

Doppelmayr Worldwide



World market leader with production locations in Austria, Italy, France, Switzerland, Canada, USA and China.

Manufacturing under license in Japan – Nippon Cable.

Doppelmayr Worldwide



Doppelmayr Facts and Numbers*

14 600

installations
worldwide

89

export
countries

42

countries having a
subsidiary / representation

1892

a family-owned
company

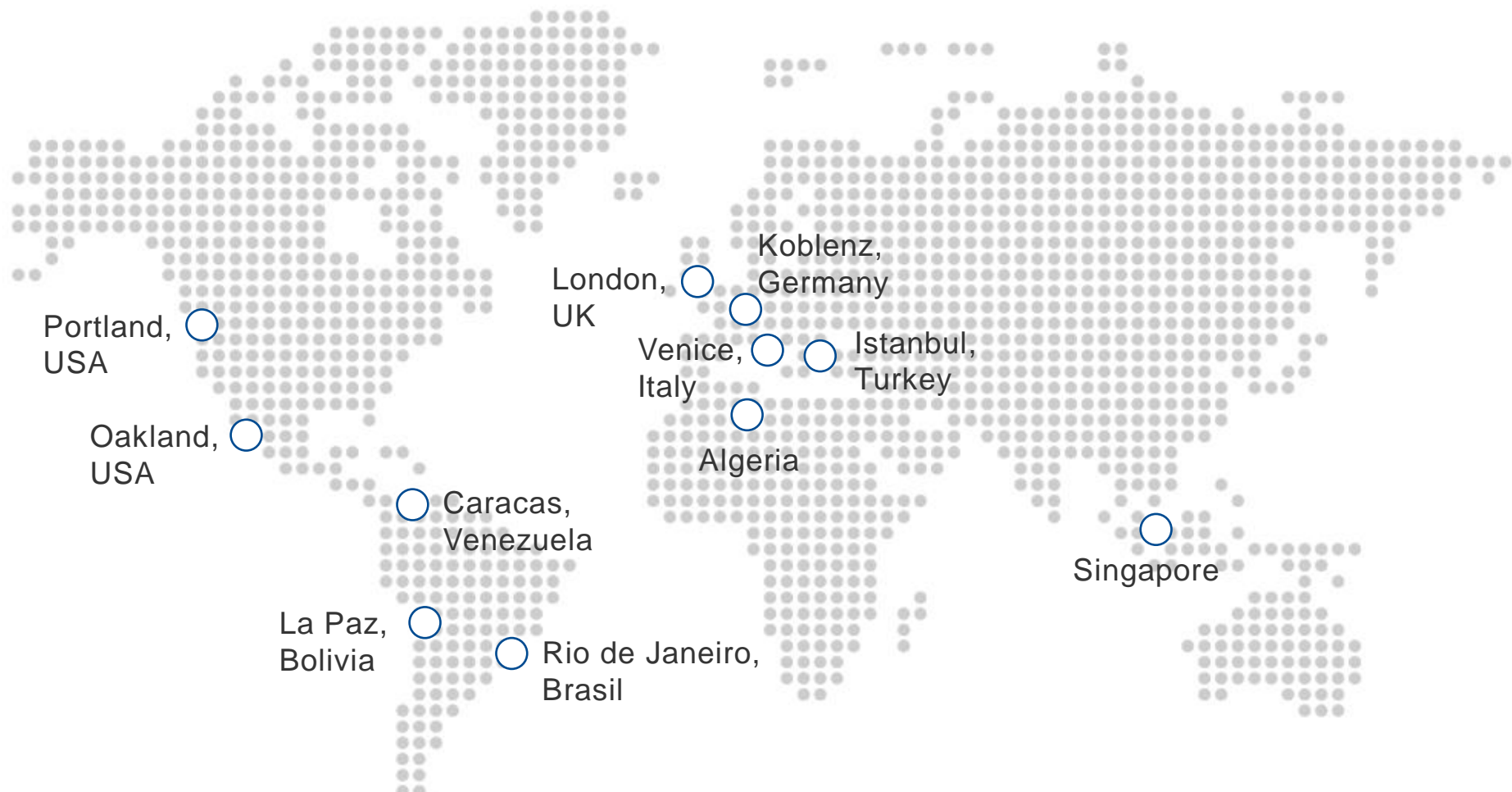
2 546

employees
worldwide

794

million euro
turnover

*by 2015



Urban Ropeways

Portland | USA

78-ATW, 2007



Constantine | Algeria

15-MGD, 2008



Caracas | Venezuela

8-MGD, 2010



Source and Photo: Doppelmayr

London | UK

10-MGD, 2012



Source and Photo: Doppelmayr

Source and Photo: Doppelmayr

Singapore

8-MGD, 2010



Source and Photo: Doppelmayr

La Paz | Bolivia

10-MGD, 2014



Source and Photo: Doppelmayr

Koblenz | Germany

35-TGD, 2010



Source and Photo: Doppelmayr

Caracas | Venezuela

232-CLS, 2012



Source: [Doppelmayr](#)

TECHNICAL SESSION 12
ENSURING EQUITY AND ACCESSIBILITY IN URBAN TRANSPORT
ROPEWAYS AS FACILITATORS



Dr. Johannes Fiedler, Doppelmayr Urban Solutions, Austria
Ahmedabad, November 11th, 2016

Transport Equity



Limited or constrained mobility means:

- fewer out-of-home activities,
- less ability to search for and maintain employment,
- lower capacity to seek higher quality goods at a lower price. ⁽¹⁾

(1) JOSHI, Rutul (2014): Mobility practices of the urban poor in Ahmedabad (India), PhD Thesis, University of West England

Transport Equity



Practical questions²:

- How long does it take to reach public transport services?
- Is there a safe street environment between home and transport?
- How long are commutes between home and job?
- Is transport available every day, all day, or only for a part of the day?
- Is the service affordable?

(2) from: THE WORLD BANK (2006): Social Analysis in Transport Projects: Guidelines for Incorporating Social Dimensions into Bank-Supported Projects

Transport Equity



Comparing men and women's mobility patterns³:

- Commuting times are relatively similar across different societies (approx. 45 mins. /day).
- Women spend as much time commuting as men, but cover shorter distances.
- Women walk more than men and take buses, while men are using cars and trains more.

(3) QUIROS, T., MEHNDIRATTA, S, OCHOA, M. (2014) : *Gender, Travel and Job access: evidence from Buenos Aires*

Transport Equity



Comparing men and women's mobility patterns:

- Constrained to smaller commutes, it also means women have access to fewer employment opportunities – with inevitable consequences on their wage rates...³
- Women, along with their children, are more exposed to environmental hazards than men (cars and trains offer better protection).
- Women have to invest more physical and mental effort in transport.

(3) QUIROS, T., MEHNDIRATTA, S, OCHOA, M. (2014): *Gender, Travel and Job access: evidence from Buenos Aires*

Transport Equity - Ahmedabad



Ahmedabad BTRS (Janmarg)

Transport Equity – PT Acceptance

Table 3: Income Profile and Sex Ratio of BRT System Users, Ahmedabad

Household Income (Rs)	Male (%)	Female (%)	Persons (%)	Sex Ratio
Up to 2,500	1.7	1.7	1.7	385
2,501-5,000	12.7	9.8	11.9	292
5,001-7,500	12.1	8.0	11.0	253
7,501-10,000	13.9	11.2	13.2	305
10,001-20,000	28.2	27.6	28.1	371
20,001- 30,000	12.5	16.4	13.6	500
30,001- 40,000	8.0	8.4	8.1	400
> 40,000	10.9	16.8	12.5	585
Total	100.0	100.0	100.0	379

Source: Primary survey, CUE.

BRTS is largely being used by middle-income groups, with monthly incomes between Rs 10,000 and Rs 40,000. ⁽⁴⁾

(4) MAHADEVIA, D., JOSHI, R., DATEY, A. (2013): *Ahmedabad's BRT System - A Sustainable Urban Transport Panacea?*, Review of Urban Affairs, vol. XLVIII no. 56

Transport Equity – PT Acceptance

- **Formal public transport is appealing to the middle-class.**
- **Middle-class values and transport behavior are essential for the shift towards sustainable mobility.**

Transport Equity – PT Acceptance

BRTS Ahmedabad: Shift in transport behavior among the high-income group: ⁽⁴⁾

35% from bus

9% from shared autos

17% from personal two-wheelers

18% from full-fare taxis and

3% from personal four-wheelers

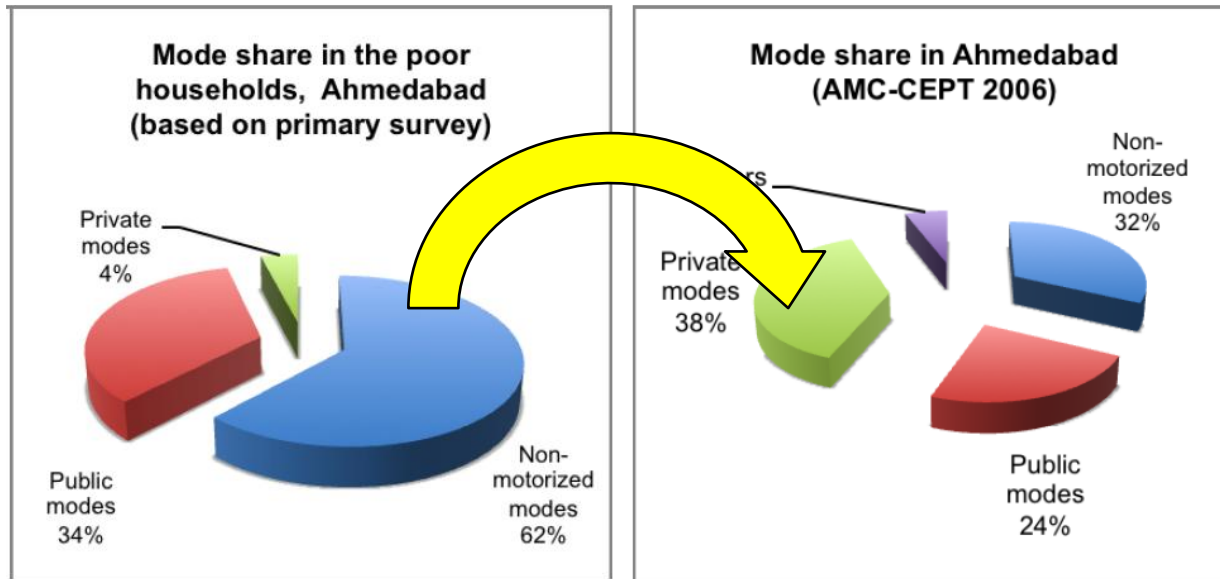
In all, 38% (of those) who were using energy-consuming modes have shifted to the BRTS, which would have a positive environmental impact. ⁽⁴⁾

⁽⁴⁾ MAHADEVIA, D., JOSHI, R., DATEY, A. (2013): *Ahmedabad's BRT System - A Sustainable Urban Transport Panacea?*, Review of Urban Affairs, vol. XLVIII no. 56

Transport Equity – PT Acceptance

Mode share amongst the poor and in the overall city
(percentage of trips to total trips) ⁽¹⁾

(1) JOSHI, Rutul (2014): Mobility practices of the urban poor in Ahmedabad (India), PhD Thesis, University of West England

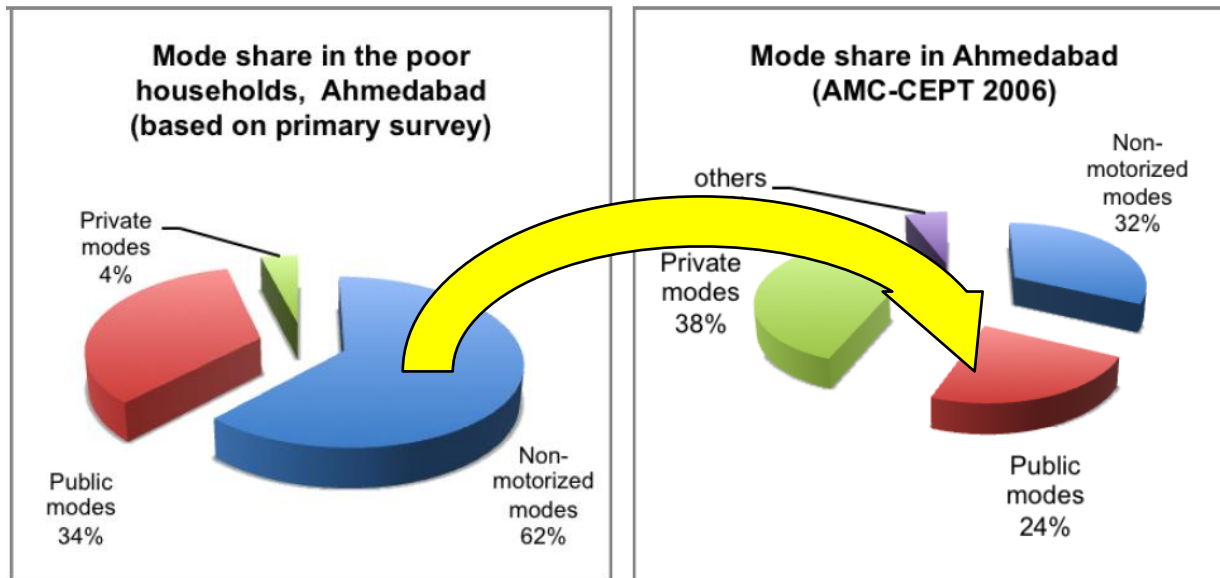


As modernization progresses, the crucial question is whether the upward-mobile groups take on driving

Transport Equity – PT Acceptance

Mode share amongst the poor and in the overall city
(percentage of trips to total trips) ⁽¹⁾

(1) JOSHI, Rutul (2014): Mobility practices of the urban poor in Ahmedabad (India), PhD Thesis, University of West England



....or if they embrace public transport.

Transport Equity - Access

Table 7: BRT System Access and Egress Modes by Sex, Ahmedabad (in %)

Modes	For Access		For Egress	
	Male	Female	Male	Female
Walking	44.8	50.0	64.3	63.6
AMTS	14.6	10.1	0.4	0.0
Autorickshaw (shared)	17.9	22.0	7.7	7.7
Autorickshaw (full fare)	5.4	7.0	17.5	14.3
Motorised 2-wheeler	6.8	6.3	4.5	8.7
Motorised 4-wheeler	1.1	1.0	4.4	4.5
State transport bus	5.7	2.8	0.4	0.7
Railways	3.7	0.7	0.5	0.3
Total	100.0	100.0	0.3	0.0

Source: Primary survey, CUE.

...46% ...of the BRTS users reached the station on foot, meaning that only those with a station within a reasonable walking distance use the system. ⁽⁴⁾

The main reason being given for the Ahmedabad BRT's stagnating ridership is the lack of feeder system (Cervero & Dai, 2014) ⁽¹⁾

(4) MAHADEVIA, D., JOSHI, R., DATEY, A. (2013): *Ahmedabad's BRT System - A Sustainable Urban Transport Panacea?*, Review of Urban Affairs, vol. XLVIII no. 56

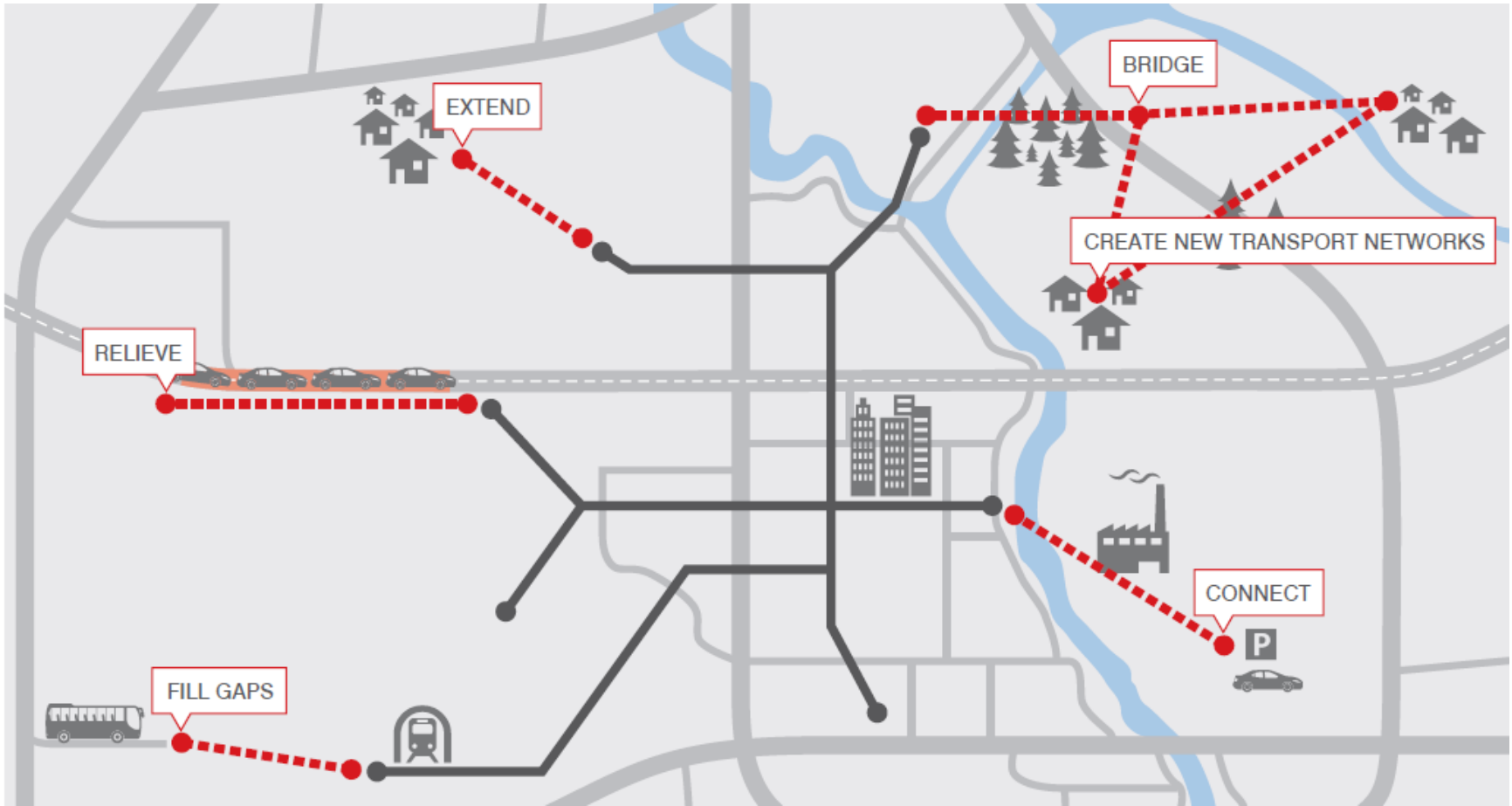
(1) JOSHI, Rutul (2014): *Mobility practices of the urban poor in Ahmedabad (India)*, PhD Thesis, University of West England

Transport Equity - Access

The success of high-capacity systems depends on the conditions of access.

- **Condition 1: walkable and bicycle-friendly environment of stations !**
- **Condition 2: good feeder systems !**

Mobility Functions of Urban Ropeways



Ropeways as Facilitators – La Paz



La Paz is the commercial and administrative capital of the Bolivian highlands.

Ropeways as Facilitators – La Paz



Línea Roja connects La Paz (765,000) and El Alto (850.000).

Ropeways as Facilitators – La Paz



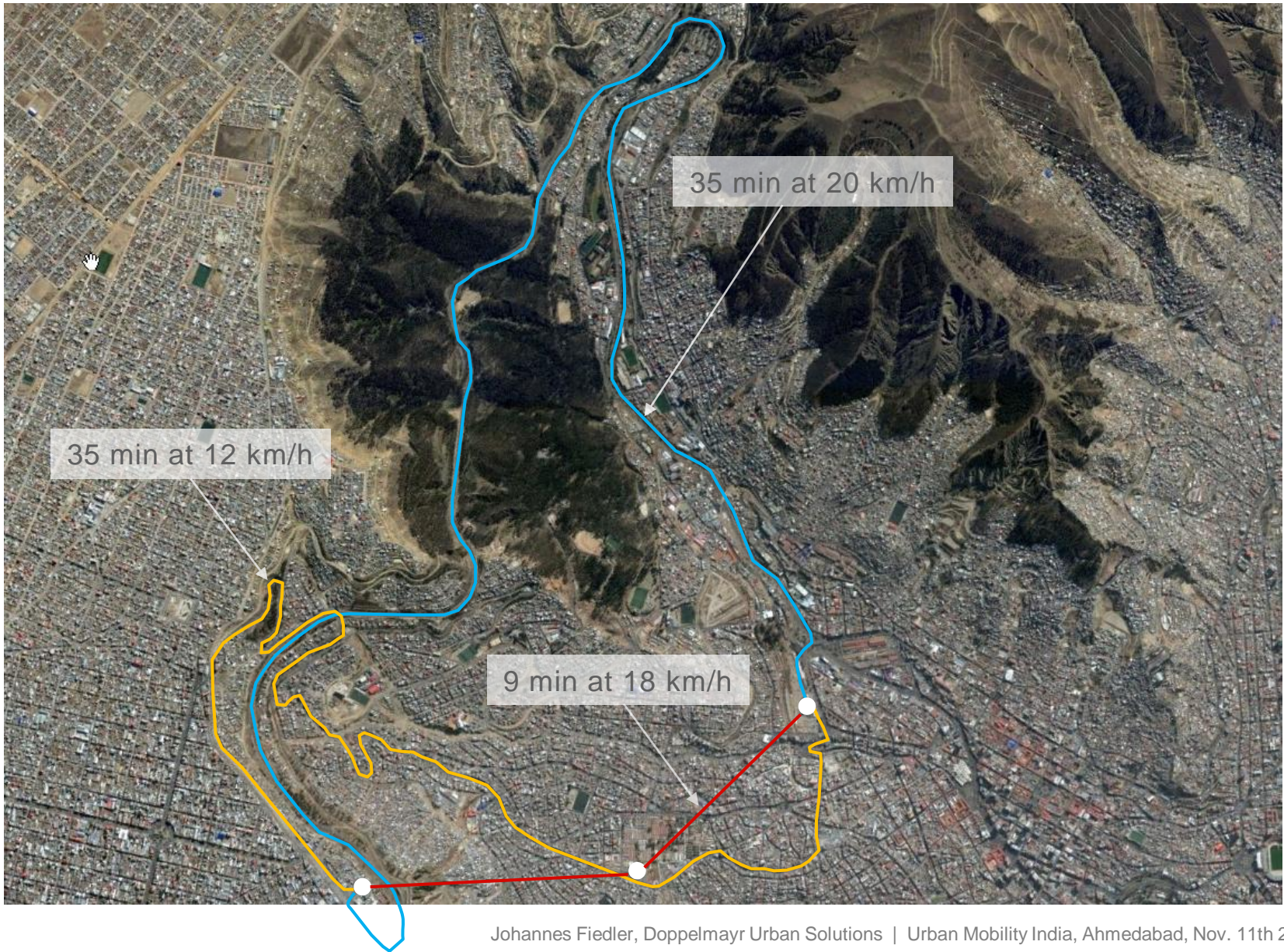
Up to 2014, public transport in La Paz and El Alto relied solely on private buses.

Ropeways as Facilitators – La Paz



The cable system connects with busses and para-transit...

Ropeways as Facilitators – La Paz



Ropeways as Facilitators – La Paz



Since the opening of the three lines in 2014, Mi Teleferico has transported 43 million passengers...

Ropeways as Facilitators – La Paz



The cable network is accessible to everybody...

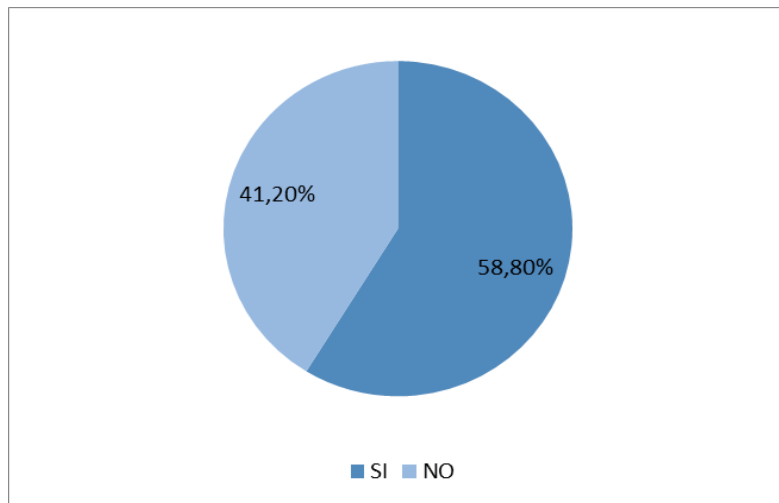
Ropeways as Facilitators – La Paz



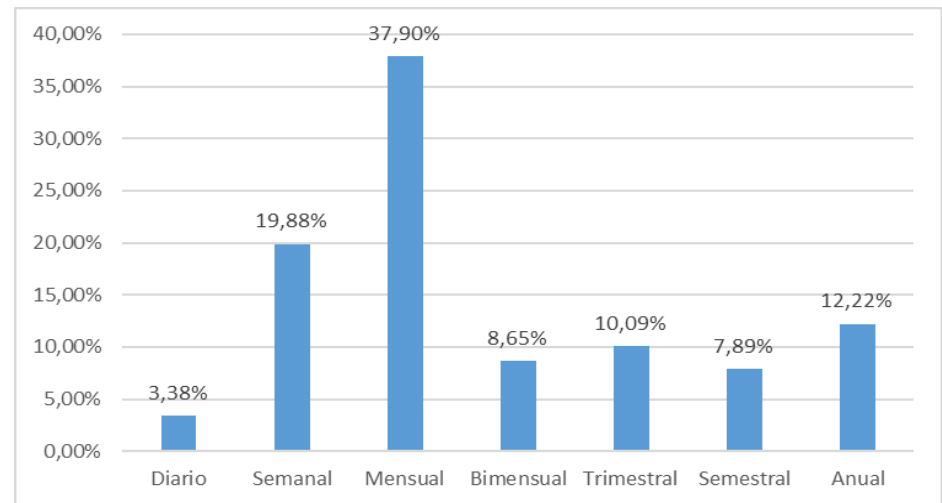
For workers, merchants and students, the cable lines have opened new possibilities...

Ropeways as Facilitators – La Paz

Proporción que Usa Teleférico en General



Frecuencia de Uso del Teleférico



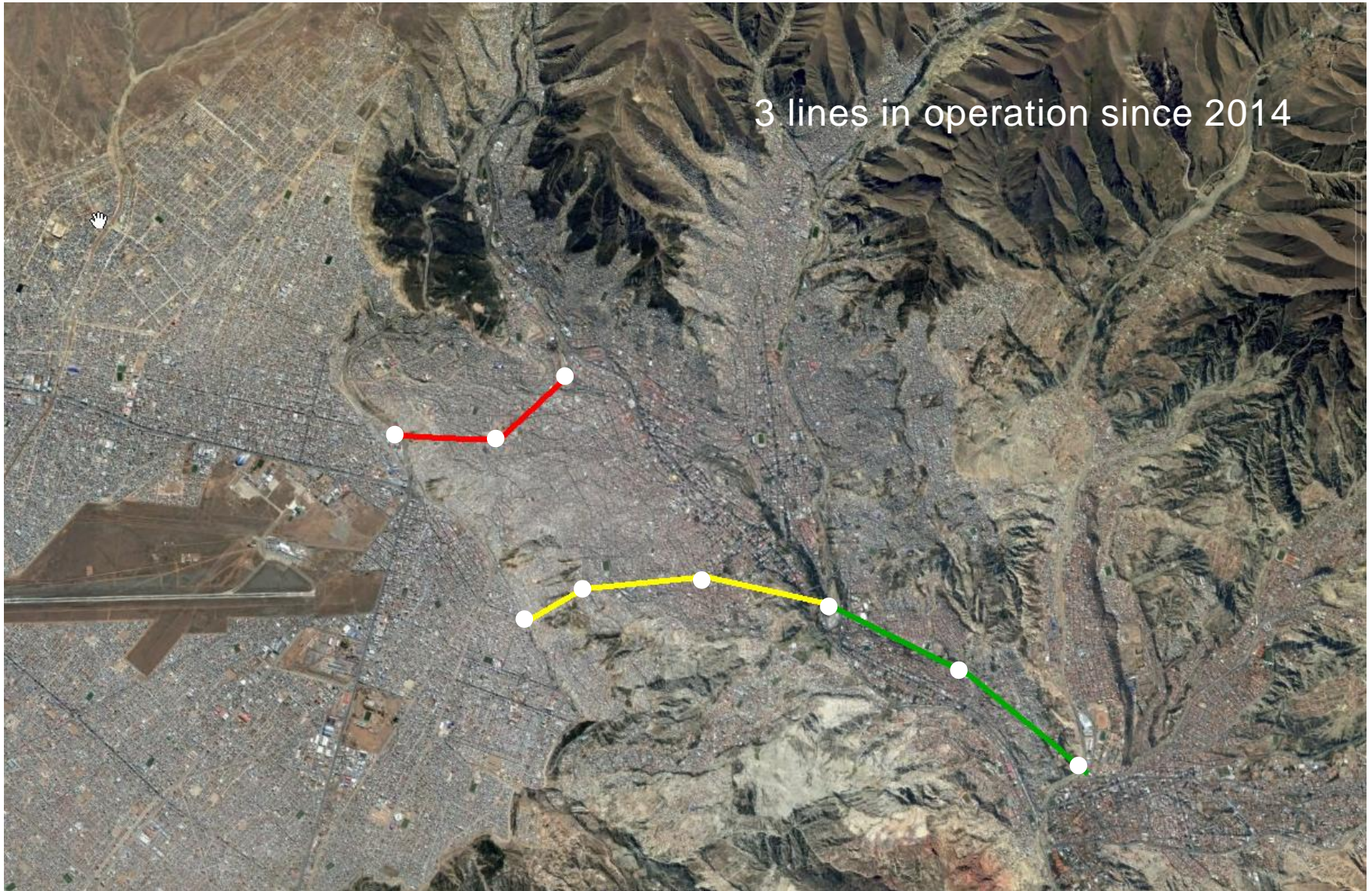
Usage:

58,8% use cable transport

23,26% on a regular (daily, weekly) basis*

* survey of 3.587 inhabitants of La Paz (original survey, 2016)

Ropeways as Facilitators – La Paz



Ropeways as Facilitators – La Paz



What can Cable Transport do for Indian cities?



congestion....

What can Cable Transport do for Indian cities?



difficult topography...

What can Cable Transport do for Indian cities?



informal urbanization...

What can Cable Transport do for Indian cities?



car dependency...

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