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Critical
Dialogues
Series

criticalurbanagenda.com

Critical
Dialogues
Series

criticalurbanagenda.com

Institute for Advanced Sustainability Studies, Potsdam (IASS) e.V.

Introduction

DIALOGUE 3: 'UN-Data' is the third and final part of the Critical Dialogues Series: the New Urban Agenda 'on the ground', which accompanied the making of the New Urban Agenda during the eighteen months leading up to the Habitat III conference in Quito (17–20 October 2016) by critically reflecting on some of its core issues. The topics of the Critical Dialogues ranged from Overriding the urban/non-urban divide (April 2015) and Different Urbanisations (September 2015) to UN-Data (July–October 2016). In line with the overarching motto of 'the New Urban Agenda on the Ground,' the dialogues are concerned with local realities and their relation to global parameters.

The evolution of the series

As visualised on p.2, the methodology of the Dialogues Series evolved over the last eighteen months from (1) a **DIALOGUE** – to produce different thinking – to (2) a **LAB** – to open up complexity and more depth – to (3) a **FIELDWORK** – to add 'on the ground' reality. The knowledge that was produced in these three stages was taken up in the course of the Series' learning process.

DIALOGUE 1: 'Overriding the Urban-Non-Urban Divide' began as a public debate with four key panellists. The inputs and discussions were extremely interesting (criticalurbanagenda.com), but the follow-up talks were even more engaging and left us wanting to explore the field in greater depth.

DIALOGUE 2 brought sixteen 'unusual suspects' together to spend five days experiencing, exchanging, producing, and discussing the topic of 'Different Urbanisations'. In this LAB2 in Berlin, we focused on the role and limits of importing/exporting knowledge, technology, and urbanisation patterns to and from different regions of the world, and discussed how culturally different processes of urbanisation are/should be. The LAB format combined discussion with hands-on activities as well as inputs from the participants' own work and experiences. The 'unusual suspects' came from very different local contexts all over the globe, in which they were

all strongly involved in 'on the ground' action. Most had a hybrid profile, being part academic and part activist/artist/practitioner. The physical workshop setting (space, food, working materials) played an important role and the LAB used practical tasks (e.g., copy-pasting urban patterns, remaking the 1950s story of 'The Three Little Pigs' in a futuristic setting, or hacking a municipal water system) to spark creativity and energise discussion on particular topics. In addition, much attention was given to the written, graphic, and photo/video documentation, which resulted in a joint LAB2 publication and video production (criticalurbanagenda.com). The week closed with a public debate on the same topic, a public event hosted at the ANCB in Berlin.

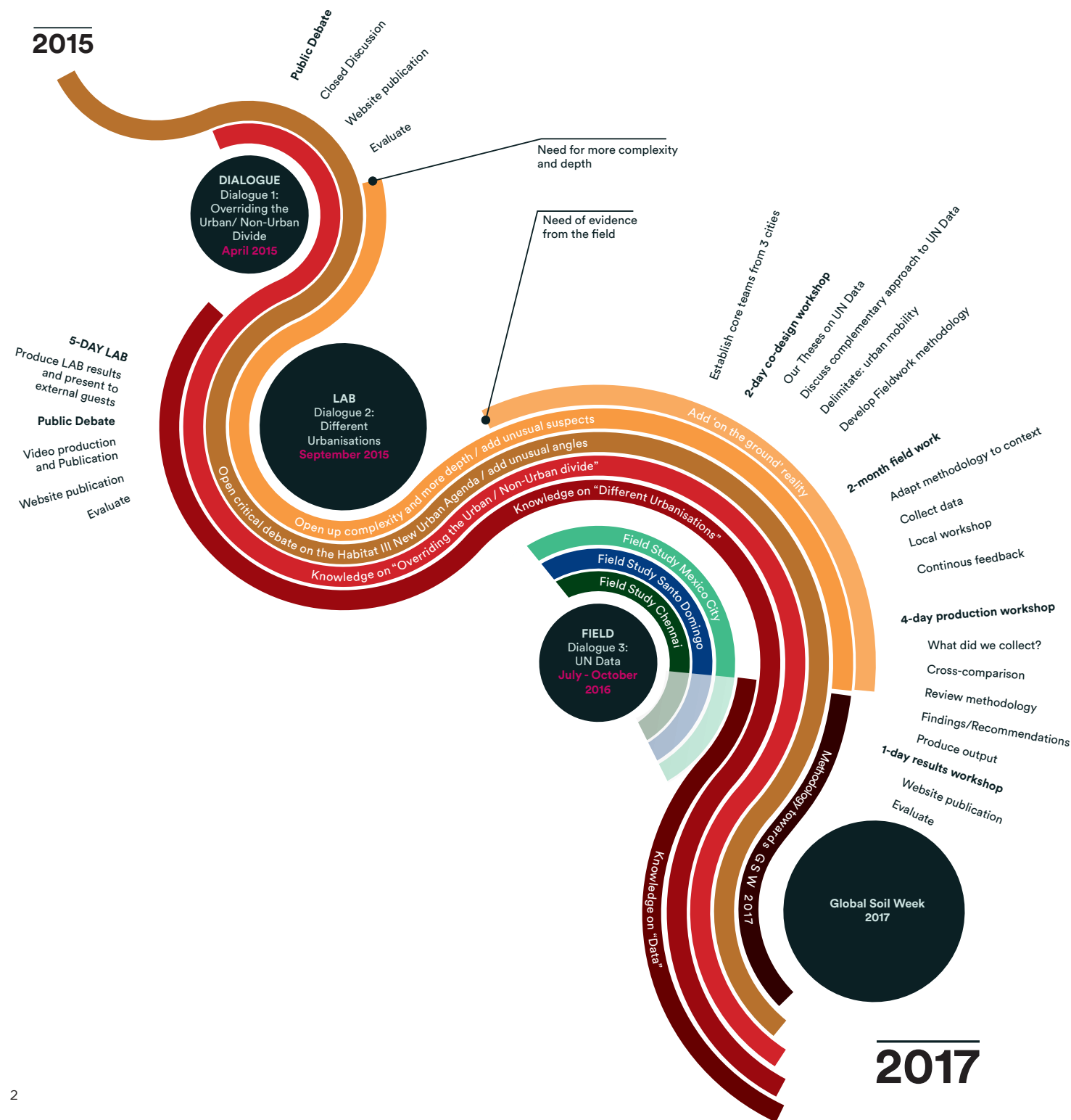
DIALOGUE 3 focused on the topic of 'UN-Data'. The development of a critical approach to this topic called for the collection of evidence on the ground. We formed a core team with several of the LAB2 participants to investigate the relation between global and local data (related to Habitat III / Sustainable Development Goals - SDGs) through co-designed **FIELDWORK** in three case study cities: Chennai, Mexico City and Santo Domingo. We started out from the following questions:

- How can data that is meant to measure and monitor global goals and targets go beyond the creation of broad statistics to being a significant tool/resource for local communities?
- What kind of data is needed to induce applied change and force accountability on different levels?
- Can we identify different approaches to data Collection, Evaluation and Directionality?

Together with a 25-minute documentary on the three case study cities and a 25-minute compilation video of the Results Workshop, this publication compiles our experiences of **DIALOGUE 3: 'UN-Data'**.

The complementary media to this publication is available on:

criticalurbanagenda.com



Methodology

Dialogue 3: UN-Data

The third dialogue was set up as a process that ran from July to October 2016 and consisted of four major elements: 1) Co-design Workshop in Berlin, 2) Fieldwork in three cities including a Local Workshop, 3) Production Workshop and 4) Results Workshop. Before starting the process, three cities with very different contexts and scales were chosen to allow for cross-comparison and a core team of hybrid professionals established.

During the **Co-design Workshop** (mid-July), the core team developed a common approach to the project, delimited the topic, agreed on a common 'pilot' methodology for fieldwork and tried to assure comparability across the different territories. *Refer to p. 5 for further details.*

The Fieldwork and Local Workshops (mid-July to late-September) were coordinated by two 'local' core team members in each city. Each team translated the methodology we agreed upon during the Co-design Workshop to its own local context, which also meant finding an entry point from which to begin the investigation. This turned out to be distinctive in the three cities as each team had access to different levels of locality. The entry points were located at the community level in Chennai, within a micro-community (factory) in Mexico City, and at the institutional level in Santo Domingo. *Refer to the different city-sections for more details.*

The Production Workshop (3-6 October 2016) brought the core team back together to discuss the results of each city, to compare

and debate overarching issues and to produce the overall results from the project to be presented at the Results Workshop. A graphic designer and a video artist enriched the team.

The Results Workshop (7 October 2016 @ IASS, Potsdam) brought together a small but wide range of external experts (from both academia and practice) to provide feedback and discuss the results of the project with the core team. *Refer to the website (criticalurbanagenda.com) for a compilation video of this workshop.*



Target 11.2 (SDG)

By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.

Indicator 11.2.1

Proportion of the population that has convenient access to public transport, disaggregated by age group, sex and persons with disabilities.

OUR INITIAL THESES

THESIS 1:

The moment global normative targets are translated into measurable indicators, complexity is strongly reduced and attention is diverted from reaching the target to just reaching the indicator. In addition, the correlation in the direction from indicator back to target is more often not functional, useful or correlated.

There are no feedback loops from indicators back to targets to check the performance of these indicators.

(e.g. translating the ‘proportion of people with convenient access to public transport’ by simply increasing the amount of bus stops is not necessarily indicating an improvement in urban mobility)

THESIS 2:

Numerical data that is meant to measure progress towards normative goals can be manipulated in all directions since the UN vocabulary, and especially target and indicator formulations, leaves open a very wide spectrum of interpretations.

(this spectrum is often misused by powerful actors pushing their own interests - i.e. car & oil lobbies, private contractors, ‘smart city’ implementers - or by other actors that try to get their hands on the money for the ‘largely project-based’ implementation process)

THESIS 3:

Indicators can only be used to claim accountability if they are meant to measure advances towards contextualized and realistic goals and targets - these can of course be bold!

THESIS 4a:

Data that is meant to induce applied change should consist of more than one layer of information. Perceptions and socio-cultural factors are an inherent part of urban mobility and therefore not taking into account socio-cultural factors can cripple even the most advanced technical or organisational solutions.

(e.g. the social and class perception of public transport in Mexico City)

THESIS 4b:

Big data and fancy graphs (we can also make these) will never give you the complete socio-cultural factors of why certain ‘solutions’ are not working, why people don’t change their behaviour, etc. Especially social and cultural ‘small’, ‘qualitative’ and ‘localised’ data are key to implementing any agenda in reality.

THESIS 5:

UN Data often makes things ‘disappear’ (think of the increased poverty lines which makes poverty ‘disappear’) while qualitative / localised data could be used to make invisible things ‘appear’ and give local actors the necessary evidence to argue for their rights and claim accountability.

THESIS 6:

Counter productive policies favouring privately owned vehicles are largely ignored in these global urban debates.

THESIS 7:

No city, mayor or citizen is waiting for the New Urban Agenda to tell them what to do. The value of such a global urban agenda lies in some cases in opening up local discussions on how to solve local issues, in few cases in pushing a better cooperation between the national and local level, in other cases in the creation or strengthening of local or inter-local networks and in many cases it is just one more thing that weighs on local capacity.

(many local governments were not even consulted by their national government)



How can data that is meant to measure and monitor global goals and targets go beyond the creation of broad statistics to being a significant tool/resource for local communities?

What kind of data is needed to induce applied change and force accountability on different levels?

Can we identify different approaches to data Collection, Evaluation and Directionality?

Co-design

During the kick-off workshop in Berlin in mid-July, the research team established a number of common points for the three case study cities. Agreements included:

- The selection of a joint research topic in the form of urban mobility.
- A focus on the relevant SDG target for urban mobility as: a) the final version of the Habitat III declaration was not available at the time, b) data availability and processing plays a prominent role in this – especially given the distinctive importance of monitoring, c) an indicator-building process had been set in motion following the signing of the 2030 Agenda in September 2015.

The relevant SDG target 11.2: ‘By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons’ was deemed normatively desirable but very far from reality in the three cities.

Its related indicator 11.2.1: ‘Proportion of population that has convenient access to public transport, disaggregated by age group, sex and persons with disabilities’ was deemed not representative of achievements or lack of achievement toward target 11.2.

- Inclusion of qualitative data collection and a strong focus on perceptions into the investigation, for which an initial survey and a glossary were developed.
- A sample size of 100 people for the survey and a sample size of 10 people for the tracking of commutes in detail (including geo-tracking, video/photography and detailed qualitative interviews). We are aware that a sample of 100

people cannot be considered representative but we agreed that they would at least provide an initial reference for our ‘pilot’ methodology within the short timeframe available.

- A documentation of all modes of transportation for each city as represented on p. 6-11
- The realisation of a local workshop, which would focus on more realistic scenario-building (with a focus on urban mobility) for each city by 2030, with the idea of using a ‘backcasting’ approach to come to the steps that would have to be taken from now up to 2030.

Based on the discussions during this Co-design Workshop, the seven theses on p.4 represent the team’s common starting points prior to the Fieldwork. We will discuss these further on p. 45 in the light of our experiences in the FIELD.



Modes of Mobility

Walk

Chennai

Type



- varies for different parts of the city



Modes of Mobility

Cycle Rickshaw

Chennai

Type



- varies for different parts of the city



Modes of Mobility

Office bus/ Van

Chennai

Type



- scheduled pickup
- varies for different routes



Modes of Mobility

Cycle

Chennai

Type



- varies for different parts of the city



Modes of Mobility

Suburban Rail

Chennai

Type



- North line: 5:30 – 23:00
South Line: 4:00 – 1:00
West line: 12:15 – 23:45

- 5.00 rupees for first 20 km
10.00 rupees above 20 km

- 3 lines, 181 km, 73 stations; North, South and West lines

Modes of Mobility

MTC Bus

Chennai

Type



- General Service: 6:00 – 22:30
Night Service: 23:00 – 4:30

- 0.25 - 1.5 rupees per km
Express: 1.5 times
Deluxe: 2.0 times
Night Service: 2.0 times
Volvo A/C: 5.0 times



Modes of Mobility

Auto Rickshaw

Chennai

Type



- adapts to user
- 25.00 rupees for first 1.8 kilometers; 12.00 rupees per kilometre

- Night fare (23:00 – 6am): 1.5 times regular fare

- adapts to user

Modes of Mobility

Cycle Rickshaw

Chennai

Type



- varies for different parts of the city



Modes of Mobility

Metro Rail

Chennai

Type



- Mon-Sat: 6:00 – 23:00
every 10-15 min
Sun: 8:00 – 23:00
every 15 min

- 10.00 rupees per stop

- 1 line, 10 km
proposed: 2 lines, 54.1 km

Modes of Mobility

MRTS (Mass Rapid Transit System)

Chennai

Type



- Mon-Sat: 4:00 – 21:00
every 20 – 30min
Sun: 6:00 – 22:30
every 20 min

- 5.00 rupees for first 20 km
10.00 rupees above 20 km

- 1 line, 19 km, 18 stations

Modes of Mobility

Share Autos

Chennai

Type



- adapts to user

- varies from 2.00 to 7.00 rupees per km

- adapts to user

Modes of Mobility

Taxi

Chennai

Type



TAXI

- adapts to user
- varies from 7.00 to 10.00 rupees per km
- adapts to user



Modes of Mobility

Two-Wheeler


































































Chennai

Type



- adapts to user
- privately owned
- adapts to user



<div><div>Modes of Mobility</div><div>School-/College Bus</div><div>Chennai</div><div><div>Type</div><div><div></div><div><div><div>scheduled pickup</div></div><div><div><div>varies for different routes</div></div></div></div><div><div></div><div></div></div></div></div></div>	<div><div>Modes of Mobility</div><div>Tren ligero</div><div>Mexico City</div><div><div>Type</div><div><div></div><div><div><div>Mon-Fri: 5:00 – 23:30, Sat-Sun/Holiday: 06:00 – 23:30</div></div><div><div><div>3.00 pesos</div></div><div><div><div>1 line, 13,04 km</div></div></div></div><div><div></div></div></div></div></div></div>	<div><div>Modes of Mobility</div><div>Metro</div><div>Mexico City</div><div><div>Type</div><div><div></div><div><div><div>Mon-Fri: 5:00 – 24:00, Sat: 06:00 – 24:00, Holidays: 7:00 – 24:00</div></div><div><div><div>5.00 pesos</div></div><div><div><div>12 lines, 226,488 km</div></div></div></div><div><div></div></div></div></div></div></div>	<div><div>Modes of Mobility</div><div>Metrobus</div><div>Mexico City</div><div><div>Type</div><div><div></div><div><div><div>5:00 am – 12:00</div></div><div><div><div>6.00 pesos</div></div><div><div><div>6 lines, 125 km</div></div></div><div>except for users of Line 4 and to the airport, which is: 30.00 pesos</div></div><div><div></div></div></div></div></div></div>	<div><div>Modes of Mobility</div><div>Autobus/RTP</div><div>Mexico City</div><div><div>Type</div><div><div></div><div><div><div>Mon-Fri: 4:00 – 23:00</div></div><div><div><div>ordinary: 2.00 pesos</div></div><div><div><div>express: 4.00 pesos</div></div><div><div><div>night: 7.00 pesos</div></div></div><div>100 lines, 357 units, 3.000.061 km,</div></div><div><div></div></div></div></div></div></div></div>	<div><div>Modes of Mobility</div><div>Trolebus</div><div>Mexico City</div><div><div>Type</div><div><div></div><div><div><div>Mon-Fri: 5:00 – 23:00, Sat: 5:00 – 23:00, Sun: 5:30 – 23:00</div></div><div><div><div>2.00 - 4.00 pesos</div></div><div><div><div>17 lines, 422,14 km</div></div></div></div><div><div></div></div></div></div></div></div>
<div><div>Modes of Mobility</div><div>Microbus (Micro/Pesero)</div><div>Mexico City</div><div><div>Type</div><div><div></div><div><div><div>up to 5 km: 4.00 pesos</div></div><div><div><div>between 5 and 12 km: 4.50 pesos</div></div><div><div><div>more than 12 km: 5.50 pesos</div></div><div>price raises up to 20% between 0:00 and 6:00</div></div><div>prices in the Greater Mexico City range from 8.00 to 16.00 pesos</div></div><div><div></div><div><div></div><div><div><div>more than 100 routes, information about length and routes not properly disclosed because of irregularities</div></div></div></div></div></div></div></div></div>	<div><div>Modes of Mobility</div><div>Combi</div><div>Mexico City</div><div><div>Type</div><div><div></div><div><div><div>up to 5 km: 4.00 pesos</div></div><div><div><div>between 5 and 12 km: 4.50 pesos</div></div><div><div><div>more than 12 km: 5.50 pesos</div></div><div>price raises up to 20% between 0:00 and 6:00</div></div><div>prices in the Greater Mexico City range from 8.00 to 16.00 pesos</div></div><div><div></div><div><div></div><div><div><div>more than 100 routes, information about length and routes not properly disclosed because of irregularities</div></div></div></div></div></div></div></div></div>	<div><div>Modes of Mobility</div><div>Taxi</div><div>Mexico City</div><div><div>Type</div><div><div></div><div><div><div>TAXI LIBRE: Starting Fee: 8.74 pesos every 250 m or 45 seconds: 1.07 pesos</div></div><div><div><div>TAXI SITIO: Starting Fee: 13.10 pesos raises every 250 m or 45 seconds: 1.30 pesos</div></div><div><div><div>RADIO TAXI: Starting Fee: 27.30 pesos raises every 250 m or 45 seconds: 1.85 pesos</div></div></div><div>657 taxi stations</div></div><div><div></div></div></div></div></div></div>	<div><div>Modes of Mobility</div><div>Uber</div><div>Mexico City</div><div><div>Type</div><div><div></div><div><div><div>every day, 24 hours</div></div><div><div><div>7.25 pesos</div></div><div><div><div>adapts to user</div></div></div><div>raises 3.50 pesos every minute, 7.00 pesos every kilometer</div></div><div><div></div></div></div></div></div></div>	<div><div>Modes of Mobility</div><div>Bicycle</div><div>Mexico City</div><div><div>Type</div><div><div></div><div><div><div>Mon-Sat: 5:00 – 00:30</div></div><div><div><div>annual Registration fee: 400.00 pesos</div></div><div><div><div>7 Days, 3 days, 24 hours: 300.00, 180.00, 90.00 pesos</div></div></div><div>total length of bikeways: 170.11 km</div></div><div><div></div></div></div></div></div></div>	<div><div>Modes of Mobility</div><div>Motorcycle</div><div>Mexico City</div><div><div>Type</div><div><div></div><div><div><div>adapts to user</div></div><div><div><div>the cost of a particular motorcycle can vary</div></div><div><div><div>adapts to user</div></div></div></div><div><div></div></div></div></div></div></div>

Modes of Mobility

Bicitaxi/
Mototaxi

Mexico City

Type

adapts to user

20.00 – 40.00 pesos

Bicitaxi circulates in the historical center of Mexico City

Modes of Mobility

Walking

Mexico City

Type

varies for different parts of the city

Modes of Mobility

Bus (Guagua)

Santo Domingo

Type

10.00 DOP
without air conditioning

15.00 DOP
with air conditioning

3 routes, 36 km

Modes of Mobility

Bicycle

Santo Domingo

Type

adepts to user

privately owned, ca. 200 DOP for maintenance every 2 months

no bicycle lanes

Modes of Mobility

Taxi

Santo Domingo

Type

adapts to user

ca. 200.00 DOP for 15 km

limited to the national district

Modes of Mobility

Car

Santo Domingo

Type

adapts to user

privatly owned, fuel cost: 170 DOP every 15 km

adapts to user

Modes of Mobility

Motoconcho

Santo Domingo

Type

40 DOP for 5 km

national district area

Modes of Mobility

Motorcycle

Santo Domingo

Type

adapts to user

privately owned

adapts to user

Modes of Mobility

Metro

Santo Domingo

Type

1 Ride
20.00 DOP

10 Rides
185.00 DOP

20 Rides
360.00 DOP

2 lines, 30 stations, 27.35 km

Modes of Mobility

Mini-Bus (Voladora)

Santo Domingo

Type

30 ≥ 100 DOP Greater Santo Domingo

100 ≥ 300 DOP outside national district

Modes of Mobility

Concho

Santo Domingo

Type

adapts to user

15.00 - 30.00 DOP
Santo Domingo City

30.00 - 50.00 DOP
Greater Santo Domingo

adapts to user

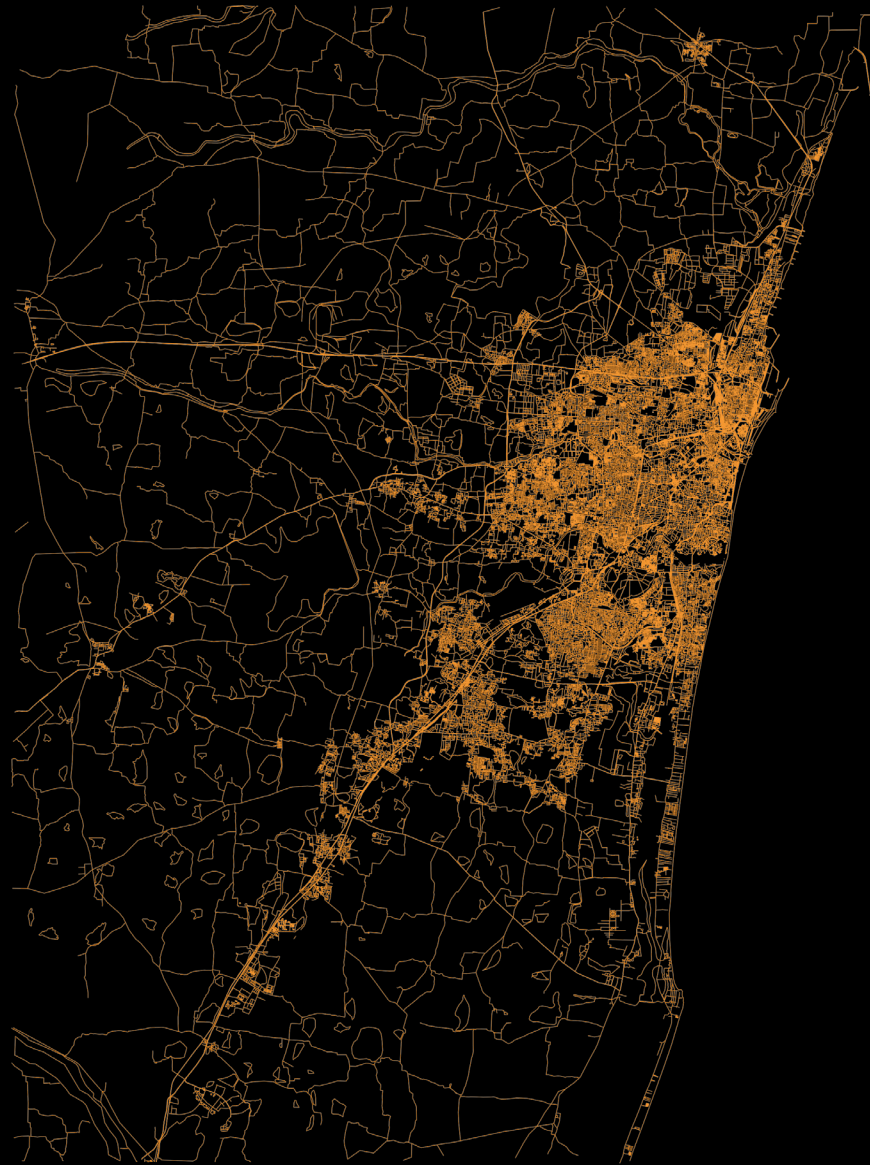
Modes of Mobility

Walking

Santo Domingo

Type

varies for different parts of the city



Population: 8.6 million
Area: 1189 km²

CHENNAI

Moving Around in Chennai

With a population of 8 million and growing, the city of Chennai in southern India has immense potential to make a mark on the global scene with an array of opportunities and an improved quality of life quotient for its citizens. Established in 1639 by the British, what started out as a fishing hamlet is today a booming metropolis in the Indian subcontinent. As is the case with most cities, Chennai's growth too has led to increased transportation needs for its citizens. The horizontal growth of the city's urban form and the dispersal of job centres to its fringes in the post-liberalisation era have also resulted in longer commutes; according to a 2010 study,¹ commuters travelled on average 11.25km per trip. Traversing such a distance often requires a combination of different modes of transport to reach the final destination. Unfortunately though, the quality of transport infrastructure and services has only declined over the years. Another issue that has weighed down the mobility sector is that increased economic prosperity over the years has led to a rising private vehicle count. This in turn has led to increased congestion across the city, leaving the city's commuters to deal with much ambiguity in journey times. During rush hour, commuters face average travel times of 45–60 minutes. Despite the fact that the city has multiple modes of transport available – Suburban rail, MRTS, Metro, Bus, Minibus and Share Auto – none of these provide a comprehensive coverage of the city's extents. Worse still, in the absence of service integration and seamless transfers, these services are considered to be a poor second choice. All these factors have largely been responsible for the stigma associated with public transport as the poor man's mode of travel and have further contributed to the increasing private vehicle ownership count in the city. Indeed the ladder of success for Chennai's residents involves moving from public to private modes of transport.

In the case of non-motorized transport, despite Chennai being the only city to have adopted a non-motorized transport policy in the country, the performance of this policy when it comes to

implementation has been rather questionable. Of the nearly 3000km of roads in the city, only a small percentage would pass a pedestrian environment audit, leave alone the basic requirements of a clear, unobstructed and continuous walking route. With no attempt to provide safe and dedicated infrastructure for a cycle network, cyclists only have it worse. Essentially, a vicious cycle of transport decline has been set in motion in Chennai.

Interestingly though, it is not all dark and gloomy. What Chennai has in its favour is that the bits and pieces of the jigsaw are very much on the table. There are things that work well such as the manner in which the suburban rail corridor connects to the fringe areas on the western side and is abutted by transit-compatible land uses, the informal auto-share networks that surface where public transport fails to reach and the newly constructed metro rail corridor that is quickly becoming a favourite among the residents for the global image that it promises for Chennai's mobility sector.

The missing piece however is the lack of a single unified and empowered transport authority that can bring together all the modes of transport and provide a truly 'smart' mobility solution for the city. The creation of the Chennai Unified Metropolitan Transport Authority (CUMTA) – a single nodal agency to direct planning, operations, and monitoring of various transport modes in the metropolitan area of Chennai – in November 2010 was a step forward in this direction but a lack of enthusiasm, political will, and financing mechanisms have resulted only in piecemeal efforts to improve conditions and have hindered any systemic change in the way the mobility sector operates.

For Chennai to achieve its true potential, it will have to pay closer attention to the quality of its infrastructure and services for all its citizens, both rich and poor, as well as the means to deliver these to its citizens.

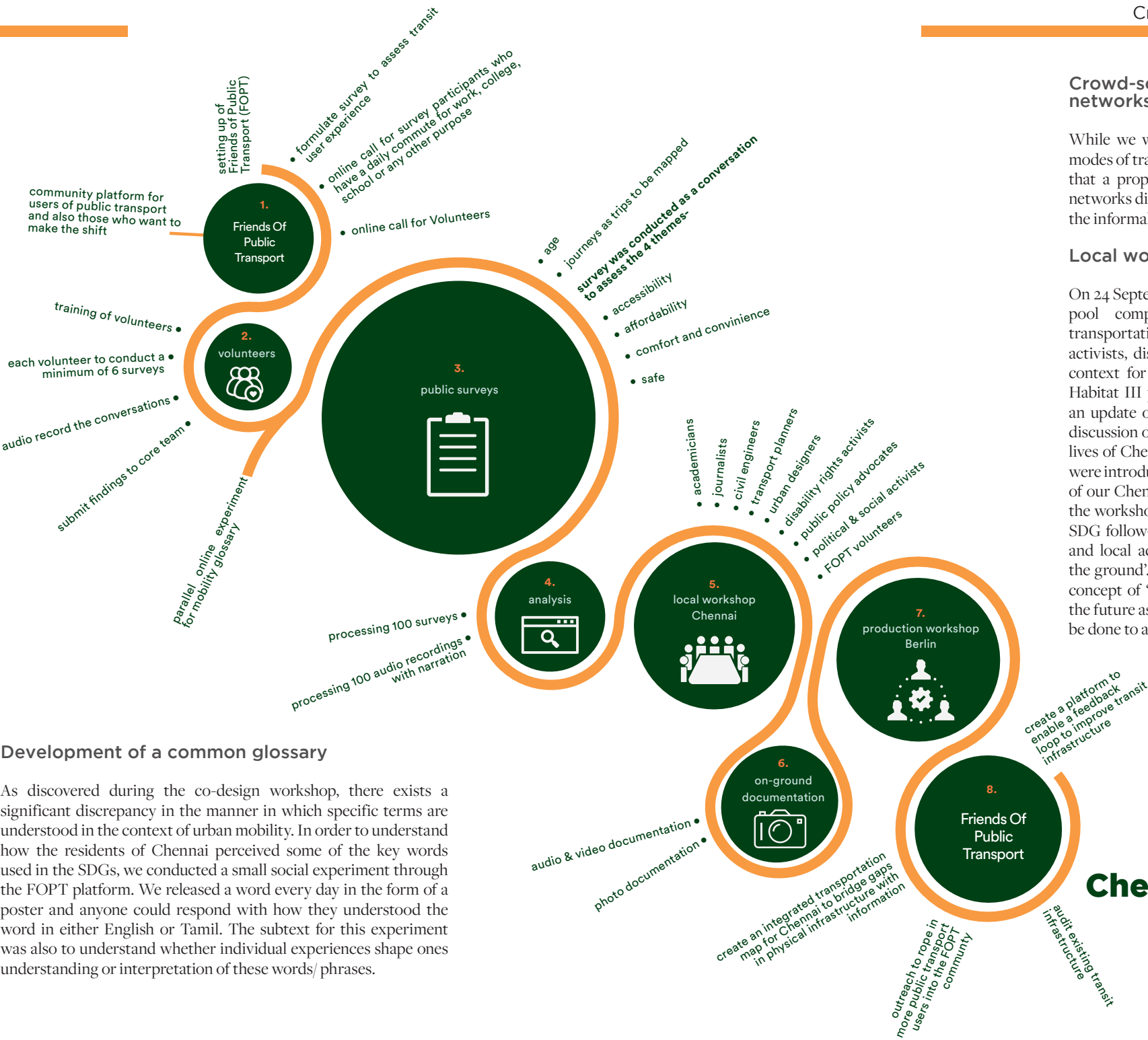
1. Chennai Metropolitan Development Authority (2010). 'Chennai Comprehensive Transportation Study', available at: www.cmdachennai.gov.in/pdfs/CCTS_Executive_Summary.pdf

A Methodology for Chennai

Given the gravity of the issues related to the mobility sector in Chennai, we felt that it would be unjustifiable if the fieldwork to be undertaken for this Dialogue 3 did not lead to action on the ground. We needed a platform that would survive the Critical Dialogues Series and serve as a forum for exchange among Chennai's commuters. More importantly, the platform would need to outlast the frenzy surrounding the Habitat III conference. With the underlying premise that in order to make the shift towards a sustainable future for Chennai, making the shift to public transport is imperative, 'Friends of Public Transport (FOPT)' (friendsofpublictransport.wordpress.com) was born – a community-driven platform with the goal to make public transport desirable for the residents of Chennai. As part of the case study for 'Critical Dialogue 3: UN-Data', the following core activities were undertaken under this platform:

Transit user survey

We finalised a questionnaire based on the discussions from the Berlin co-design workshop and reflecting the socio-cultural aspects that influence people's commuting behaviour in Chennai. The surveys were conducted to assess the daily transit experience of passengers across all modes of transport (bus, train, metro, auto, share auto, cycle, two-wheeler, car etc.) (see p.6-8). Anyone who commutes regularly or on a daily basis from home to any destination in Chennai for work, study, recreation, or any other purpose was eligible to participate in the survey. We put out an open call that allowed interested people to sign up to be surveyed at a mutually agreed time and location. Outreach for the survey was done via various online platforms, random soliciting of people on the streets and through personal networks. Additionally, we put out a call through the FOPT platforms to invite volunteers to help conduct the surveys. Those interested were invited to attend a training session on how to conduct the surveys. As a result, eight people were engaged for a period of one month to survey one hundred respondents. The surveys were conducted face-to-face as conversations with a few cue questions to generate a narrative. All of these narratives were transcribed and/or audio-recorded. In parallel, we set up a master sheet to collate and analyse the survey findings. We identified a set of recurring issues and used these as parameters to understand and categorise the broad spectrum of user experiences in Chennai.



Crowd-sourced mapping of informal transport networks

While we were trying to create an inventory of all the available modes of transport and their reach across the city, it became evident that a proper source of information on informal transportation networks did not exist. We used crowd-sourcing to initiate a map of the informal transport networks of Chennai on the FOPT platform.

Local workshop

On 24 September, we organised a local workshop with a participant pool comprised of architects, urban designers, planners, transportation planners, civil engineers, journalists, public rights activists, disability rights activists, and academicians. We set the context for the discussion on urban mobility by explaining the Habitat III process and the Critical Dialogues Series, followed by an update on India's report/response to Habitat III. This led to a discussion on the relevance of the SDGs and Habitat III to the daily lives of Chennai's residents, guided by the three key questions that were introduced on p.1. We presented and discussed the key findings of our Chennai Transit user survey after which the final session of the workshop sought to propose a complementary approach to the SDG follow-up and monitoring process to push for accountability and local action; and propose a more realistic urban agenda 'on the ground'. In order to do so, participants were introduced to the concept of "backcasting". A successful outcome was imagined for the future as a means to prompt reflection and debate on what must be done to achieve this vision.



Results and Key Findings from Core Activities

From August to October, the four core activities of the research methodology yielded findings that were revelations or reiterations of our existing understanding on urban mobility in Chennai.

From the Transit user survey

The first key finding from the transit user survey was the willingness of people to participate in a survey of this nature, which required respondents to spare 30–45 minutes of their time to talk about their daily transit experience. Of the 100 respondents, 60 were women and 40 were men, with 50% of men and women surveyed belonging to the 15–30 age group. 76% of the entire pool commuted for work while 21% commuted for education. The survey pool included people from all economic strata, from domestic workers to blue collar employees to managers. 72% of all respondents used multiple modes of transport to get from and to their homes. As high as 68% of respondents reported that their trip included a walking component, highlighting the need for a high quality pedestrian infrastructure. This was further reiterated with 92% of respondents citing inadequate infrastructure and systems and 73% citing discomfort while using various modes of transport as the primary cause for an unpleasant transit experience.

Nearly all narratives included a safety concern, both from the perspective of health and road safety as well as from the perspective of theft and sexual harassment, the latter especially among female respondents. Interestingly, 36% respondents perceived their current mode of transport as being unsafe without having actually been involved in an unpleasant situation. This may be due to word-of-mouth accounts of people victimised, to directly having witnessed such incidents or to the general stigma that plagues public transport. The perception of safety towards a particular mode of transport was also related to external factors. For example, respondents felt at risk while waiting for a bus due to poor transit stop infrastructure,

feared being involved in an accident caused by other drivers or animals straying into traffic, or were afraid of being attacked by dogs. 9% of respondents also felt threatened by verbal assaults from drivers and ticket conductors or co-passengers while using public and para-transit modes.

On comfort and convenience, overcrowding ranked the highest (46% of respondents) among the causes of discomfort for commuters, with dirt and pollution ranking second (25% of respondents). Overcrowding, particularly on buses, is an obvious indicator that there is much demand for affordable public transport options with a higher frequency of services.

On affordability, despite public transport costs in Chennai being one of the lowest among the country's major metropolitan areas, 20% felt that it was not affordable. A closer look at the narratives revealed that while there were low-cost options available, the low frequency of such services made it impossible for many to avail them in the interest of getting to work on time. This obviously led to a spike in the percentage of monthly income allocated for transport. Nearly 20% of respondents said that they use their current mode of transport only because they find it to be the most affordable option, indicating that there was not much choice within each economic bracket.

The surveys highlighted a serious problem with regard to the provision of quality infrastructure and systems. Inadequate and outdated systems also caused routine delays such as having to wait to buy a ticket at a train station or at a toll booth while driving. Prolonged public infrastructure construction such as metro rail or flyovers also resulted in traffic rerouting and pollution, causing further inconvenience to commuters. Narratives from the physically challenged stressed their lack of independence when it came to moving around the city. It was evident from most of the narratives that in a trip that included multiple mode transfers, the discomfort or difficulty while using one mode was sufficient to wear out the commuter and cause him/her to perceive their entire trip as being a hurdle in the daily experience. It therefore appears that in most cases, fixing one small issue related to one mode of transport could potentially make the transit experience a lot more pleasant for commuters. It also appears that in most cases this one mode of transport that could be a game changer is simply fixing the walking infrastructure.

A key observation made in all of the survey narratives was the element of compromise in decisions related to mobility in Chennai.



Compromises are made for affordability, safety, convenience, and lack of choice depending on one's own financial ability, tolerance levels, and availability of time among other things. The bus rider puts up with overcrowding for the sake of affordability or convenience; the car driver puts up with congestion for the sake of comfort and convenience; the share auto rider puts up with lack of safety and comfort for the lack of choice and so on. In other words, the citizens of Chennai are still waiting for a single mode of transport to offer a completely satisfactory transit experience.

From the glossary of terms

As anticipated, we found that individual experiences clearly shape ones understanding of the specific terms. Many words were used interchangeably such as 'accessible' and 'affordable'; 'commute', 'transport', and 'mobility', and 'pain' and 'stress'. Most respondents also exhibited a need to be inclusive when defining the terms. For example, the words 'affordable', 'accessible', 'convenient', 'safe' and 'public' were all defined or interpreted and compulsorily suffixed with 'for all.' The only exception being that many female respondents reflected on the word 'safe' with a gender bias.

From the crowd-sourced map for informal transport networks

The crowd-sourcing exercise to map informal transport networks served as an indicator for:

- The willingness of commuters to share their knowledge of these networks for the benefit of others, thereby reiterating the need for a platform like FOPT;
- The extent and importance of these invisible networks, which form the backbone of mobility in many neighbourhoods, particularly in the fringe areas;
- The pace of development in Chennai and the inability of the transportation frameworks to service these new areas that are being added to the urban agglomeration;
- The potential for mobility to accommodate both private and public players and the need to establish clear legal frameworks to allow both to flourish in the interest of the citizens of a growing city.

From the local workshop

The first round of discussions during the local workshop revolved around how the urban mobility sector in Chennai measured up to the SDG targets and indicators. Participants listed what they

considered to be contextual indicators for measuring mobility in Chennai:

- Dependability: mobility options need to be reliable in their services.
- Level of comfort from weather conditions: protection against harsh sun and rain.
- Pain: both economic and physical. The absence of pain is not an indicator for a comfortable commute.
- Equitable distribution of road space: not prioritising any one mode of transport in both design and budgeting.
- Availability of transport mode options: the ability to choose between several modes of transport. Public modes must also be the default and private modes must only be treated as an extra.
- Level of innovation: mobility solutions must be measured against their innovation.
- Last mile connectivity: mobility must be viewed as and evaluated as a door-to-door solution.
- Modal share: the percentage of people using private modes of transport needs to be the lowest.
- Trip rates and lengths: the number of per capita trips and trip lengths must be reduced.
- Generalised cost of transportation: this needs to be reduced.
- Accounting for the disabled and other vulnerable groups: standards for safety, affordability, comfort, and convenience must take into account the needs of all.
- Impact assessment: mobility projects must be assessed for their environmental and social impacts as most of the time there are costs incurred by people who are not necessarily the users of these projects such as pavement dwellers, street vendors, flora, and fauna and other such marginalised groups.
- Maintenance: mobility solutions need to last for significant periods and with minimum wear and tear from use.
- Long term sustainability: mobility solutions need to be conceptualised, designed, and built to last.

Other important points mentioned were:

- While mobility-related standards are a relatively new concept in Chennai, lowering the benchmarks for Chennai in the case of global indicators would not be acceptable.

2. While it is easy to conceive of policy, its effectiveness as a tool needs to be questioned when it comes to implementation.
3. There is a need for incremental indicators to match increasing ambition as time goes by. This approach needs to be supported by continuous monitoring, feedback loops, frequent audits, and review processes by leveraging technology to do so say once every two years.
4. There is an urgent need for a shift in approach, wherein mobility solutions are not viewed anymore as infrastructure products but as services that need to keep up with the pace of development. Again here, the need for innovation and the power of technology in thinking about mobility was stressed.

The workshop concluded with a final session where participants prepared a mobility wish list for year 2030 and followed it up with a solution kit for how to get there.



Way Forward

Friends of Public Transport (FOPT) will remain active and make the current public transportation sector in Chennai more understandable for the city's commuters and encourage those who are trying to make the shift. FOPT's approach draws on the principles of openness and participation, leverages open access technology, and provides citizens with the information and tools they need to ensure a safe, comfortable, dignified, and sustainable urban mobility experience. Some of the activities that will be undertaken over the coming months are:

Development of the Integrated Transportation Map of Chennai

FOPT will complete its easy-to-read digital map of all formal and informal transportation networks in Chennai to improve access to information for the city's commuters. This open source 'Integrated Transportation Map of Chennai' will detail:

- All routes for all available modes of formal and informal transportation;
- All transit stops where passengers can change modes of transportation;
- Fare pricing for all modes;
- Key landmarks/destinations; and
- Major tourist destinations for visitors

While this map will be created in digital format, with appropriate funding it could also be translated into Tamil and printed and distributed freely for the benefit of millions who do not have access to digital technology.

Roping in the community

As useful as it may be, creating a map like this is a mammoth task given the chronic lack of information. FOPT's solution to this challenge is to rope in the community – in other words, the people who regularly use public transport in the city – to offer feedback and to add additional services and routes to the map. In addition, regular users of public transport who are confident of guiding others through the maze of the city will be given badges that identify them as 'Friends of Public Transport'. You could walk up to these 'guides' in the street and ask for help on how to get from A to B. The latter is

an initiative to cross the technological divide and reach more people 'on the ground'.

Pedestrian environment audits

As our user experience survey suggests, creating safe, comfortable, and walkable streets is an integral part of making the transit experience more pleasant. The streets of Chennai have increasingly become the domain of motorised vehicles, with very little consideration given to the needs of pedestrians. The lack of clear, unobstructed footpaths and their inadequate maintenance are factors that discourage people from walking regularly. To address this pivotal issue, FOPT will develop a Pedestrian Environment Audit kit with which citizens can undertake quantitative audits of the pedestrian environment. The results can provide a clear course of action on how to improve pedestrian infrastructure in the city and is an example of how local data can empower citizens to claim their rights.

The mobile platform

A logical next step, once we have the completed 'Integrated Transportation Map of Chennai', is to host all of this data on a

mobile application. The mobile platform will, apart from providing information, enable users to report any changes or errors in the map so that it is always up to date. This is particularly useful because construction activities in the city tend to result in the rerouting of transport modes, causing confusion among commuters. Keeping the map updated on a regular basis is a sure way to overcome this barrier.

Scalability and future potential

In terms of future activities, FOPT has the potential to not just be replicated in other cities but also to expand as a platform for citizen-based efforts to monitor and report on government actions in the field of urban mobility. This can take many forms, from tracking the performance of mobility services to monitoring budget expenditures in this sector. With the information out there in the public domain, citizens can demand better public transportation systems. At the same time, by using technology to increase the ease and quality of public participation, government agencies can, in turn, use this platform to better understand and respond to the needs of the citizens by improving service delivery exactly where it is needed most. As far as FOPT is concerned, either way is a win-win for sustainable mobility.●



MEXICO CITY

Thinking about Mobility in Mexico City

Using data to reflect the status of urban mobility in Mexico City is a complex and multi-layered task. As Subcomandante Marcos once said, Mexico City is made up of many small cities, a quilt, or tile of many realities that are woven into each other in the best of cases, but that generally only share borders. Moreover, a precise spatial definition of mobility in Mexico City can be quite challenging, as the city occupies the territory of three Federal states: Distrito Federal (which in 2016 became an independent state), Estado de Mexico, and Hidalgo. This geopolitical entanglement makes it quite difficult to generate conjunct planning.¹

Mexico City can indeed be understood as an urban territory composed of bubbles or spheres that reflect the enormous socio-economic inequalities existing in the country.² The features of mobility among these highly contrasting bubbles vary greatly: from gated communities where every household owns at least one car, to vast slum-like³ areas where people live at or below poverty levels. In the latter, access to public transportation is generally insufficient. Although these bubbles are sometimes superimposed, and mixed neighbourhoods do exist, the prevailing inequalities have also contributed to the unequal development of the city's transport system. Nevertheless, mobility is an issue that affects the entire metropolitan area of Greater Mexico City. Millions of people cross the city daily at a great human, economic, and environmental cost: the average daily travel time per capita in Mexico City is 3,5 hours,⁴ making it the most 'painful' city in the world for commuters.⁵ Economic losses due to excessive traffic amount to 1.95% of the country's GDP and, thanks largely to the gases and particles emitted by vehicles, the inhabitants of Mexico City continuously suffer from the dangerous

effects of air pollution.⁶ Despite these clearly defined problems, mobility in Mexico City is an extraordinarily difficult issue to study, due to the vastness of the territory, the size of the affected population (an average of 25 million people), and the hybrid structure of formal and informal modes of transportation available.

In a megalopolis such as Greater Mexico City, the time needed to move from one point to another is not the only issue. The coverage of public transportation services is not extensive and their availability in many of the poorest zones is inadequate. This forces many people to use several types of transport to arrive at their final destinations. Although a broad range of services exists, including underground rail (Mexico City Metro), trains, metro-buses, buses, minibuses (locally known as pesero), motorcycles, mototaxis, and more recently bicycles, plus at least six additional options, these systems are not integrated (see p.8–10). Even though transfer nodes exist, many of the numerous networks use different methods of payment, signals, and timetables. For instance, the number of routes and diversity of peseros is so vast, that it becomes impossible to map out their trajectories throughout the city. Those who use peseros have to learn their intricate and ever-changing routes and stops relying exclusively on experience, and often through trial and error. The lack of consistent routes and timetables, together with badly maintained vehicles and their insufficient capacity to meet the demands of citizens – a problem which is not exclusive of peseros – has resulted in widespread dissatisfaction with public transport. Moreover, public opinion associates the use of public transport with low-income levels and regards it as socially degrading. Thus, most people aspire to own a car. However, only the smallest percentage of the population actually has the means to buy one. Despite this, public spending in Mexico City has favoured the growth of privately owned vehicles over public ones: “[...] in terms of public expenditures allocated to transport, only 22% was invested in public and non-motorised transport, while 66% was destined to the construction of infrastructure focused on cars.”⁷ Thus, car ownership in Mexico City is a paradox and presents a clear portrait of the city's mobility setbacks, which further depict the great socio-economic inequalities.

1. Cobos, Emilio Pradilla (2006). 'Zona metropolitana del Valle de México: megaciudad sin proyecto', in: *Ciudades: Revista del Instituto Universitario de Urbanística de la Universidad de Valladolid* 9, 83–104.

2. According to World Bank data, Mexico is among the top 25 countries with the highest income inequality: GINI Index (World Bank estimate) (2016). Overview per Country 1981–2014, available at: <http://bit.ly/2ihvcsj>

3. Significantly, there is no specific word for naming slums in Mexico. This lack suggests a general failure to recognize (and come to terms) with the acute problem of urban poverty that persists and grows in the country.

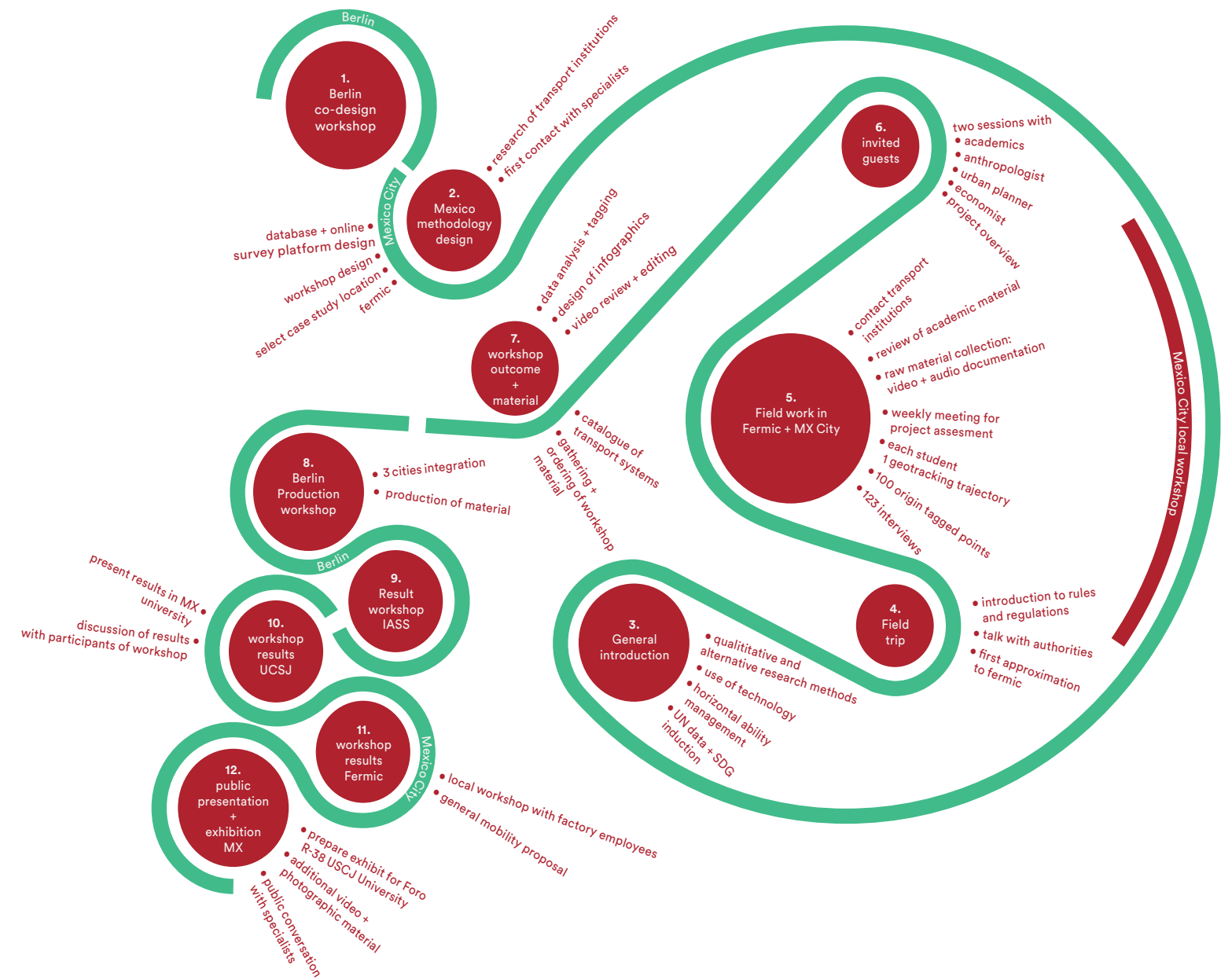
4. ONU-Habitat Mexico (2015). 'National Report of Urban Mobility in Mexico 2014–2015', part of the Reporte Global en Asentamientos Humanos de ONU-Hábitat, available at: <http://bit.ly/2ihEmZn> (15 October 2016)

5. Galligan, Sara, IBM Newsroom (2011). IBM Global Commuter Pain Survey: Traffic Congestion Down, Pain Way Up (Sep 8 2011). Available at: <http://ibm.co/2ihqimG>

6. Notimex, 'Tráfico en el DF cuesta 55,4 mil mdp al año', in: *El Universal*, 11 April, 2011, available at: <http://eluni.mx/2ihFwUx>

7. Instituto de Políticas para el Transporte y el Desarrollo México (2012). *Guía de estrategias para la reducción del uso del auto en ciudades mexicanas. Más allá del auto*, 19, available at: <http://bit.ly/2ihDRi4>

Population: 22 million
Area: 7954 km²



Mexico City / Micro-Community

A Methodology for Mexico City

Choosing a site for our study

The first challenge that the core team faced in Mexico was to construct a case study within a short period that could produce significant data while also serving as a model for future investigations around mobility and data production. One thing was clear: because of the huge size of Mexico City, we required a population that was concentrated in a spatially delimited zone.

Three parameters were crucial to the development of the case study. The first of these was a population spanning multiple income levels. This would allow us to cross-reference several social hierarchies, and thus different living districts and manners of moving through the city. Secondly, it was important to choose a complex and conflictive zone within the city, mainly because those places are often very densely populated, difficult to access, and, paradoxically, make up the largest part of the city's territory. Finally, we needed an access point that would allow us not only to reach a group of people belonging to different socioeconomic backgrounds, but also to ensure that our approach to that group could be based on mutual trust from the very beginning. Fulfilling these conditions was not a difficult task, since many industries and corporations, and almost all public universities in Mexico City, satisfy at least two of these criteria.

We chose the Fermic chemical factory as the site for our case study due to its location and manageable size.¹ The factory's directors' long-term relationship with members of our team gave us trusted access to all of the workers. Furthermore, its proximity to the new and controversial No. 12 metro line made it very attractive. Finally, the possibility of feeding back the results of our research for the benefit of the workers and the company's decision-makers ensured that our research could bear tangible fruits. Fermic offered us the possibility

1. Fermic is a middle-sized factory with 553 employees. It is located within ten minutes' walk of Calle 11 metro station, which serves the newest subway line in Mexico City (Line 12). <http://www.fermic.com.mx>

of interacting with a wide diversity of people, ranging from manual workers and cleaning personnel to CEOs, therefore covering a large part of Mexico City's unequal socioeconomic scenario.

Established almost fifty years ago, Fermic was one of the first companies in Latin America to produce antibiotics. When the factory was built, its surroundings in the South Eastern part of Mexico City were almost completely rural. Today, Fermic is surrounded by densely populated neighbourhoods, most of which originally consisted of informal settlements that have undergone unequal processes of formalisation. Poverty and crime rates are high, and most neighbours have no option other than living near a factory that can potentially become a hazard to their health.

Designing a methodology

The design of the data gathering process had an essential backbone directive: it was crucial for us to create a data collecting method that could be easily used and owned by the workers, empowering and opening for them the possibility of acting in accordance with the results obtained. One fundamental premise for the core team was – and still is – that dialogue produces involvement, which in turn leads to ownership. We aimed for a reciprocal and contrasting way of creating spaces for dialogue and exchange. Therefore, we considered data collection not only as a required action, but emphasised its very process as well.

We conceived a double sphere of exchange that could act as a pivot for a wider view of the dynamic nature of mobility in Mexico City. The first one involved the workers in Fermic who were willing to share their experience and perception of mobility, and the second would be formed by a team interested in urban mobility. (Actor-Network Diagram p.27)

Forming a team

In order to carry out our premise, we designed a general open call for a two-month workshop at the University Claustro de Sor Juana (UCSJ),² located in the centre of the city, that could lead to the creation of a think-tank and activate a group of people dedicated to collecting data and studying mobility. Fourteen students from diverse universities and disciplines were accepted, forming a group of complementary viewpoints: an optimal assemblage for studying

2. For more information on the university's humanistic profile, see their official website: www.elclastro.edu.mx



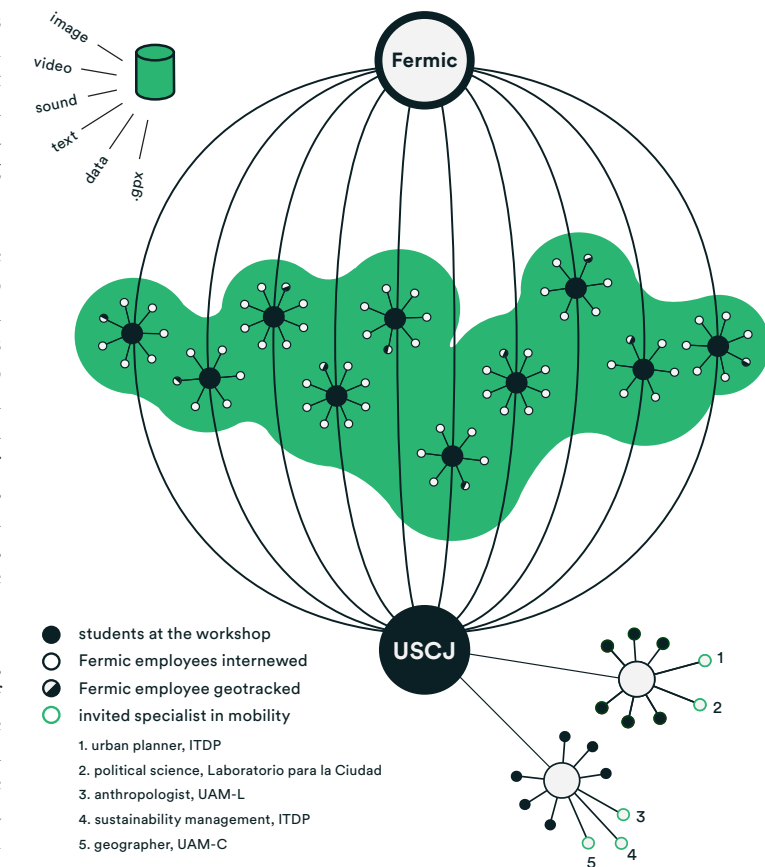
complex phenomena. The think-tank was formed by students of art theory, cultural management, architecture, audio-visual communication, social anthropology and graphic design. This set the grounds not only for different frameworks for thinking and dealing with mobility problems and data collection, but also for a wide range of parameters available for visualising and presenting the results.

In order to enable the expression of the complexity of the team, we ensured that different methods of data collection were allowed,³ so that each member could find a significant role in the process, and apply his or her capacities and points of view to the fullest. This approach also allowed a certain degree of flexibility with regard to the interviewees, making them feel as comfortable as possible, and therefore willing to share their personal experiences, views, and perceptions. Finally, a variety of data gathering methods would offer a broad array of possibilities in the communication of the results, by using different means and formats of data visualisation and dissemination that could foster further dialogues. To this end, video, audio recording, photography, text, drawing and geotracking were all used as means to collect data.

In parallel, we also designed an online tool for data gathering, querying, and analysis that could be used by the participants of the think-tank and, ideally, also by the workers of Fermic. The tool consisted of a survey where respondents would provide both quantitative and qualitative data. It also functioned as a guideline that provided a format for gathering coherent and consistent data that could further be compared and visualised. The data model developed for the online survey tool can be described as follows:

- For each respondent:
 - Name
 - Age (divided into four groups: 15–24, 25–44, 45–64, 65+)
 - Gender
 - Employment (to be chosen from a list or typed if necessary)
- Each respondent could register one or more trips:
 - Date of trip
 - Purpose of trip
 - Each trip could be composed of several journeys:
 - Mode of transportation (Bus, Metro, Metrobus, Taxi, Bicycle, Car or Other)

3. For further information on multi-format methodologies used in this project, such as art-based research, see: Knowles J. Gary and Cole, Ardra L. (eds.) (2008), Handbook of the Arts in Qualitative Research: Perspectives, Methodologies, Examples, and Issues, Sage Publications Inc.



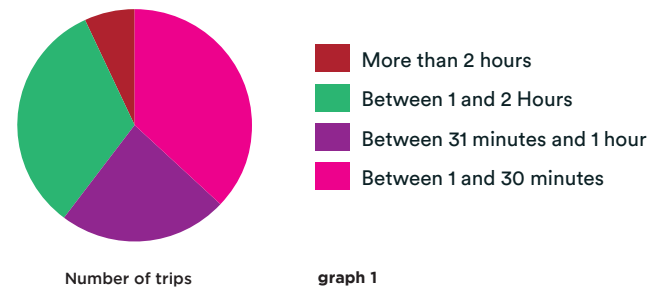
- Origin and destination of journey (street and geographical coordinates)
- Time
- Duration
- Distance
- Walking distance
- Cost
- Journey descriptions could be enriched by the addition of one or more comments on:
 - Safety
 - Accessibility
 - Affordability
 - Sustainability
 - Comfort
 - Convenience
 - General comments

Findings

We mostly focused on narratives and perceptions, understood as shared issues, rather than subjective, individual concerns. Our qualitative approach was determined by the prevailing theses that general and abstract indicators are not of much use if the particularities of each location are not taken into account. With this in mind, the first part of the workshop consisted of a detailed observation and assessment of the mobility practices of Fermic employees, the study of the general aspects of urban mobility in Mexico City, and the key elements to be addressed when conducting interviews. Throughout the following weeks, each member of the workshop visited the factory and carried out ten interviews as well as one complete geotrackted video recording of the daily trajectory of one of the interviewees. The final part of the workshop consisted in an internal process of organising, presenting, and discussing the data that was gathered, as well as talks with invited specialists: geographers, sociologists, economists, lawyers, and public relations consultants.

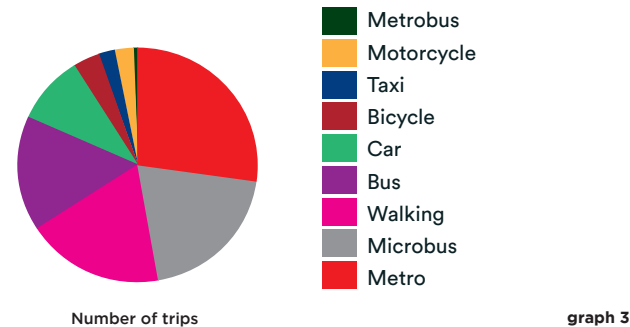
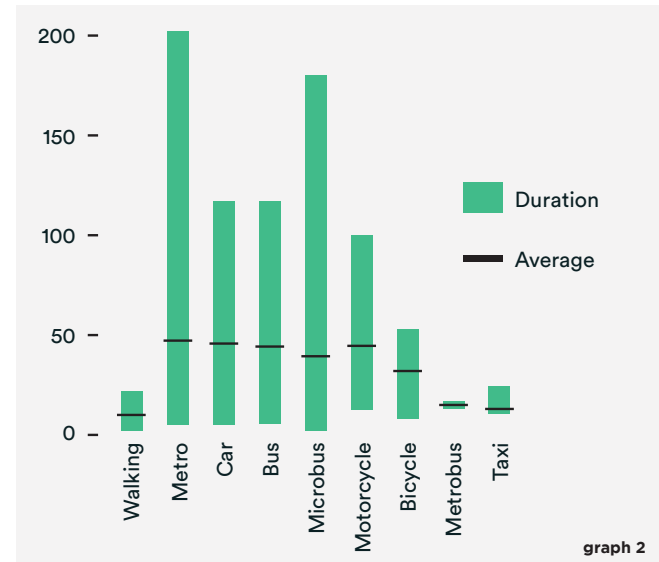
Each workspace setting permitted a shift in underlining specific questions, which in turn amplified the scope of the final findings. The work in Fermic resulted in a pragmatic and ‘on the ground’ perception of the mobility system’s flaws. The think-tank in the university resulted in a detailed understanding of the different modes of transportation, the social perception of each mode, and the comparison to other research in Mexico. The discussions with invited specialists contributed to understanding our case study in a larger context.

The data gathered by using the online survey tool allowed us to aggregate a number of significant results. A total of 119 interviews representing individual trips to and from Fermic were registered. Almost 40% of these trips had a duration of more than one hour,



with 8 (6.7%) lasting more than two hours (graph 1). Travel time was overwhelmingly spent in metro trains and peseros, with average trip durations of 42.2 and 37.3 minutes, respectively (graph 2). Metro lines and pesero routes were also used to cover the longest distances, followed by private cars, buses and other means (graph 2). Graph 3 shows the preferred modes of transportation of the workers of Fermic.

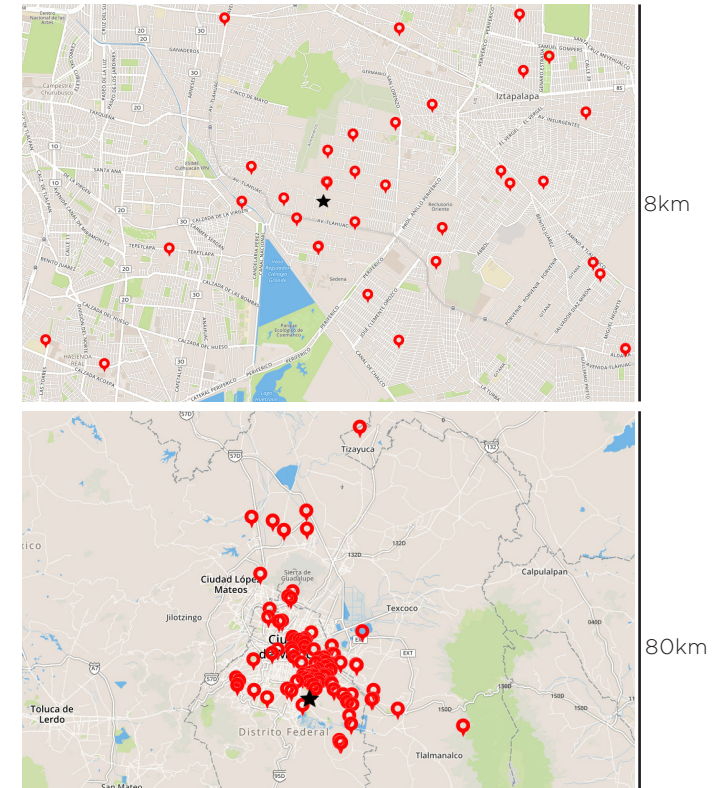
In order to deal with qualitative perceptions, a crucial part of our study, we associated one or more keywords to the narratives of the workers. The participants of the think-tank defined the set of keywords, while the core research team associated these keywords to the stories. The tag cloud (graph 4) illustrates the resulting keyword frequencies, that is, the keywords that were most frequently



associated to the interviewees' stories, represented by word sizes. This visualisation represents an emergent vocabulary that seeks to reflect employees' perceptions of urban mobility. Additionally, graph 4 shows the most frequent keywords associated to the modes of transport that they were applied to. In the maps beside, it is possible to appreciate, at different zoom levels, the spatial distribution of the points of origin of the interviewed workers. The infographics (p.30) show the perceptions and main concerns of the employees, looking through a qualitative lens at the four sub-targets of SDG 11.2: safe, affordable, accessible and sustainable transport systems for all.

The workshop / think-tank came up with five main strategies to visualise the results:

1. Video documentation. Daily trajectories of chosen workers, who voluntarily agreed to be filmed during their journeys to and from work.
2. Video documentation. Qualities of motion in different transport systems.
3. A visual catalogue of transport systems. Thirteen systems were compiled, including timetables, routes, and kilometres.
4. A visual catalogue of perceptions.
5. A set of infographics depicting perceptions related to the UN goals and other new topics that emerged during the interviews and workshop discussions.



Way Forward

In general terms, of the four main goals proposed by the SDG target 11.2 regarding mobility – safety, accessibility, affordability, and sustainability – the first was the most recurrent. We found a significant amount of negative perceptions regarding safety. This raises a complex issue, because safety was understood by the interviewees in at least two senses. On one hand, safety issues were related to aggression and violence, that is, to security and a persistent lack thereof. On the other hand, many safety concerns were related to the deplorable physical condition of public transport and to severely neglected mobility infrastructure. Both concerns converged into a widespread notion of unsafe transportation. It is possible that such a multi-layered perception of security is highly specific to Mexico City. This could then raise the observation that, because meanings are contextual, each social context needs its specific indicators.

The focus on a micro-community gave us results that resonated with the findings of other studies on mobility in Mexico City, even if these were larger in terms of their range and scope. We were able to detect two main issues:

1. Interviewees tended to perceive transportation more in terms of time rather than distance. Distance itself resulted of no concern, and most respondents were unable to calculate the distances travelled. Instead, interviewees expressed their distress at arriving late to their destinations due to a variety of conditions, including congestion, roadblocks, or the unavailability of services.
2. Dead time (see opposite page). We found a great concern regarding wasted time: long waits, transfer times, and the impossibility of either using commuting time productively or the ability to rest during journeys.

Because we chose to focus on a micro-community, we could also detect its specific problems. According to the directors of Fermic, their hiring policy requires that employees live within a one-hour range of the factory. However, we found that this was not the case in almost half of the recorded trips. In the near future, we expect to share the results of the workshop with the workers of Fermic, as well as with its directors. We hope that the results will trigger fruitful conversations among workers, who might find ways to self-organise in order to better deal with their mobility issues. For example, most employees were willing to share transport with other members, so long they knew each other. Regarding the directors, we hope that

the results and data will help them to design policies that can better cope with the realities of employee mobility.

The findings of this study will also be shared within the context of the university by means of an exhibition and an open dialogue that can further include a wide range of actors, such as students, specialists and the general public. It is thought as an invitation to engage in an issue that pertains every person that moves in the city, and replicate the methodology with other micro-communities.

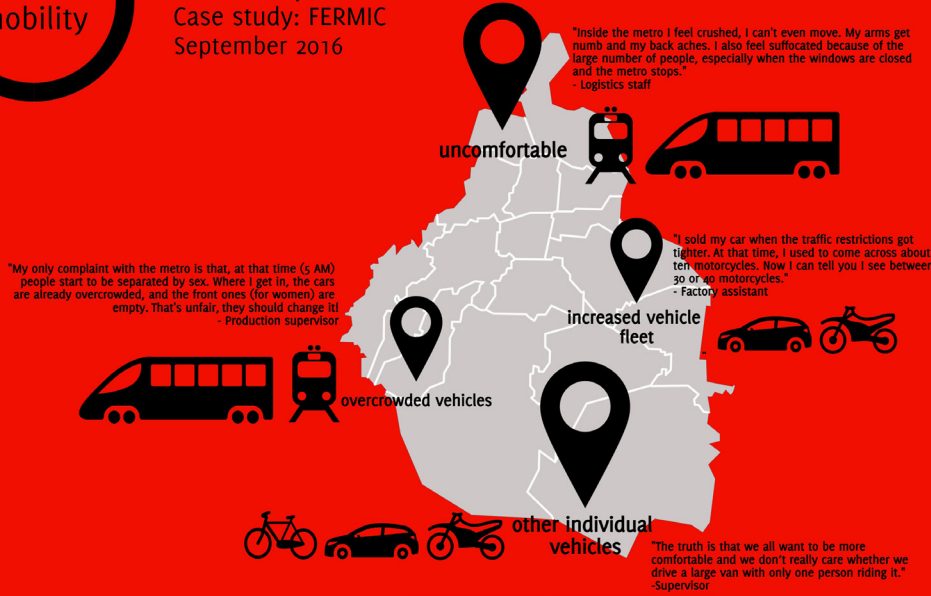
We recommend that, in order to study mobility in such a vast a complex city, it may be valuable to focus on micro-communities (such as Fermic). These communities can provide a small-scale approximation of a wider environment. Moreover, the results of data collection can be owned by the community, and also become a source for planning and decision-making on a community level. The micro-community approach facilitates the development of micro-initiatives and coordinates these initiatives in order to minimize conflict and optimize solutions through their aggregation. Therefore, we envision a new kind of urban public institution with the capacity of aggregating and coordinating community level initiatives throughout Mexico City.●



OVERPOPULATION

urban mobility

Mexico City
Case study: FERMIC
September 2016



DEAD TIME

urban mobility

Mexico City
Case study: FERMIC
September 2016



SUSTENTABILIDAD



ASEQUIBILIDAD



SEGURIDAD



ACCESIBILIDAD



SANTO DOMINGO

Introduction and Framework Conditions

The Santo Domingo case study evolved in a context of not only academic but also public policy interest in the topic and an ongoing public debate on urban transport. Preliminary contacts with the Planning Department at the Ministerio de Medio Ambiente y Recursos Naturales (MIMARENA) and the Dirección General de Ordenamiento y Desarrollo Territorial (DGODT) at the Ministerio de Economía, Planificación y Desarrollo (MEPYD) were established already in June. This partnership was strengthened following the kick-off workshop in Berlin, with the National University Pedro Henríquez Ureña (UNPHU) joining the initiative. Other public actors also contributed to activities in Santo Domingo, providing an excellent information pool for assessing and developing a local strategy. Due to this circumstance, critical reflection on the relationship between global and national/local data shifted toward a more operative approach of national/local data building than initially envisioned and the study took a different path to those undertaken in Chennai and Mexico City.

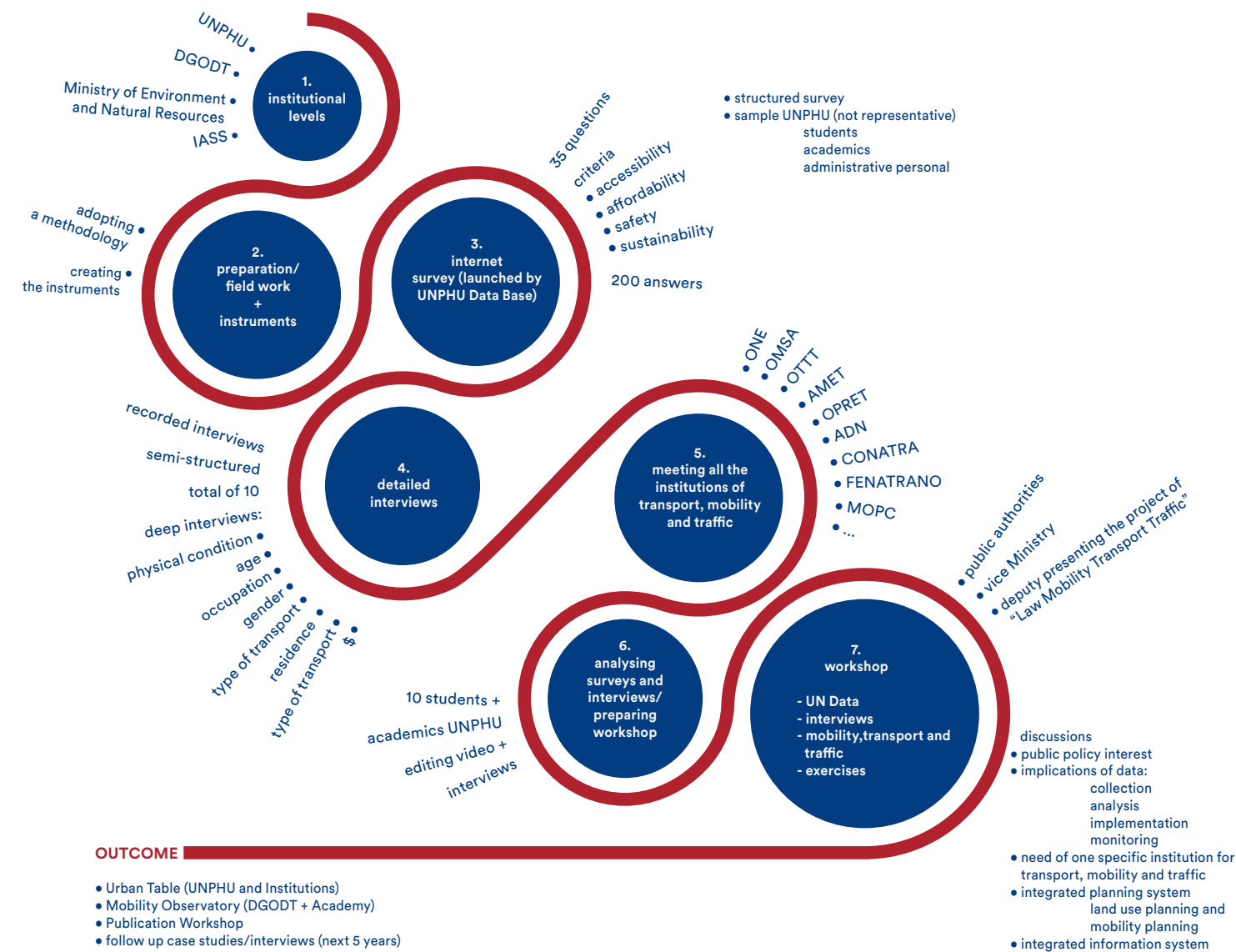
The following framework conditions were helpful in preparation of the Santo Domingo study and workshop and in attracting the interest of relevant actors:

- There is a near unanimous perception that traffic in Santo Domingo is bordering on collapse.
- During his inaugural speech, re-elected president Danilo Medina underlined priority action in relation to mobility by highlighting the pressure generated by expenditures of up to 30% of household income on transport and delineated the features of an integrated public transport system, which is to be implemented in Santo Domingo and then taken to the other cities. The initiative, which builds on the forthcoming Ley de transporte, vialidad y seguridad vial, includes the construction of strategic transportation corridors and shuttle buses; the organisation and integration of informal, quasi-public transportation systems; the development of a national road security plan; and the establishment of a new and centralised Transportation Institute.

- The public transportation network in Santo Domingo has been enhanced greatly by two metro lines in recent years and the ongoing implementation of the first cable car system. BRT lines still in the pipeline will amplify multi-modal transport solutions.
- The National Statistical Plan 2013–16 defines public statistics as a public good that must be accessible to the general public and recognises that current conditions are far from satisfactory in this regard.
- An initiative for a National System of Territorial Information that is being discussed in different government sectors might call for the integration of information that is generated in different settings and for an integrated and technology-driven planning policy.
- The National Development Strategy 2030 calls for the improvement of the quality of infrastructure and transport services on the whole national territory. Specifically, Action Line 3.3.6.7 calls for the development of a safe, orderly, secure, and environmentally sustainable transportation system.
- In February 2016, the national representation of architects and engineers – CODIA – organised its First International Congress on Transport, Traffic and Mobility, with a focus on Santo Domingo. The findings of this congress were recently published and included recommendations on data management and accessibility for transport in the Dominican Republic.
- The Habitat III preparation process also generated discussion on topics related to mobility. In addition to the National Habitat III report, a UN-Habitat delegate came for an Urban Breakfast focusing on mobility and transport, which was held at CODIA in mid-September 2016.¹

¹ Urban Breakfasts were embraced by UN-Habitat during the preparation process of Habitat III as a form of general briefing for different actors regarding the forthcoming Quito conference. Interestingly, the urban breakfast in Santo Domingo concentrated on mobility and transport and was attended by most major public actors within the capital in the field of urban transport.

Population: 3.7 million
Area: 1394 km²



Santo Domingo / Institutional

A Methodology for Santo Domingo

All three case studies consist of surveying a sample population and the realisation of a local workshop with core actors. Given the special circumstances in Santo Domingo, this allows for two main levels of analysis: i) Survey design and results; and ii) data approach utility in a wider policy discussion. Both levels must be compared with results and conditions in the other two case study cities and interpreted with regard to their relevance for the global discussion on the monitoring of the SDGs. This discussion must be driven by respecting the many dimensions related to data, e.g., relevance, transparency, accessibility, interpretability, reliability, security, protection, utility, and action-potential.

Survey

The survey was conducted through the School of Architecture and Arts of UNPHU in Santo Domingo and the sample population includes the department's students, employees, and faculty members. The in-depth interviews were conducted in parallel by the second year Urban Studio of the school. The core period for conducting both activities was the first half of September and the targeted minimum number of responses was 100 and 10, respectively. Invitations to the online survey were distributed via e-mail together with a link to the online platform Survio.

The survey is designed on the basis of standard transport survey questions such as origin-destination, but also especially with regard to target 11.2 of the Sustainable Development Goals. Therefore, most of the questions are intended to permit referring back to accessibility, affordability, sustainability, safety, and how these issues might relate to income, gender, age, and disabilities. The survey focuses on mobility rather than transport because the breadth of

the objective, despite its highlighting solutions based on fostering public transportation systems, calls for overall changes that are best reflected in mobility patterns.

The structured survey of thirty-five, predominantly multiple choice questions was conducted anonymously and allowed for individual or multiple responses. Basic questions relate, among others, to age, gender, occupation, residency, and income. The principal part of the survey is related to interviewees' most frequent daily commute, and gathers information on the means of transport, destination, main and complementary travel purposes, changes in commuting practices, costs, transportation and mobility satisfaction, accidents, safety, negative experiences, and perceived negative impacts. For a number of questions individual perception will influence answers and for some questions, understanding perception was the main objective.

The complementary in-depth survey with a closed sample population of ten individuals provided an additional fifteen questions for more detailed responses focusing on motives of interviewees' mobility choices. These interviews were accompanied by audio-visual documentation in accordance with the general strategy adopted for all three case study cities.

It was accepted from the beginning that the sample population would provide a skewed and partial picture of mobility and transport in Santo Domingo but would still be sufficiently representative to test the basic and particular strategy of the survey.

Workshop

The workshop in Santo Domingo was held on 22 September at FAA-UNPHU and was attended by a wide range of actors, including the Ministry of Environment and Natural Resources, Administration National District (AND), Metropolitan Authority (AMET), Metropolitan Office of Bus Service (OMSA), Office for the Reorder of Transport (OPRET), Technical Office for Terrestrial Transport (OTTT), National Centre of Transport Organizations (CONATRA), Ministry of Public Works and Communication (MPOC), National Statistics Office (ONE).

The in-depth case studies provided the setting for a series of small exercises to assess mobility conditions, possible improvements, and the role of data in the process.



that they spend as much as 20% of their income on transport, with the remainder spending more than this. Around 16% of the sample population spends more than 30% of their income on transport. Almost three quarters of respondents reported affordability as being the main advantage of public transport.

Overall, the survey shows that the sample considers commuting to be unsafe, uncomfortable, and largely unsuitable for people with special transportation needs. Private vehicles are clearly the preferred means of transportation for those able to afford this option.

Workshop

On the occasion of the workshop, the president of UNPHU announced a university initiative called Mesa Urbana (Urban Table), which will bring together academia, public policymakers at different levels, and civil society to support sustainable development through research on mobility. Several of the participants and organisers of the workshop were invited to join the table. The findings of the workshop are to be published by UNPHU as part of a programme to increase scholarly outputs and make research publicly available.

Onward in Santo Domingo

A number of recommendations for the Urban Table and for broader lobbying efforts can be distilled from this case study.

The Urban Table should support efforts to:

- Build mobility monitoring and expand research activities;
- Monitor in-depth interview partners in a longitudinal study to periodically reassess their mobility situation;
- Complement research with a study on immobility (why people do not move);
- Develop further approaches toward researching mobility and creating supportive institutional networks.

Lobbying activities should focus on:

- Greater integration of land use and mobility planning;
- The development of a mobility plan for greater Santo Domingo;
- The creation of an integrated information system that renders information available, accessible and transparent for all actors (administrations, agencies, citizens, advocacy groups).

Findings

Selected findings of the survey

The survey reveals low levels of satisfaction among commuters. Less than a third of the sample population believes that their means of transport are safe. Accordingly, a high-risk perception prevails (almost 80%), with 40% of the respondents reporting that they had been involved in an accident over the past four years.

The sample shows that transport risks are higher for public transport services: about a sixth of the sample population experienced insults, threats, verbal abuse, attempted or actual assaults, attempted or actual sexual abuse on public transport in the past four years. While among private transport users almost a third of the sample population had experienced insults, threats or verbal abuse, the figures for attempted or actual assault (close to 10%) and attempted or actual sexual abuse (approx. 5%) were lower.

Only a single male respondent indicated having suffered attempted or actual sexual abuse on public transport. Among female respondents, 22% of the sample population reported experiencing attempted or actual sexual abuse. Using public transport is an extremely risky endeavour for women – especially outside of working hours. One of the in-depth interviews also confirms this – the interviewee takes a motorcycle taxi to get home from the (informal) bus stop and does so especially at certain moments of the day. Since she is pregnant, it is safe to affirm that she is trading off one risk with another.

Only a sixth of the standard daily commutes reviewed could be undertaken by wheelchair users or unaccompanied visually impaired persons. Only about a fourth of all trips could be performed by an adult with a stroller, an elderly person with a cane, or an unaccompanied primary school-aged child. Less than half of all trips could be undertaken by pregnant women, individuals accompanied by infants, or minimum-wage earners.

Just under a third of the sample population estimated that they spend less than 10% of their income on transport; another third estimated



Discussion

The following reasoning reflects our understanding of data opportunities following the completion of our investigation in Santo Domingo; it includes recommendations for alternative approaches from which the UN data system might benefit:

Representatives at the UN acknowledge that the sheer number of proposed SDG indicators represents a significant organisational challenge and that building indicators will be a long and arduous task. A lack of data has meant that not all of the MDG indicators have been conclusively measured – despite this programme already being succeeded by the SDGs.

The Sustainable Development Solutions Network working on the indicator and monitoring framework for the SDGs has announced its intention to “...launch a data revolution for the Sustainable Development Goals.” Yet, in its quest for the definitive data method, it seems to be missing out on the real data revolution.

The data revolution processes data in real time and provides solutions for mobility and other tasks. It works in milliseconds and not in multiple years. Data collected via mobility apps and other harvesting mechanisms is equivalent to action and not anymore a long-term tool for planning by measuring things in retrospect.

The challenge lies in using analogous mechanisms outside of the realm of big data, secretive corporations and government procedures that occur via closed data processing – it calls for balancing security and transparency and granting general access to data.

The challenge also lies in collecting data that is not only used to feed apps to get from A to B as fast as possible or have a car at your doorstep within five minutes. These things allow citizens to navigate as conveniently as possible through cities, contribute towards enhancing mobility, and offer partial transport solutions – but they do NOT provide data transparency and data that is useful for planning and monitoring of wider mobility issues.

The first seven targets of the SDG on sustainable cities (SDG 11) could benefit from collecting user-relevant individual data that advances qualitative perspectives (the remaining three labelled A,B, and C are of a different nature) and promotes local and national data building.

If a country subscribes and commits to an objective - as is the case with 11.2 in the Dominican Republic - it should work with a data

collection methodology that supports integrated and action-driven planning, monitoring, and discussion towards achieving it.

Such data can be collected – even in countries where internet access is low – through initiatives like cybernet points, and citizens can be encouraged through simple stimuli to participate in surveys.

Promoting complementary data collection and alternative data sets would be a useful tool not only for bettering democratic planning and monitoring national SDG processes but also for the UN and its statistical commission to build flexible measuring tools for the forthcoming UDGs (Universal Development Goals), which are already really just around the corner.



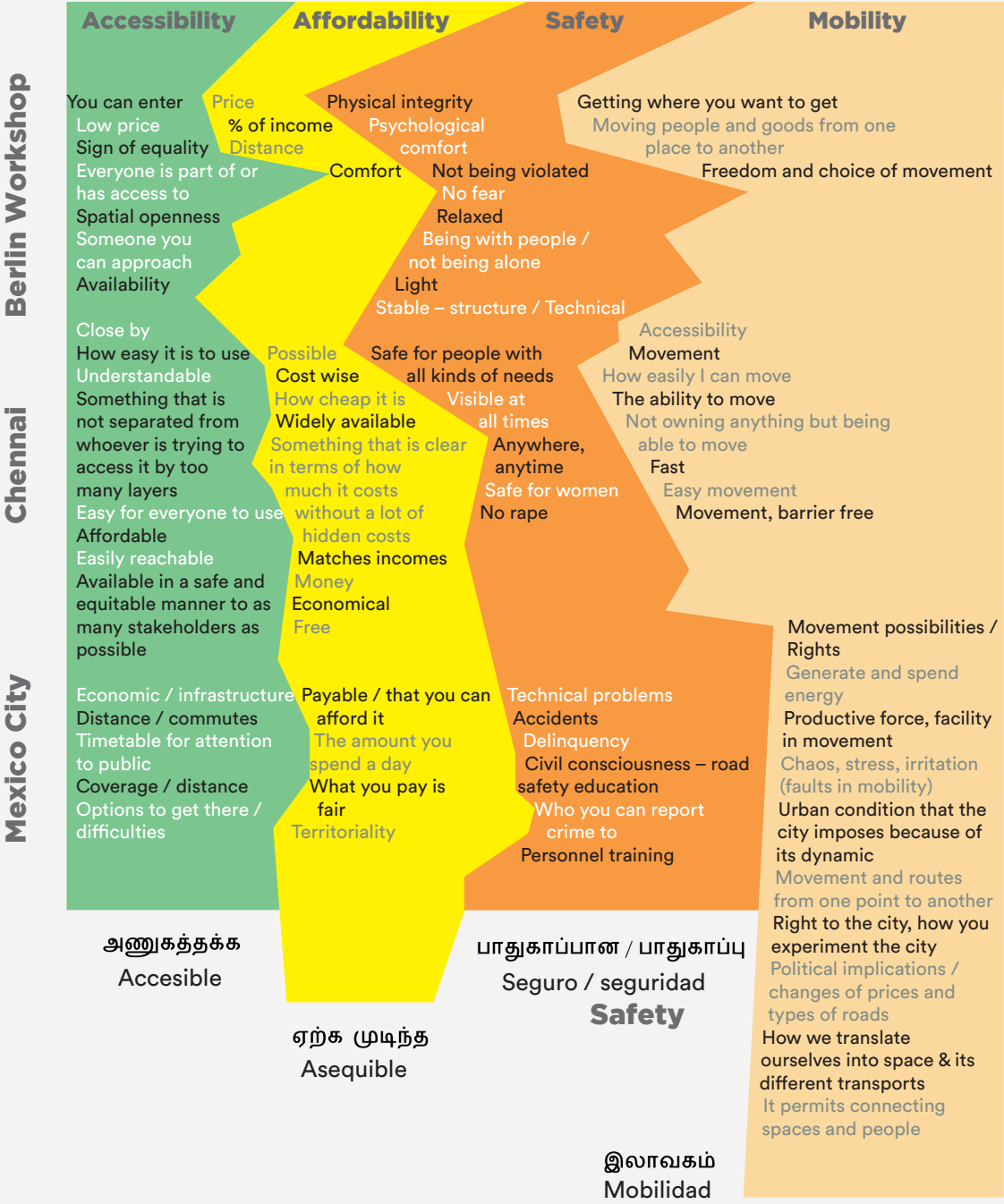
Reactions to Our Initial Seven Theses

Crafting seven theses to start our journey was useful to propel us forward. Even though their specific wording can be further discussed, we still agree with their general tone arguing for a more contextualised data approach as well as their implied call for a more target-related monitoring and indicator building. The following points gather some of our reflections after going to the Field:

- While policy making on a global level entails the simplification of complexity, it is necessary for local governments and policy makers to 'return to complexity' and stand firmly again within the thickness of their respective contexts.
- Any data set can be manipulated and any interpretation of data is already a manipulation, though not necessarily a mischievous one. The solution to this is not to deny the usefulness of numerical data but to empower citizens' understanding of data and power relations so that data becomes transparent, accessible and questionable.
- As long as the methodology for capturing data and its ownership and accessibility remain unclear, manipulation and lack of accountability will always be important issues. This is particularly true in cities with governments whose credibility has been weakened by corruption.
- Data can serve as a means to claim accountability if data itself furthers accountability. Statistical data management systems can contribute to this by being accessible and transparent and by making sure that the parameters of data collection and the underlying methodology for data gathering and processing are clearly marked and likewise accessible and transparent.
- We underline that data that is meant to support measuring change must take perceptions and socio-cultural factors into

account. *"Especially social and cultural 'small', 'qualitative' and 'localised' data are key to understanding change on the ground."*

- The 'narratives told' by the different data layers of information may conflict with each other! This means that a city must have the necessary mechanisms in place to deal with contradictions.
- The key to implementing 'agendas' is usually not found in data but in achieving a balance between power relations and policy decisions. The related timeframe has to be sufficient for change to take place and grow roots, that is, make its way into the prevalent socio-cultural behaviour of a system or environment.
- Local data makes things 'appear' and gives local actors the necessary evidence to argue for their rights and claim accountability. Sets of respective local data, when placed into comparative relations, become supra local and strengthen the ability of systemic analysis of target achieving framework conditions.
- Data is a living body of information. It is subject to debate. Data accessing and processing options should be reflective of this.
- Many resources are spent to collate data without realising that the challenge of data is not about the technology that is needed to collect it, but about how the collected data can be used in an applied and meaningful way 'on the ground'.
- Data collecting and processing methods should carry an action potential, which means, they should not limit themselves to merely measuring things but contribute actively toward shaping them.



On data, power and methodology

Data or capta?

How can data empower or disempower citizens? Increasingly, the indicator-driven policies implemented in cities rely on data collection, aggregation, and analysis. Moreover, the current boom of so-called Big Data, where nearly all activities performed by millions of citizens become quantified through real-time data mining processes, co-involves people and data in unprecedented ways. But what exactly is data, and what are its implications for citizens?

Is it possible to gather and use data in ways that are dis/empowering?

Theorists in the field of digital humanities have questioned the neutrality of data by positing data against capta. Data, the supposedly raw materials that are given as evidence of the world are, nevertheless, mined using tools that may actually overdetermine the very nature of what is gathered. Computational tools, for example, overly determine the processes of data collection and analysis by exclusively accepting things or events that can be represented as discrete symbols.¹ Thus, digital data tends to favour quantification over qualitative features or semantic complexities. The term capta, which refers to what has been taken, has been proposed to acknowledge this bias, and thereby avoid an uncritical use of data that often implies a fundamental prejudice, subjecting complex social interpretations to relatively naive and reductionist statistical functions.

The distinction between data and capta reveals the importance of questioning the belief that “data is intrinsically quantitative – self-evident, value neutral, and observer-independent.”²

1. Cayley, John (2016). ‘Of Capta, vectoralists, reading and the Googlization of the university’, in Simanowsky, Roberto (ed.), Digital Humanities and Digital Media. Open Humanities Press, London.
2. Drucker, Johanna (2011). ‘Humanities Approaches to Graphical Display’, in: Digital Humanities Quarterly, 5/1.

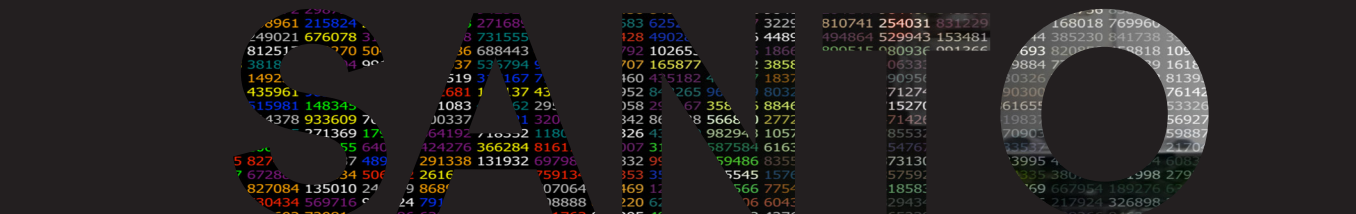
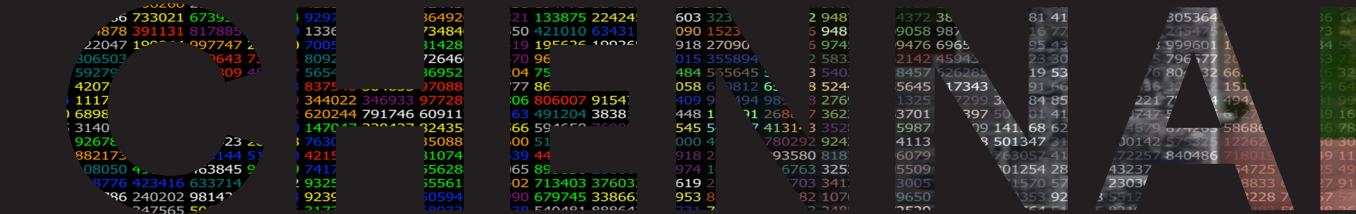
Consequently, data and its processes need to be understood and recognised as elements of political negotiation.

Empowerment and ownership

If data is political, then the question of who captures, aggregates, analyses and makes sense of data, and for what purposes, is a question of empowerment.

In social theories, empowerment is understood both as a process and a capacity, and is related to the degree of autonomy, participation and agency of citizens and communities.³ With respect to data, a truly empowering practice would entail that citizens are able to autonomously define what is to be collected and for what purpose, to participate in processes of data gathering and aggregation, to determine how the outcomes of data analysis will affect their communities, and to use data as a tool for advocacy and political negotiation. However, current trends in digital data mining tend to reinforce the technocratic model, understood as a “wide-ranging administrative system that is legitimated by reference to scientific expertise rather than traditional law or the will of the people”,⁴ which can effectively disempower citizens. Moreover, privately owned data is often held by large corporations that mine metadata generated through the interactions between their products and their users, and use these insights exclusively to generate further profits. This model, in which data tends to emerge without the consent or even the knowledge of citizens, has raised a number of ethical questions related to privacy, ownership, and commodification of human activity.

3. Adams, Robert (2008). Empowerment, participation and social work. Palgrave Macmillan, New York; Rappaport, Julian (1984). ‘Studies in empowerment: Introduction to the issue’, in: Prevention in Human Services, 3/2-3, 1-7.
4. Feenberg, Andrew (1999). Questioning technology. Routledge, New York.



An empowering data practice

The development of an empowering data practice in cities will require that citizens learn and internalise the skills and capacities needed to deal with data: from the initial point of designing a data-driven research plan to the final stage of sense-making, and implementation. Such learning processes can be carried out through educational initiatives, aided by open source technological platforms and reinforced through legal systems and social structures (and usually take a very long time). Looking at our work as an ongoing dialogue with researchers, social scientists, and artists who facilitated and enriched the data praxis with tools and methodologies from their respective fields and perspectives, we argue that the time and effort required to enable citizens to fully generate, own, and interact with data, as well as to achieve fruitful, cross-community dialogues, should not be sacrificed for the sake of solutionist⁵ programmes (which seek to achieve quick effects in order to bypass slower, more complex learning processes), neither should it be assumed to become a generation-long process. Thus, the apparent urgency to comply with statistical indicators should not trump the political process that allows citizens and communities to gain mastery of their own lives.

In many cities around the world, examples of citizen-led, data-driven research for advocacy are increasingly observed. For instance, in Nairobi, the Kenyan Federation of the Urban Poor, assisted by local and international partners, conducted a participatory research project to map food vendors in informal settlements and analyse the associated environmental concerns.⁶ Other examples are the community enumerations and self-documentation initiatives carried out by Shack/Slum Dwellers International in India,⁷ or the community mapping workshops led by the Argentinean collective Iconoclasistas in different cities of Latin America and Europe.⁸ However, the configuration of the Urban Table during the fieldwork of our team in Santo Domingo, demonstrates that strategic alliances

5. Solutionism is a prevailing ideology which maintains that computer applications may solve any complex social, political, or environmental problem in such an efficient and smooth way that they make all other possible solutions seem primitive and inferior (Morozov 2013). This ideology tends to legitimize the recasting of complex social situations either as neatly defined problems with definite, computable solutions or as transparent, self-evident processes that can be easily optimised (Morozov 2013). Morozov, Evgeny (2013). To save everything, click here. Allen Lane, London.

6. Ahmed, S., Simiyu, E., Githiri, G., Sverdlík, A. and Mbaka, S. (2015). *Cooking up a storm: Community-led mapping and advocacy with food vendors in Nairobi's informal settlements*. IIED, London.

7. Patel, S., Baptist, C. and D'Cruz, C. (2012). 'Knowledge is power - informal communities assert their right to the city through SDI and community-led enumerations', in: *Environment and Urbanization* 24/1, 13-26

8. Available at: <http://iconoclasistas.net>



between academic and governmental bodies in data aggregation processes are able to produce inclusive participation schemes with influential power in policy making far beyond the “rebel” attributions that generally colour street level activism.

In our work in Chennai, Mexico City, and Santo Domingo, we have attempted to carry out data collection, aggregation and analysis in empowering ways. Working with citizens, private and governmental organisations, we have tried to acknowledge the intrinsically political nature of urban research, while stressing the value and richness of qualitative data. Private and public associations demonstrated being able to produce contextualised datasets (as opposed to prepaid consultant-generated reports), leaving the production of knowledge to the interaction between social bodies, an environment “in which the economic, the political and the cultural increasingly overlap and invest one another”.⁹

9. Hardt, Michael and Negri, Antonio (2000). *Empire*. Harvard University Press, Cambridge.

Data’s action potential

As showcased in this publication, we have taken different practical turns in the three study cases. The teams used different methodologies according to the hooks they found to set up their fieldwork and the specific contextual settings they had to deal with. Santo Domingo obviously contrasts with Chennai and Mexico City in having benefitted from a vivid institutional response and a government interest in both data and mobility, due to a circumstantial window of political opportunity. Hence, the different teams arrived at a different evaluation of what data does or does not do, what it should do, how it might do so, and how to practically use it. Whereas the Santo Domingo team argued strongly for alternative data processing mechanisms, the other teams have argued equally strong for inclusive narratives and research. Both seem logical from the respective positions and under prevalent conditions and limitations.

A joint finding that we would like to put forward here is the fact that data contains an action potential of shaping realities rather than just measuring them.

This carries a necessary dimension of inclusive action, which can be achieved through a publicly supported methodology or through an alternative civil society platform – or ideally both – and moves us beyond the basic dichotomy of top down - bottom up. The fact that the data collection initiated by this project has led to action in all three cities - whether community-based, micro-community-based or institutional-based - which will continue beyond the end of this project supports this point.

A multi-layered methodology

We consider our methodology at the same time as one of the predominant results of this project. Next to our transdisciplinary approach and horizontal way of working, we believe that the flexible & adaptive nature of the methodology, as well as the multi-layered ways of obtaining and visualising information, were fundamental to this project.

The multi-layered methodology is solid, yet flexible, and by no means it should be read only as a bottom-up strategy. It is concerned with the adaptability of certain principles or agreements to a certain context. Although it is important to see how the three cases evolved

over time and to compare them, we believe it is also instructive to think about a way in which this type of projects can be a model for further inquiries.

Our methodology comprises the possibility of a more flexible data collection system. This means that it is not only relevant in what context and with which actors each case study took place, but it is also about the technical tools that were used. The inclusion of many sources of data recollection (visual, numerical, narratives, etc.) and visualisation also constructs and permits certain action. Each tool and collection method has in itself a different action potential that can be used by the different actors in question, who shape and promote different realities, instead of only recording them.

Responsive interpretation

Working with different situated ‘knowledges’¹⁰ enables an empowerment of data, information and action-based inquiry that can further lead to agency and participation in a way that is meaningful to a certain collective. We argue that this approach also has the power to reveal shared issues on a supra local scale, allowing the possibility to feed local appropriation and interpretation of global goals and targets back to higher policy levels.

Establishing a global consortium of case studies, such as those conducted in Chennai, Mexico City and Santo Domingo, would help to improve the readability and effectiveness of global goals. Next to the national reporting framework on the SDGs or ‘New Urban Agenda’, these could function as a parallel review process on particular topics, tracing noticeable (or not) ‘on-the-ground’ change, and function as a kind of local ‘samples’. The contextual specificity of each case study and its respective methodology must however be taken into account in order to prevent a copy-paste scenario, in which cities implement supposedly successful solutions without taking into account their own issues and perspectives.

10. Haraway, D. (1988). *Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective*. *Feminist Studies*, 14 (3), 575-599.



criticalurbanagenda.com/un-data





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