



URBAN CABLE CARS AN ANSWER TO PUBLIC TRANSPORTATION CITIES: LA PAZ – EL ALTO (BOLIVIA)

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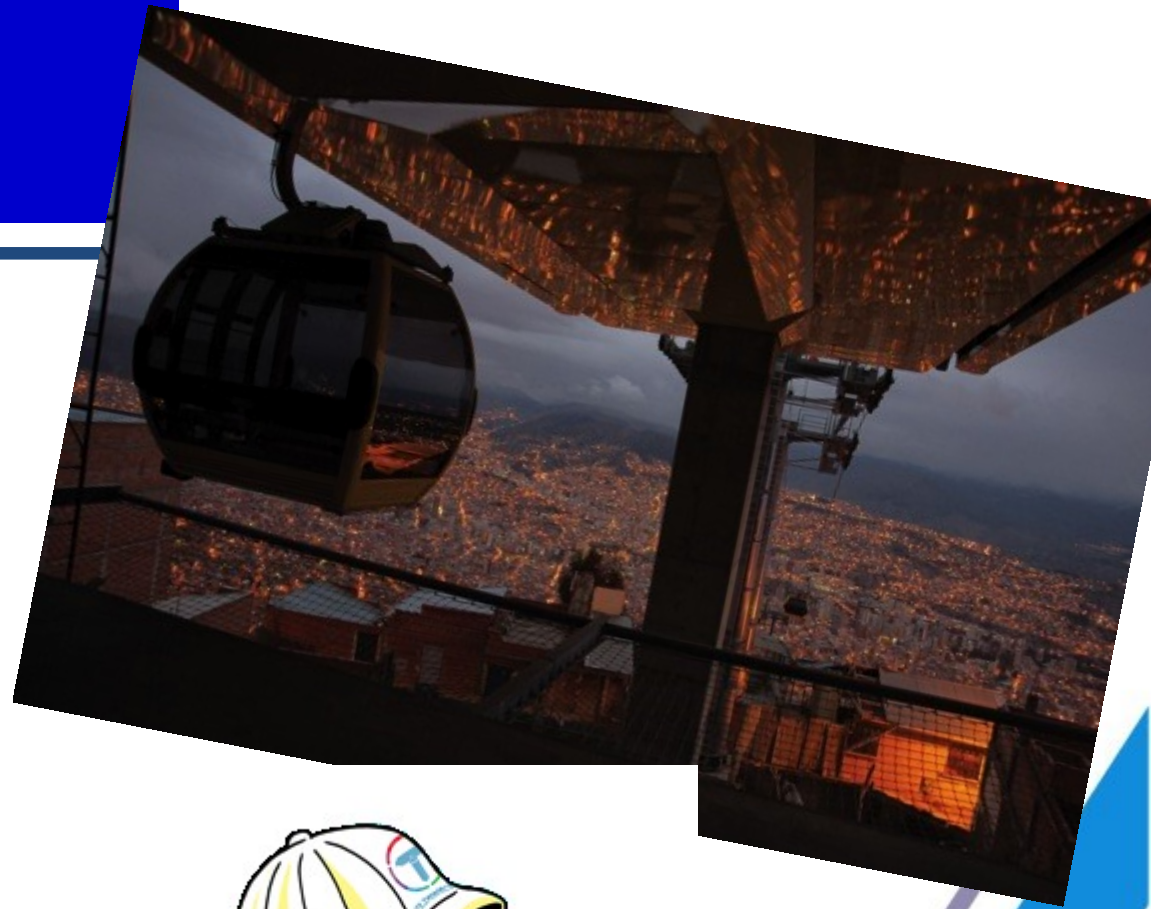
***URBAN CABLE CARS
AN ANSWER TO PUBLIC TRANSPORTATION
CITIES: LA PAZ – EL ALTO (BOLIVIA)***

OITAF – Bolzano

JUNE 2017

THEMATIC

- A common problema in the world
- Public transportation principles
- Use of Cable Cars on public transportation

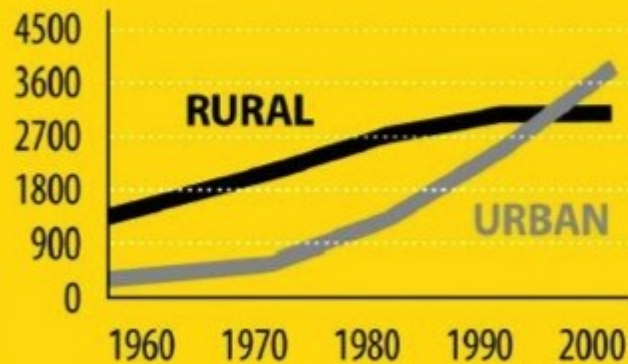


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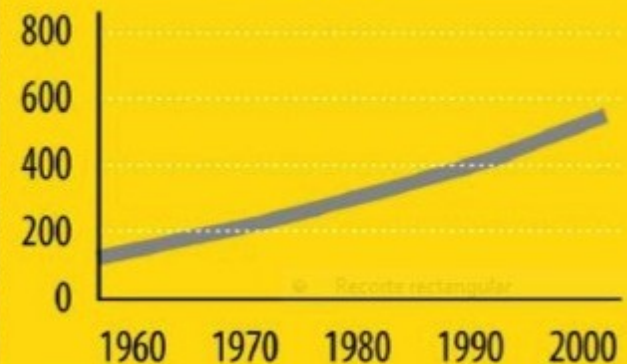
WORLD PROBLEM

- 2014 – more than 54% lived in the cities.
- 2050 – more than 66% will live in the cities (6.000 Millions of people)
- The percentage raise each minute, we live in a world of Urbanization process.

Population of Developing Countries
millions of people



World Car Population
millions of cars

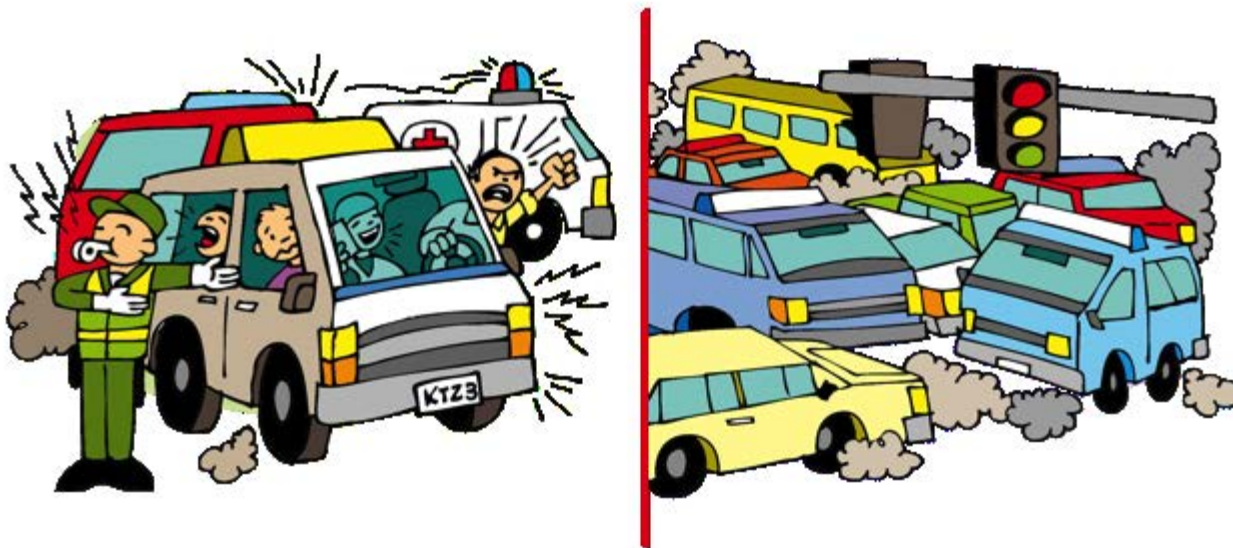


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RESULTS OF THE URBANIZATION AND MOTORIZED GROWTH (2011 Data)

- Disconnection of urban areas
- Inequality in the access of public transportation
- Traffic jam and waste of time
- Environmental pollution: 3,7 million deaths per year

every year



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HUMAN PERSPECTIVE

- Promote Access to assets, resources and services (conectivity, social inclusion and affordable price)
- Improve health and security
- Give a worthy service to human beings

ENVIRONMENTAL PERSPECTIVE

- Promote the use of more efficient transport systems from the environmental, social and economic point of view
- Guarantee the use of renewable resources
- Accomplish energy efficiency



URBAN MOBILITY PRINCIPLES

CITY PERSPECTIVE

- Use of maintainable of transportation System
- Encourage modal connection and use of non-motorized transport
- Reduce urban vehicular traffic
- Improve the use of public space

GOVERNMENT PERSPECTIVE

- Improve investments in economy
- Implement fast and effective solutions
- Reduce or eliminate grants

LA PAZ - EL ALTO

SUPERFICIE TOTAL: 636 km²

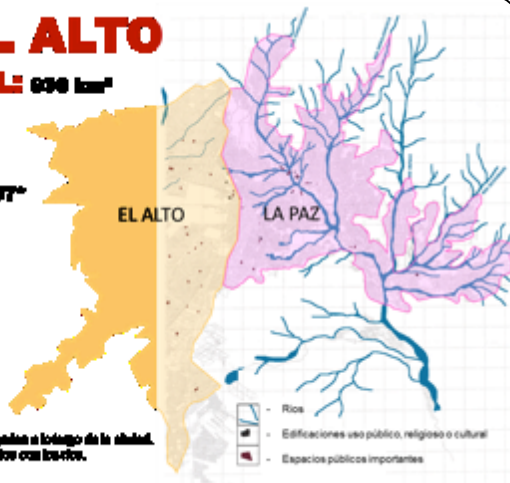
La Paz: 472 km² - 3600 personas

El Alto: 163 km² - 4.870 personas

POBLACIÓN: 1.013.487*

La Paz: 764.617 hab.*

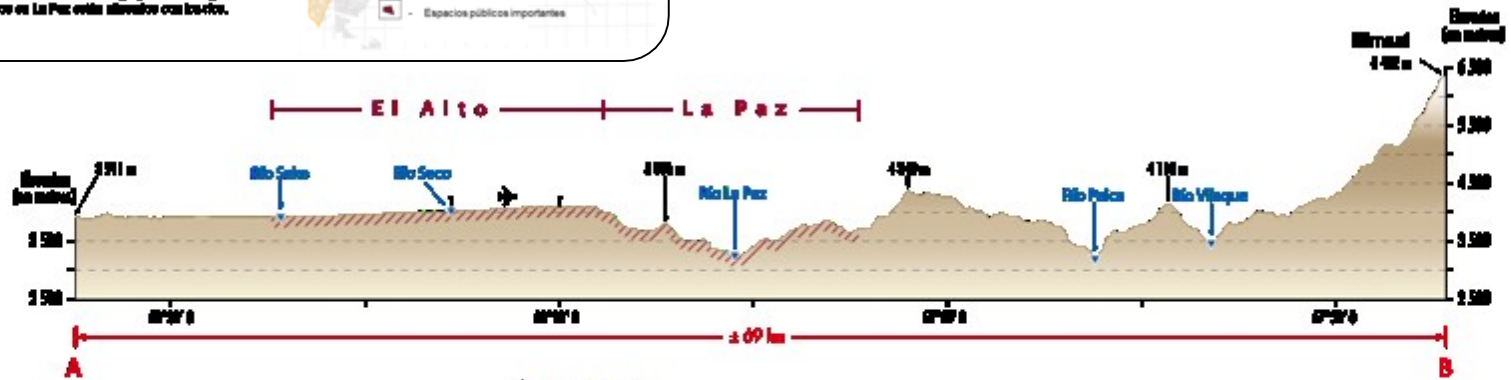
El Alto: 248.869 hab.*



- * Las Edificios/Públicos en EL Alto están agrupados a lo largo de la ciudad.
- * Las Edificios/Públicos en La Paz están situados con tráfico.

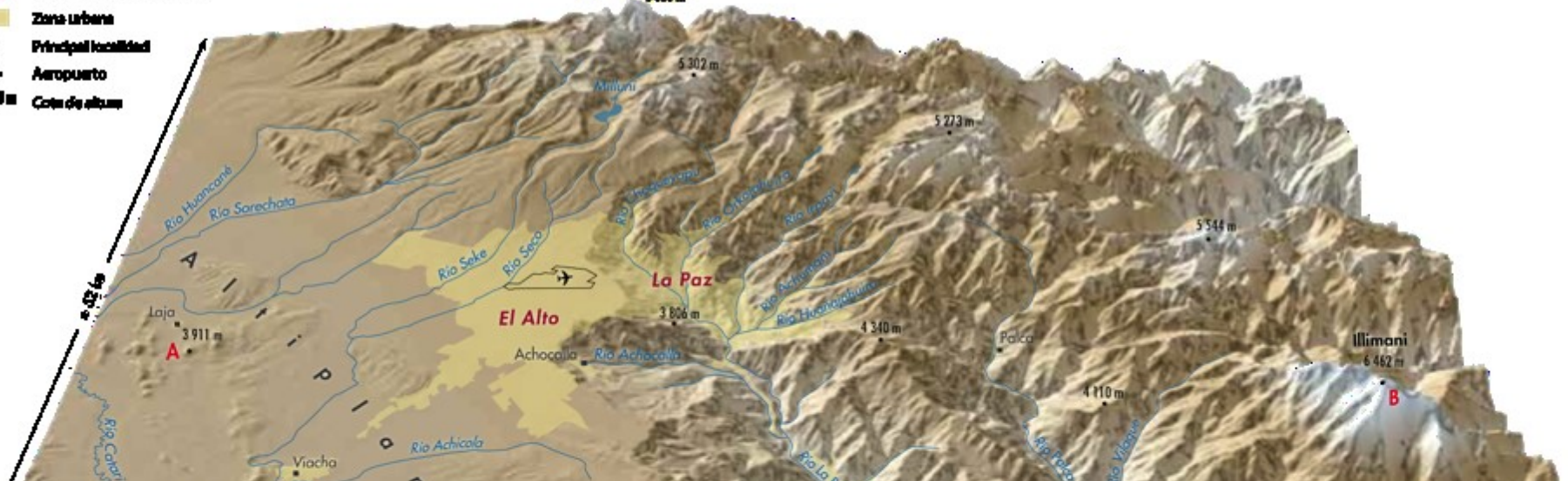
*CuentanME.

PROJECT LOCALIZATION



- Estación de la zona urbana
- Zona Urbana
- Principal localidad
- Aeropuerto
- Cota de altura

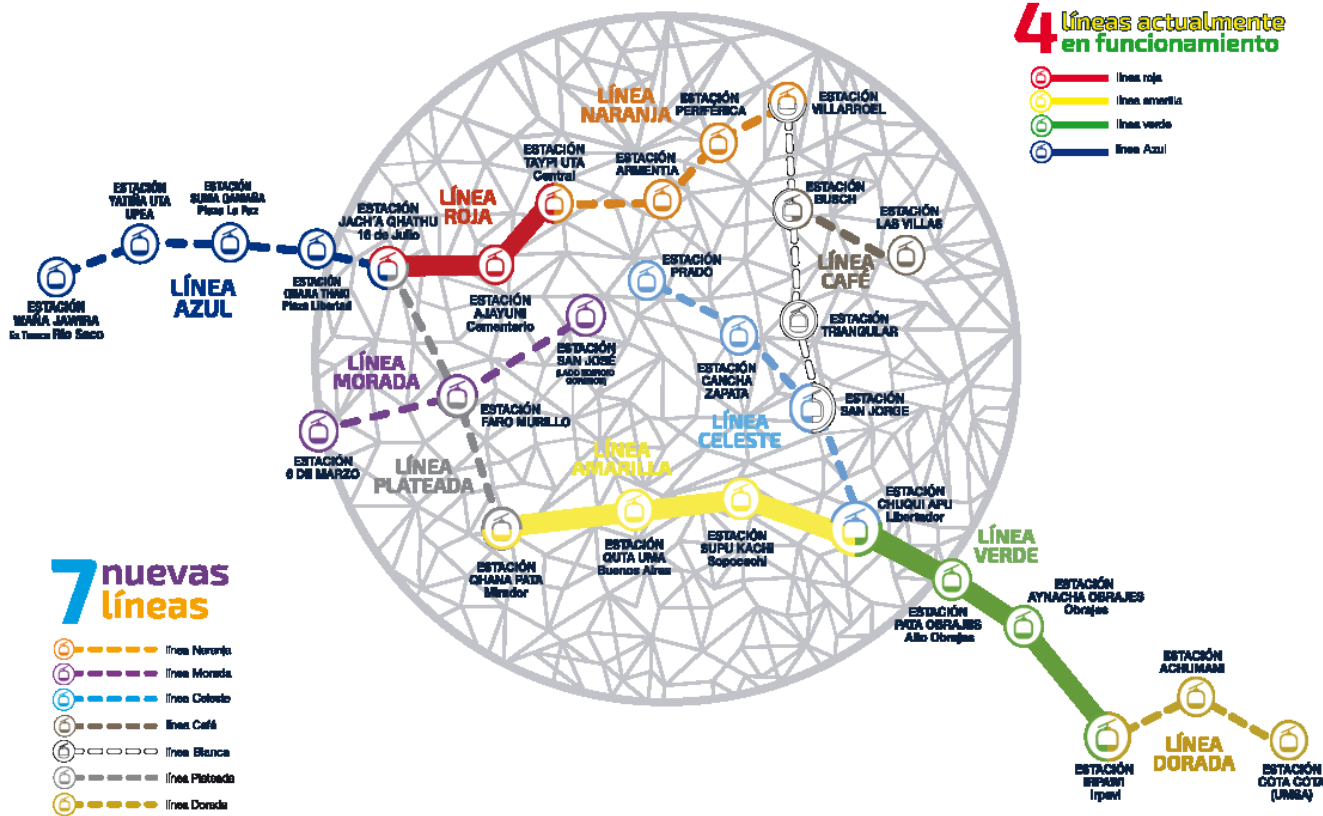
Huayna Potosí
6088 m



CABLE CAR NETWORK

PHASE I: 9,98 Kms. = 234,6 MM/\$US.

PHASE II: 21,7 kms. = 560 MM/\$US.



Network carrying capacity: 100.000 passenger/hour



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TECHNICAL SPECIFICATIONS



LINE	EXTENSION [m.]	CABINS	STATIONS
Red	2.348	109	3
Yellow	3.736	168	4
Green	3.705	165	4
Blue	4.989	208	5
Orange	2.599	127	4
White	2.920	120	4
Purple	4.299	190	3
Light Blue	2.629	159	4
Brown	714	26	2
Silver	2.610	120	3
Gold	2.250	106	3
TOTAL	32.799	1.498	39

 Survey conducted in 60 countries



CABLE CARS A TRANSPORT SYSTEM TO LIVE WELL

- Improve life quality
- It solves traffic problems
- Adapted to the city
- Require reachable investments
- Accomplish it is own sustainability
- The best choice for a Government administration



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TOTAL PASSENGERS

79.176.335

Since May 29 2014 to May 29 2017



IMPROVING CONECTIVITY TRANSPORTED PASSENGERS

MAXIMUM (RECORDS)

68.789

DATE: 17/05/2017

80.805

DATE: 13/06/2016

34.372

DATE: 17/05/2017

64.275

DATE: 17/05/2017

All lines total Record

194.971

Date: 17/05/2017



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LESS TRAVELLING TIME



Travel average:

- 1980: 18'
- 2015: 37'
- 2030: 51'

Traffic speed:

- 2015: 3 km/h.
- 2030: 1,2 km/h.
- The speed average of a walker is 5 km/h.

CABLE CAR:

- Less travelling time from 15 to 90 minutes
- 1 Red Line passenger saves 16 days/year



SOCIAL INCLUSION



- **EQUITY:** We promote equity and social justice (Gender, disabled people).
- **INTEGRATION:** access to opportunities of education, job and comercial.
- **CONNECTIVITY:** connexions, itinerary and frequency of t



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LOWER RATE OF ACCIDENTS




- SECURITY - PRIORITIZING THE RESPONSIBILITY
 - The accident rate is inexistent: “0%” in urban cable cars
 - Reduce the probability of an traffic accidents.
 - It is estimated that the Cable Car System could reduce the rate of traffic accidents in 3.4% .







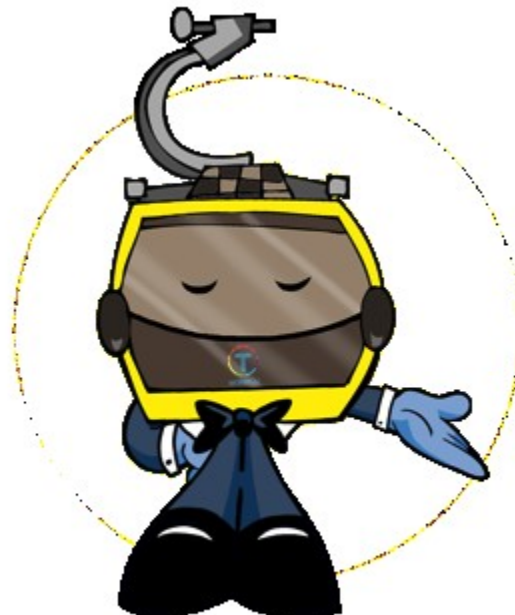
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THE BEST QUALITY SERVICES

 We provide wellness, efficiency, and satisfaction:

-  Seated passengers
-  Comfortable space for the user (35% more than a conventional car)
-  Pleasant trip
-  Punctuality and availability



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REDUCING POLLUTION



Inside a car there is 9.6 parts per million of carbon monoxide (CO)

Inside a cable car cabin there is 0 parts per million of carbon monoxide (CO).



ENERGY EFFICIENCY



One Cable Car of "Mi Teleférico" Transport system has the capacity to carry 10 passengers equal to 3.3 KWH of electrical energy



A standard car has the capacity to carry 10 passengers equal to 157 KWH.



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URBAN ACUPUNCTURE

	2 LANES avenue	THREE LINES OF URBAN CABLE CARS	
LENGHT (KMS.)	10	10	
TOTAL STATIONS	-	23	51.900
CABLE CAR TOWERS	-	77	1.232
TOTAL SPACE REQUIRED (Mts 2)	120.000	TOTAL	53.132
		-	66.868

Less tan 66.868 mts.2 of an area is required for the cable car system



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INFRASTRUCTURE ADAPTED TO THE CITY



STATIONS:

-  Bridges
-  Underground constructions
-  Micro stations
-  Building
-  Others





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INTERMODAL INTEGRATION



-  A view of Integrated Transport System
-  Priority for Non-motorized transport



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INVESTMENTS POSSIBLE TO ASUME




	NUMBER OF STATIONS	LENGTH (KMS.)	TOTAL INVESTMENT (MM. US\$)	INVESTMENT BY KM. (MM. US\$)
METRO OF BOGOTÁ	23	23	4.781	208
TELEFERICO OF LA PAZ (PHASE 2)	23	21	450	23



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FAST AND EFFECTIVE IMPLEMENTATION

RED LINE:

-  2,3 Kms.
-  3 Stations
-  109 cabins

PROCESS:

-  Contract Sign:
August /2012
-  Starting construction:
May/2013
-  Inauguration:
May/2014



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FINANCIAL SUSTAINABILITY



- Operating costs, maintenance and administrative costs are covered by income
- If the grand were of US\$ 8 MM per year the amount would exceed the US\$ 320 MM. in its useful life (it could be more than the investment)



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CONCLUSIONS



- The quality of urban life is related to the quality of public transport system.
- The Cable Cars System satisfactorily meets the requirements of Urban Transportation.



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...Thanks!!

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