

# The Tool for the Rapid Assessment of Urban Mobility in Cities with Data Scarcity (TRAM)

Prepared by Clean Air Asia and the Institute of Transportation and Development Policy for the UN-Habitat

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## LIST OF ABBREVIATIONS

ADB	Asian Development Bank
CMP	Comprehensive Mobility Plan
FGD	Focused Group Discussion
Ha	Hectare
ITDP	Institute for Transport Development and Policy
Km	Kilometer
Kmpl	Kilometer per Liter
MoU	Memorandum of Understanding
NGO	Non Government Organization
PCTR	Per Capita Trip Rate
P-km	Passenger Kilometer
RoW	Right Of Way
Sqkm	Square kilometer
TEEMP City	Transport Emissions Evaluation Model for Projects - City
TRAM	Tool For Rapid Assessment of Urban Mobility

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## 1. Introduction

The Tool for the Rapid Assessment of Urban Mobility (TRAM) is designed to quickly gather data to orient municipal stakeholders, including city mayors, municipal authorities and decision-makers on key mobility issues facing their city, with an emphasis on problems facing lower-income communities and other marginalized groups. This information can then be used to develop comprehensive, sustainable and cost-effective solutions to those issues.

### A. Need for a Tool for Rapid Assessment

The past few decades have seen explosive economic growth and urbanization. More than half of the world's population now lives in urban areas, and by 2020 there are expected to be over 500 cities across the world with populations over one million. This rapid urbanization is already straining the infrastructure of many cities. Compounding the problem is the rapid economic growth occurring in many countries. This growth is quickly expanding the number of people who can afford private automobiles and 2-wheelers. This combination is causing dramatic increases in congestion, pollution, greenhouse gas emissions, and crashes. These issues typically have the greatest impact on the poorest residents of a city who often suffer from poor access to services and economic opportunities.

Many cities in developing countries have not developed the institutions to deal with these rapid changes. Local governments often struggle to keep up with the pace of change in cities. In terms of transport, many do not regularly collect data on mobility. This makes developing solutions to a city's problems particularly challenging, as government agencies often try to catch up with the issue they perceive as the most pressing, namely road congestion, without stepping back to objectively examine other issues or the effects of individual interventions. This often results in projects, such as road expansions, which address the short-term issue of congestion, but fail to account for the long-term effects of repeated road-expansion projects, including deteriorating conditions for non-motorized transportation, and declining air quality. Without data, it is difficult to understand other important issues facing the population, such as the prevalence of road injuries,

the time required to travel within the city, and the proportion of trips made by different modes. This places low-income communities at a particular disadvantage, as their problems are often less visible and less discussed than problems facing higher-income populations. The lack of data is due in part to the large amounts of time and resources required for citywide travel surveys, and other traditional methods of collecting mobility data. Many developing cities lack the capacity to perform this type of assessment with existing staff, and lack the funds to hire consultants to perform it.

### B. Goals of TRAM

TRAM was designed based on a survey of existing data collection methodologies which show a gap in the available tools for quickly assessing mobility needs in a city. TRAM is designed to fill that gap by providing a methodology for data collection that is less intense and costly than traditional collection methodologies but provides useful information at a medium to high level of detail for small areas and at a low level of detail for the city as a whole. The citywide data is not intended to be statistically representative of the city as a whole, but will be in the correct magnitude and direction. The tool is targeted towards key municipal stakeholders, including city mayors, municipal authorities and decision makers, so that they might make more informed, pro-poor decisions regarding transportation improvements in their cities, including geographical locations of issues across the city. It can also guide decision-makers towards areas where more detailed analysis is needed. The TRAM can be applied incrementally, so that detailed data can be collected in some high-priority areas during the first application of the tool and other lower-priority areas as more funding

becomes available later.

The TRAM is intended to be a benchmarking tool for urban mobility and includes both a participatory and analytical components, resulting in both statistics and maps that enable local stakeholders to share, enhance and analyze their knowledge of mobility conditions, so that the knowledge gained serves as a basis for interventions. Unlike traditional citywide transportation surveys, which are expensive and time-consuming, the TRAM is designed to be as fast and as inexpensive as possible, for use in cities with little existing data and with limited resources for more intense data collection and analysis efforts. The results are a detailed picture of transportation in a city – the groundwork for developing an effective transportation plan

### C. TRAM Components and Overview

The TRAM consists of three components: Stakeholder meetings, Focus Group Discussions, and Household Surveys. The following figure shows the four steps of using the tool.

The tool focuses on the implementation of participatory approaches to transport data gathering, such as focus group discussions and household travel surveys. The information gathered from these approaches feeds into the analysis of the state of mobility in the city and subsequently, in looking at potential

interventions. The household surveys provide a quantitative analysis of the city's transportation system, while the focus group discussions supplement this data with analysis specific to the needs of groups that might not be represented in the survey. The data then is scaled up to the city level, providing statistic and geographic trends of mobility issues across the city. This data from stakeholders, focus group discussions, and household surveys provides a nuanced and multifaceted view of mobility issues in the city. This data can then be used by transportation planners and city officials to develop a mobility plan or interventions to address a city's issues. The TEEMP-City tool is included and may be used in the further analysis of those transportation interventions and plans, including their cost and greenhouse gas emissions impact.

The methodology assumes a survey team with a background in transportation is available to assist with organizing the data collection effort and interpreting the results. The survey team is managed by the local government, often through the urban planning or transportation department. The team itself can consist of the government employees or the work can be contracted out to a consultant to perform the work. When possible and necessary, local Universities can provide staff to conduct and supervise surveys and interviews.

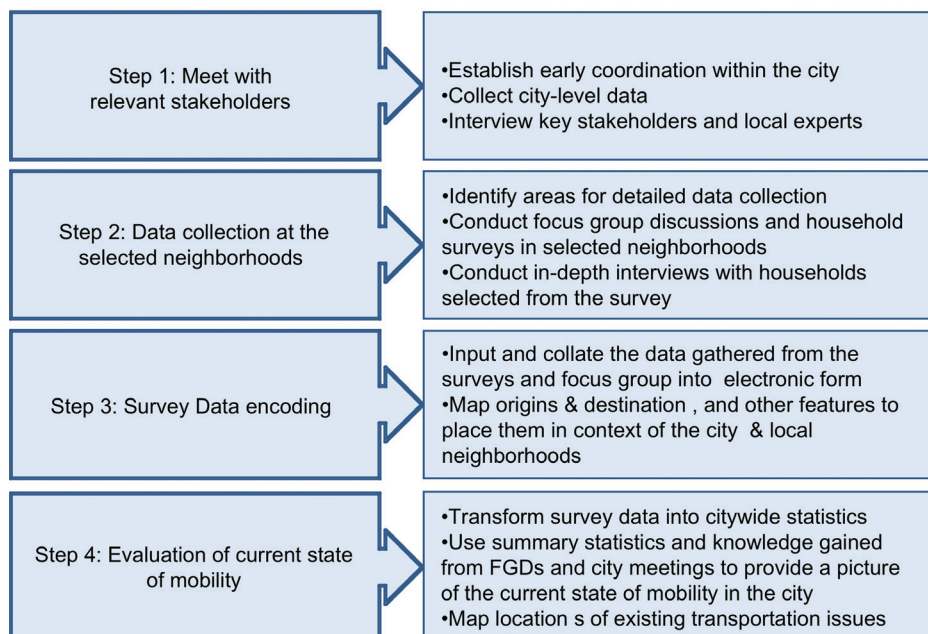


Figure 1. Steps of the Rapid Assessment of Urban Mobility

### Time Estimates

The process of making all of the preparations, training staff, and conducting the survey and focus group discussion, and analyzing the data could take as little as six weeks, if all goes smoothly. The data collection preparations will likely take the most time and are hardest to predict. They require coordinating with a variety of stakeholders to assemble a survey team, identify local groups to conduct the survey, and coordinate all of the logistics of the survey and training. Each task could take significantly more time depending on the circumstances. The actual staff training and data collection, which require the most time on-site from the survey team, could be completed in about two weeks with proper preparation and sufficient local assistance, including people on the ground beforehand. The data analysis may require an additional two to three weeks to enter all data, analyze statistics, create maps, and publish the results in a report.

### Resource Requirements

The tool requires the following resources to complete the methodology:

- Clipboards
- Survey sheets
- Pens
- Recording devices (for FGDs)
- Large board for taking notes (during FGDs)
- Street and aerial maps of the city (varying levels of detail)
- Transparency paper (for drawing over maps)
- Chairs (for FGDs)
- Microsoft Excel (to analyze survey data)
- GIS software (to map citywide typologies)

### D. Goals of TRAM Report

The objective of this guide is to introduce the user to the tool and its purpose and describe the steps and elements needed to use the tool effectively. The guide is not intended to answer every question about the use of the tool but rather to provide enough detail about how the tool is designed so that it may be best used in a variety of different situations. The report concludes with an analysis of the current state of the tool, areas for improvement, and recommendations for future use of TRAM.

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