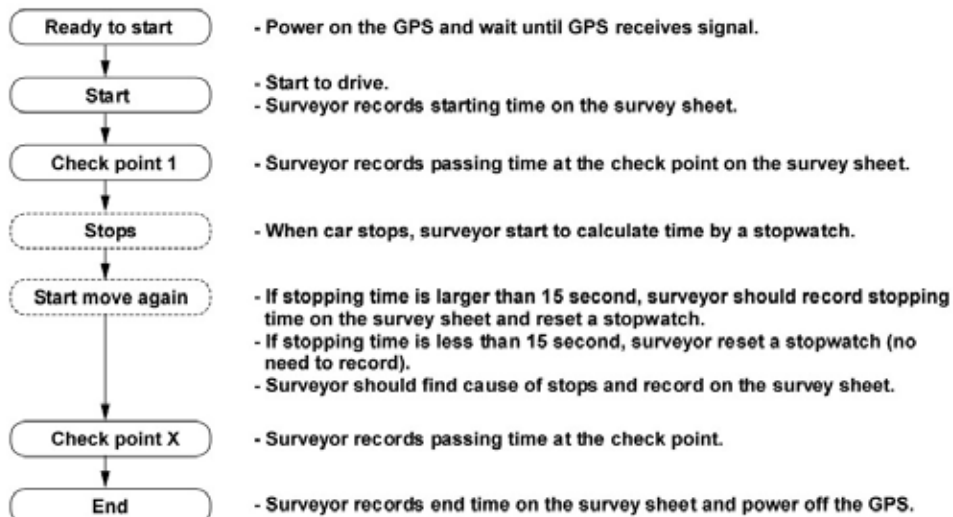
2. Survey Team

Survey teams consist of driver and surveyor. Driver must keep safety drive and surveyor should find check points, calculate and record time etc.

GPS should be put on the dashboard enable to receive GPS signal from the satellites.

3. Survey Method

General flow



Appendix 5.2 Travel Speed Survey Instruction Material

Survey Sheet Sample

TSS-1: TRAVEL SPEED SURVEY Dar es Salaam Transport Policy and System Development Master Plan

Surveyor (3) **John Doe**
 Supervisor (4) **Richard Doe**

Passing time should be fill in **24 hours** system enable to distinguish AM peak or PM peak.

Check Point	Passing Time	Stopping time and reason															Distance km		
		1st stop			2nd stop			3rd stop			4th stop			5th stop					
		min	sec	reason	min	sec	reason	min	sec	reason	min	sec	reason	min	sec	reason	min	sec	reason
0 Start point DCC	7 0312																		
1 Bibi Titi Intersection	7 1206	1	05	4	2	12	1	1	52	1									
2 UN road Intersection	7 2030	0	20	4															
3 Kawawa Road Intersection	7 2508	3	09	1	2	10	1												
4																			

Check point should be decided **before starting travel speed survey**.
 Check point should be selected from major intersection or major landmarks along the survey route, and it should be easy to find and point (such as high-rise building and large facility, not allowed unclear landmark such as place-name, signboard).
 and, distance between check points should **not exceed 10km** even in rural area.

Stopping time is calculated by a stopwatch. Do not use "lap time function".

Distance between check points should be filled before starting travel speed survey, because it will help for find next check point. Distance should be filled until **first decimal in kilometers**.

Other notabilia

Check point number and place on the survey sheet should be reversed by direction.

Passing timing is just on the check point.

More than 15 seconds, it is defined as "stop" and should be recorded.

Maximum 5 stops can be recorded in the survey form.

Appendix 5.2 Travel Speed Survey Instruction Material (cont'd)

Chapter 6 Bus Passenger Opinion Survey

6.1 Scope of Work

A sample of public transport users at major terminals shall be interviewed during the Public Transport Passenger Survey. Considerable data on public transport usage, modal preferences and activities will be obtained from the Household Interview Survey (HIS). It is desirable to implement this supporting survey whose purpose is not to duplicate information collected via the HIS, but to augment its findings in key technical areas or to obtain what can be termed attitudinal perceptions. It is noted that these surveys will be notional, that is, any conclusions will be drawn from the sample itself rather than an expanded statistical universe.

6.1.1 Survey Locations

The survey will take place at the seven main identified bus terminals in Dar Es Salaam: Mwenge, Ubungu, Mbagala, Kigamboni Ferry, Kariakoo, Poata and Tandika. All are dala-dala terminals, with exception of Ubungu (and somewhat Tandika) which are also used by long-distance buses. The terminals are shown in Figure 6.1.1.

6.1.2 Survey Hours

The survey extends over a total of six hours, three hours during the morning peak period (0600-0900) and three hours during the afternoon peak period (1600-1900).

6.1.3 Survey Days

The survey will be performed on **weekdays** selected from Monday through Thursday excluding public holidays.

6.1.4 Sampling

The passenger interview survey should be administered to at least **1,750 passengers**, or approximately 250 passengers per terminal.



Figure 6.1.1 Bus Terminal Locations

6.1.5 Survey Method

Surveyors will randomly interview the passengers at the terminals, and fill in the interview form. The total number of interviewees can be distributed among different terminals based on the passenger volume at each terminal, but should not be less than 250 at any one terminal.

Information to be collected includes:

- Personal attribute (sex, age, occupation, status, etc.).
- Trip and payment information (trip purpose, origin-destination stations, waiting time, cost).
- Attitudinal information.

6.1.6 Survey Forms

- Form PTS 1 is for conducting interviews with bus passengers.

6.2 Survey Performance

(1) Training

A training session of surveyors for the Public Transport Passenger interview survey was held on 6th June, under the supervision of the JICA Study team. During the training session, meaning of technical terms such as trip purpose, origin and destination, and transport mode, was explained by the JICA Study team in addition to the explanation of the survey team leader from Inter-Consult Ltd..

Most of the surveyors were invited to make a practice of the interview survey the at Mwenge bus terminal on 7th in order to confirm the survey technique.

(2) Survey Forms

The survey forms in English were designed the by JICA Study team and updated through the experience of pilot survey. Finally the forms were translated into Swahili language by the contractor. The questionnaire items include:

- ① Individual attributes
 - Sex, Age;
 - Occupation, industry, income rank.
- ② Trip information
 - Trip purpose;
 - Origin and destination place;
 - Transport mode used.

③ Opinion and preferences

- Evaluation on conditions of public transport;
- Reason why you chose the public transport;
- Preferences between BRT and existing public transport on several conditions.

(3) Progress of the Field Survey

The field survey was conducted at the seven bus terminals as designated in the TOR (see Table 6.2.1). A total of 2,250 samples were interviewed, which is actually more than that of the specified figure in the TOR.

The data was compiled into a database by using Microsoft Access, and the database was submitted to the JICA Study team on 10th July.

Table 6.2.1 Implementation of the Survey

No.	Bus Terminal/Stop Name	Survey Date	Number of Samples Interviewed
1	Mwenge	11 June	291
2	Tandika	12 June	283
3	Mbagala	13 June	364
4	Posta	14 June	274
5	Ferry	14 June	285
6	Kariakoo	18 June	394
7	Ubungo	19 June	359
Total			2,250

(4) Summary Statistics of the Public Transport Passenger Interviews

Summary statistics (samples' overall characteristics and basic statistics) and preliminary analysis are presented in this section. Further analysis on travel patterns and preferences will be made later.

1) Sex

A random sampling was instructed to the surveyors at the field, but the population was unknown. Figure 6.2.1 shows the samples by sex. As shown in the figure the ratio of male sample is much higher, reaching 66% of the total. It is difficult to know this ratio represents the sex ration of the population or not at present. This issue will be discussed with the Household Interview Survey data for verification purpose.

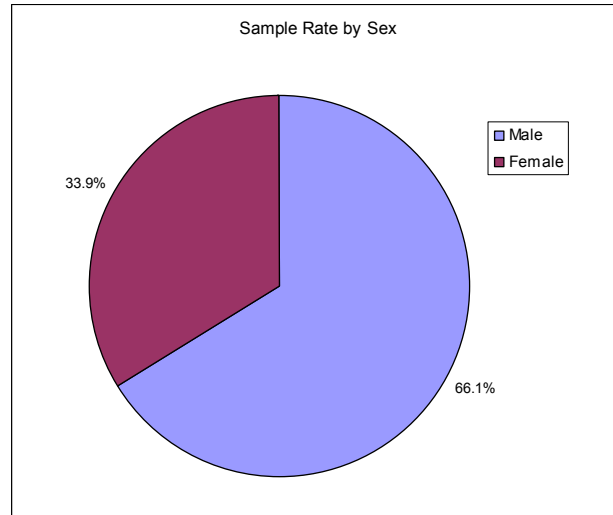


Figure 6.2.1 Sample Rate by Sex

2) Age distribution

Figure 6.2.2 shows age distribution of the samples and that of the year 2002 Census population in Dar es Salaam City. The percentage share of the age 10 – 19 in the sample is slightly lower than that of the census information, while the share of age 20 – 29 in the sample is slightly higher than the census figure.

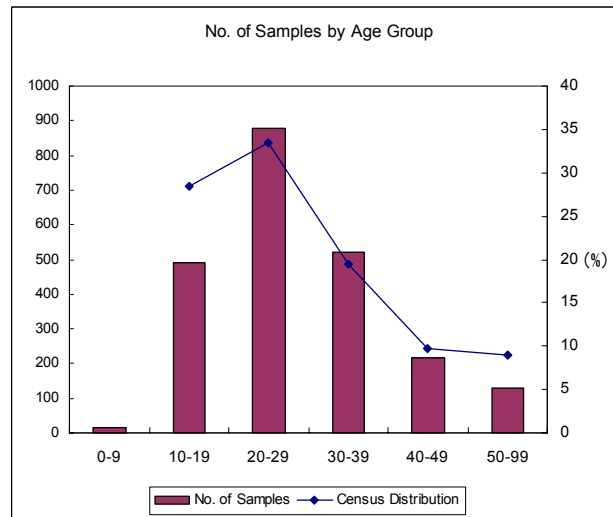


Figure 6.2.2 Sample Distribution by Age Group

3) Income

Figure 6.2.3 shows the distribution of monthly income of the samples. The mode (the most frequent sample) is observed at the income between 75,001 and 100,000 Tsh. Per month. An accumulation of the sample numbers up to 250,000 Tsh is about 80% of the total sample size.

These basic statistics will also be compared with the information of the HIS.

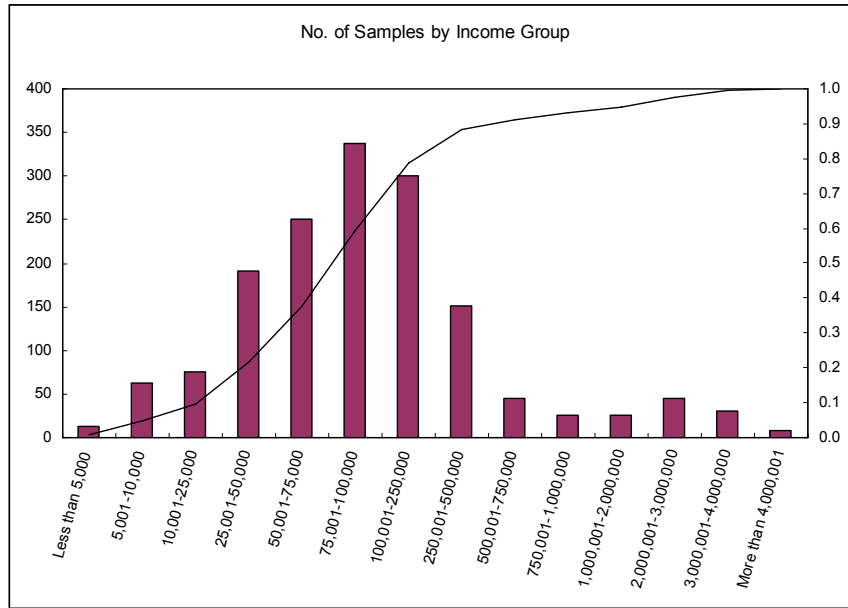


Figure 6.2.3 Sample Distribution by Income Rank

4) Trip Purpose

Figure 6.2.4 shows composition of trip purposes of the samples. Since the survey was conducted with the bus passengers in the morning and evening peak hours, this information does not necessary to represent the trip composition of all trips in Dar es Salaam.

A sum “to go working” and “to school” is about 54% (13.7% + 40.2%), which indicates that the sample may well represents “commuters” opinion.

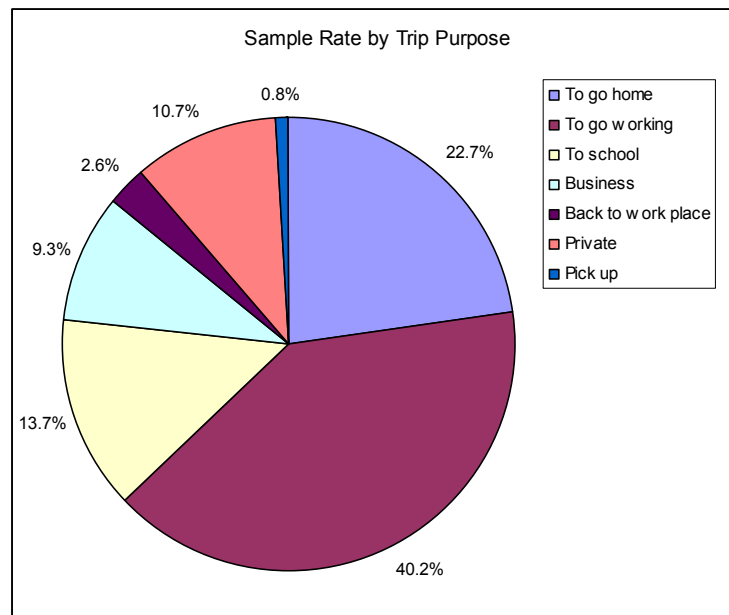


Figure 6.2.4 Sample Distribution by Income Rank

Appendix-6: Survey Forms

PTS-1 Public Transport Passenger Interview Survey Form

Code Table for Public Transport Passenger Interview Survey

CONFIDENTIAL **PUS-1: PUBLIC TRANSPORT PASSENGER INTERVIEW SURVEY** **Dar es Salaam Transport Policy and System Development Master Plan Study**

Survey Location Sheet No. Interviewer Supervisor

Sex Male Female

Age Occupation Occupation (if only Main Industry) Monthly Income Trip Purpose Address of Your Residence Code

Region District Municipality Ward Sub-Ward Landmark

Choose from Table-A Choose from Table-B Choose from Table-C Choose from Table-D

Origin Place 1: Same as your residence 2: Not same (Please specify below)

Address of Origin Place Code

Region District Municipality Ward Sub-Ward Landmark

Destination Place 1: Same as your residence 2: Not same (Please specify below)

Address of Destination Place Code

Region District Municipality Ward Sub-Ward Landmark

Total number of transfer you did and you will

(transfer includes walking to bus, bus waiting at bus stop, and the arrival)

Trip Information from Origin to Destination

Transfer Made (choose from Table-C)	Travel Time (min)	Public Transport Fare (Tshs)	Transfer Place (Name of bus stops, terminal etc.)	Waiting Time (min)
1st <input type="text"/>	<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"/>	<input type="text"/>
3rd <input type="text"/>	<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"/>	<input type="text"/>
5th <input type="text"/>	<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"/>	<input type="text"/>
7th <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Evaluation on the Current Condition

Check one of the which apply

1) Routing 2) Operation hours 3) Frequency 4) Travel speed (time) 5) Fare level 6) Access to bus stop 7) Waiting time at bus stop 8) On board comfort 9) On board security

10) Driver's driving behavior 11) Conductors' manner of services 12) Overall evaluation

3. Fare 4. Satisfied 5. Very satisfied

2. Not satisfied

Which elements do you think should be improved? Choose three elements from "1) Routing" to "11) Conductors' manner of services" in above

The most important / critical element

Secondary important / critical element

Tertiary important / critical element

Why did you travel by bus?

1. I have no choice other than buses. (No driving license, no car, etc.)

2. A car was not available on today.

3. Bus is preferable than car.

4. Others (Please specify below)

Preferences on Public Transport (Please refer "What is the Bus Rapid Transit System?")

Which do you prefer Bus Rapid Transit System (BRT) or Data data for each case given below?

Check one of the which apply

Case	1. Data data		2. BRT		Preference	
	Fare (Tshs)	Travel Time (min)	Fare (Tshs)	Travel Time (min)	1 Data data or BRT	2 BRT
1	300	60	300	40	<input type="checkbox"/>	<input type="checkbox"/>
2	300	60	400	40	<input type="checkbox"/>	<input type="checkbox"/>
3	300	60	500	40	<input type="checkbox"/>	<input type="checkbox"/>
4	300	60	600	40	<input type="checkbox"/>	<input type="checkbox"/>
5	300	60	800	40	<input type="checkbox"/>	<input type="checkbox"/>
6	300	60	1,000	40	<input type="checkbox"/>	<input type="checkbox"/>
7	300	60	1,200	40	<input type="checkbox"/>	<input type="checkbox"/>

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

Which do you prefer Bus Rapid Transit System (BRT) or Data data to make a same trip for each case given below?

Check one of the which apply

Case	1. Data data		2. BRT		Preference	
	Fare (Tshs)	Travel Time (min)	Fare (Tshs)	Travel Time (min)	1 Data data or BRT	2 BRT
1	600	90	600	45	<input type="checkbox"/>	<input type="checkbox"/>
2	600	90	800	45	<input type="checkbox"/>	<input type="checkbox"/>
3	600	90	1,000	45	<input type="checkbox"/>	<input type="checkbox"/>
4	600	90	1,300	45	<input type="checkbox"/>	<input type="checkbox"/>
5	600	90	1,500	45	<input type="checkbox"/>	<input type="checkbox"/>

WHAT IS THE BUS RAPID TRANSIT SYSTEM (BRT)?

1. BRT runs on exclusive lane.

Exclusive lane for BRT

BRT is not affected by any other vehicles.

BRT is able to maintain its speed and time table.

2. BRT is a kind of express bus.

Data dala

Bus stop

BRT

BRT is able to reduce number of stops.

3. BRT is an articulated long bus.

BRT can carry a lot of passengers more than any existing bus.

BRT will provide comfortable travel.

Data dala (small) (capacity 15 passengers)

Data dala (medium) (capacity 25-35 passengers)

BRT (capacity more than 100 passengers)

CODE TABLE FOR PUBLIC TRANSPORT PASSENGER INTERVIEW SURVEY

Table C.: Monthly Income

1. Less than 5,000	8. 250,001 - 500,000
2. 5,001 - 10,000	9. 500,001 - 750,000
3. 10,001 - 25,000	10. 750,001 - 1,000,000
4. 25,001 - 50,000	11. 1,000,001 - 2,000,000
5. 50,001 - 75,000	12. 2,000,001 - 3,000,000
6. 75,001 - 100,000	13. 3,000,001 - 4,000,000
7. 100,001 - 250,000	14. More than 4,000,001

Table D.: Trip Purpose

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

Table E.: Transport Mode

- Walking
- Bicycle
- Motorcycle
- Passenger Car
- Pick-up, Van
- Taxi
- Bhajsja
- Data dala
- Intercity bus
- School/Company bus
- 2 axes truck
- 3 axes truck
- Trailer truck, more than 3 axes truck
- Railway
- Ferry/boat

Table A.: Occupation

- Legislators, Administrators, and Managers
- Professionals
- Tech. and Associate Professionals
- Clerks
- Small Business Managers
- Service & Shop sales workers
- Street Vendors
- Craftsmen
- Farmers
- Livestock Keepers
- Fishermen
- Plant Operators, Assemblers
- Element. Occupations
- Other working
- Student (Elementary)
- Student (Secondary)
- Student (University / Institute)
- Student (Others)
- Not working but looking for work
- Not working but not looking for work
- Home Maker, Housewife
- Retired / Too old, pensioner
- Unable to work
- Others

Worker —

Student —

Non-worker —

Table B.: Main Industries

- Agriculture
- Forestry, Fishing & Other
- Mining & Quarrying
- Manufacturing
- Electricity, Gas and Water
- Construction
- Raw food sales (Un-cooked)
- Trade and Commerce
- Transport and Communication
- Finance & Insurance
- Education
- Public (Government)
- Others