添付資料 1

Project Review Sheets

Project Name	サンタクルス都市圏交通マスタープラン策定プロジェクト (Transport Improvement Master Plan Project for Santa Cruz Metropolitan Area)
Country	Bolivia
Consultant(s)	Nippon Koei Co., Ltd., Tamano Consultants Co., Ltd., OCG, Nippon Koei LAC Co., Ltd.
Study Period	2016-2017 (on-going)

Project Outline

(1) Objective

The goal of the Project is to improve the transport conditions in Santa Cruz Metropolitan Area. The outputs are:
(1) Transport Improvement Master Plan (M/P) for Santa Cruz Metropolitan Area
(2) Technical Transfer to formulate M/P
The components of the project include traffic surveys including the household interview survey, formulation of the Transport Improvement Master Plan (M/P) for the Metropolitan and the Central Area with Strategic Environment Analysis (SEA), proposal on the revision of the land use plan, two stakeholder meetings and two seminars, technical transfer of the M/P and training in Japan.

(2) Detail of Comprehensive Travel Survey

1) Name of the Survey: Household Interview Survey (HIS) and Commuter Survey (CS)

2) Implementation Year of the Field Survey: 2016, the surveys are on-going as of December 2016

3) First time?

■Yes, □ No (involving no update of the existing OD data),

□ No (involving update of the existing OD data)

Household travel survey of this scale is the first time.

4) Survey cost and time

Total cost for local consultant: (N/A) million yen

Input of JICA experts: planned (5) man-months, actual (more than 5*) man-months

Field survey duration: planned (2) months, actual (more than 7*) months

Total survey period including analysis: planned (5.5) months, actual (more than 10*) months

*As the surveys are on-going, the actual input might be changed.

5) Target area

Population: (1.8 in 2012 according to Census and 2.0 in 2016 according to estimation) million, No. of households: (0.4 in 2012 Census) million, Area: (5,437) km^2

No. of survey zones: (N/A)

6) Sampling method

□ Resident registration, ■Census data, □ Electoral roll, ■ Satellite image, □ Area sampling,
□ Sampling in the field, □ Rule-based (pls. specify),
□ Other ( )

The simplified census was conducted in urban areas by the institution of statistics of the Santa Cruz Departmental Government (ICE). This data was utilized for sampling in urban areas. Meanwhile, satellite images were utilized for sampling in rural areas.

7) Collected samples

(targeting 7,500 (HIS) and 8,500 (CS)) households or (targeting 30,000 (HIS) and 34,000 (CS)) persons, Sampling rate: (targeting 1.7 (HIS) and 2.0 (CS)) %

8) Collected trips

(N/A) trips, Outgoing ratio: (N/A) %, Trip rate: gross (N/A), net (N/A) / person-day

9) Surveyed household attributes:

■ Address, □ House type: ( ) types, ■ Household income: (8) classes,

■ Household expenditure: (8) classes, □ Transport expenditure: ( ) classes,

■ Number of vehicles owned: (6) types, □ Years of residence, □ Previous residence

■ Number of household members, ■ Number of children: age (age, sex, name, relation with head of household of all household members were surveyed) to (N/A) years

□ Other ( )

Remarks:

10) Surveyed household member attributes:

■ Age: (No) classes, ■ Sex, ■ Worker/student/other status: (18) types

■ Profession: (10) types, □ Position at work: ( ) types, ■ Industry: (22) types

■ Latest academic background, ■ Personal income: (8) classes,

■ Work/school address, □ Work/school hours and days,

□ Vehicle availability: ( ) types, ■ Driving license: (12) types,

■ Transport expenditure: (No) types

■ Transport allowance from the employer: (3) types

■ Other (Parking location type, parking cost, lunch trip to/from work place/school)

Remarks: Lunch break of some Latin American cities is 2 to 3 hours. Some workers and students return to their home during lunch break.

11) Surveyed trip attributes: (Only for the HIS)

■ Origin/destination, ■ Type of O/D place: (20) types, ■ Departure/arrival time

■ Purpose: (7) purposes, ■ Cost, ■ Transfer points: (maximum of 10) unlinked trips

■ Travel modes: (19) modes, ■ Driver/passenger, ■ Number of occupants

■ Access/egress cost and time, ■ Transit wait time, ■ Parking place, ■ Parking cost,

□ Total number of trips, ■ Reason for not making any trips: (5) types

□ Other ( )

Remarks:

12) OD matrices development:

(N/A due to on-going survey) OD matrices for □ One day, □ Certain period from ( ) hrs to ( ) hrs

13) Use of any mobile device and its result: Tablet devices with 8-inch display, Android OS and GPS are utilized for the HIS and the CS. Surveyors carry the tablet to the field, ask questions to respondents with it, and input the answer with it immediately. The special application including questionnaire was developed. However, paper-based trip memo is also used for the HIS respondent to record their activity of the survey date. The application requests surveyor to take photo of the house to be surveyed when they visit their respondent. The application automatically save a photo image, coordinates and time to the secured section of the table memory. This makes a surveyor difficult to cheat. Surveyors are also requested to take photo of all household members as long as respondents agree.

The application can be utilized under both online and off-line environment. Google map component to identify coordinates of address can be utilized only under online environment while OpenStreetMap-based off-line map is available to input coordinates even under off-line environment. The application also has the function to upload the surveyed data online. Thus, the cloud server is established to manage survey results and monitor progress. The inputted and uploaded data can be downloaded online with user name and password due to cloud server.

In addition, the local consultant developed another application to monitor and instruct surveyors by themselves. This application has a function of providing sample lists, identify location of a

respondent, record their visit to household and so on.

14) Problems encountered:

1. Problems related with the tablet application

The tablet application was tested with a variety of users including programmers, the study team members, supervisors and surveyors in various locations such as Japan, office in Santa Cruz and the field. The pilot survey was also conducted before the main survey. However, program errors and bugs were observed during the survey implementation.

The errors and bugs at the beginning stage include error of skipping questions by application due to wrong jump in the application, error in converting comma "," and period ".", error in saving inputted data and other minor bugs.

After the beginning stage, the number of report of errors and bugs from the field decreased. However, other problems are observed after completing tens and hundreds of household per a tablet. The tablet application freezes or closes during the survey implementation. Although all the inputted data is automatically stored in the tablet, surveyors have to restart the tablet to continue their survey. As the errors occurred haphazardly, identification of a cause and modification took time.

The other problem is related with upload of the surveyed data. While most of the surveyed data were uploaded successfully, a part of household of specific tablets cannot be uploaded to the cloud server correctly. Differences between the uploaded data and the data in the tablet are observed. As the local consultant initially utilized the uploaded data to estimate salary of surveyors, it also affected motivation of surveyors.

Due to the abovementioned series of problems on the tablet application, some surveyors demotivated and resigned. It also should be noted that some candidates of a surveyor are not able to use a tablet device while they were screened out in the evaluation examination of training. Other problem is that there are surveyors who cannot use tablet map component. They inputted locations after they return to the office with help of other surveyors.

2. Problems related with field survey

Some respondents, especially households in high-income group, rejected to cooperate the survey.

As the Census survey by the institution of statistics of the Santa Cruz Departmental Government (ICE) allows surveyor to collect information from neighborhood in case the visited household is not available during the survey, information might not be correct. Thus, some surveyors of HIS and CS cannot find the sampled household.

Since the questionnaire asks lots of private matters which might not be directly related with transport from a standpoint of a respondent such as personal income, age, school location of daughters and sons; some respondents complained by contacting Departmental Government or posting private facebook group page. Taking photo of household members also gave impression that a surveyor is going to use it for different purposes. Therefore, the survey method was revised not to take a photo of a household member.

In the area with security concern, some surveyors were stolen their tablet devices. Other surveyor faced rejection from residents, and he is surrounded and threatened by the residents.

15) Usage of existing zonal population data to develop/update OD matrices: N/A

(3) Supplemental Transport Surveys

(As the model is under preparation, the following answers on "utilized for modeling" are just a plan.)

1) ■ Cordon line survey: (8) stations, Utilized for modeling? ■ Yes, □ No

3 survey stations are at the boundary of the entire study area called outer cordon. The other 5 stations

are at the boundary of urbanized area called inner cordon.

2) ■ Screenline survey: (no) lines, (23) stations, Utilized for modeling? ■ Yes, □ No

Due to dense road network, it is costly to cover all the road crossing a screenline. Thus, sectional traffic count survey at arterial roads was conducted.

3) □ Intersection traffic volume survey: ( ) intersections,

Utilized for (macro) modeling? □ Yes, □ No

4) □ Public transport OD interview survey: ( ) stations, Utilized for modeling? □ Yes, □ No

5) ■ Parking survey: (about 100*) stations, Utilized for modeling? □ Yes, ■ No

*Parking capacity and demand survey for peak 2 hours at about 100 off-street parking lots was conducted. On-street parking survey was conducted on 50 km of roads in the city center. In addition, license plate survey was conducted at 10 sections of roads in the city center.

6) ■ Stated Preference survey: (1,000) samples, Utilized for modeling? ■ Yes, □ No

7) ■ Travel speed survey: (15) routes, Utilized for modeling? □ Yes, ■No

8) ■ Freight cargo survey: (200**) stations, Utilized for modeling? ■ Yes, □ No

**Interview survey (mainly by telephone and fax) to 200 companies and acquiring one-week GPS truck record of 40 trucks.

9) ■ Road inventory survey, Utilized for modeling? ■ Yes, □ No

The road inventory survey was conducted mainly by desk work with satellite images of Google Earth by department staffs.

10) ■ Other survey 1: (Vehicle Occupancy Survey), Utilized for modeling? ■ Yes, □ No

Contents: Vehicle occupancy was conducted at 5 locations of the screeline survey for 16 hours to estimate average occupancy by vehicle type.

11) ■ Other survey 2: (Bus Frequency Survey), Utilized for modeling? ■ Yes, □ No

Contents: Bus frequency survey was conducted at 10 locations of the screenline survey for 16 hours. The number of bus crossing the target line

12) □ Other survey 3: ( ), Utilized for modeling? □ Yes, □ No

Contents:

13) Use of any mobile device and its result: GPS devices were utilized for the Travel Speed Survey.

(4) Activity Diary Survey (ADS)

1) Conducted? ■Yes, □ No

2) If yes, (1,800) persons and (900) households at intervals of (15) minutes for (1) days from (N/A) survey zones

The sample of ADS is sub-sampling of the CS. 2 members of 1 household are randomly selected.

3) Survey cost and time

Total cost for local consultant: (N/A) million yen

Field survey duration: planned (1) months, actual (more than 2 (on-going)) months

Total survey period including analysis: planned (3) months, actual (more than 4 (on-going)) months

4) Major result

Outgoing ratio: (N/A) %, Trip rate: gross (N/A), net (N/A) / person-day

5) Surveyed trip attributes:

■ Origin/destination, □ Type of O/D place: ( ) types, ■ Departure/arrival time

□ Purpose: ( ) purposes, □ Cost, □ Transfer points: ( ) unlinked trips

■ Travel modes: (19) modes, □ Driver/passenger, □ Number of occupants
□ Access/egress cost and time, □ Total number of trips
□ Reason for not making any trips: ( ) types

6) Use of any mobile device and its result: None. Apart from the HIS/CS, the ADS is being implemented manually with paper-based survey form.

7) Main purpose/usage of ADS: Verification of trip rate

(5) Socioeconomic Survey (if not included in the Comprehensive Travel Survey)

1) Conducted? □ Yes, ■ No
2) If yes, name of the Survey:
3) Implementation Year of the Field Survey:
4) Survey cost and time
Total cost for local consultant: ( ) million yen
Input of JICA experts: planned ( ) man-months, actual ( ) man-months
Field survey duration: planned ( ) months, actual ( ) months
Total survey period including analysis: planned ( ) months, actual ( ) months
5) Target area
Population: ( ) million, No. of households: ( ) million, Area: ( ) km^2
No. of survey zones: ( )
6) Collected samples
( ) households or ( ) persons, Sampling rate: ( ) %
7) Surveyed household attributes:
□ Address, □ House type: ( ) types, □ Household income: ( ) classes,
□ Household expenditure: ( ) classes, □ Transport expenditure: ( ) classes,
□ Number of vehicles owned: ( ) types, □ Years of residence, □ Previous residence
□ Number of household members, □ Number of children: age ( ) to ( ) years
8) Surveyed household member attributes:
□ Age: ( ) classes, □ Sex, □ Worker/student/other status: ( ) types
□ Profession: ( ) types, □ Position at work: ( ) types, □ Industry: ( ) types
□ Latest academic background, □ Personal income: ( ) classes,
□ Vehicle availability: ( ) types, □ Transport expenditure: ( ) types
□ Transport allowance from the employer: ( ) types
9) Use of any mobile device and its result:

10) Problems encountered:

11) If other socioeconomic survey data were utilized, provide the detail:

(6) Demand Forecast Modeling Detail

As the demand forecast work have just started, the information below is a plan.
1) First time?

□ Yes, ■ No (involving no update of the existing model),
□ No (involving update of the existing model)

2) Work period for modeling
Input of JICA experts: planned (4.5) man-months, actual (N/A) man-months
Modeling work period: planned (1) months, actual (N/A) months
Total work period including forecast: planned (10) months, actual (N/A) months

3) Target area
Population: (2.0) million, Area: (5,437) km^2
No. of traffic analysis zones (TAZs): (N/A) internal and (N/A) external TAZs

4) Strata for modeling
Total (N/A) household classes:
■ by household income, □ by the number of vehicles owned by household,
□ by residential type, □ Other ( )
Total (4 - 5) trip purposes:
■ home-based and non-home-based, □ destination-type-based (including to-home),
□ Other ( )
Total (4) travel modes:
■ walk all the way (not included in network assignment),
□ other non-motorized (included in network assignment),
■ motorcycle, ■ car, □ van, □ small truck, □ medium truck, □ large truck,
■ transit, □ transit (rapid service)
■ income-class-based with different value of time

5) Target time period for modeling:
■ one day, □ morning peak, □ evening peak, , □ Other ( )
Reason for this selection: To estimate yearly economic benefit of projects.

6) Trip production/attraction model
■ Aggregated (regression analysis), □ Disaggregated ( )
( ) models developed in ■ Excel, □ JICA-STRADA, □ CUBE, ■ Other (model development with Excel and estimation with CUBE)
Problems or issues:

7) Trip distribution model
□ Aggregated (fratar method), ■ Aggregated (gravity model),
□ Aggregated (aggregated logit model), □ Disaggregated ( )
( ) models developed in □ Excel, □ JICA-STRADA, □ CUBE, ■ Other (model development with Excel and estimation with CUBE)
Problems or issues:

8) Modal split model
■ Aggregated (aggregated logit model), □ Disggregated (disaggregated logit model),
□ Disaggregated ( )
( ) models developed in □ Excel, □ JICA-STRADA, ■ CUBE, ■ Other (model development with Biogeme and estimation with CUBE)
Problems or issues:

9) Network assignment model

□ Aggregated (incremental assignment), ■Aggregated (user-equilibrium assignment),

■ Aggregated (transit assignment), □ Disggregated (microsimulation model),

The model was run in □ JICA-STRADA,■ CUBE, □ other ( )

Usage of any existing digital information: ■ GIS, □ CAD, □ Open Street Map, □ Google Map,

■ Google Earth, □ Other ( )

Google Earth was utlized to prepare road network data especially to check number of lanes and pavement condition.

Problems or issues:

10) Technology transfer of the model

□ Yes (on the job), ■ Yes (training sessions), □ No

(N/A) persons from (N/A) organizations were targeted for technology transfer.

Duration of training: (N/A) □ months, □ days, □ hours

Problems or issues:

11) Model improvement or redevelopment after the project?

□ Yes (improvement), □ Yes (redevelopment), □ No

Remarks:

N/A due to on-going project

(7) Development Needs that are Expected of the Project

1) Additional Projects/Studies (e.g. pre-F/S or pilot projects) within the Scope of the Project

None, at this moment.

Remarks (or unique situation):

2) Additional Projects/Studies that were Derived from the Project after its Completion

N/A

3) Future Direction of the Development Needs

Infrastructure/equipment: □ Road, □ Flyover/underpass, □ Rail-based transport,

□ Bus-based transport, □ ITS ( ), □ Other ( )

Policies: □ TOD, □ Road/area Pricing, □ Parking Pricing, □ TDM ( ),

Capacity development: □ Planning, □ Engineering, □ Governance, □ Other ( )

Remarks: N/A due to on-going project

4) Trend of Cooperation by Other Donors:

So far, Bolivian central government is planning to construct urban railway system with funding from private sector.

5) Perspective of usage of the transport data, model and M/P in light of the above situation:

If the demand forecast complete, it might be utilized for series of transport project including transit

system and road network development.

Project Name	総合交通計画管理能力向上プロジェクト（MUCEP） The Project for Capacity Development on Transportation Planning and Database Management in the Republic of the Philippines (MUCEP)
Country	Philippine
Consultant(s)	ALMEC Corporation, Oriental Consultants Global
Study Period	2011-2015

Project Outline

(1) Objective

MUCEP's overall goal is to enable the DOTC to prepare a public transportation plan for Metro Manila. The project aims to improve public transportation planning for Metro Manila, including coordination among relevant agencies, to be spearheaded by the DOTC. The expected outputs of the project are listed below:

(a) Output 1: Improved capacity to manage the Metro Manila transportation database.
(b) Output 2: Improved capacity to plan the public transportation network of Metro Manila.
(c) Output 3: Improved capacity to coordinate and formulate policies on public transportation network development in Metro Manila.

(2) Detail of Comprehensive Travel Survey

1) Name of the Survey: Household Interview Survey (HIS)

2) Implementation Year of the Field Survey: 2014

3) First time?

□ Yes, ■ No (involving no update of the existing OD data),

□ No (involving update of the existing OD data)

4) Survey cost and time

Total cost for local consultant: (20.31) million yen, whole survey: 22.01 million yen

Input of JICA experts: planned (7.7) man-months, actual (9.1) man-months

Field survey duration: planned (7.0) months, actual (29.6) months

Total survey period including analysis: planned (34.6) months, actual (49.2) months

Remarks: PT survey was conducted by JICA and counterpart for enhancement of the capacity of database management. However, in a part of ensuing budjet and bid of almost part of survey, there was misslighnment between local consultants and counterpart. The study team proposed the extension of expiration date of 15 months, and the date was extended by JCC and JICA in Nov. 2013. Hence, the project activity was finished with the deley of 3 months and 1 year comparing with originating schedule. Input Of JICA expert includes transffering technology as to traffic survey. Input of JICA experts excludes transfer technology.

5) Target area

Population: (18.049 (as of 2012 estimation)) million, No. of households: (5.10(as of 2012 estimation)) million, Area: (3,954.4) km^2

No. of survey zones: (432 traffic analysis zones)

6) Sampling method

□ Resident registration, ■ Census data, □ Electoral roll, □ Satellite image, □ Area sampling (Sampling in the field), □ Rule-based (pls. specify),

□ Other ( )

Remarks: 2012 population was estimated by 2010 census data.

7) Collected samples

(51,330) households or (177,489) persons, Sampling rate: (1.01%)

Remarks: -

8) Collected trips

(266,078) trips, Outgoing ratio: (87.8) %, Trip rate: gross (1.97), net (2.26) / person-day

Remarks: -

9) Surveyed household attributes:

■ Address, ■ House type: (own, rent) types, ■ Household income: (17) classes,

□ Household expenditure: ( ) classes, □ Transport expenditure: ( ) classes,

■ Number of vehicles owned: (16 (Bicycle, motorcyclo, Car/Jeep, Pedicab, Tricycle, Taxi, Filcab, HOV, Jeepney, Minibus, Standard bus, School/Company/Tourist bus, Pick-up/Delivery truck, Truck, Trailer, Others)) types, ■ Years of residence, ■ Previous residence

■ Number of household members, ■ Number of children: age (0) to (4) years

■ Other (parking garage)

10) Surveyed household member attributes:

■ Age: ( ) classes, ■ Sex, ■ Worker/student/other status: ( ) types

■ Profession: (14) types, □ Position at work: ( ) types, ■ Industry: (17) types

■ Latest academic background, ■ Personal income: (18) classes,

■ Work/school address, ■ Work/school hours and days,

■ Vehicle availability: (vehicle ownership 3 types) types, ■ Driving licence: (4) types,

□ Transport expenditure: ( ) types

□ Transport allowance from the employer: ( ) types

■ Other (differently Abled, intension of cooperating additional survey)

Remarks:

11) Surveyed trip attributes:

■ Origin/destination, ■Type of O/D place: (11) types, ■ Departure/arrival time

■ Purpose: (13) purposes, ■ Cost, ■ Transfer points: (5) unlinked trips

■ Travel modes: (27) modes, ■ Driver/passenger, □ Number of occupants

□ Access/egress cost and time, □ Transit wait time, ■ Parking place (4) types, ■ Parking cost,

□ Total number of trips, □ Reason for not making any trips: ( ) types

■ Other (reason of modal choice, Trip assessment, Trip purpose of companion, if any, opinion for congestion, safety, PT, Environment and transportation measures)

12) OD matrices development:

( ) OD matrices for ■ One day, □ Certain period from ( ) hrs to ( ) hrs

13) Use of any mobile device and its result: No

14) Problems encountered: When the study team make the database using the result of survey, the inportant problem was occurred that the car ownership rate is too low (4%). Because the study team found the reason that there is the bias of low income, the database was finalized by the modification based on car registration data.

15) Usage of existing zonal population data to develop/update OD matrices: Available demographic data was population and household census 2010 only, therefore, population and number of households as of 2014 were estimated by framework of the study area, and HIS was performed to built present OD matrices.

(3) Supplemental Transport Surveys

1) ■ Cordon line survey: (49) stations, Utilized for modeling? ■ Yes, □ No
2) ■ Screenline survey: (3) lines, (50) stations, Utilized for modeling? ■ Yes, □ No
3) □ Intersection traffic volume survey: ( ) intersections,
Utilized for (macro) modeling? □ Yes, □ No
4) □ Public transport OD interview survey: ( ) stations, Utilized for modeling? □ Yes, □ No
5) □ Parking survey: ( ) stations, Utilized for modeling? □ Yes, □ No
6) □Stated Preference survey: ( ) samples, Utilized for modeling? □ Yes, □ No
7) □ Travel speed survey: ( ) routes, Utilized for modeling? □ Yes, □ No
8) □ Freight cargo survey: ( ) stations, Utilized for modeling? □ Yes, □ No
9) □ Road inventory survey, Utilized for modeling? □ Yes, □ No
10) □ Other survey 1: ( ), Utilized for modeling? □ Yes, □ No
Contents:
11) □ Other survey 2: ( ), Utilized for modeling? □ Yes, □ No
Contents: traffic volume of inland waterway freight traffic, characteristics of inland waterway freight traffic and transport at 6 major waterways and 10 freight operators.
12) □ Other survey 3: ( ), Utilized for modeling? □ Yes, □ No
Contents:
13) Use of any mobile device and its result: No

(4) Activity Diary Survey (ADS)

1) Conducted? □ Yes, ■ No
2) If yes, ( ) persons and ( ) households at intervals of ( ) minutes for ( ) days from ( ) survey zones
3) Survey cost and time
Total cost for local consultant: ( ) million yen
Field survey duration: planned ( ) months, actual ( ) months
Total survey period including analysis: planned ( ) months, actual ( ) months
4) Major result
Outgoing ratio: ( ) %, Trip rate: gross ( ), net ( ) / person-day
5) Surveyed trip attributes:
□ Origin/destination, □ Type of O/D place: ( ) types, □ Departure/arrival time
□ Purpose: ( ) purposes, □ Cost, □ Transfer points: ( ) unlinked trips
□ Travel modes: ( ) modes, □ Driver/passenger, □ Number of occupants

□ Access/egress cost and time, □ Total number of trips
□ Reason for not making any trips: ( ) types

6) Use of any mobile device and its result:

7) Main purpose/usage of ADS:

(5) Socioeconomic Survey (if not included in the Comprehensive Travel Survey)

1) Conducted? □Yes, ■No
2) If yes, name of the Survey:
3) Implementation Year of the Field Survey:
4) Survey cost and time
Total cost for local consultant: ( ) million yen
Input of JICA experts: planned ( ) man-months, actual ( ) man-months
Field survey duration: planned ( ) months, actual ( ) months
Total survey period including analysis: planned ( ) months, actual ( ) months
5) Target area
Population: ( ) million, No. of households: ( ) million, Area: ( ) km^2
No. of survey zones: ( )
6) Collected samples
( ) households or ( ) persons, Sampling rate: ( ) %
7) Surveyed household attributes:
□ Address, □ House type: ( ) types, □ Household income: ( ) classes,
□ Household expenditure: ( ) classes, □ Transport expenditure: ( ) classes,
□ Number of vehicles owned: ( ) types, □ Years of residence, □ Previous residence
□ Number of household members, □ Number of children: age ( ) to ( ) years

8) Surveyed household member attributes:
□ Age: ( ) classes, □ Sex, □ Worker/student/other status: ( ) types
□ Profession: ( ) types, □ Position at work: ( ) types, □ Industry: ( ) types
□ Latest academic background, □ Personal income: ( ) classes,
□ Vehicle availability: ( ) types, □ Transport expenditure: ( ) types
□ Transport allowance from the employer: ( ) types

9) Use of any mobile device and its result:

10) Problems encountered:

11) If other socioeconomic survey data were utilized, provide the detail:

(6) Demand Forecast Modeling Detail

1) First time?
□ Yes, ■ No (involving no update of the existing model),

□ No (involving update of the existing model)

2) Work period for modeling

Input of JICA experts: planned (2.5) man-months, actual (5.0) man-months

Modeling work period: planned (2.0) months, actual (3.2) months

Total work period including forecast: planned (2.5) months, actual (5.0) months

3) Target area

Population: (18.049 (as of 2012 estimation)) million, Area: (3,954.4) km^2

No. of traffic analysis zones (TAZs): (365) internal and (67) external TAZs

4) Strada for modeling

Total (2) household classes:

□ by household income, ■ by the number of vehicles owned by household,

□ by residential type, □ Other ( )

Remarks: -

Total (5) trip purposes: Home to Work, Home to School, Private trip, Business Trip, To home

■ home-based and non-home-based, ■ destination-type-based (including to-home),

□ Other ( )

Total (5) travel modes: Truck, Jeepney, Motorcycle, Car, Bus

■ walk all the way (not included in network assignment),

□ other non-motorized (included in network assignment),

■ motorcycle, ■ car, □ van, □ small truck, □ medium truck, ■ large truck,

■ transit, □ transit (rapid service)

□ income-class-based with different value of time

5) Target time period for modeling:

■ one day, □ morning peak, □ evening peak, □ Other ( )

Reason for this selection:

This study was masterplan base. Daily demand forecast was reqired to calculate yearly economic/finance analysis.

6) Trip production/attraction model

■ Aggregated (regression analysis), □ Disaggregated ( )

(10) models developed in □ Excel, ■ JICA-STRADA, ■ CUBE, □ Other ( )

Problems or issues:

Trip production/attraction model was authodox aggregation model by socio-economic data.

7) Trip distibution model

■ Aggregated (fratar method), □ Aggregated (gravity model),

□ Aggregated (aggregated logit model), □ Disaggregated ( )

( ) models developed in □ Excel, ■ JICA-STRADA, ■ CUBE, □ Other ( )

Problems or issues:

Socio-economic frame was a trend frame only in this study. Therefore, frater method basically was adopted as trip distribution model in this study.

8) Modal split model

■ Aggregated (aggregated logit model), ■ Disggregated (disaggregated logit model),

□ Disaggregated ( )

(10) models developed in □ Excel, ■ JICA-STRADA, ■CUBE, □ Other ( )

Problems or issues:

Modal split model basically was authodox binaly choice model in this study.

9) Network assignment model

□ Aggregated (incremental assignment), ■ Aggregated (user-equilibrium assignment),

□ Aggregated (transit assignment), □ Disggregated (microsimulation model),

The model was run in ■ JICA-STRADA, ■ CUBE, □ other ( )

Usage of any existing digital information: ■ GIS, □ CAD, □ Open Street Map, □ Google Map,

□ Google Earth, □ Other ( )

Problems or issues:

Base network of GIS data was prepared by Department of Public Works and Highways (DPWH) and Metropolitan Manila Development Authority (MMDA).

10) Technology transfer of the model

■ Yes ( ), □ No

(19, average 9) persons from (4) organizations were targeted for technology transfer.

Duration of training: (11) □ months, ■ days, □ hours

Problems or issues: Almost trainee was not used to be prepare for transpotation data and analysis.

11) Model improvement or redevelopment after the project?

□ Yes (improvement), □Yes (redevelopment), ■ No

Remarks: -

(7) Development Needs that are Expected of the Project

1) Additional Projects/Studies (e.g. pre-F/S or pilot projects) within the Scope of the Project

→ None

2) Additional Projects/Studies that were Derived from the Project after its Completion

→ None

3) Future Direction of the Development Needs

Infrastructure/equipment: ■ Road, □ Flyover/underpass, ■ Rail-based transport,

■ Bus-based transport (BRT), □ ITS ( ), □ Other ( )

Policies: ■ TOD, □ Road/area Pricing, □ Parking Pricing, □ TDM ( ),

Capacity development: ■ Planning, ■ Engineering, ■ Governance, □ Other ( )

Remarks: About development needs, the counterpart is a road sector. Hence, the counterpart is interested in all part of road traffic field, and plans large ring road and highway to ease seriously traffic congestion. In the while, in the Philippines, the needs of chaebol companies sometime is related for development. So, they concern with the plan related TOD and urban development. The government was interested in tools for development evaluation theirself. Hence the government wanted to be possible for updating database, conducting lage survey and evaluation.

4) Trend of Cooperation by Other Donors:

→ None

5) Perspective of usage of the transport data, model and M/P in light of the above situation:

They concern with capacity building. in this project, based on requirement of counter part which want to learn practical contents, the training for evaluation of small pulic transport project was conducted for enhancement of consideration adjustment capacity and formulate policy. In the training, instead of lecture and practice hour, working members planed practically about bus routes and inprovement of public transport using CUBE in theirself and the opportunity of Q&A was

optimally provided for by study member. JICA experts adviced to counter part and was consulted by counterpart member about the forecast model using the MUCEP database.

And, Study team realized to establish TPU unit which manages the MUCEP database steadily. The previous administration eagered to conducted large home interview survey in all region of Philippine by TPU as a center.

It's not normal to divide HIS to JICA and Counterpart. But the result of this study gave the counterpart much experience about managing and producing the database and evaluation using the database with delay.

Project Name	ダッカ都市交通戦略計画改訂プロジェクト（有償勘定技術支援） (Project on the Revision and Updating of Strategic Transport Plan for Dhaka)
Country	Bangladesh
Consultant(s)	Almec, OCG, Katahira
Study Period	2014-2016

Project Outline

(1) Objective

I. To revise and update M/P the STP (Strategic Transport Plan) for Dhaka which was approved by the GOB (Government of Bangladesh) eight years before.
II. To select plans and formulate a road map that would consist of high priority projects to solve current urban transport issues.

(2) Detail of Comprehensive Travel Survey

1) Name of the Survey: Household Interview Survey (HIS)

2) Implementation Year of the Field Survey: 2014

3) First time?

□ Yes, □ No (involving no update of the existing OD data),

■ No (involving update of the existing OD data) → updating DHUTS OD data in central Dhaka, which had not been cleaned yet

4) Survey cost and time

Total cost for local consultant: (27.19) million yen = 20,631,000 BDT as of August 2014

Input of JICA experts: planned (1.75) man-months, actual (2) man-months

Field survey duration: planned (2 (July – August)) months, actual (2.5 (Sept – early November)) months

Total survey period including analysis: planned (7) months, actual (8 (mid Jul – mid March)) months

Remarks: The reason behind the delay of the survey duration was the religious holiday that took place in the middle of the field survey period as well as a strike.

5) Target area

Population: (9.83) million, No. of households: (2.4 (assume 1HH=4.21 HHmember)) million,

Area: (1,598) km^2 → including DHUTS area

No. of survey zones: (192)

6) Sampling method

□ Resident registration (difficult to obtain), ■ Census data, □ Electoral roll, □ Satellite image,
■ Area sampling (Sampling in the field), □ Rule-based (pls.specify),
■ Other (utilize previous study's sampling method (DHUTS))

7) Collected samples

(15,897) households or (66,246) persons, Sampling rate: (0.67 (target 0.75%)) %

Remarks: Sampling rate was low due to budget constraints. It was 1% even in the JICA's original TOR.

8) Collected trips

( ) trips, Outgoing ratio: ( ) %, Trip rate: gross (Male=2.26 ; Female=1.18),
net ( ) / person-day

Remarks: Female's trip rate in Dhaka is lower than male's trip rate with a cultural/religious background that females tend to stay at home.

9) Surveyed household attributes:

■ Address, ■ House type: (Own ; Rent) types, ■ Household income: (21) classes,
□ Household expenditure: ( ) classes, □ Transport expenditure: ( ) classes,
■ Number of vehicles owned: (5 (Bicycle, MC, Car, Private Auto Rickshaw, Other Automobile) types, □ Years of residence, □ Previous residence
■ Number of household members, □ Number of children: age ( ) to ( ) years
■ Other (Rent Expense, Electricity Expense)
Remarks:

10) Surveyed household member attributes:

■ Age: ( ) classes, ■ Sex, □ Worker/student/other status: ( ) types
■ Profession: (15) types, □ Position at work: ( ) types, ■ Industry: (22) types
□ Latest academic background, ■ Personal income: (21) classes,
■ Work/school address (in TAZ), □ Work/school hours and days,
■ Vehicle availability: (5) types, ■ Driving licence: (Own, Not Own) types,
□ Transport expenditure: ( ) types
□ Transport allowance from the employer: ( ) types
■ Other (Secondary Occupation, phone numbers (for survey follow up purpose))

Remarks:

11) Surveyed trip attributes:

■ Origin/destination, ■ Type of O/D place: (4) types, ■ Departure/arrival time
■ Purpose: (7) purposes, ■ Cost, ■ Transfer points: (7) unlinked trips
■ Travel modes: (19) modes, □ Driver/passenger, □ Number of occupants
□ Access/egress cost and time, □ Transit wait time, □ Parking place, □ Parking cost,
■ Total number of trips, □ Reason for not making any trips: ( ) types
□ Other ( )

Remarks:

12) OD matrices development:

( ) OD matrices for ■ One day, □ Certain period from ( ) hrs to ( ) hrs

13) Use of any mobile device and its result: No, there was only limited budget for the survey. Mobile device is more expensive and it takes more time for surveyors to get used to it.

During the study period, the University of Tokyo (Prof. Shibasaki) conducted survey and data analysis with the CDR (call detail records) for comparison with the RSTP OD matrices as part of the research funded by JICA. Collected data was provided by one of the cell phone carriers in Dhaka which took a market share of 40% in Dhaka. Considering that the data recording process occurred every time a phone call was made, size of collected data expanded quickly on a day by day. However, demographic data such as household profile and modes used were not available. Therefore, although the size of the data is big, it was hard to complement the HIS.

14) Problems encountered: Holiday season (moslems's holiday of ied) delayed the survey process. There was also a strike during the field survey. These two problems caused the survey duration in general two weeks longer.

Also, there was no Japanese expert involved in the DHUTS PT Suvey, which focused on the central area of Dhaka, and the survey was managed nearly directly by a local consultant. As a result, database made out of DHUTS PT Survey was far from clean and required enormous data cleaning work. Moreover, the RSTP Study Team were not allowed to contact the local consultant but only

communicated through DHUTS's primary consultant, that was, Katahira Engineering International. Survey form also required syncronization since the database of DHUTS was going to be utilized. Ultimately, the RSTP survey preparation process took a long time to conduct.

15) Usage of existing zonal population data to develop/update OD matrices: There was no latest population data other than census data 2011. The previous one was coducted 2001. So, they had to estimate the population for 2014 based on the census data 2001 and 2011.

(3) Supplemental Transport Surveys

1) ■ Cordon line survey: (35) stations, Utilized for modeling? ■ Yes, □ No

Remarks: There was a small question about willingness to pay included in this survey. It was difficult and took a long time to get a permission for survey at the airport. Surveyors also needed some knowledge transfer from the Study Team to well understand the survey method.

2) ■ Screenline survey: (3) lines, (20) stations, Utilized for modeling? ■ Yes, □ No

3) □ Intersection traffic volume survey: ( ) intersections,
Utilized for (macro) modeling? □ Yes, □ No

Remarks: Intersection traffic survey was not conducted maybe de to the budgetary reason. The World Bank funded improvement of around 30 signalized intersection. However, even up to today, police is still required to control each one of them.

4) ■ Public transport OD interview survey: (5) stations, Utilized for modeling? ■ Yes, □ No

Remarks: There was a small question about willingness to pay included in this survey.

5) □ Parking survey: ( ) stations, Utilized for modeling? □ Yes, □ No

6) □ Stated Preference survey: ( ) samples, Utilized for modeling? □ Yes, □ No

7) □ Travel speed survey: ( ) routes, Utilized for modeling? □ Yes, □ No

8) □ Freight cargo survey: ( ) stations, Utilized for modeling? □ Yes, □ No

Remarks: Freight OD survey was not conducted because cargo trucks did not go through the city due to the restriction and the target for demand modeling was only person trip.

9) ■ Road inventory survey, Utilized for modeling? ■ Yes, □ No

10) □ Other survey 1: ( ), Utilized for modeling? □ Yes, □ No
Contents:

11) □ Other survey 2: ( ), Utilized for modeling? □ Yes, □ No
Contents:

12) □ Other survey 3: ( ), Utilized for modeling? □ Yes, □ No
Contents:

13) Use of any mobile device and its result: No

Remarks: Apart from the budget constraints, other traffic surveys were not conducted because selection was only for those which are useful for modeling. For example: intersection survey was not conducted mainly because of driver's low level of manners towards the traffic light. Freight OD survey was also not conducted because the target of the study was only the private car inside the city. Trucks were prohibited from entering the city.

(4) Activity Diary Survey (ADS)

1) Conducted? □ Yes, ■ No

2) If yes, ( ) persons and ( ) households at intervals of ( ) minutes for

( ) days from ( ) survey zones

3) Survey cost and time

Total cost for local consultant: ( ) million yen

Field survey duration: planned ( ) months, actual ( ) months

Total survey period including analysis: planned ( ) months, actual ( ) months

4) Major result

Outgoing ratio: ( ) %, Trip rate: gross ( ), net ( ) / person-day

5) Surveyed trip attributes:

□ Origin/destination, □ Type of O/D place: ( ) types, □ Departure/arrival time

□ Purpose: ( ) purposes, □ Cost, □ Transfer points: ( ) unlinked trips

□ Travel modes: ( ) modes, □ Driver/passenger, □ Number of occupants

□ Access/egress cost and time, □ Total number of trips

□ Reason for not making any trips: ( ) types

6) Use of any mobile device and its result:

7) Main purpose/usage of ADS:

(5) Socioeconomic Survey (if not included in the Comprehensive Travel Survey)

1) Conducted? □ Yes, ■ No

2) If yes, name of the Survey:

3) Implementation Year of the Field Survey:

4) Survey cost and time

Total cost for local consultant: ( ) million yen

Input of JICA experts: planned ( ) man-months, actual ( ) man-months

Field survey duration: planned ( ) months, actual ( ) months

Total survey period including analysis: planned ( ) months, actual ( ) months

5) Target area

Population: ( ) million, No. of households: ( ) million, Area: ( ) km^2

No. of survey zones: ( )

6) Collected samples

( ) households or ( ) persons, Sampling rate: ( ) %

7) Surveyed household attributes:

□ Address, □ House type: ( ) types, □ Household income: ( ) classes,

□ Household expenditure: ( ) classes, □ Transport expenditure: ( ) classes,

□ Number of vehicles owned: ( ) types, □ Years of residence, □ Previous residence

□ Number of household members, □ Number of children: age ( ) to ( ) years

8) Surveyed household member attributes:

□ Age: ( ) classes, □ Sex, □ Worker/student/other status: ( ) types

□ Profession: ( ) types, □ Position at work: ( ) types, □ Industry: ( ) types

□ Latest academic background, □ Personal income: ( ) classes,

□ Vehicle availability: ( ) types, □ Transport expenditure: ( ) types

□ Transport allowance from the employer: ( ) types

9) Use of any mobile device and its result:

10) Problems encountered:

11) If other socioeconomic survey data were utilized, provide the detail:

(6) Demand Forecast Modeling Detail

1) First time?

□ Yes, □ No (involving no update of the existing model),

■ No (involving update of the existing model)

2) Work period for modeling

Input of JICA experts: planned (3) man-months, actual (3) man-months

Modeling work period: planned (3) months, actual (3) months

Total work period including forecast: planned (3) months, actual (3) months

3) Target area

Population: (15.02) million, Area: (1598) km^2

No. of traffic analysis zones (TAZs): (141) internal and (49) external TAZs

4) Strata for modeling

Total (3) household classes:

■ by household income, □ by the number of vehicles owned by household,

□ by residential type, □ Other ( )

Total (8) trip purposes: Home to Work, Home to School, Home to Other, Work to Home, School to Home, Other to Home, Non-Home-Based to Other, Non-Home-Based to Business

■ home-based and non-home-based, ■ destination-type-based (including to-home),

□ Other ( )

Total (5) travel modes: Motorcycle, Car, CNG, Rickshaw, Bus and Train

□ walk all the way (not included in network assignment),

□ other non-motorized (included in network assignment),

■ motorcycle, ■ car, □ van, □ small truck, □ medium truck, □ large truck,

□ transit, □ transit (rapid service)

□ income-class-based with different value of time

5) Target time period for modeling:

■ one day, □ morning peak, □ evening peak, , □ Other ( )

Reason for this selection:

6) Trip production/attraction model

■ Aggregated (regression analysis), □ Disaggregated ( )

( ) models developed in □ Excel, □ JICA-STRADA, ■ CUBE, □ Other ( )

Problems or issues:

7) Trip distibution model

□ Aggregated (fratar method), ■ Aggregated (gravity model),

□ Aggregated (aggregated logit model), □ Disaggregated ( )

( ) models developed in □ Excel, □ JICA-STRADA, ■ CUBE, □ Other ( )

Problems or issues:

8) Modal split model

■ Aggregated (aggregated logit model), □ Disggregated (disaggregated logit model),
□ Disaggregated ( )
( ) models developed in □ Excel, □ JICA-STRADA, ■ CUBE, □ Other ( )
Problems or issues:

9) Network assignment model

□ Aggregated (incremental assignment), ■ Aggregated (user-equilibrium assignment),
■ Aggregated (transit assignment), □ Disggregated (microsimulation model),
The model was run in □ JICA-STRADA, ■ CUBE, □ other ( )
Usage of any existing digital information: □ GIS, □ CAD, □ Open Street Map, □ Google Map,
□ Google Earth, □ Other ( )
Problems or issues:

10) Technology transfer of the model

■ Yes (ocassionally on several progress report meetings), □ Yes (training sessions), □ No
(4) persons from (DTCA) organizations were targeted for technology transfer.
Duration of training: ( ) □ months,□ days, □ hours
Problems or issues: Though DTCA (Dhaka Transportation Coordination Authority) members as the counterpart of the study had high level of educational background, generally they had no interest in modeling. The period of assignment for the study was also too short before he/she is transferred to other agencies. Some counterparts for this project even had a background unrelated to transportation. Therefore, the Study team only emphasized the knowledge transfer on some basic concept of planning and the definition of a masterplan. The TOR of this study mentioned that knowledge transfer such as lecture and training sessions was included in the scope of project. However, it was never really applied because of bad experiences and insignificant results in previous studies (STP and DHUTS).

11) Model improvement or redevelopment after the project?

■ Yes (improvement), □ Yes (redevelopment), □ No
Remarks: The model developed in this study was utilized in the following pre F/S projects (for MRT Lines 1 and 5). Additional traffic count survey data was utilized to improve the model during the pre F/S and the model platform was changed from CUBE to JICA-STRADA.

(7) Development Needs that are Expected of the Project

1) Additional Projects/Studies (e.g. pre-F/S or pilot projects) within the Scope of the Project

→ Pre F/S of MRT Line 1 and 5, funded by JICA (in separate report)

Remarks (or unique situation): -

2) Additional Projects/Studies that were Derived from the Project after its Completion

→ Construction of MRT Line 6 by JICA

→ BRT Line 3 which was partially funded by ADB (north section up to the airport) and by the World Bank (rest of the line). However, the World Bank withdrew from the financing after D/D process.

→ MRT Line 2 and 4 : under planning stage

→ BRT Line 7 : under planning stage

3) Future Direction of the Development Needs

Infrastructure/equipment: ■ Road, □ Flyover/underpass, ■ Rail-based transport,

■ Bus-based transport (MRT feeder), □ ITS (no, too expensive), □ Other ( )

Policies: ■ TOD, ■ Road/area Pricing, ■ Parking Pricing, □ TDM ( ),

Capacity development: ■ Planning, ■ Engineering, ■ Governance, □ Other ( )

Remarks:

→ *Road* development was mainly aimed for the outskirts with a ring road concept.

→ *Flyover/underpass* was not an option since the existing road is too narrow and leaves no space for construction.

→ *BRT* was no longer suitable because the public transport demand was extremely high. Therfore, direction of public transport development is toward MRT and its feeder transport (bus-based development).

→ *TOD* was proposed for MRT stations in sattelite areas of Dhaka.

→ *TDM*'s main purpose in Dhaka is to shift people from private vehicle to public transport. However, it was not suitable because current public transport is very dirty and has low level of service. These facts discouraged people from shifting to public transport.

→ Although *road/area pricing* is considered for future development needs, nowdays, traffic volume was always high throughout the day. Therfore, peak hours is hard to identify for the pricing system.

→ *Traffic management* was not applicable mainly because of poor driving behavior of the citizen.

→ As for *capacity development*, empowerment of DMTC (Dhaka Mass Transit Company) as MRT operator in terms of governance, engineering, and panning, is needed.

4) Trend of Cooperation by Other Donors:

→ Main donor country for Dhaka is Japan (through JICA). Other donors are ADB and the World Bank. These organizations mostly are related to transportation sector.

→ Other countries/entities that are interested in developing Dhaka are United Nation, KOICA (Korea International Cooperation Agency), and German (GIZ), French, and Chinese governments.

5) Perspective of usage of the transport data, model and M/P in light of the above situation:

The World Bank is now utilizing database from this study for their future work in Dhaka. Also, database is accessible for the public with DTCA's consent.

Project Name	ベトナム国主要都市鉄道情報収集確認調査（METROS） (Data Collection Survey on Railways in Major Cities in Vietnam)
Country	Viet Nam
Consultant(s)	ALMEC Corporation, Nihon Koei, International Development Center of Japan
Study Period	2013-2016

Project Outline

(1) Objective

Under these circumstances, the "Data Collection Survey on Railways in Major Cities in Vietnam" (METROS Study) is conducted with the following objectives.

(i) to collect and review existing plans and data on transport and urban development, and especially those related to UMRT system;
(ii) to update urban traffic database by conducting necessary supplemental surveys;
(iii) to conduct demand analysis based on updated database on current UMRT network and individual lines which has been approved by the Prime Minister , based on the updated data.
(iv) to review current UMRT network and lines from technical and engineering viewpoint; and
(v) to make recommendations on the future development of UMRT systems based on the above.

Hanoi city

(2) Detail of Comprehensive Travel Survey

1) Name of the Survey: Household Interview Survey (HIS)

2) Implementation Year of the Field Survey: 2014

3) First time?

□ Yes, □ No (involving no update of the existing OD data),

■ No (involving update of the existing OD data)

Remarks:

4) Survey cost and time

Total cost for local consultant: (43) million yen

Input of JICA experts: planned (3) man-months, actual (3) man-months

Field survey duration: planned (1) months, actual (1) months

Total survey period including analysis: planned (3) months, actual (3) months

Remarks:

5) Target area

Population: (7. 6 (as of 2009)) million, No. of households: (2.06(as of 2009)) million,

Area: (4.2) km^2

No. of survey zones: (730 traffic analysis zones)

Remarks:

6) Sampling method

□ Resident registration, ■ Census data, □ Electoral roll, □ Satellite image, □ Area sampling (Sampling in the field), □ Rule-based (pls. specify),

□ Other ( )

Remarks:

7) Collected samples

(9,121 (+ 18,030[1)])) households or (100,168) persons, Sampling rate: (1.00) %

Remarks:

1) The centre of Hanoi City was covered by HIS conducted by TEDI in 2012 and the data was utilized.

In recently JICA wants to reduce the budjet for PT survey. So, because the transportation database is existing, the number of traffic count locations is increased for modification OD data, the JICA experts judge it's no issue.

8) Collected trips

(197,068) trips, Outgoing ratio: ( ) %, Trip rate: gross (4.00),

net ( ) / person-day

Remarks:

9) Surveyed household attributes:

■ Address, ■ House type: (Owned, rented, Borrowed, Others) types, ■ Household income: (0) classes,

□ Household expenditure: ( ) classes, □ Transport expenditure: ( ) classes,

■ Number of vehicles owned: (12 (Bicycle, motorcyclo, taxi=<7seat, car <=7seat(including semi truck), small bus (<=16seat),Med size bus (<=35seats), Light truck(<2.5tons), med size truck(2axis, 6weels), 3 axis truck, >=4-axis truck, others)) types, ■ Years of residence, ■ Previous residence

■ Number of household members, ■ Number of children: age ( ) to ( ) years

□ Other (telephone number, other income source, the no. of income erners, household condition (floor area, structure, maintenance, land use) , house-rent price, ptiority of finding house, hope of the house)

Remarks: Because not only transportation problem but also the urban problem should be focused, the question as to social economics was added on the PT survey sheets additionally.

To reduce the budjet, the study team aim to utilize the database of TEDI which is the famous local consultants of demand forecast. However, the cost and travel time was not asked to intervewee. Its not easy to modify the OD data using the result of TEDI. Hence The number of the traffic count survey was increased to modifiing OD.

10) Surveyed household member attributes:

■ Age: ( ) classes, ■ Sex, ■ Worker/student/other status: ( ) types

■ Profession: (14) types, □ Position at work: ( ) types, ■ Industry: (10) types

■ Latest academic background, ■ Personal income: (15) classes,

■ Work/school address, ■ Work/school hours and days,

■ Vehicle availability: (vehicle ownership 3 types (car, motorcycle,bicycle)) types, ■ Driving licence: (motorcycle, car, both, none) types,

□ Transport expenditure: ( ) types

□ Transport allowance from the employer: ( ) types

■ Other (trip mode for no vehicle available member, residency status, type of employer (state, non-state, foreign), employment status, usual commuter mode, actual and acceptable commuter time and evaluation)

Remarks:

11) Surveyed trip attributes:

■ Origin/destination, ■ Type of O/D place: (12) types, ■ Departure/arrival time

■ Purpose: (7) purposes, ■ Cost, ■ Transfer points: (4) unlinked trips

■ Travel modes: (14) modes, □ Driver/passenger, □ Number of occupants

□ Access/egress cost and time, □ Transit wait time, ■ Parking place (Side walk, On-Road, Off-road, inside house) , ■ Parking cost,

□ Total number of trips, □ Reason for not making any trips: ( ) types

■ Other (reason of modal choice, assessment of the trip)

Remarks: There are 2 type of form for Irregular trip and regular trip.

12) OD matrices development:

(5) OD matrices for ■ One day, □ Certain period from ( ) hrs to ( ) hrs

13) Use of any mobile device and its result: No

14) Problems encountered:

The quality of survey by a consultant in Vietnam was low. Therefore, the number of traffic count location was increased for modified OD data. In the result, the contents of question sheet is longer and the surveyors hardly take the samples. However, the urban problem like water, income, disaster etc. is useful for analyze.

15) Usage of existing zonal population data to develop/update OD matrices: Available demographic data was population and household census 2009 only, therefore, population and number of households as of 2014 were estimated by framework of the study area, and HIS was performed to built present OD matrices.

(3) Supplemental Transport Surveys

1) ■ Cordon line survey: (43) stations, Utilized for modeling? ■ Yes, □ No

2) ■ Screenline survey: (1) lines, (5) stations, Utilized for modeling? ■ Yes, □ No

3) □ Intersection traffic volume survey: ( ) intersections,
Utilized for (macro) modeling? □ Yes, □ No

4) □ Public transport OD interview survey: ( ) stations, Utilized for modeling? □ Yes, □ No

5) □ Parking survey: ( ) stations, Utilized for modeling? □ Yes, □ No

6) □Stated Preference survey: ( ) samples, Utilized for modeling? □ Yes, □ No

7) ■ Travel speed survey: (10) routes, Utilized for modeling? ■ Yes, □ No

8) □ Freight cargo survey: ( ) stations, Utilized for modeling? □ Yes, □ No

9) □ Road inventory survey, Utilized for modeling? □ Yes, □ No

10) □ Other survey 1: ( ), Utilized for modeling? □ Yes, □ No
Contents:

11) □ Other survey 2: ( ), Utilized for modeling? □ Yes, □ No
Contents:

12) □ Other survey 3: ( ), Utilized for modeling? □ Yes, □ No
Contents:

13) Use of any mobile device and its result: No

(4) Activity Diary Survey (ADS)

1) Conducted? □ Yes, ■ No

2) If yes, ( ) persons and ( ) households at intervals of ( ) minutes for ( ) days from ( ) survey zones

3) Survey cost and time

Total cost for local consultant: ( ) million yen

Field survey duration: planned ( ) months, actual ( ) months

Total survey period including analysis: planned ( ) months, actual ( ) months

4) Major result

Outgoing ratio: ( ) %, Trip rate: gross ( ), net ( ) / person-day

5) Surveyed trip attributes:

□ Origin/destination, □ Type of O/D place: ( ) types, □ Departure/arrival time

□ Purpose: ( ) purposes, □ Cost, □ Transfer points: ( ) unlinked trips

□ Travel modes: ( ) modes, □ Driver/passenger, □ Number of occupants

□ Access/egress cost and time, □ Total number of trips

□ Reason for not making any trips: ( ) types

6) Use of any mobile device and its result:

7) Main purpose/usage of ADS:

(5) Socioeconomic Survey (if not included in the Comprehensive Travel Survey)

1) Conducted? □Yes, ■No

2) If yes, name of the Survey: HIS survey (4:additional information)

3) Implementation Year of the Field Survey: 2014

4) Survey cost and time

Total cost for local consultant: ( ) million yen

Input of JICA experts: planned ( ) man-months, actual ( ) man-months

Field survey duration: planned ( ) months, actual ( ) months

Total survey period including analysis: planned ( ) months, actual ( ) months

5) Target area

Population: ( ) million, No. of households: ( ) million,

Area: ( ) km^2

No. of survey zones: (traffic analysis zones)

6) Collected samples

( )) households or ( ) persons, Sampling rate: ( ) %

7) Surveyed household attributes:

□ Address, □ House type: ( ) types, □ Household income: ( ) classes,

□ Household expenditure: ( ) classes, □ Transport expenditure: ( ) classes,

□ Number of vehicles owned: ( ) types, □ Years of residence, □ Previous residence

□ Number of household members, □ Number of children: age ( ) to ( ) years

8) Surveyed household member attributes:
□ Age: ( ) classes, □ Sex, □ Worker/student/other status: ( ) types
□ Profession: ( ) types, □ Position at work: ( ) types, □ Industry: ( ) types
□ Latest academic background, □ Personal income: ( ) classes,
□ Vehicle availability: ( ) types, □ Transport expenditure: ( ) types
□ Transport allowance from the employer: ( ) types

9) Use of any mobile device and its result: No

10) Problems encountered:

11) If other socioeconomic survey data were utilized, provide the detail:

(6) Demand Forecast Modeling Detail

1) First time?
□ Yes, ■ No (involving no update of the existing model),
□ No (involving update of the existing model)

2) Work period for modeling
Input of JICA experts: planned (6.6) man-months, actual (6.77) man-months
Modeling work period: planned (4.1) months, actual (4.27) months
Total work period including forecast: planned (6.6) months, actual (6.77) months

3) Target area
Population: (7.6) million, Area: (2.06) km^2
No. of traffic analysis zones (TAZs): (436) internal and (8) external TAZs

4) Strada for modeling
Total (3) household classes:
□ by household income, ■ by the number of vehicles owned by household,
□ by residential type, □ Other ( )
Remarks:

Total (5) trip purposes: Home to Work, Home to School, Private trip, Business Trip, To home
■ home-based and non-home-based, ■ destination-type-based (including to-home),
□ Other ( )
Total (5) travel modes: Truck, Bicycle, Motorcycle, Car, Bus
■ walk all the way (not included in network assignment),
□ other non-motorized (included in network assignment),
■ motorcycle, ■ car, □ van, □ small truck, □ medium truck, ■ large truck,
■ transit, □ transit (rapid service)
□ income-class-based with different value of time

5) Target time period for modeling:
■ one day, □ morning peak, □ evening peak, , □ Other ( )
Reason for this selection:The typical 4-step modeling was adopted and only daily OD was available. The time period model was not required. If the peak volume is needed, the study team associated with use of peak ratio by direction.

6) Trip production/attraction model

■ Aggregated (regression analysis), □ Disaggregated ( )

(10) models developed in □ Excel, ■ JICA-STRADA, □ CUBE, □ Other ( )

Problems or issues: Not applicable

7) Trip distibution model

□ Aggregated (fratar method), ■ Aggregated (gravity model),

□ Aggregated (aggregated logit model), □ Disaggregated ( )

(10) models developed in □ Excel, ■ JICA-STRADA, □ CUBE, □ Other ( )

Problems or issues: Not applicable

8) Modal split model

■ Aggregated (aggregated logit model), □ Disggregated (disaggregated logit model),

□ Disaggregated ( )

(15) models developed in □ Excel, ■ JICA-STRADA, □CUBE, □ Other ( )

Problems or issues: Not applicable

9) Network assignment model

■ Aggregated (incremental assignment), □ Aggregated (user-equilibrium assignment),

■ Aggregated (transit assignment), □ Disggregated (microsimulation model),

The model was run in ■ JICA-STRADA, □ CUBE, □ other ( )

Usage of any existing digital information: □ GIS, □ CAD, □ Open Street Map, □ Google Map,

□ Google Earth, □ Other ( )

Problems or issues: Not applicable

10) Technology transfer of the model

□ Yes ( ), ■ No

( ) persons from ( ) organizations were targeted for technology transfer.

Duration of training: ( ) □ months, □ days, □ hours

Problems or issues:

11) Model improvement or redevelopment after the project?

□ Yes (improvement), □ Yes (redevelopment),■ No

Remarks:

(7) Development Needs that are Expected of the Project

1) Additional Projects/Studies (e.g. pre-F/S or pilot projects) within the Scope of the Project

→ Project Urban railway line no. 6 (From Center of Hanoi to Noi Bai International Airport) was conducted by HANIF

→ Pre- F/S on UMRT Line 3 by MVA

→ F/S on UMRT Line 2 by JICA

→ D/D on UMRT Line 1 is on-going.

2) Additional Projects/Studies that were Derived from the Project after its Completion

→ Pre-F/S on UMRT Line 5 (BRT) by JICA

3) Future Direction of the Development Needs

Infrastructure/equipment: ■ Road, ■ Flyover/underpass, ■ Rail-based transport, ■ Bus-based transport (BRT), □ ITS ( ), □ Other ( )

Policies: ■ TOD, ■ Road/area Pricing, ■ Parking Pricing, □ TDM ( ),

Capacity development: ■ Planning, ■ Engineering, ■ Governance, □ Other ( )

Remarks: In basically, the counterpart is the sector of railway, they are interested in railway development. In recently TOD especially. And they are interested in capacity building in especially the evaluation tools. However, the result is not good about the capacity building in Vietnam, because the side of manager don't have the knowledgement and experiences of efficiently capacity building and the side of staff don't have the eager to learn the skill.

In other project, the JICA instruct to counterpart inportance of the linkage of railway and feeder buses, but they understanding is not enough.

4) Trend of Cooperation by Other Donors:

→ Germany and China cooperate with counterpart for constructing railway.

5) Perspective of usage of the transport data, model and M/P in light of the above situation:

Conducting survey of HIS should not be asked by a local company.

Ho chi minh city

(2) Detail of Comprehensive Travel Survey

1) Name of the Survey: Household Interview Survey (HIS)

2) Implementation Year of the Field Survey: 2014

3) First time?

□ Yes, ■ No (involving no update of the existing OD data),

□ No (involving update of the existing OD data)

Remarks:

4) Survey cost and time

Total cost for local consultant: (43) million yen

Input of JICA experts: planned (3) man-months, actual (3) man-months

Field survey duration: planned (4) months, actual (5) months

Total survey period including analysis: planned (5.5) months, actual (7) months

Remarks:

5) Target area

Population: (10.93 (as of 2009)) million, No. of households: (2.60(as of 2009)) million,

Area: (35.4) km^2

No. of survey zones: (265 traffic analysis zones)

Remarks: Because of budget limitation, the survey area is smaller than whole study area.

6) Sampling method

□ Resident registration, ■ Census data, □ Electoral roll, □ Satellite image, □ Area sampling (Sampling in the field), □ Rule-based (pls. specify), □ Other ( )

Remarks:

7) Collected samples

(20,000) households or (60,551) persons, Sampling rate: (1.00) %

8) Collected trips

(197,068) trips, Outgoing ratio: ( ) %, Trip rate: gross (3.25), net ( ) / person-day

9) Surveyed household attributes:

■ Address, ■ House type: (own, rent, borrowed) types, ■ Household income: (15) classes,

□ Household expenditure: ( ) classes, ■ Transport expenditure: ( ) classes,

■ Number of vehicles owned: (10 (Bicycle, Electric Bike, cyclo, motorcyclo, motorcycle <50cc, motorcycle >50cc, Car/taxi (>5 pax),Cam/Lambreta (>5 pax), lorry, others)) types, ■ Years of residence, ■ Previous residence

■ Number of household members, □ Number of children: age ( ) to ( ) years

□ Other (household condition (floor area, structure, maintenance, land use) , house-rent, type of daily

information resource, number of household members such as helpers, guest and members living outside of household, type of household registration, type of vehicle ownership)

Remarks: Because not only transportation problem but also the urban problem should be focused, the question as to social economics was added on the PT survey sheets additionally.

10) Surveyed household member attributes:

■ Age: ( ) classes, ■ Sex, ■ Worker/student/other status: ( ) types

■ Profession: (14) types, □ Position at work: ( ) types, ■ Industry: (10) types

■ Latest academic background, ■ Personal income: (15) classes,

■ Work/school address, ■ Work/school hours and days,

■ Vehicle availability: (vehicle ownership 3 types (car, motorcycle,bicycle)) types, ■ Driving licence: (motorcycle, car, both, none) types,

□ Transport expenditure: ( ) types

□ Transport allowance from the employer: ( ) types

■ Other (trip mode for no vehicle available member, residency status, type of employer (state, non-state, foreign), employment status, usual commuter mode, actual and acceptable commuter time and evaluation)

Remarks:

11) Surveyed trip attributes:

■ Origin/destination, ■ Type of O/D place: (9) types, ■ Departure/arrival time

■ Purpose: (11) purposes, ■ Cost, ■ Transfer points: (3) unlinked trips

■ Travel modes: (24) modes, ■ Driver/passenger, ■ Number of occupants

□ Access/egress cost and time, ■ Transit wait time, □ Parking place (On-street free, on-street pay, off-street free, off-street pay, residentaial garage, not use parking) , ■ Parking cost,

□ Total number of trips, □ Reason for not making any trips: ( ) types

■ Other (reason of modal choice, reason of not use bus, overall travel condition)

Remarks: Opinon for urban, urban transport, bus service, traffic safety issues are included in HIS.

12) OD matrices development:

( ) OD matrices for ■ One day, □ Certain period from ( ) hrs to ( ) hrs

13) Use of any mobile device and its result: No

14) Problems encountered: The number of car samples was not enough. Therefore, the study team have conducted survey for targeted person in some times. Because the contents of question sheet is longer, the surveyors hardly take the samples. However, the urban problem like water, income, disaster etc. is useful for analyze.

15) Usage of existing zonal population data to develop/update OD matrices: Available demographic data was population and household census 2009 only, therefore, population and number of households as of 2013 were estimated by framework of the study area, and HIS was performed to built present OD matrices.

(3) Supplemental Transport Surveys

1) ■ Cordon line survey: (18) stations, Utilized for modeling? ■ Yes, □ No

2) ■ Screenline survey: (2) lines, (25) stations, Utilized for modeling? ■ Yes, □ No

Remarks: Additionally traffic count survey at 16 locations was also carried out.

3) □ Intersection traffic volume survey: ( ) intersections,
Utilized for (macro) modeling? □ Yes, □ No
4) □ Public transport OD interview survey: ( ) stations, Utilized for modeling? □ Yes, □ No
5) □ Parking survey: ( ) stations, Utilized for modeling? □ Yes, □ No
6) □Stated Preference survey: ( ) samples, Utilized for modeling? □ Yes, □ No
7) ■ Travel speed survey: (16) routes, Utilized for modeling? ■ Yes, □ No
8) □ Freight cargo survey: ( ) stations, Utilized for modeling? □ Yes, □ No
9) □ Road inventory survey, Utilized for modeling? □ Yes, □ No
10) □ Other survey 1: ( ), Utilized for modeling? □ Yes, □ No
Contents:
11) □ Other survey 2: ( ), Utilized for modeling? □ Yes, □ No
Contents:
12) □ Other survey 3: ( ), Utilized for modeling? □ Yes, □ No
Contents:
13) Use of any mobile device and its result: No

(4) Activity Diary Survey (ADS)

1) Conducted? □ Yes, ■ No
2) If yes, ( ) persons and ( ) households at intervals of ( ) minutes for ( ) days from ( ) survey zones
3) Survey cost and time
Total cost for local consultant: ( ) million yen
Field survey duration: planned ( ) months, actual ( ) months
Total survey period including analysis: planned ( ) months, actual ( ) months
4) Major result
Outgoing ratio: ( ) %, Trip rate: gross ( ), net ( ) / person-day
5) Surveyed trip attributes:
□ Origin/destination, □ Type of O/D place: ( ) types, □ Departure/arrival time
□ Purpose: ( ) purposes, □ Cost, □ Transfer points: ( ) unlinked trips
□ Travel modes: ( ) modes, □ Driver/passenger, □ Number of occupants
□ Access/egress cost and time, □ Total number of trips
□ Reason for not making any trips: ( ) types
6) Use of any mobile device and its result:

7) Main purpose/usage of ADS:

(5) Socioeconomic Survey (if not included in the Comprehensive Travel Survey)

1) Conducted? □ Yes, ■ No
2) If yes, name of the Survey:
3) Implementation Year of the Field Survey:
4) Survey cost and time
Total cost for local consultant: ( ) million yen

Input of JICA experts: planned ( ) man-months, actual ( ) man-months
Field survey duration: planned ( ) months, actual ( ) months
Total survey period including analysis: planned ( ) months, actual ( ) months

5) Target area
Population: ( ) million, No. of households: ( ) million, Area: ( ) km^2
No. of survey zones: ( )

6) Collected samples
( ) households or ( ) persons, Sampling rate: ( ) %

7) Surveyed household attributes:
□ Address, □ House type: ( ) types, □ Household income: ( ) classes,
□ Household expenditure: ( ) classes, □ Transport expenditure: ( ) classes,
□ Number of vehicles owned: ( ) types, □ Years of residence, □ Previous residence
□ Number of household members, □ Number of children: age ( ) to ( ) years

8) Surveyed household member attributes:
□ Age: ( ) classes, □ Sex, □ Worker/student/other status: ( ) types
□ Profession: ( ) types, □ Position at work: ( ) types, □ Industry: ( ) types
□ Latest academic background, □ Personal income: ( ) classes,
□ Vehicle availability: ( ) types, □ Transport expenditure: ( ) types
□ Transport allowance from the employer: ( ) types

9) Use of any mobile device and its result:

10) Problems encountered:

11) If other socioeconomic survey data were utilized, provide the detail:

(6) Demand Forecast Modeling Detail

1) First time?
□ Yes, ■ No (involving no update of the existing model),
□ No (involving update of the existing model)

2) Work period for modeling
Input of JICA experts: planned (7.5) man-months, actual (7.6) man-months
Modeling work period: planned (5.0) months, actual (5.1) months
Total work period including forecast: planned (7.5) months, actual (7.6) months

3) Target area
Population: (12.14) million, Area: (8.89) km^2
No. of traffic analysis zones (TAZs): (265) internal and (10) external TAZs

4) Strada for modeling
Total (3) household classes:
□ by household income, ■ by the number of vehicles owned by household,
□ by residential type, □ Other ( )
Remarks:

Total (5) trip purposes: Home to Work, Home to School, Private trip, Business Trip, To home

■ home-based and non-home-based, ■ destination-type-based (including to-home),
□ Other ( )

Total (4) travel modes: Truck, Motorcycle, Car, Bus

■ walk all the way (not included in network assignment),
□ other non-motorized (included in network assignment),
■ motorcycle, ■ car, □ van, □ small truck, □ medium truck, ■ large truck,
■ transit, □ transit (rapid service)
□ income-class-based with different value of time

5) Target time period for modeling:

■ one day, □ morning peak, □ evening peak, , □ Other ( )

Reason for this selection: The typical 4-step modeling was adopted and only daily OD was available. The time period model was not required. If the peak volume is needed, the study team associated with use of peak ratio by direction.

6) Trip production/attraction model

■ Aggregated (regression analysis), □ Disaggregated ( )

(10) models developed in □ Excel, ■ JICA-STRADA, □ CUBE, □ Other ( )

Problems or issues:

7) Trip distibution model

□ Aggregated (fratar method), ■ Aggregated (gravity model),
□ Aggregated (aggregated logit model), □ Disaggregated ( )

(18) models developed in □ Excel, ■ JICA-STRADA, □ CUBE, □ Other ( )

Problems or issues:

8) Modal split model

■ Aggregated (aggregated logit model),■ Disggregated (disaggregated logit model),
□ Disaggregated ( )

(4) models developed in □ Excel, ■ JICA-STRADA, □CUBE, □ Other ( )

Problems or issues: The model was constructed by each trip purpose. And the model for modal shift to railway was constructed also.

9) Network assignment model

■ Aggregated (incremental assignment), □ Aggregated (user-equilibrium assignment),
□ Aggregated (transit assignment), □ Disggregated (microsimulation model),
The model was run in ■ JICA-STRADA, □ CUBE, □ other ( )
Usage of any existing digital information: □ GIS, □ CAD, □ Open Street Map, □ Google Map,
□ Google Earth, □ Other ( )

Problems or issues: The reason of choice incremental assignment is that the traffic congestion is seriously and the unreality detour was confirmed with the userequilibrium.

10) Technology transfer of the model

□ Yes ( ), □ Yes ( ), ■ No

( ) persons from ( ) organizations were targeted for technology transfer.

Duration of training: ( ) □ months, □ days, □ hours

Problems or issues:

11) Model improvement or redevelopment after the project?

□ Yes (improvement), □ Yes (redevelopment), ■ No

Remarks:

(7) Development Needs that are Expected of the Project

1) Additional Projects/Studies (e.g. pre-F/S or pilot projects) within the Scope of the Project

→

2) Additional Projects/Studies that were Derived from the Project after its Completion

→

3) Future Direction of the Development Needs

Infrastructure/equipment: ■ Road, ■ Flyover/underpass, ■ Rail-based transport, ■ Bus-based transport (BRT), □ ITS ( ), □ Other (Traffic management, environmental improvement and traffic safety)

Policies: ■ TOD, ■ Road/area Pricing, ■ Parking Pricing, □ TDM ( ),

Capacity development: ■ Planning, ■ Engineering, ■ Governance, ☐ Other ( )

Remarks: In basically, the counterpart is the sector of railway, they are interested in railway development. In recently TOD especially. And they are interested in capacity building in especially the evaluation tools. However, the result is not good about the capacity building in Vietnam, because the side of manager don't have the knowledgement and experiences of efficiently capacity building and the side of staff don't have the eager to learn the skill.

In other project, the JICA instruct to counterpart inportance of the linkage of railway and feeder buses, but they understanding is not enough.

4) Trend of Cooperation by Other Donors:

France and Japan cooperate with counterpart for constructing railway.

5) Perspective of usage of the transport data, model and M/P in light of the above situation:

Conducting survey of HIS should not be asked by a local company.

Project Name	フィリピン国メトロセブ持続可能な環境都市構築のためのロードマップ策定支援調査 (The Roadmap study for sustainable urban development in Metro Cebu)
Country	Philippine
Consultant(s)	ALMEC Corporation, Oriental Consultants Global
Study Period	2013-2015

Project Outline

(1) Objective

In 2013, MCDCB and JICA decide to conduct a follow-up study to formulate a roadmap and action plan to realize the Mega Cebu Vision 2050. In the aftermath of super typhoon Yolanda (international code name: Haiyan) in November 2013, the study area was expanded to cover the northern part of Cebu Province only in terms of map preparation and hazard map analysis.
The ultimate objective of this study is to draw up a roadmap and detailed action plan which consists of the following:
(i) The long-term roadmap (up to 2030, thence up to 2050) in order to realize the Mega Cebu Vision 2050;
(ii) The detailed action plan consisting of priority projects for the short-term (1–3 years) and medium-term (4–6 years); and
(iii) The hazard map covering Metro Cebu and the northern part of Cebu Province.

(2) Detail of Comprehensive Travel Survey

1) Name of the Survey: Household Interview Survey (HIS)

2) Implementation Year of the Field Survey: 2014

3) First time?

□ Yes, ■ No (involving no update of the existing OD data),

□ No (involving update of the existing OD data)

Remarks: The HIS survey was conducted to collect the data of not only traffic activity characterics but also socio economic and citizens opinion for development by citizens of Metro Cebu.

4) Survey cost and time

Total cost for local consultant: (17.76) million yen, including supplement survey: 28.43 mil yen

Input of JICA experts: planned (2.5) man-months, actual (2.5) man-months

Field survey duration: planned (1) months, actual (1) months

Total survey period including analysis: planned (2.5) months, actual (3) months

5) Target area

Population: (2.913 (as of 2014 estimation)) million, No. of households: (0.648(as of 2014 estimation)) million,

Area: ( ) km^2

No. of survey zones: (442 traffic analysis zones)

Remarks: 200 samples of HIS were conducted by online.

6) Sampling method

□ Resident registration, ■ Census data, □ Electoral roll, □ Satellite image, □ Area sampling (Sampling in the field), □ Rule-based (pls. specify), □ Other ( )

Remarks: 2014 population was estimated by 2010 census data.

7) Collected samples

(6,527) households or (29,675) persons, Sampling rate: (1.16) %

8) Collected trips

(38,499) trips, Outgoing ratio: ( ) %, Trip rate: gross (2.97),
net ( ) / person-day

9) Surveyed household attributes:

■ Address, ■ House type: (own, rent, borrowed) types, ■ Household income: (21) classes,
□ Household expenditure: ( ) classes, □ Transport expenditure: ( ) classes,
■ Number of vehicles owned: (12 (Bicycle, motorcyclo, Car/Owner-type Jeep, Pedicab, Tricycle, Taxi, GT Express, Jeepney/PUJ, Minibus, Standard bus, School/Company/Tourist bus, Pick-up/Delivery truck, Truck, Trailer, Others)) types, ■ Years of residence, ■ Previous residence
■ Number of household members, ■ Number of children: age ( ) to ( ) years
■ Other (household condition (floor area, structure, items) , house-rent, type of daily information resource, type of household registration, type of vehicle ownership, relationship to household, the reason of moving from previous house)

Remarks: Surveyed household location was taken by GPS

10) Surveyed household member attributes:

■ Age: ( ) classes, ■ Sex, ■ Worker/student/other status: ( ) types
■ Profession: (16) types, □ Position at work: ( ) types, ■ Industry: (17) types
■ Latest academic background, ■ Personal income: ( ) classes,
■ Work/school address, ■ Work/school hours and days,
■ Vehicle availability: (vehicle ownership 15 types) types, ■ Driving licence: (4) types,
□ Transport expenditure: ( ) types
□ Transport allowance from the employer: ( ) types
■ Other (residency status, type of employer (state, non-state, foreign), employment status)

Remarks: -

11) Surveyed trip attributes:

■ Origin/destination, □ Type of O/D place: ( ) types, ■ Departure/arrival time
■ Purpose: (12) purposes, ■ Cost, ■ Transfer points: (4) unlinked trips
■ Travel modes: (25) modes, ■ Driver/passenger, □ Number of occupants
□ Access/egress cost and time, ■ Transit wait time, ■ Parking place (Parking lot, On-road authorized, On-road unauthorized, off-street free, off-street pay, residentaial garage, not use parking) , ■ Parking cost,
□ Total number of trips, □ Reason for not making any trips: ( ) types
■ Other (reason of modal choice, Trip assessment)

Remarks: Opinon for urban, urban transport, bus service, traffic safety issues are included in HIS.

12) OD matrices development:

( ) OD matrices for ■ One day, □ Certain period from ( ) hrs to ( ) hrs

13) Use of any mobile device and its result: No

14) Problems encountered:

Not applicable

15) Usage of existing zonal population data to develop/update OD matrices: Available demographic data was population and household census 2010 only, therefore, population and number of households as of 2014 were estimated by framework of the study area, and HIS was performed to built present OD matrices.

(3) Supplemental Transport Surveys

1) ■ Cordon line survey: (15) stations, Utilized for modeling? ■ Yes, □ No
2) ■ Screenline survey: (5) lines, (20) stations, Utilized for modeling? ■ Yes, □ No
3) □ Intersection traffic volume survey: ( ) intersections,
Utilized for (macro) modeling? □ Yes, □ No
4) ■ Public transport OD interview survey: (9) stations, Utilized for modeling? ■ Yes, □ No

5) □ Parking survey: ( ) stations, Utilized for modeling? □ Yes, □ No
6) □Stated Preference survey: ( ) samples, Utilized for modeling? □ Yes, □ No
7) ■ Travel speed survey: ( ) routes, Utilized for modeling? ■ Yes, □ No

Remarks: travel speed survey was conducted with GPS logger for 294 days totally by 30 taxi.

8) □ Freight cargo survey: ( ) stations, Utilized for modeling? □ Yes, □ No
9) □ Road inventory survey, Utilized for modeling? □ Yes, □ No
10) ■ Other survey 1: (WTP Survey), Utilized for modeling? □ Yes, ■ No
Contents: To grasp willingness to pay for water service etc..
11) □ Other survey 2: ( ), Utilized for modeling? □ Yes, □ No
Contents:
12) □ Other survey 3: ( ), Utilized for modeling? □ Yes, □ No
Contents:
13) Use of any mobile device and its result: No

Remarks: Public transport survey includes the opinion and use of bus.

(4) Activity Diary Survey (ADS)

1) Conducted? □ Yes, ■ No
2) If yes, ( ) persons and ( ) households at intervals of ( ) minutes for ( ) days from ( ) survey zones
3) Survey cost and time
Total cost for local consultant: ( ) million yen
Field survey duration: planned ( ) months, actual ( ) months
Total survey period including analysis: planned ( ) months, actual ( ) months
4) Major result
Outgoing ratio: ( ) %, Trip rate: gross ( ), net ( ) / person-day
5) Surveyed trip attributes:
□ Origin/destination, □ Type of O/D place: ( ) types, □ Departure/arrival time
□ Purpose: ( ) purposes, □ Cost, □ Transfer points: ( ) unlinked trips
□ Travel modes: ( ) modes, □ Driver/passenger, □ Number of occupants

□ Access/egress cost and time, □ Total number of trips
□ Reason for not making any trips: ( ) types

6) Use of any mobile device and its result:

7) Main purpose/usage of ADS:

(5) Socioeconomic Survey (if not included in the Comprehensive Travel Survey)

1) Conducted? □Yes, ■No
2) If yes, name of the Survey:
3) Implementation Year of the Field Survey:
4) Survey cost and time
Total cost for local consultant: ( ) million yen
Input of JICA experts: planned ( ) man-months, actual ( ) man-months
Field survey duration: planned ( ) months, actual () months
Total survey period including analysis: planned ( ) months, actual () months
5) Target area
Population: () million, No. of households: () million, Area: ( ) km^2
No. of survey zones: ()
6) Collected samples
( ) households or ( ) persons, Sampling rate: () %
7) Surveyed household attributes:
□ Address, □ House type: ( ) types, □ Household income: ( ) classes,
□ Household expenditure: ( ) classes, □ Transport expenditure: ( ) classes,
□ Number of vehicles owned: ( ) types, □ Years of residence, □ Previous residence
□ Number of household members, □ Number of children: age ( ) to ( ) years

8) Surveyed household member attributes:
□ Age: ( ) classes, □ Sex, □ Worker/student/other status: ( ) types
□ Profession: ( ) types, □ Position at work: ( ) types, □ Industry: ( ) types
□ Latest academic background, □ Personal income: ( ) classes,
□ Vehicle availability: ( ) types, □ Transport expenditure: ( ) types
□ Transport allowance from the employer: ( ) types
9) Use of any mobile device and its result: No

10) Problems encountered:

11) If other socioeconomic survey data were utilized, provide the detail: No

(6) Demand Forecast Modeling Detail

1) First time?
□ Yes, ■ No (involving no update of the existing model),
□ No (involving update of the existing model)

2) Work period for modeling

Input of JICA experts: planned (2.5) man-months, actual (3.5) man-months

Modeling work period: planned (2.5) months, actual (2.5) months

Total work period including forecast: planned (2.5) months, actual (3) months

3) Target area

Population: (2.913 (as of 2014 estimation)) million, Area: ( ) km^2

No. of traffic analysis zones (TAZs): (380) internal and (9) external TAZs

4) Strada for modeling

Total (4) household classes:

□ by household income, ■ by the number of vehicles owned by household,

□ by residential type, □ Other ( )

Remarks:

Total (5) trip purposes: Home to Work, Home to School, Private trip, Business Trip, To home

■ home-based and non-home-based, ■ destination-type-based (including to-home),

□ Other ( )

Total (5) travel modes: Truck, Other, Motorcycle, Car, Bus

■ walk all the way (not included in network assignment),

□ other non-motorized (included in network assignment),

■ motorcycle, ■ car, □ van, □ small truck, □ medium truck, ■ large truck,

■ transit, □ transit (rapid service)

□ income-class-based with different value of time

5) Target time period for modeling:

■ one day, □ morning peak, □ evening peak, , □ Other ( )

Reason for this selection: because time is limited and hourly analysis was not requirment.

6) Trip production/attraction model

■ Aggregated (regression analysis), □ Disaggregated ( )

(40) models developed in □ Excel, ■ JICA-STRADA, □ CUBE, □ Other ( )

Problems or issues: Not applicable

7) Trip distibution model

□ Aggregated (fratar method), ■ Aggregated (gravity model),

□ Aggregated (aggregated logit model), □ Disaggregated ( )

(10) models developed in □ Excel, ■ JICA-STRADA, □ CUBE, □ Other ( )

Problems or issues: The model of “to home”, “To work” and “to school” were not good, these 3 purpose trips were adopted frater model.

8) Modal split model

□ Aggregated (aggregated logit model), ■ Disggregated (disaggregated logit model),

□ Disaggregated ( )

(16) models developed in □ Excel, ■ JICA-STRADA, □CUBE, □ Other ( )

Problems or issues: Not applicable

9) Network assignment model

□ Aggregated (incremental assignment), ■ Aggregated (user-equilibrium assignment),
□ Aggregated (transit assignment), □ Disggregated (microsimulation model),
The model was run in ■ JICA-STRADA, □ CUBE, □ other ( )
Usage of any existing digital information: ■ GIS, □ CAD, □ Open Street Map, □ Google Map,
□ Google Earth, □ Other ( )

Problems or issues: The correction ratio of screen lines was calculated a little a large. Because OD table could not be divided to public and private, the number of railway user tended to increase. And because the man month of traffic forecast is not enough, the analysis of increasing trend of unemployment rate and two-wheel use could not be done.

The JICA expert input amount for traffic survey and demand forecast was 2.5 MM each, but it is considerably shorter to conduct PT survey and to forecast demand for the area where the plan is formulated from now. In the design and implementation of the PT survey, 2.5 M was assigned, and at the first 1 M of the demand forecast, the current OD table was created by processing HIS error, enlarging processing / modification using screen codon data. Model creation at the next 0.5M. We also created a net at the same time. Although the experts try to finish the future estimation with last 1 M, we couldn't. So the study team finish to work with 1 M of own burden.

10) Technology transfer of the model

□ Yes ( ), ■ No
( ) persons from ( ) organizations were targeted for technology transfer.
Duration of training: ( ) □ months, □ days, □ hours
Problems or issues:

11) Model improvement or redevelopment after the project?

□ Yes (improvement), □ Yes (redevelopment), ■ No

Remarks: -

(7) Development Needs that are Expected of the Project

1) Additional Projects/Studies (e.g. pre-F/S or pilot projects) within the Scope of the Project

Not applicable

2) Additional Projects/Studies that were Derived from the Project after its Completion

This project is a making a roadmap. Hence many projects were added in development list. (Urban transportation and highway (large cost is assigned for the bridge and road development project) 25 plans, water or disposal 56 plans, waste management 13 plans and energy related 5 plans.)

3) Future Direction of the Development Needs

Infrastructure/equipment: ■ Road, ■ Flyover/underpass, ■ Rail-based transport,
■ Bus-based transport (BRT, Bus), ■ ITS ( ), ■ Other (Traffic management, environmental improvement)
Policies: ■ TOD, ■ Road/area Pricing, ■ Parking Pricing, □ TDM ( ),
Capacity development: ■ Planning, ■ Engineering, ■ Governance, □ Other ( )

Remarks: Counterpart concerns with development needs and capacity building, but about capacity building, they might not know the way.

4) Trend of Cooperation by Other Donors:

Counter part was cooperating with World Bank to approve for BRT project.

5) Perspective of usage of the transport data, model and M/P in light of the above situation:

The roadmap is considered with not only transportation, but also upper and lower water, waste and city services of smart city etc.. Therefore, HIS was conducted to know the problem and challenges apart from making OD table. And transportation data of the survey is not transferred.

Project Name	大アビジャン圏都市整備計画策定プロジェクト(SDUGA) (The Project for the Development of Urban Master Plan in Greater Abidjan)
Country	Cote d'Ivoire (CI)
Consultant(s)	OCG, JDI, アジ航
Study Period	2013-2015

Project Outline

(1) Objective

The principal objective of the Project is to formulate the urban master plan for the "Greater Abidjan Area". The plan should be sustainable and in line with the National Development Plan. This can be achieved by:

(1) Analyzing and evaluating the Master Plan approved in 2000,
(2) Formulating a revised Urban Master Plan for Greater Abidjan (SDUGA) with the target year of 2030, including Urban Transport Master Plan, and
(3) Identifying high priority projects in the transport sector
(4) Preparing topographic maps to provide basic geographic information for Urban Master Plan and Transport Master Plan formulation for Greater Abidjan
(5) Strengthening of capability profile of counterparts through the Project

(2) Detail of Comprehensive Travel Survey

1) Name of the Survey: Household Interview Survey (HIS)

2) Implementation Year of the Field Survey: 2013

3) First time?

■ Yes, □ No (involving no update of the existing OD data),

□ No (involving update of the existing OD data)

4) Survey cost and time

Total cost for local consultant: (416,262) USD

Input of JICA experts: planned (5.7) man-months, actual (9.3) man-months

Field survey duration: planned (3) months (Mar.-Jun.), actual (3) months (Apr.-Jul.)

Total survey period including analysis: planned (5) months, actual (7) months

5) Target area

Population: (4.9) million, No. of households: (1.17) million, Area: (422 (AAD) – 750 (Grand Abidjan)) km^2

Only Abidjan Autonomous District (AAD) consisting of 13 communes and Grand-Bassam commune were surveyed because other remote 5 communes in Grand abidjan had no existing/future continuous urbanized area with AAD.

No. of survey zones: (130 in the survey area, 391 in Grand Abidjan)

6) Sampling method

■ Resident registration, □ Census data, □ Electoral roll, □ Satellite image, □ Area sampling,
□ Sampling in the field, □ Rule-based (pls. specify),
□ Other ( )

The survey company, which also conducted the population census, has a list that shows primary sampling units (PSU) that are prepared for the 2013 census. The primary sampling units (PSU) are the smallest geographic units, and location maps are available. One PSU includes about 200 -250 households.

In the first step, PSUs in each commune are selected randomly to meet the number of sample households of each commune. Then, the surveyor sampled the actual households and made a household list of the PSU. Twenty households were selected randomly from the list.

7) Collected samples

(20,000) households or (74,309) persons, Sampling rate: (2) %

8) Collected trips

(6,885,100) trips, Outgoing ratio: (68.3) %, Trip rate: gross (1.60), net (2.35) / person-day

9) Surveyed household attributes:

■ Address, ■ House type: (8) types (+owning/renting), □ Household income: ( ) classes,
■ Household expenditure: electricity only, □ Transport expenditure: ( ) classes,
■ Number of vehicles owned: (5) types, ■ Years of residence, □ Previous residence
■ Number of household members, ■ Number of children: age ( ) to (6) years
□ Other ( )

Remarks:

10) Surveyed household member attributes:

■ Age: (7) classes, ■ Sex, ■ Worker/student/other status: (7) types (status in the household)
□ Profession: ( ) types, ■ Position at work: (9) types, □ Industry: (18) types
■ Latest academic background, ■ Personal income: (8) classes,
■ Work/school address, ■ Work/school hours and days,
■ Vehicle availability: (1) type, ■ Driving licence: (3) types,
■ Transport expenditure: (3) types
□ Transport allowance from the employer: ( ) types
□ Other ( )

Remarks:

11) Surveyed trip attributes:

■ Origin/destination, ■ Type of O/D place: (4) types, ■ Departure/arrival time
■ Purpose: (7) purposes, ■ Cost, □ Transfer points: (4) unlinked trips (points not asked)
■ Travel modes: (19) modes, ■ Driver/passenger, □ Number of occupants
■ Access/egress cost and time, ■ Transit wait time, ■ Parking place, ■ Parking cost,
□ Total number of trips, ■ Reason for not making any trips: (6) types
□ Other ( )

Remarks:

12) OD matrices development:

(36) OD matrices for ■ One day, ☐ Certain period from ( ) hrs to ( ) hrs
(4 classes, 3 modes, 4 purposes)

13) Use of any mobile device and its result:

No

14) Problems encountered:

Due to the unavailability of the population census data and the difficulty in finding prosprctive local consultants for HIS, the field survey implementation was delay for about a month. It was finished just before the start of the school holiday season.

15) Usage of existing zonal population data to develop/update OD matrices:

For aggregation of the socioeconomic data, initially it was intended to utilize Population Census 2013 for macro data such as population by commune. However, the whole schedule for the census was delayed due to the delay in budgeting, and old census data of 1998 (before the civil war) was utilized with adjustment.

Field survey for Population Census 2013 was conducted by utilizing some kind of mobile device.

However, the details were unknown.

(3) Supplemental Transport Surveys

1) ■ Cordon line survey: (18) stations, Utilized for modeling? ■ Yes, □ No

Two cordon lines were surveyed: inner cordon surrounding the HIS survey area, and outer cordon surrounding the Grand Abidjan

2) ■ Screenline survey: (5) lines, (25) stations, Utilized for modeling? ■ Yes, □ No

3) ■ Intersection traffic volume survey: (12) intersections,
Utilized for (macro) modeling? □ Yes, ■ No

4) ■ Public transport OD interview survey: (34) stations, Utilized for modeling? ■ Yes, □ No

5) ■ Parking survey: (15) stations, Utilized for modeling? □ Yes, ■ No

6) ■ Stated Preference survey: (1,000) samples, Utilized for modeling? ■ Yes, □ No

Only some values of time were incorporated into the demand forecast model.

7) ■ Travel speed survey: (12) routes, Utilized for modeling? ■ Yes, □ No

8) ■ Freight cargo survey: (7) stations, Utilized for modeling? ■ Yes, □ No

9) ■ Road inventory survey, Utilized for modeling? ■ Yes, □ No

10) □ Other survey 1: ( ), Utilized for modeling? □ Yes, □ No
Contents:

11) □ Other survey 2: ( ), Utilized for modeling? □ Yes, □ No
Contents:

12) □ Other survey 3: ( ), Utilized for modeling? □ Yes, □ No
Contents:

13) Use of any mobile device and its result:

No

(4) Activity Diary Survey (ADS)

1) Conducted? ■ Yes, □ No

2) If yes, ( ) persons and (1,010) households at intervals of (15) minutes for (2) days from (101) survey zones (primary sampling units)

3) Survey cost and time
Total cost for local consultant: (69,700) USD
Field survey duration: planned ( ) months (not planned), actual (1) month (October 2013)
Total survey period including analysis: planned ( ) months, actual (2) months

4) Major result
Outgoing ratio: ( ) %, Trip rate: gross (3.05), net ( ) / person-day

5) Surveyed trip attributes:
■ Origin/destination, □ Type of O/D place: ( ) types, ■ Departure/arrival time (at 15 min. intervals)
■ Purpose: (12) purposes (out-of-home activities), □ Cost, □ Transfer points: ( ) unlinked trips
■ Travel modes: (19) modes, ■ Driver/passenger, □ Number of occupants
□ Access/egress cost and time, □ Total number of trips
□ Reason for not making any trips: ( ) types

6) Use of any mobile device and its result:

No

7) Main purpose/usage of ADS:

To capture all activities and trips on two consecutive weekdays including trips that are too short to remember and to adust the trip rates estimated from the Household Interview Survey (HIS)

(5) Socioeconomic Survey (if not included in the Comprehensive Travel Survey)

1) Conducted? □ Yes, ■ No

2) If yes, name of the Survey:

3) Implementation Year of the Field Survey:

4) Survey cost and time

Total cost for local consultant: ( ) million yen

Input of JICA experts: planned ( ) man-months, actual ( ) man-months

Field survey duration: planned ( ) months, actual ( ) months

Total survey period including analysis: planned ( ) months, actual ( ) months

5) Target area

Population: ( ) million, No. of households: ( ) million, Area: ( ) km^2

No. of survey zones: ( )

6) Collected samples

( ) households or ( ) persons, Sampling rate: ( ) %

7) Surveyed household attributes:

□ Address, □ House type: ( ) types, □ Household income: ( ) classes,

□ Household expenditure: ( ) classes, □ Transport expenditure: ( ) classes,

□ Number of vehicles owned: ( ) types, □ Years of residence, □ Previous residence

□ Number of household members, □ Number of children: age ( ) to ( ) years

8) Surveyed household member attributes:

□ Age: ( ) classes, □ Sex, □ Worker/student/other status: ( ) types

□ Profession: ( ) types, □ Position at work: ( ) types, □ Industry: ( ) types

□ Latest academic background, □ Personal income: ( ) classes,

□ Vehicle availability: ( ) types, □ Transport expenditure: ( ) types

□ Transport allowance from the employer: ( ) types

9) Use of any mobile device and its result:

10) Problems encountered:

11) If other socioeconomic survey data were utilized, provide the detail:

(6) Demand Forecast Modeling Detail

1) First time?

■ Yes, □ No (involving no update of the existing model),

□ No (involving update of the existing model)

2) Work period for modeling

Input of JICA experts: planned (2.5) man-months, actual (3.3) man-months

Modeling work period: planned ( ) months, actual ( ) months

Total work period including forecast: planned (5) months, actual (5) months

3) Target area

Population: (5.05) million, Area: (750) km^2

No. of traffic analysis zones (TAZs): (168) internal and (5) external TAZs

4) Strata for modeling

Total (4) household classes:

□ by household income, ■ by the number of vehicles owned by household,

□ by residential type, ■ Other (owning/renting acconnodation)

Total (4) trip purposes: HBW, HBE (home-based education), HBO, NHB

■ home-based and non-home-based, □ destination-type-based (including to-home),

□ Other ( )

Total (4) travel modes:

■ walk all the way (not included in network assignment),

□ other non-motorized (included in network assignment),

□ motorcycle, ■ car (split from taxi), □ van, □ small truck, □ medium truck, □ large truck,

■ transit (fixed-route and non-fixed route), □ transit (rapid service)

□ income-class-based with different value of time

5) Target time period for modeling:

■ one day, □ morning peak, □ evening peak, , □ Other ( )

Reason for this selection:

6) Trip production/attraction model

■ Aggregated (regression analysis), □ Disaggregated ( )

(16) models developed in ■ Excel, □ JICA-STRADA, □ CUBE, □ Other ( )

(4 household classes, 4 purposes)

Problems or issues:

Zonal socioeconomic values were difficult to forecast for both transport modeling team and urban planning team.

7) Trip distibution model

□ Aggregated (fratar method), ■ Aggregated (gravity model),

□ Aggregated (aggregated logit model), □ Disaggregated ( )

( ) models developed in □ Excel, □ JICA-STRADA, ■ CUBE, □ Other ( )

Problems or issues:

While GDP forecasts overall control of the growth in the number of trucks, the distribution to each TAZ is linked to the employment data. Findings from Cairo were utilized, and it was assumed that internal small truck trips are influenced by the total employment while large truck trips are impacted by the secondary-sector employment.

8) Modal split model

■ Aggregated (aggregated logit model), □ Disggregated (disaggregated logit model),

□ Disaggregated ( )

( ) models developed in □ Excel, □ JICA-STRADA, ■ CUBE, □ Other ( )

Problems or issues:

It is a four-level hierarchical mode split with four binary logit curves.

9) Network assignment model

□ Aggregated (incremental assignment), ■ Aggregated (user-equilibrium assignment),

■ Aggregated (transit assignment), □ Disggregated (microsimulation model),

The model was run in □ JICA-STRADA, ■ CUBE, □ other ( )

Usage of any existing digital information: ■ GIS, □ CAD, □ Open Street Map, □ Google Map, □ Google Earth, □ Other ( )

Problems or issues:

Transit assignment is complex due to the number of factors that have to be considered when examining the optimal modal path in the public transport network especially with a mixture of conventional bus, minibus, fixed-route taxi. Allocation into these modes was estimated through the transit assignment.

10) Technology transfer of the model

□ Yes (on the job), ■ Yes (training sessions), □ No

(4) persons from (Ministry of Transport, AGETU) organizations were targeted for technology transfer.

Duration of training: (5) □ months, ■ days, □ hours (for each workshop)

Problems or issues:

Although no on-the-job training was possible due to the lack of the appropriate personnel, a series of knowledge-sharing meetings were held in the course of the Study for the purpose of forming a sense of "ownership" of the Study. In addition, two one week-long workshops were held by the JICA Study team: GIS workshop and demand forecast modeling workshop. In the latter workshop, three officials from the Ministry of Transport participated. Since there was a huge gap in the computer literacy, the provided lectures and materials were modified flexibly in accordance with their technical level.

11) Model improvement or redevelopment after the project?

□ Yes (improvement), □ Yes (redevelopment), ■ No

Remarks:

The developed model in CUBE was handed over to the Prime Minister's office, which in turn provided the model for the consultant (SETEC) in charge of the study of the urban train project. However, it seems that only the network assignment with future OD matrices were utilized with additional changes in the network.

(7) Development Needs that are Expected of the Project

1) Additional Projects/Studies (e.g. pre-F/S or pilot projects) within the Scope of the Project

A few projects were selected for F/S was scheduled within the scope of the study. However, the bridge project was not approved for F/S, and an F/S on the port project was conducted.

Remarks (or unique situation):

2) Additional Projects/Studies that were Derived from the Project after its Completion

Since the Prime Minister's Office wanted to proceed with an urban train project, they anticipated the result of the demand forecast.

A flyover project was studied and implemented by JICA as a grant aid.

A few more flyover projects are being promoted by JICA.

3) Future Direction of the Development Needs

Infrastructure/equipment: □ Road, ■ Flyover/underpass, ■ Rail-based transport, □ Bus-based transport, □ ITS ( ), □ Other ( )

Policies: ■ TOD, □ Road/area Pricing, □ Parking Pricing, □ TDM ( ),

Capacity development: □ Planning, □ Engineering, □ Governance, □ Other ( )

The central government has set out "Grand Projects of Emergence" that consists of 94 projects out

of total 225 in all sectors. Out of the 94 projects, four road projects and six public transport projects were listed and to be implemented through PPP (public-private partnership) just like the recently completed Third (Henri Konan Bédié) Bridge. Thus, private sector participation is a key for implementation of the urban transport projects.

Since there are a enormous number of automobiles, traffic management measures such as signalization had brought about marginal effect.

4) Trend of Cooperation by Other Donors:

Major international donors were: French Development Agency, EU, African Development Bank, West African Development Bank, and the World Bank. Some of the road projects in SDUGA were derived at the initiative of the West African Development Bank. There was a regular meeting among those donors including JICA to exchange information. SDUGA, especially the Transport Master Plan, was presented to them by the JICA Study team.

5) Perspective of usage of the transport data, model and M/P in light of the above situation:

SDUGA was approved as a presidential decree by the CI government on March 9, 2016. Thus, the M/P is being shared by many organizations and entities. However, it seems that the transport database and the demand forecast models are not well utilized by the CI counterpart.

There was also a research of CDR data analysis by IBM and development of OD matrices utilizing the big data provided by ORANGE, the largest cell phone carrier in CI. JICA Study team could not collaborate for this research with them due to the restrictions stipulated in the contract with ORANGE. As a result, only the M/P was shared with IBM.