Urban Transport Financing: How to find a balanced Mix of Economic Instruments

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sappi usatu

Challenges in developing cities

10-25% of urban areas are taken by road transportation infrastructure -
A lot of space for cars but…

SUTP,TDM

SUTP,TDM


BUS LANE
BUSES ONLY
New York City Bus
M15
1256
MTA
+selectbusservice
WIDE
ONLY
US

Manfred Breithaupt, 2006

Shreya Gadepalli, 2003

Content

The financing challenge – Why financing is important

- Major actors
- The real costs of transport – who is paying what?

Financial Instruments

- Local Instruments
- National Instruments
- Global Instruments

Combining the financing Options

Introduction: The Module and the financing Challenge

Why financing is important?

Photos by Manfred Breithaupt, Santhosh Kodulka, Carlos F. Pardo, Santhosh Kodukula, Ko Sakamoto, Soul Development Institut

Gap between local needs and the available financial resources

Photo by Manfred Breithaupt, Transmilenio

- Car-orientated investment
- Poor provisions for pedestrians and cyclists
- Lack of resources for high quality public transport systems

Sustainable Urban Transport

Major Actors

Photo by Christopher Kost

Photo by Georg Döhn

Financing of urban transport

crosscountry

PEUGEOT

Private sector

DVB

Macrobús
Tu ciudad se mueve en grande

Photo by Carlos F. Pardo

Donors and International Organisations

ADB

BANQUE AFRICAINE DE DEVELOPPEMENT
AFRICAN DEVELOPMENT BANK

The real costs of transport – who is paying what?

- Time costs
- Vehicle and vehicle operating costs
- Public transport fares
- Private accident costs

Paid by transport users

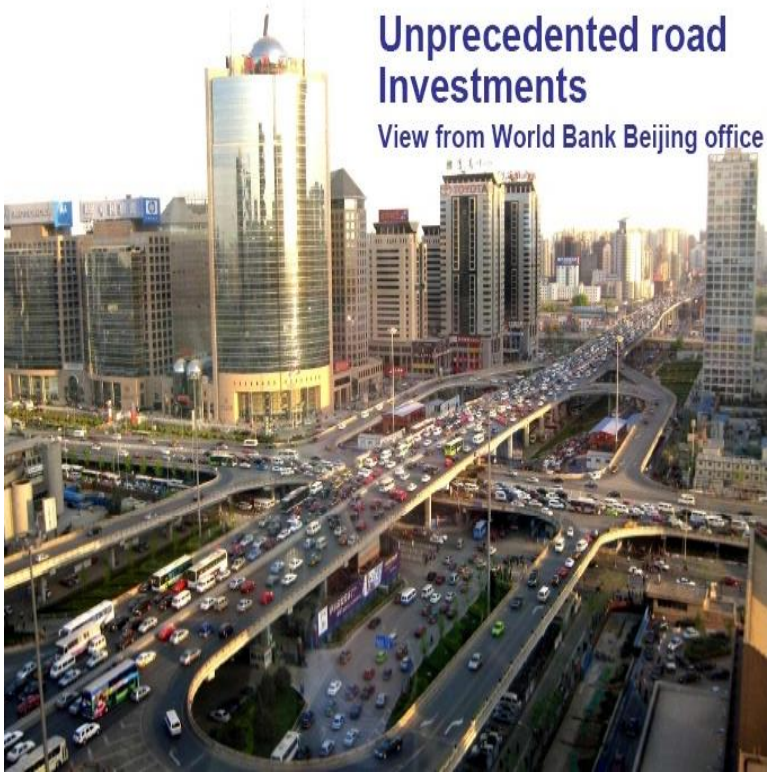
- Infrastructure
- Accidents – health treatment, loss of family income, grief and suffer.
- Air pollution, noise, vibration and associated health costs
- Climate Change
- Congestion & urban space consumption

Paid to a large extent by the society through general taxes. Leads also to increased health costs, decreased quality of life, etc.

Correct prices lead to better mobility choices

„Prices for transport services are currently set without reflection of their full costs, thereby permitting car users to travel **without being fully aware of the costs** of his/her travel activity“

Source: The True Costs of Automobility: External Costs of Cars - Overview on existing estimates in EU-27, TU Dresden



Each car in Germany is **subsidised with annually 2.100 € by the society** (not considering infrastructure costs)

Source: The True Costs of Automobility: External Costs of Cars - Overview on existing estimates in EU-27, TU Dresden

Major problem of transport financing

High cost of investments and operation vs. the lack of capital

Funds can and should be mobilised from within the transport sector (fuel and vehicle taxes, user fares & charges)

Therefore:

Polluters should pay more!

Transport finances Transport

Revenues from **increased costs of using private cars** can be used to:

MAINTAIN

Appropriate transport infrastructure

IMPROVE

Sustainable mobility alternatives

BENEFITS FOR MULTIPLE STAKEHOLDERS

Lowered congestion and parking pressure leads to **increased accessibility** for Individuals, businesses and Cities

Financial Instruments can be integral part of TDM and…

are vital to create high performance, cost-effective transportation systems

- recognize that **travel demand** is not given, but is a **function of transportation policies, pricing, investments and choices**

They aim at

- creating more revenues to set up a sustainable urban transport system
- - Reduce car usage in city centers and shift demand to SUT modes

Type of incentive or disincentive	Possible Economic Instruments	Selected Economic Measure(s)
• Discourage motorized vehicle ownership	• Tax/charge on vehicle purchase/ownership/scrappage	• Annual vehicle tax • Registration tax/charge • (Re)sales tax/charge • Scrappage tax/charge
	• Restricting the number of vehicles and/or new registrations	• Auction schemes competitive bidding for new licenses • Licensing car ownership
• Discourage motorized vehicle use • Encourage switch to public or non-motorized transport	• Tax/charge on vehicle use	• Fuel tax • Pay-at-the-pump (sur)charges
	• Tax/charge on road and/or infrastructure use • Restricting access to urban centers or special areas	• Parking fees • City tolls • Road pricing • Bridge tolls • Cordon pricing • Congestion pricing
	• Subsidies for public transport and/or multimodal transport (modal subsidies)	• Subsidized public transport fees • Subsidies for public transport networks and operation • Tax-deductible public transport expenses • P%R schemes
• Encourage lower emission technology use and innovation	• Taxes/charges on vehicle purchase/ownership/scrappage, • Taxes/charges on vehicle use, • Taxes/charges on road and/or infrastructure use	• Tax differentiations based on emissions • Carbon/energy taxes • Emission fees • Emission-based surcharges • Subsidies, tax rebates for low emission vehicles/technologies

Various financing options for different ranges of application

		Amount typically involved	Main components supported						
			Infra-structure	Main-tenance	Public transport	Techn-ology	Insti-tutions	Policies	Traffic Man.
Local Instruments	Parking charges	$		x	x		x		x
	Road Pricing/congestion charge	$$	x	x	x	x	x	x	x
	Employer contributions	$$	x	x	x				
	Fare box revenues	$$			x				
	Public transport subsidies	$			x				
	Land development/land value taxes	$$$	x		x				
	Public private partnerships	$$	x	x	x	x			
	Advertising	$		x	x				
National Instruments	Fuel taxes/surcharges	$$$	x	x	x		x	x	x
	Vehicle related taxes and charges, including auctioning of quotas	$$$	x	x	x		x	x	x
	Loans and grants	$$	x				x		
Global Instruments	CDM	$			x	x			
	GEF	$	x		x	x	x	x	
	Multilateral/bilateral climate funds	$	x		x	x	x	x	

LOCAL Instruments

- Parking Charges
- License plate auction, vehicle quota
- Road Pricing/Congestion Charging
- Employer contributions
- Environmental Zones and related charging
- Land development / land value taxes
- Public Private Partnerships
- Advertising

Parking Charges

Characteristics:

- Strength in efficiency and equity
- Steady revenue stream
- Fostering of public transport use

Singapore parking prices (Jan. 2002)

Parking is a key issue in the push-and-pull approach towards better urban transport with fewer cars and more cycling, walking, and transit.

Parking control and pricing is the most commonly applied demand management measure.

Parking? Why Manage it?

Increasing emissions of green house gases and noise caused by parking-space-search-traffic:

Cruising for curb parking generates about 30% of the traffic in central business districts

Something is wrong with parking

In the car-dependent suburbs of Auckland, New Zealand

Near the center of Houston, USA (via Google Maps)

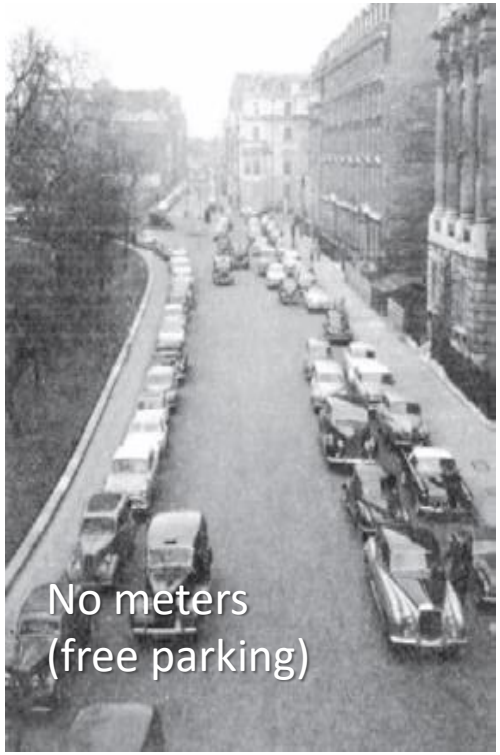
Source: Brasilia, Manfred Breithaupt

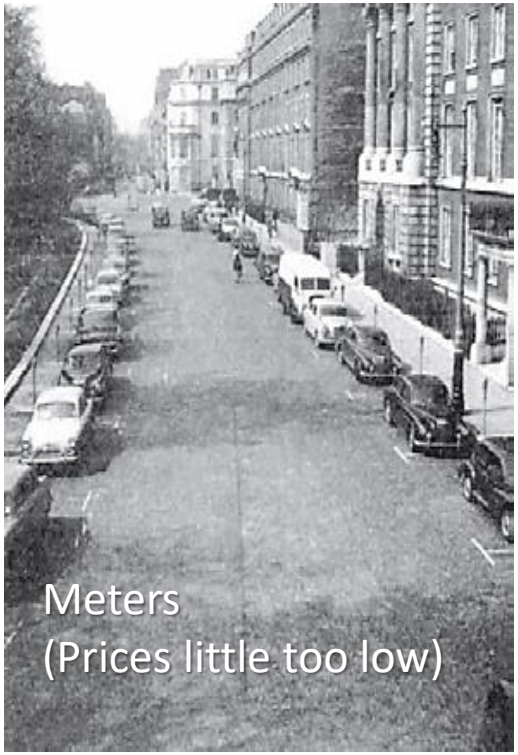
Considerations:

- Off-street parking should be cheaper than on-street parking
- Parking fees should be higher than a single bus fare
- Implementation of workplace parking levies

Poorly-managed on-street parking harms everyone

On-street pricing really does work



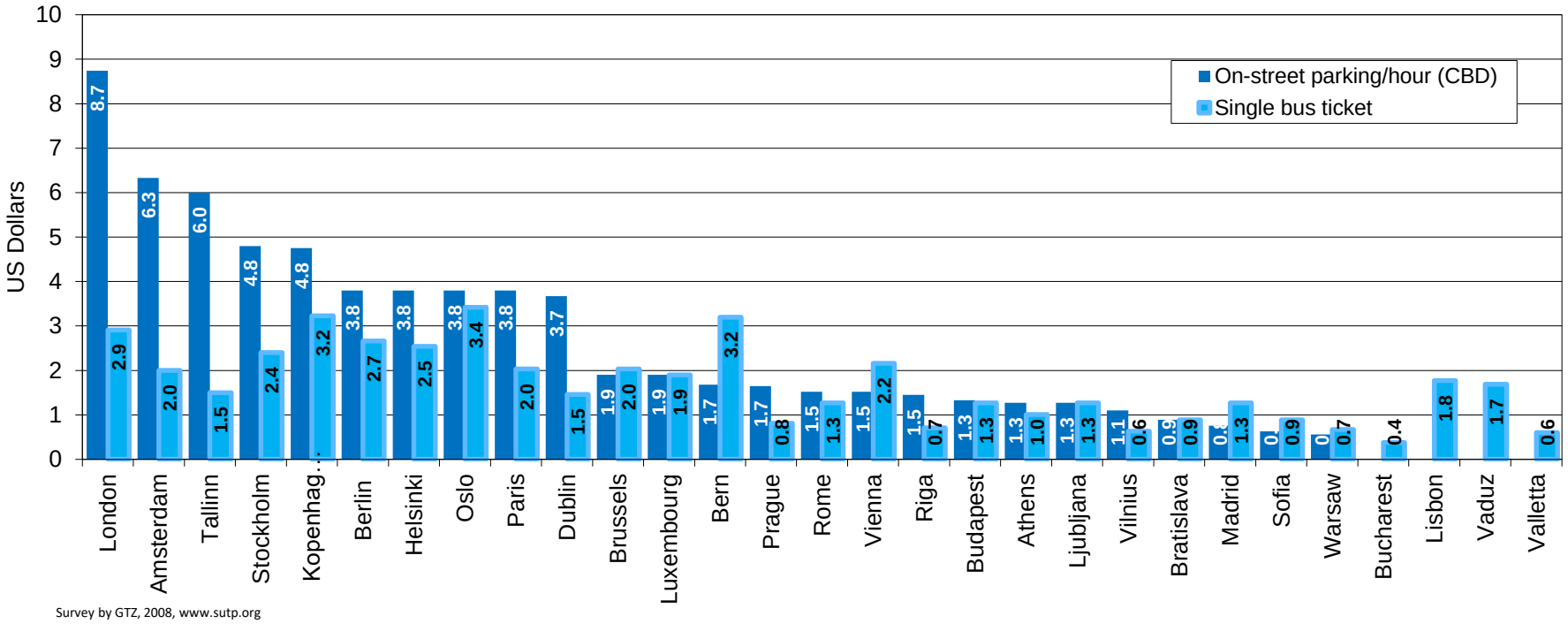


Grosvenor Square, London

Source: TRL via ITDP (2011): Europe's Parking U-Turn but based on a figure in Donald Shoup's High Cost of Free Parking

Comparison of parking fees and single bus fares

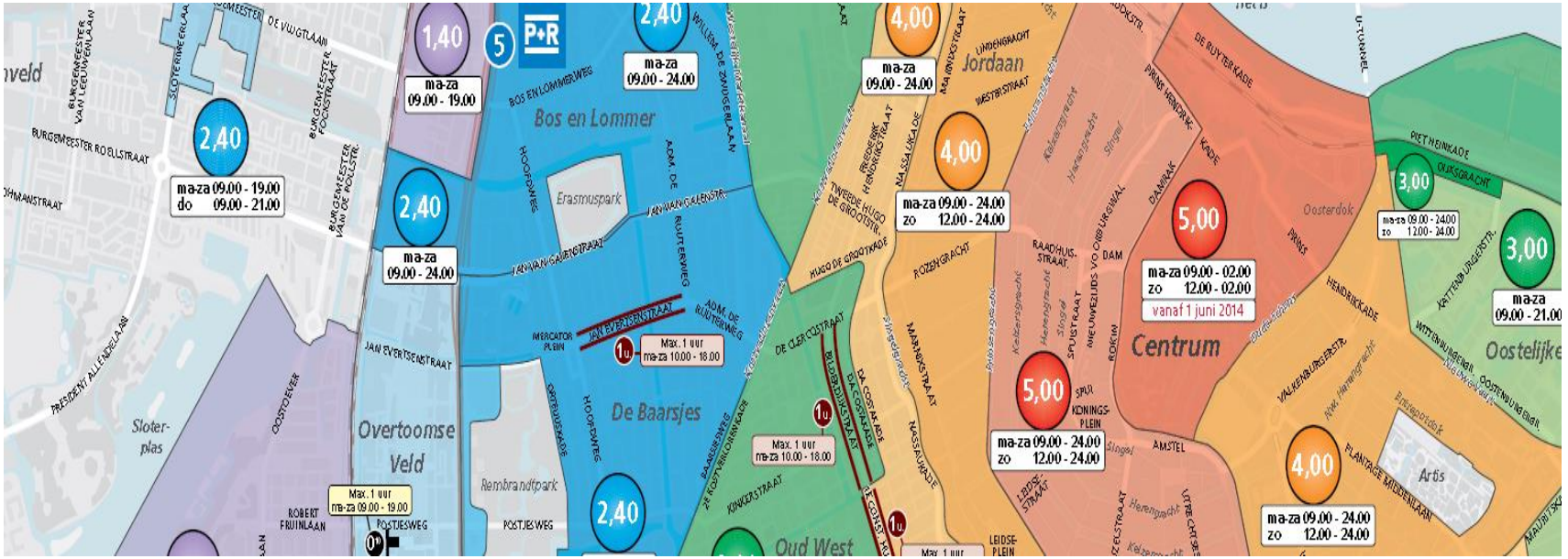
"Parking fees should be higher than a single bus fare"



Survey by GTZ, 2008, www.sutp.org

Cities with parking prices depending on occupancy

Examples include: Amsterdam, Rotterdam, Berlin, Budapest, Dublin, Taipei, Vancouver, San Francisco, Auckland, and various local authorities in Sydney and London



Part of Amsterdam's parking price map

Example: London's parking maximums

How much parking does London's "Gherkin" building have?

None for private cars! Single basement for essential parking (bicycles, people with disabilities, loading/unloading). This also often in Hongkong.

Offices in Canary wharf: MAXIMUM of 1 space per 1100 m^2 (and zero minimum except spaces for people with disabilities)

Image via Wikimedia Commons user BaldBoris

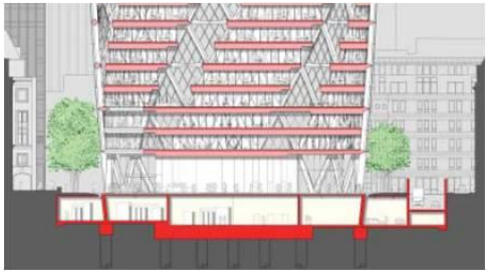


Image via http://www.archinomy.com/case-studies/669/30-st-mary-axe-the-gherkin-london

Image by Wikimedia Commons user Dave Pape

Slide by Paul Barter, Reinventing Parking

Less city-centre parking, more space for people

Focus on public parking → Improve on-street parking management → Relax about 'shortage' → Transit-oriented areas can even limit parking supply → And win back public space

Gammel Strand in Copenhagen – **before 1991**

Source: Kristian Skovbakke Villadsen, May 2012

Gammel Strand in Copenhagen – **after 1991**

Source: Kristian Skovbakke Villadsen, May 2012

Slide by Paul Barter, Reinventing Parking

Comprehensive Parking Management

- Effectively manage available space in urban areas
- Especially in city centres parking should never be for free!
- Clear rules and communication of parking scheme and alternative travel options as part of urban mobility management

City of Amsterdam earns

150 mln. € annually through parking fees

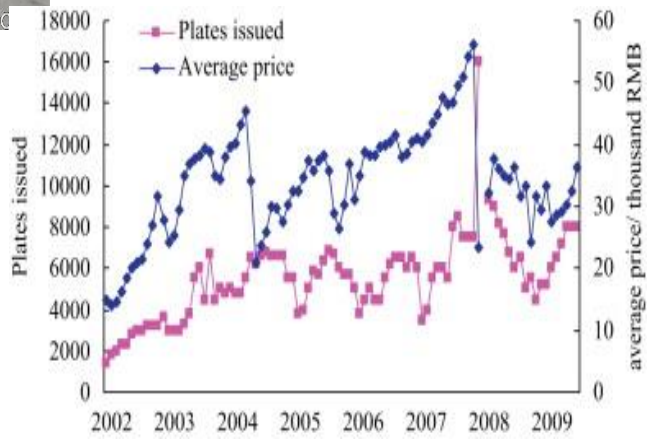
used for public transport, walking, cycling

Vehicle Quota

Case Study: “license plate auction” in Shanghai, Guangzhou, Singapore and…

- Only a given number of vehicles can be registered per month

Vehicle License Quota/Auctioning



In Shanghai since 1998:

- Limit number of new vehicles: 7000 – 8000 per month
- Auction system, current price around $ 10,000 US

City Income $ 800 million US per year

Chinese License Plates Net, 2009 Chinese License Plates Net, 2009. Statistics of license plate auction in Shanghai.

http://www.paizhao.com.cn/html/paizhaoxinwen/2009/0712/262.html

Vehicle quotas in Singapore

- Each car registered requires a Certificate of Entitlement (valid 10 years, extendable), with the COE price determined by auction
- Available quota for new vehicles depends on the targeted growth rate in vehicle population
- Growth rate target was 3% (prior to 2009), 1% (from 2012) and finally 0.5% in Feb 2013)

Photos by Manfred Breithaupt and Carlos F. Pardo

Bidding Results, Quota Premium and Prevailing Quota Premium in Singapore

Month of Bidding Exercise	Vehicle Category	Category A Cars up to 1600cc & 97kW		Category B Cars above 1600cc or 97kW		Category C Goods vehicles & buses		Category D Motorcycles		Category E Open Category	
		1st Bidding	2nd Bidding	1st Bidding	2nd Bidding	1st Bidding	2nd Bidding	1st Bidding	2nd Bidding	1st Bidding	2nd Bidding
Jan-2017	Quota	1,877	1,846	1,252	1,246	183	186	376	377	401	400
	Successful bids	1,870	1,766	1,243	1,226	180	173	374	331	394	381
	Bids received	2,260	2,437	1,835	1,967	271	254	438	412	648	662
	Quota Premium	$50,101	$50,889	$53,106	$52,807	$46,302	$47,001	$6,053	$6,052	$53,001	$52,600
	PQP[1] for Feb 2017		$50,394		$52,077		$48,503		$6,141		NA
Feb-2017	Quota	2,060	2,133	1,366	1,377	164	174	348	392	488	500
	Successful bids	2,051	2,089	1,352	1,377	155	171	326	384	488	483
	Bids received	2,691	2,926	1,783	2,126	268	249	534	753	805	800
	Quota Premium	$48,401	$49,430	$48,209	$50,621	$48,901	$49,810	$6,412	$6,801	$48,556	$51,000
	PQP for Mar 2017		$49,429		$50,347		$48,788		$6,256		NA
Mar-2017	Quota	2,061	2,096	1,371	1,357	170	164	368	355	482	499
	Successful bids	2,045	2,096	1,368	1,345	170	163	359	354	478	499
	Bids received	3,190	2,961	2,298	2,081	216	251	546	453	763	783
	Quota Premium	$50,789	$51,765	$53,300	$54,000	$49,002	$47,036	$7,483	$8,081	$53,001	$54,501
	PQP for Apr 2017		$50,230		$52,008		$48,009		$6,814		NA
Apr-2017	Quota	2,068		1,360		162		355		486	
	Successful bids	2,061		1,360		162		354		485	
	Bids received	2,486		1,970		351		482		748	
	Quota Premium	$52,000		$54,405		$45,906		$7,589		$54,556	
	PQP for May 2017										

Road Pricing/Congestion Charging

Direct charging for using public road space

Photo by Carlos F. Pardo

Types:

- Cordon pricing
- Time-independent tolling
- Electronic road pricing

Characteristics:

- Directly charges use of scarce public space
- Flexibility
- Leads to reduction of congestion, pollution, noise, traffic accidents
- political acceptability often difficult

Considerations:

- Revenues should be used for public transport improvements to foster a modal shift and increase of public and political acceptability

Photo by Liamond

Case Study: Particulate matter emission - Emission zones in Germany

- An emission zone:
  - is an area from which highly polluting motor vehicles are banned
  - these will be excluded from the city centre in three stages
  - to enter the Zone, vehicles must display a permit disc ('Vignette')
- As of January 2008: Berlin, Hannover, Cologne, meanwhile all major cities in Germany followed; 55 cities in Germany by now

http://www.zeit.de/online/2009/22/auto-avus-1989

http://www.flickr.com/photos/vitaminf/3558748791/

Not only in Germany: More than 200 cities in 10 countries across Europe are now operating Low Emission Zones where the most polluting vehicles are either banned or charged an access fee

- This is to improve the air quality in the city centres and to protect the health of residents. Road traffic is the main source of noxious substances, like fine dust (PM 10) and nitrogen dioxide (NO_2).

- Just an example for information related to travellers: If you're planning a road trip you'll want to know where these LEZ are, what types of vehicle they affect, what emissions standards are required, and whether registration is required or not, see

https://www.theaa.com/european-breakdown-cover/driving-in-europe/european-low-emission-zones

Employer Contributions

Financial Support of local public transport by employer's and by businesses

Case Study: Brazilian Vale-Transporte

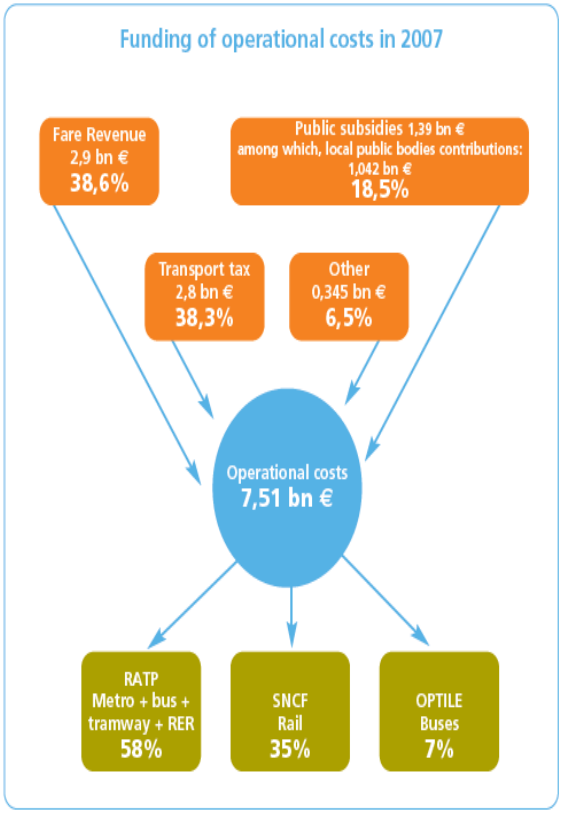
- In cities employers are required by law to buy and provide public transport tickets
- Thereby the employers can withhold 6% of salaries to cover these costs

Case Study: Versement Transport in France

- The French Versement Transport (VT) is a tax levied on employees' salaries to pay for improvements in public transport in the local area. In return, employees receive subsidies or free travel on public transport
- Organisations with more than 9 employees in a district with more than 10,000 inhabitants are legally required to pay the VT
- The rate currently ranges from 0.55% to 1.72% of the total wages of each eligible company
- Revenues have been used to fund small- and large-scale infrastructure projects across France
- The VT has played a major part in funding the upgrading and expansion of the Paris Metro

Sources: http://www.stif.info/information-communication/documents-langues-etrangeres/english/documents-anglais-1241.html
http://www.indigoguide.com/france/paris-metro.htm

Public Transport in Ile-de-France



Land Development and Land Value Taxes

- Financing mechanism where land owners, directly benefiting from new public infrastructure, have to pay
- Tax payers are not penalised
- Businesses located near the new infrastructure can increase their trades and profits

Public Private Partnerships (PPP)

- Utilisation of private sector know-how
- Risks are allocated to the party best able to manage each particular risk
- Enhanced budgetary predictability

Photo by Geraldine Holland

Advertising

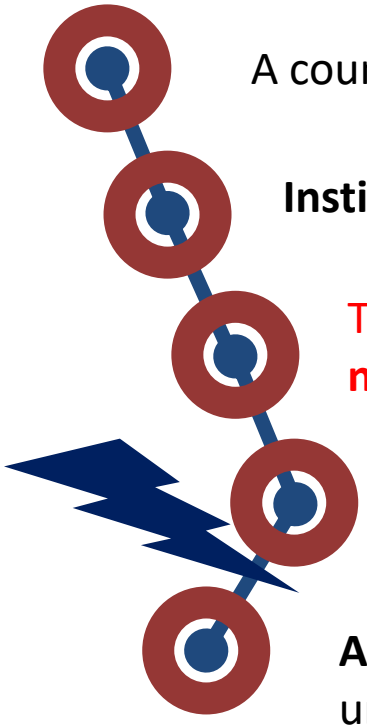
- Efficient and highly accepted instrument
- Can be used to bridge shortfalls in financing
- Little benefit towards sustainable transport

Case Study: Advertising on bus stops in London

National Instruments

- Fuel taxes and surcharges
- Vehicle related taxes and charges, including auctioning quotas
- Loans and grants

National sustainable transport financing facilities should be developed along the complete chain towards Sustainable Transport:



A country's **sustainable development, climate & energy goals**

Institutions and a legal framework supporting these goals

The country's **transport policy & strategy – including the national sustainable urban transport policy**

Transport taxation and charging policies (Where the money comes from?)

Appropriate spending - based on standardized evaluation criteria, urban mobility plans (Where the money goes?)

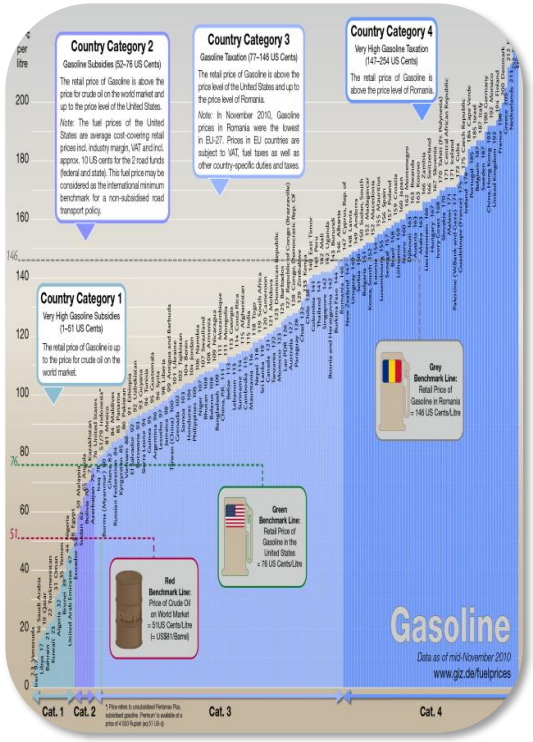
Contraproductive counter measures, such as funding for private transport through cheap loans for buying vehicles, too low fuel taxes or even fuel subsidies, etc. should be avoided!

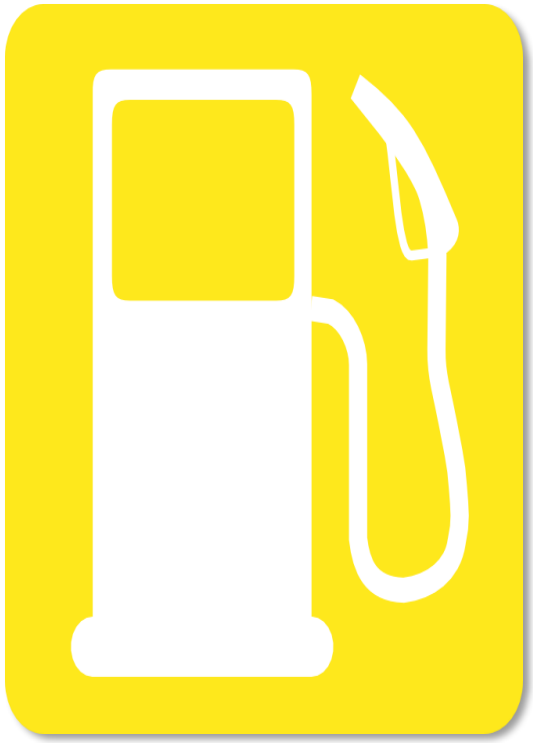
Fuel Taxes and Surcharges

Characteristics:

- Simple, cost-efficient and reliable way of charging
- Most appropriate way to focus on the user-pay-principle
- Political acceptability sometimes problematic

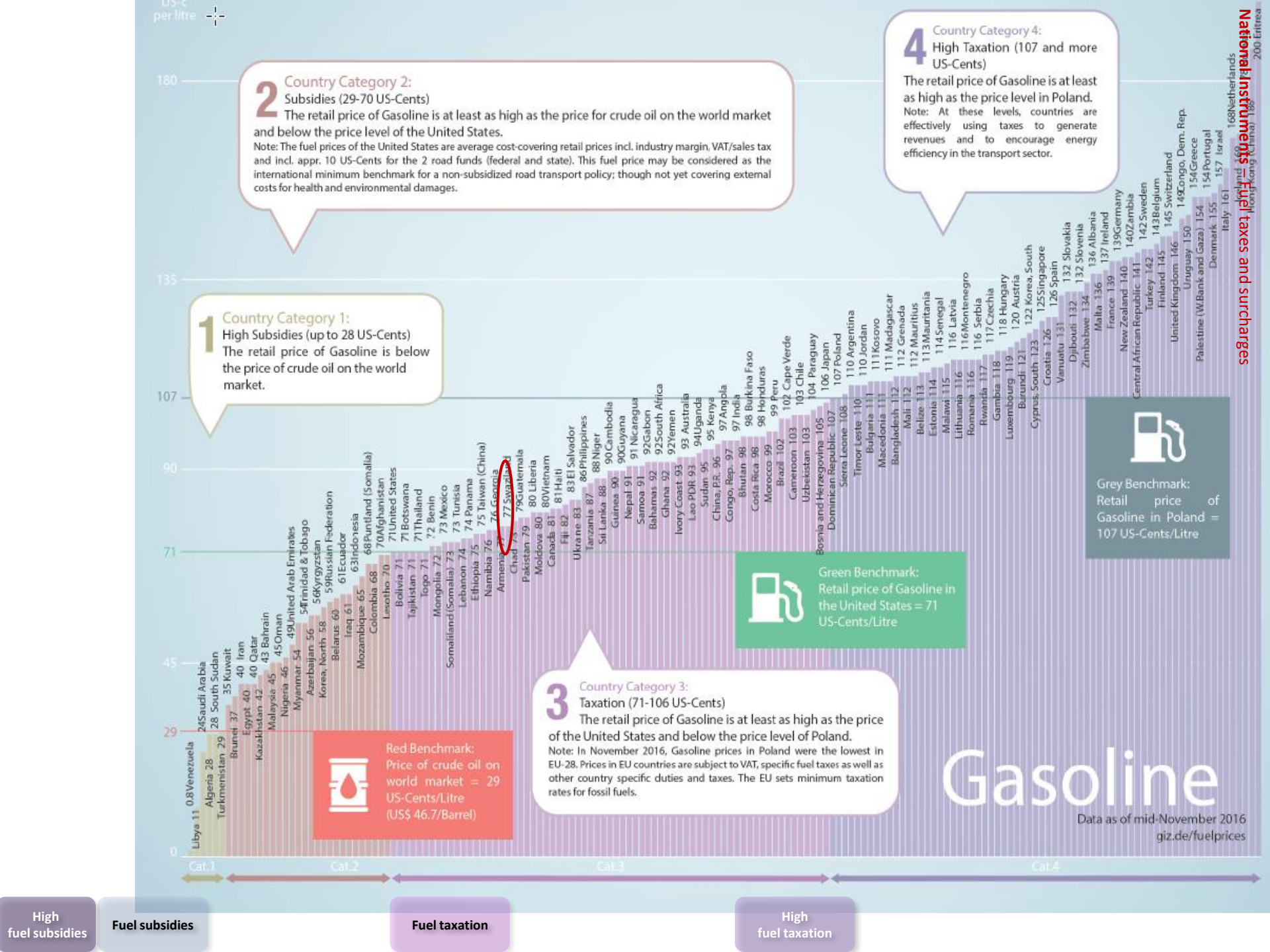
On a global level between 80 to 90% of all revenues derived from the transport sector are being raised from fuel taxes





[International Fuel Prices](#) (November 2016)

On behalf of
Federal Ministry for Economic Cooperation and Development


National instruments = Fuel taxes and surcharges
2 Country Category 2:
Subsidies (29-70 US-Cents)
The retail price of Gasoline is at least as high as the price for crude oil on the world market and below the price level of the United States.
Note: The fuel prices of the United States are average cost-covering retail prices incl. industry margin, VAT/sales tax and incl. appr. 10 US-Cents for the 2 road funds (federal and state). This fuel price may be considered as the international minimum benchmark for a non-subsidized road transport policy; though not yet covering external costs for health and environmental damages.
4 Country Category 4:
High Taxation (107 and more US-Cents)
The retail price of Gasoline is at least as high as the price level in Poland.
Note: At these levels, countries are effectively using taxes to generate revenues and to encourage energy efficiency in the transport sector.
1 Country Category 1:
High Subsidies (up to 28 US-Cents)
The retail price of Gasoline is below the price of crude oil on the world market.
Grey Benchmark: Retail price of Gasoline in Poland = 107 US-Cents/Litre
Green Benchmark: Retail price of Gasoline in the United States = 71 US-Cents/Litre
Red Benchmark: Price of crude oil on world market = 29 US-Cents/Litre (US$ 46.7/Barrel)
3 Country Category 3:
Taxation (71-106 US-Cents)
The retail price of Gasoline is at least as high as the price of the United States and below the price level of Poland.
Note: In November 2016, Gasoline prices in Poland were the lowest in EU-28. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes. The EU sets minimum taxation rates for fossil fuels.
Gasoline
Data as of mid-November 2016
giz.de/fuelprices
US-¢ per litre
0
29
45
71
90
107
135
180
200
Libya 11
0.8 Venezuela
24 Saudi Arabia
Algeria 28
28 South Sudan
Turkmenistan 29
35 Kuwait
Brunei 37
40 Iran
Egypt 40
40 Qatar
Kazakhstan 42
43 Bahrain
Malaysia 45
45 Oman
Nigeria 46
49 United Arab Emirates
Myanmar 54
54 Trinidad & Tobago
Azerbaijan 56
56 Kyrgyzstan
Korea, North 58
59 Russian Federation
Belarus 60
61 Ecuador
Iraq 61
63 Indonesia
Mozambique 65
68 Puntland (Somalia)
Colombia 68
70 Afghanistan
Lesotho 70
71 United States
Bolivia 71
71 Botswana
Tajikistan 71
71 Thailand
Togo 71
72 Benin
Mongolia 72
73 Mexico
Somaliland (Somalia) 73
73 Tunisia
Lebanon 74
74 Panama
Ethiopia 75
75 Taiwan (China)
Namibia 76
76 Georgia
Armenia 76
77 Swaziland
Chad 78
79 Guatemala
Pakistan 79
80 Liberia
Moldova 80
80 Vietnam
Canada 81
81 Haiti
Fiji 82
83 El Salvador
Ukraine 83
86 Philippines
Tanzania 87
88 Niger
Sri Lanka 88
90 Cambodia
Guinea 90
90 Guyana
Nepal 91
91 Nicaragua
Samoa 91
92 Gabon
Bahamas 92
92 South Africa
Ghana 92
92 Yemen
Ivory Coast 93
93 Australia
Lao PDR 93
94 Uganda
Sudan 95
95 Kenya
China, P.R. 96
97 Angola
Congo, Rep. 97
97 India
Bhutan 98
98 Burkina Faso
Costa Rica 98
98 Honduras
Morocco 99
99 Peru
Brazil 102
102 Cape Verde
Cameroon 103
103 Chile
Uzbekistan 103
104 Paraguay
Bosnia and Herzegovina 105
106 Japan
Dominican Republic 107
107 Poland
Sierra Leone 108
110 Argentina
Timor Leste 110
110 Jordan
Bulgaria 111
111 Kosovo
Macedonia 111
111 Madagascar
Bangladesh 112
112 Grenada
Mali 112
112 Mauritius
Belize 113
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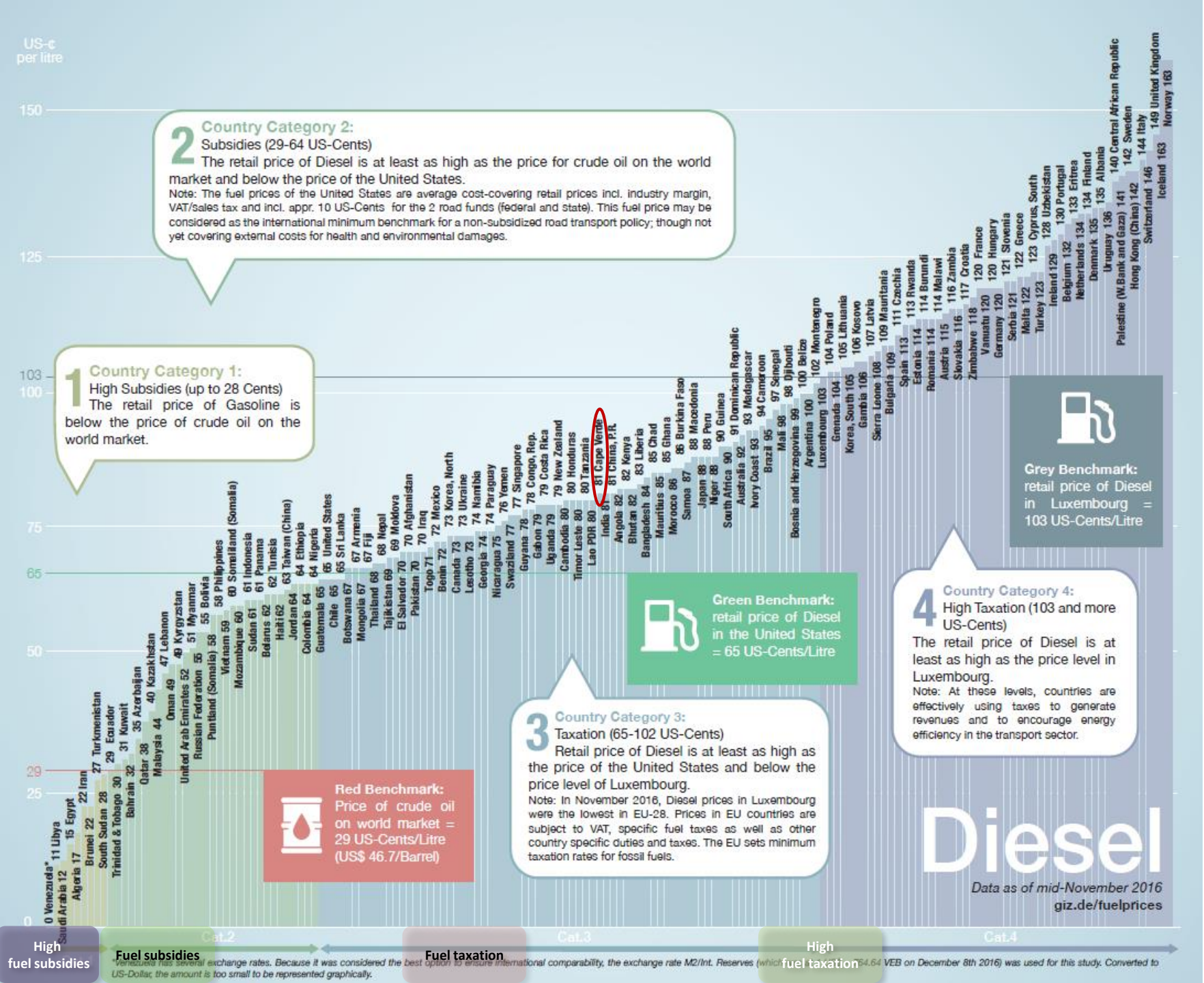
Estonia 114
114 Senegal
Malawi 115
116 Latvia
Lithuania 116
116 Montenegro
Romania 116
116 Serbia
Rwanda 117
117 Czechia
Gambia 118
118 Hungary
Luxembourg 119
120 Austria
Burundi 121
122 Korea, South
Cyprus, South 123
125 Singapore
Croatia 126
126 Spain
Vanuatu 131
132 Slovakia
Djibouti 132
132 Slovenia
Zimbabwe 134
136 Albania
Malta 136
137 Ireland
France 139
139 Germany
New Zealand 140
140 Zambia
Central African Republic 141
142 Sweden
Turkey 142
143 Belgium
Finland 145
145 Switzerland
United Kingdom 146
149 Congo, Dem. Rep.
Uruguay 150
154 Greece
Palestine (W.Bank and Gaza) 154
154 Portugal
Denmark 155
157 Israel
Italy 161
168 Netherlands
Iceland 169
Hong Kong (China) 188
Cat.1
Cat.2
Cat.3
Cat.4
High fuel subsidies
Fuel subsidies
Fuel taxation
High fuel taxation


US-¢ per litre
150
125
103
100
75
65
50
29
25
0
2 Country Category 2:
Subsidies (29-64 US-Cents)
The retail price of Diesel is at least as high as the price for crude oil on the world market and below the price of the United States.
Note: The fuel prices of the United States are average cost-covering retail prices incl. industry margin, VAT/sales tax and incl. appr. 10 US-Cents for the 2 road funds (federal and state). This fuel price may be considered as the international minimum benchmark for a non-subsidized road transport policy; though not yet covering external costs for health and environmental damages.
1 Country Category 1:
High Subsidies (up to 28 Cents)
The retail price of Gasoline is below the price of crude oil on the world market.
0 Venezuela* 11 Libya 12 Saudi Arabia 15 Egypt 17 Algeria 22 Iran 22 Brunei 27 Turkmenistan 28 South Sudan 29 Ecuador 30 Trinidad & Tobago 31 Kuwait 32 Bahrain 35 Azerbaijan 38 Qatar 40 Kazakhstan 44 Malaysia 47 Lebanon 49 Oman 49 Kyrgyzstan 52 United Arab Emirates 51 Myanmar 55 Russian Federation 55 Bolivia 58 Puntland (Somalia) 58 Philippines 59 Vietnam 60 Mozambique 60 Somaliland (Somalia) 61 Sudan 61 Indonesia 62 Belarus 61 Panama 62 Haiti 62 Tunisia 63 Jordan 64 Taiwan (China) 64 Colombia 64 Ethiopia 65 Guatemala 64 Nigeria 65 Chile 65 United States 65 Botswana 67 Sri Lanka 67 Mongolia 67 Armenia 67 Thailand 68 Fiji 68 Nepal 69 Tajikistan 69 Moldova 70 El Salvador 70 Afghanistan 70 Pakistan 70 Iraq 71 Togo 72 Mexico 72 Benin 73 Korea, North 73 Canada 73 Ukraine 73 Lesotho 74 Namibia 74 Georgia 74 Paraguay 75 Nicaragua 75 Yemen 76 Swaziland 77 Singapore 77 Guyana 78 Congo, Rep. 78 Gabon 79 Costa Rica 79 Uganda 79 New Zealand 79 Cambodia 80 Honduras 80 Timor Leste 80 Tanzania 80 Lao PDR 80 Cape Verde 81 China, P.R. 81 India 81 Angola 82 Kenya 82 Bhutan 82 Liberia 83 Bangladesh 84 Chad 85 Mauritius 85 Ghana 85 Morocco 86 Burkina Faso 86 Samoa 87 Macedonia 88 Japan 88 Peru 88 Niger 88 Guinea 90 South Africa 90 Dominican Republic 91 Australia 92 Madagascar 93 Ivory Coast 93 Cameroon 94 Brazil 95 Senegal 97 Mali 98 Djibouti 98 Bosnia and Herzegovina 99 Belize 100 Argentina 100 Montenegro 102 Luxembourg 103 Poland 104 Grenada 104 France 105 Korea, South 105 Lithuania 106 Gambia 106 Kosovo 107 Sierra Leone 108 Latvia 109 Bulgaria 109 Mauritania 111 Spain 113 Czechia 113 Estonia 114 Rwanda 114 Romania 114 Burundi 115 Austria 116 Malawi 116 Slovakia 116 Zambia 117 Zimbabwe 118 Croatia 120 Vanuatu 120 France 120 Germany 120 Hungary 121 Serbia 121 Slovenia 122 Malta 122 Greece 123 Turkey 123 Cyprus, South 128 Ireland 129 Uzbekistan 130 Belgium 132 Portugal 133 Netherlands 134 Eritrea 134 Finland 135 Denmark 135 Albania 136 Uruguay 140 Central African Republic 141 Palestine (W.Bank and Gaza) 142 Hong Kong (China) 142 Sweden 144 Switzerland 146 Italy 149 Iceland 163 United Kingdom 163 Norway
Red Benchmark:
Price of crude oil on world market = 29 US-Cents/Litre (US$ 46.7/Barrel)
Green Benchmark:
retail price of Diesel in the United States = 65 US-Cents/Litre
Grey Benchmark:
retail price of Diesel in Luxembourg = 103 US-Cents/Litre
3 Country Category 3:
Taxation (65-102 US-Cents)
Retail price of Diesel is at least as high as the price of the United States and below the price level of Luxembourg.
Note: In November 2016, Diesel prices in Luxembourg were the lowest in EU-28. Prices in EU countries are subject to VAT, specific fuel taxes as well as other country specific duties and taxes. The EU sets minimum taxation rates for fossil fuels.
4 Country Category 4:
High Taxation (103 and more US-Cents)
The retail price of Diesel is at least as high as the price level in Luxembourg.
Note: At these levels, countries are effectively using taxes to generate revenues and to encourage energy efficiency in the transport sector.
Diesel
Data as of mid-November 2016
giz.de/fuelprices
Cat.2
Cat.3
Cat.4
High fuel subsidies
Fuel subsidies
Fuel taxation
High fuel taxation
* Venezuela has several exchange rates. Because it was considered the best option to ensure international comparability, the exchange rate M2/Int. Reserves (which
54.64 VEB on December 8th 2016) was used for this study. Converted to US-Dollar, the amount is too small to be represented graphically.

...Urban Sprawl with high travel distances

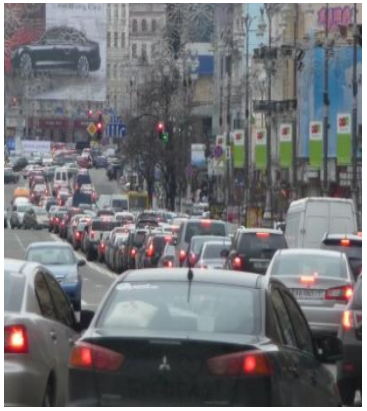
...Lack of innovation in car industry

...Low quality fuels

Low or even subsidized fuel prices encourage...

...Inefficient vehicles

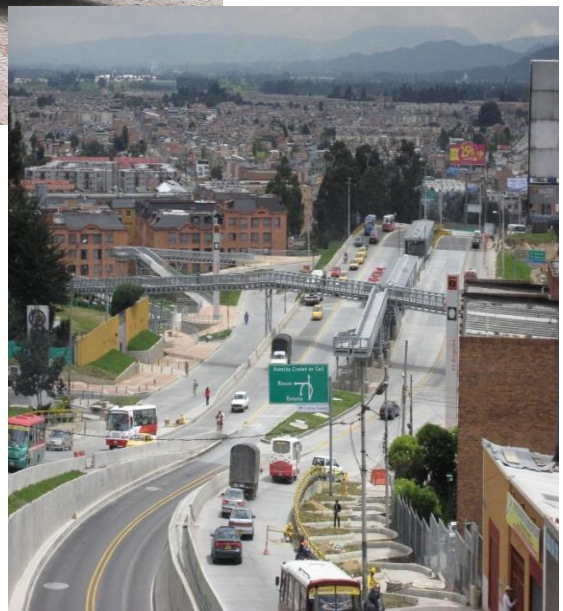
...under-recovering of refineries with fuel shortages



...Excessive car use

Some fuel taxes and surcharges are local!

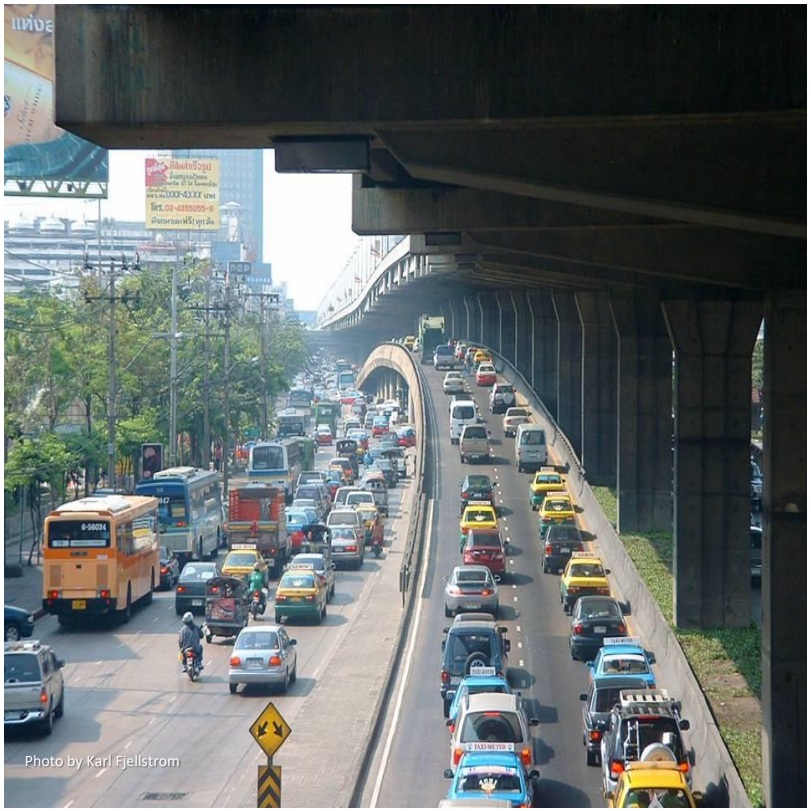
Photos by TransMilenio and Varano



Case Study: Colombia URBAN fuel surcharge

- Colombian cities have a 25% surcharge on gasoline sales
- Half of Bogotá's surcharge revenues are for Bogotá's TransMilenio System
- Private vehicle owners finance one third of mass transport system

Tax or charge on car purchase and/or ownership (Vehicle taxes)



Characteristics:

- Taxes are flexible, can be varied depending on engine size, carbon emissions, environmental standards, weight or number of axles
- Taxes are able to reflect externalities

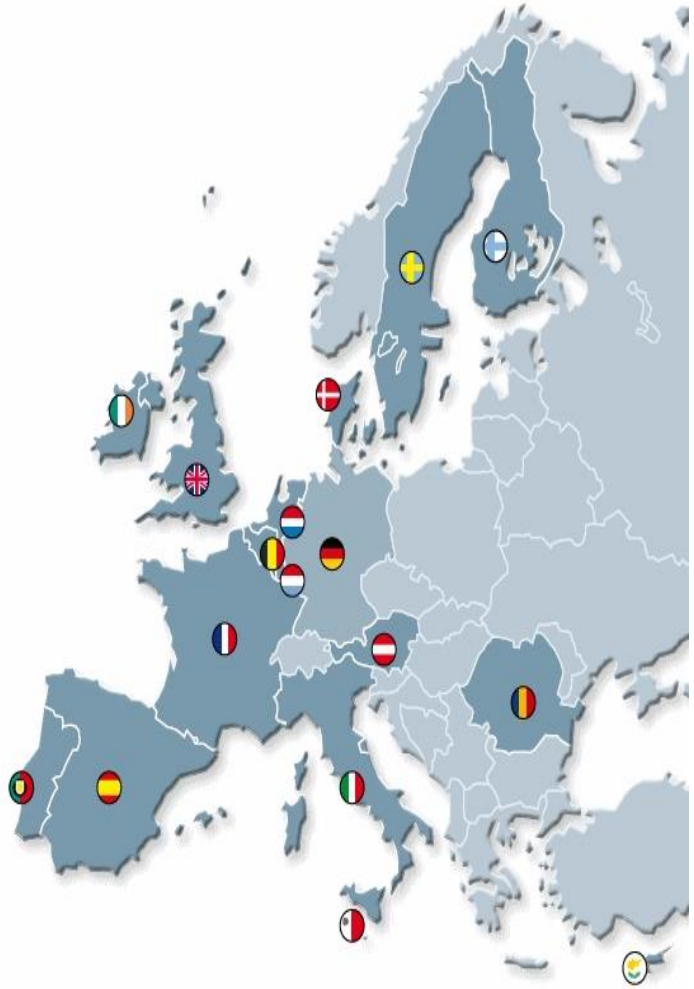
➢ Generally surprisingly high political acceptability (up to a point)

➢ Usually set nationally

Vehicle-Related Taxes and Charges

-EU Countries

- 20 out of the EU‘s 27 member states apply CO_2 – based car taxation
- 15 countries also offer cash incentives for buying electric vehicles



Source: http://www.acea.be/publications/article/overview-of-co2-based-motor-vehicle-taxes-in-the-eu

Case Study France

Environmentally-oriented bonus-malus system for new cars

Vehicle Emittance	< 20g CO_2/km	21-60g CO_2/km	61-126g CO_2/km	127-190g CO_2/km	> 191g CO_2/km
Bonus	Max. €6.300	Max. €4.000	-	-	-
Malus	-	-	-	€50 - ca. €10.000	€10.000

Data from 2017: https://www.ecartegrise.fr/prix-carte-grise/taxes/ecotaxe-bonus-malus-ecologique.html

Case Study

Dutch vehicle taxes

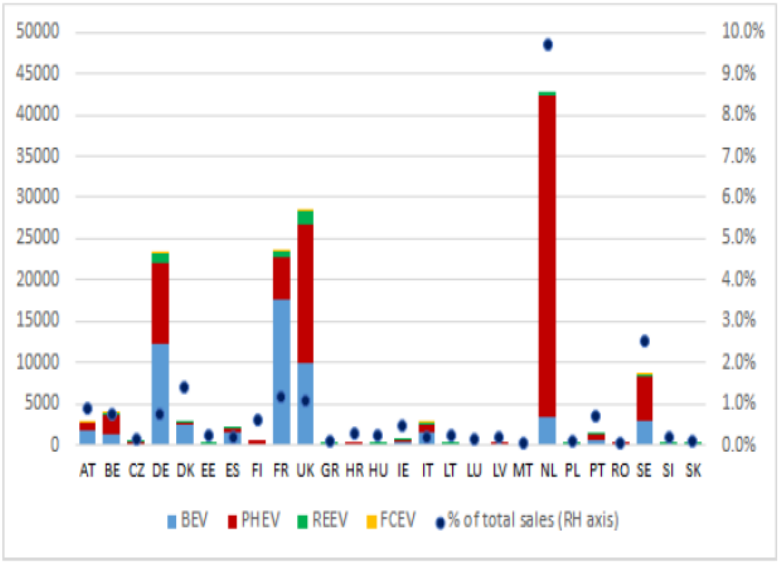
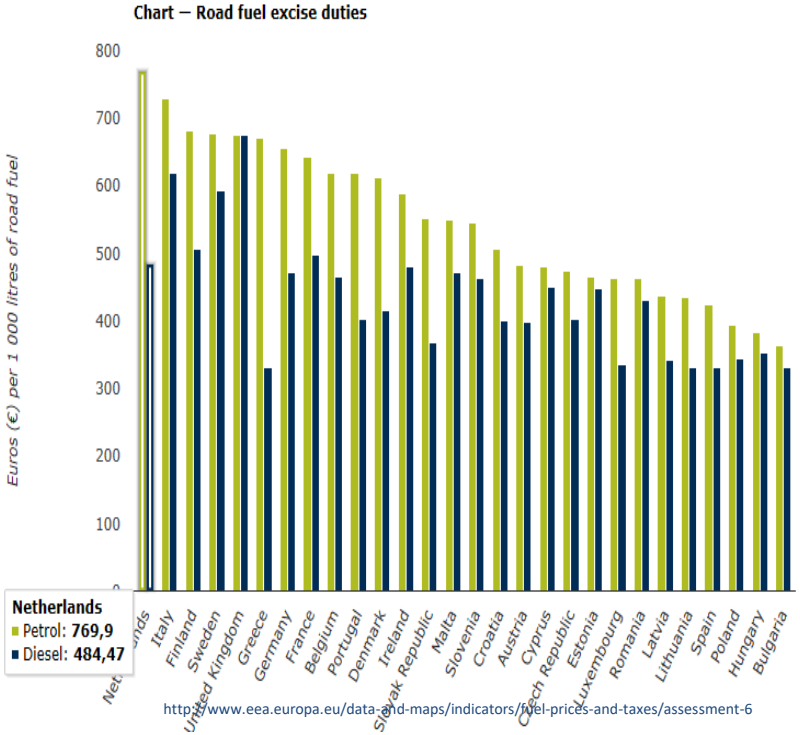


Figure 7: Total EV car sales and EVs as percentage of total sales in EU member states in 2015

https://www.transportenvironment.org/sites/te/files/publications/TE%20EV%20Report%202016%20FINAL.pdf

- One of the lowest shares of diesel vehicles among its new cars
- By far the highest percentage of electric vehicles (mainly plug-in hybrids) among new car purchases at 5.3% of all sales
- Market for fuel-efficient cars is also influenced by the very high rates of tax and duty on road fuels
  - For petrol, Dutch tax rate is highest found in the EU, with more than €1 of tax on every litre sold
  - Tax on diesel is lower, but still among the highest levels found in Europe



http://www.eea.europa.eu/data-and-maps/indicators/fuel-prices-and-taxes/assessment-6

Dutch vehicle registration taxes

Step 1: Otto

The CO_2 emission is higher than	but not more than	Calculate the tax for a petrol car as follows: ▪ deduct the value from column I from the CO2 emission of the car ▪ multiply that sum by the amount in column IV ▪ add to that sum the amount from column III	
I	II	III	IV
0 g/km	76	€353	€2
76 g/km	102	€505	€66
102 g/km	150	€2.221	€145
150 g/km	168	€9.181	€238
168 g/km	-	€13.465	€475

Data from 2017:
https://www.belastingdienst.nl/wps/wcm/connect/bldcontenten/belastingdienst/individuals/cars/bpm/calculate_and_pay_bpm/bpm_tariff/bpm_tariff_passenger_car

Example:
Otto 100gr/km: (100 – 76) x € 66 + € 505 = 2089 €
Diesel 100gr/km: (100– 65) x € 86.69 = 3034,15 €

Singapore – Cost of Vehicle Purchase

Open Market Value (OMV)

- OMV is assessed by the Customs & Excise Department, taking into account the purchase price, freight, insurance, handling and all other charges incidental to the sale and delivery of the car from country of manufacture to Singapore.

Registration fees

- Registration Fee (RF) $140
- Additional Registration Fee (ARF):

  130% of OMV[1] or 110% of OMV[2] or 100% of OMV[3]
- Certificate of Entitlement (COE) Bid
- Customs Duty 20% of OMV
- Goods & Services Tax: 5% based on the CIF value (cost, insurance & freight)

BMW 325I Convertible

	S$	Euro
OMV	63061	33506
Duty	12612	6701
GST	5297	2814
ARF	63061	33506
COE	13389	7114
Total	157420	83614

Photo: http://autoreview.belproject.com/item/305

Source: http://www.lta.gov.sg/motoring_matters/motoring_vo_tax_pte.htm

National Transport Funding:

Example Germany

<u>Focus on Investment</u> - Federal Local Transport Financing Law

- Co-financing transport projects by 75% to 90 %
- Co-financing large scale local rail infrastructure by 60%

<u>Focus on operational subsidies for public transport</u> - Federal Regionalize Transport Law

- **6.5 billion Euro annually** (currently) **~ 80 € / inhabitant**
- Channeling all funds to the provinces/*Länder* (according to a share based on the number of inhabitants)

Subsidies

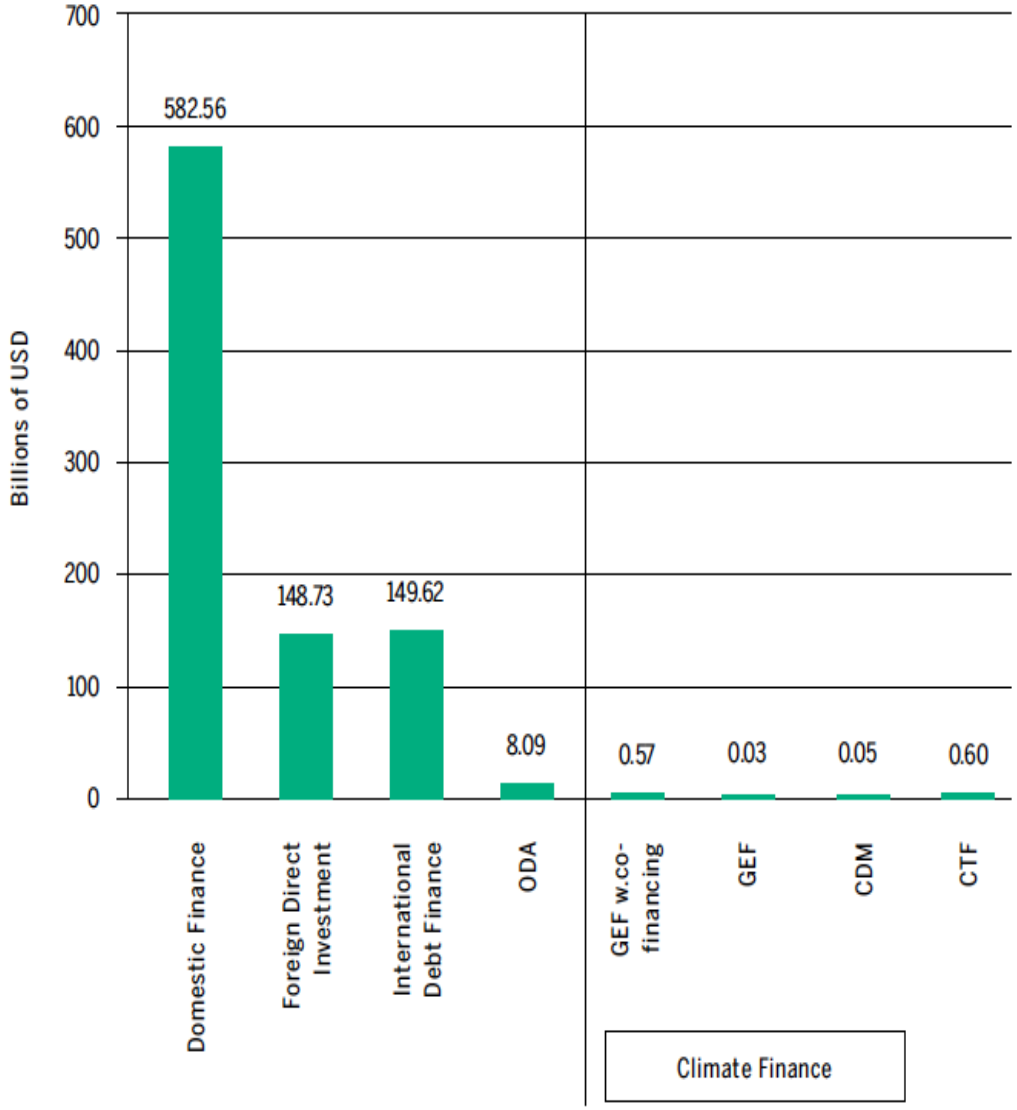
Experiences from selected Cities

- Hongkong: cost covering PT system as a whole
- Singapore: at least all the operational costs are covered
- Frankfurt: covers operations costs of bus services, after they were completely tendered out
- BRT systems, with high occupancy rates can and do cover costs since they achieve higher average speeds, higher daily mileage and hence much greater passenger loads and revenues
- Tendering out of PT services also leads in general to lower requirements for subsidies
- Most bus systems in Latin American cities are presently not receiving operational subsidies

Global Instruments

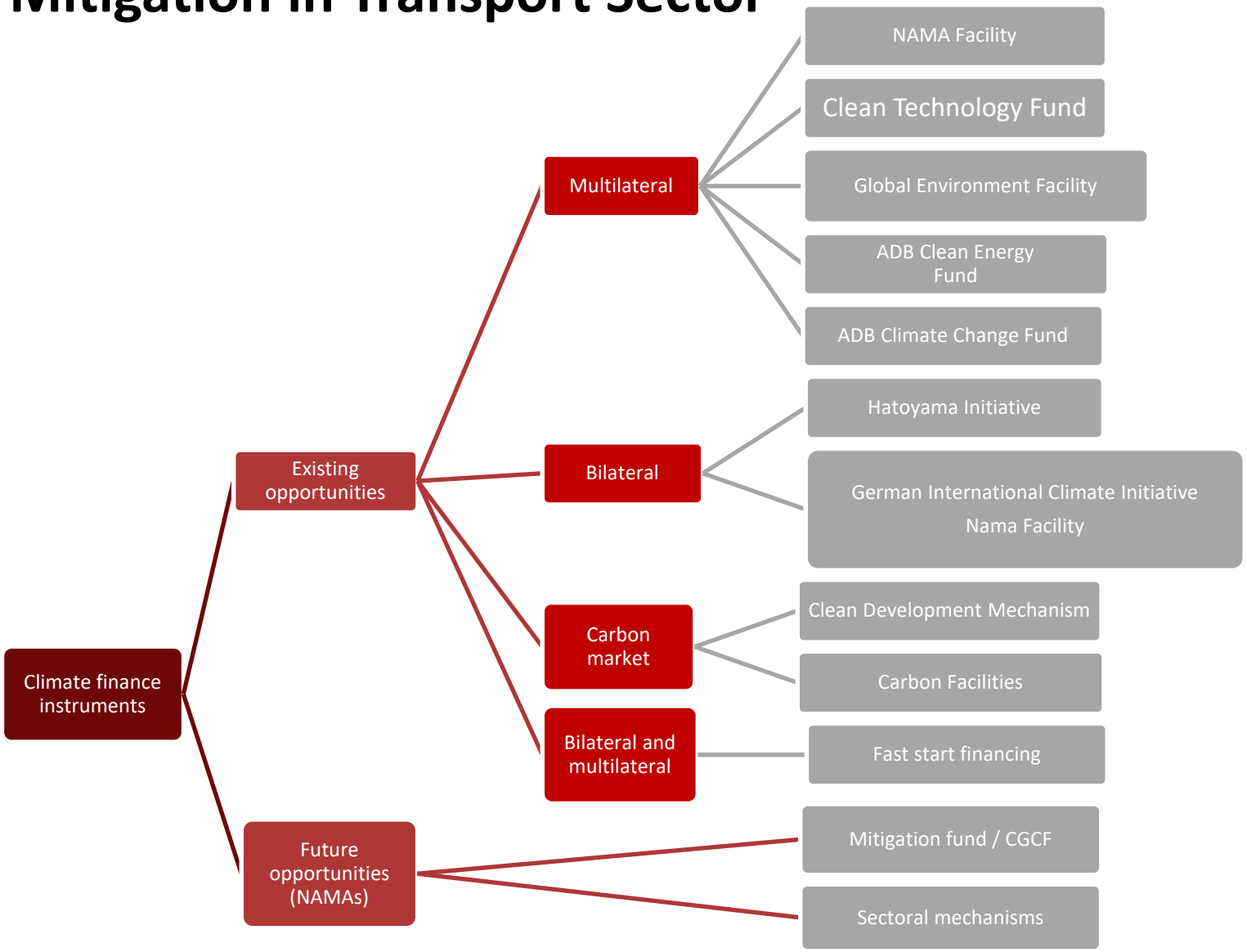
- CDM
- GEF
- Multilateral/bilateral climate funds

Annual Global transport investment



Source: ITDP 2010

Funding opportunities
Mitigation in Transport Sector



Clean Development Mechanism (CDM):
Example Cable Cars, Medellín, Colombia

- Construction and operation of 10 cable cars in Medellín
- Registered by the CDM in 2010
- Integrated with wider metro network
- Estimated 17,290 tCO_2eq emission reduction per year
- Funding from:
  - District government
  - Operator (ETMVA)
  - Carbon credits

Global Environment Facility (GEF)

- Total US$ 8.8 billion (1991-2009)
- **US$ 201 million** allocated to transportation (1999-2009), stays behind expectation re transport
- GEF 5 (2010 – 2014) **US$ 250 million** assigned to transportation.
- **Activities**:
  - Full size projects (FSPs) (> US2Million)
  - Medium size projects (MSPs) (<US2Million)
  - Enabling Activities (< 150000 US)
- **GEF Agencies**: MDBs, UNEP, UNDP, IFAD, FAO, UNIDO.
- Consistent with national priorities & with GEF operational strategy, covers **incremental costs**, requires public involvement, endorsement by host country, eligible country.

Combining the Financing Options

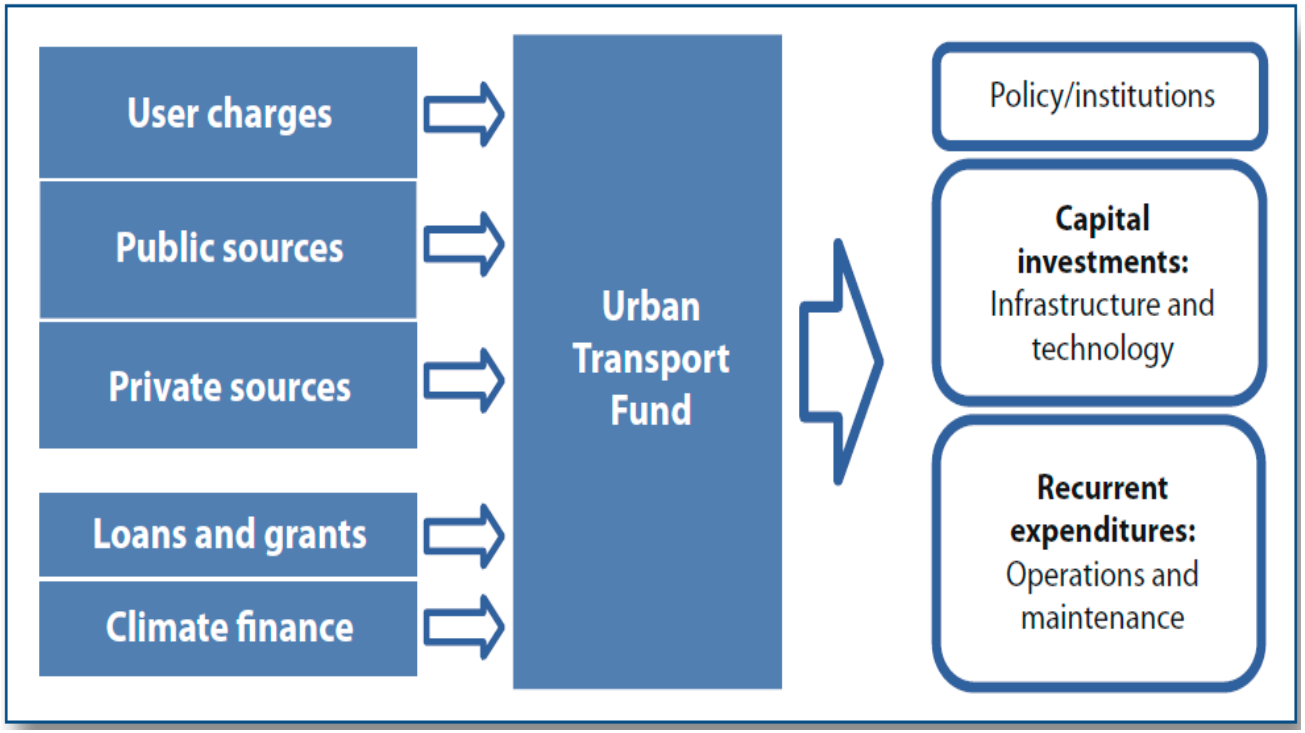
Development of an **Urban Transport Fund**

Photo by Armin Wagner

Photo by Varano

"Urban transport is a complex system in which various components must work together effectively. This calls for **an integrated financing structure at the urban level."**

Concept of an **Urban Transport Fund**



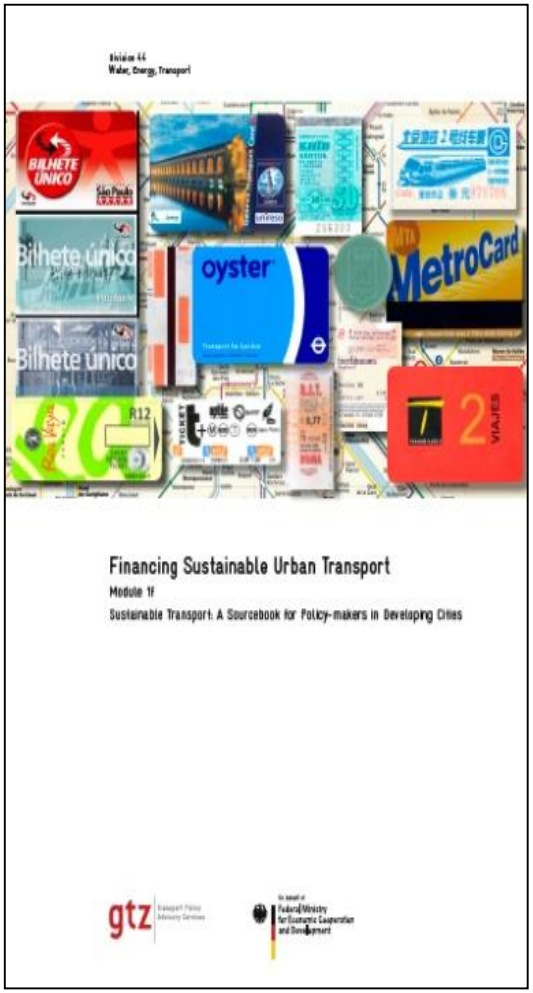
"**Earmarking** certain revenues may help to improve political acceptability and the financial stability of urban transport funds."

Financing Sustainable Urban Transport

The Contribution of GIZ

You can download the module from

www.sutp.org



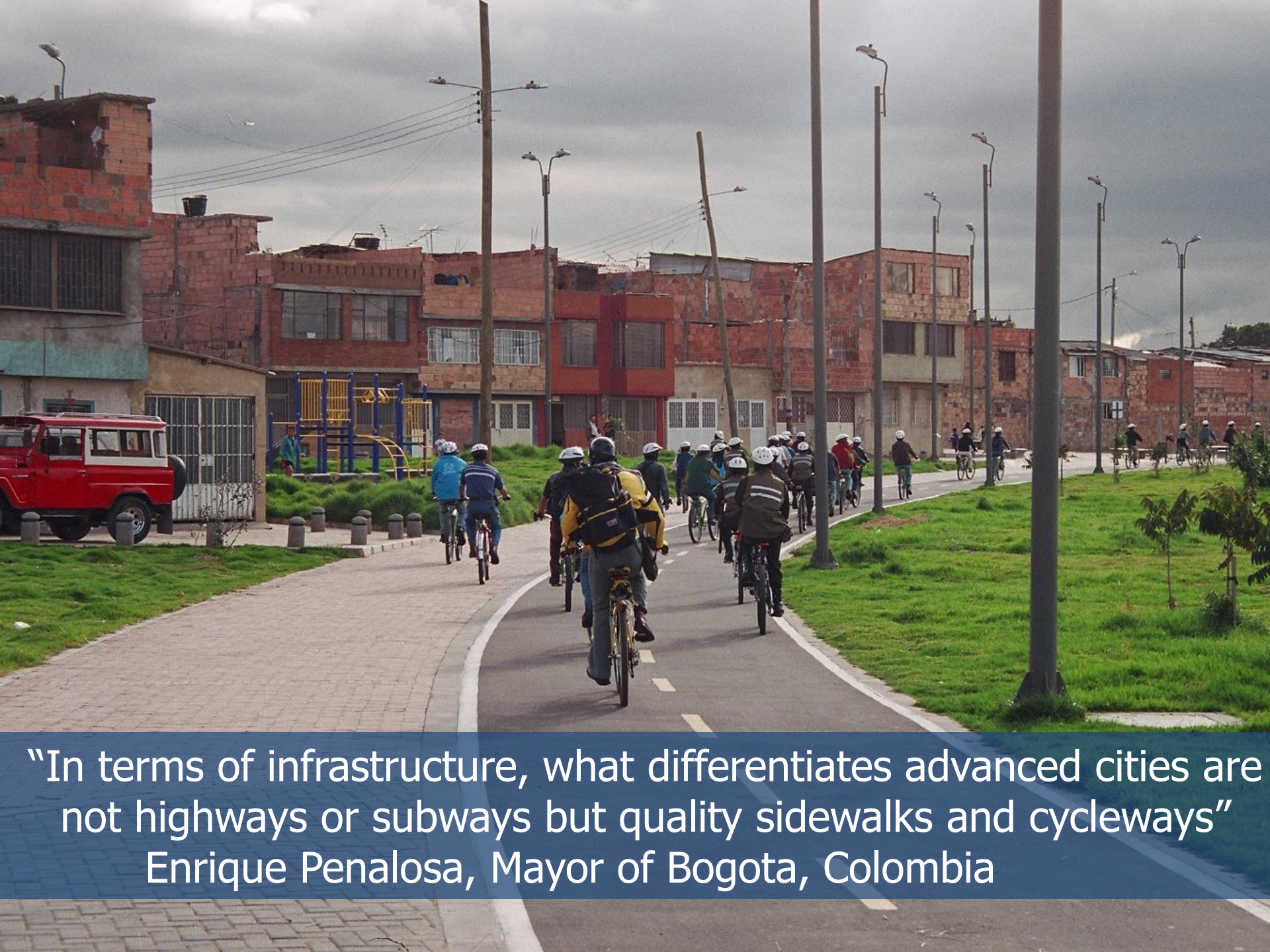
First-hand knowledge on Sustainable Urban Transport

on www.sutp.org and www.capsut.org

GIZ Sourcebook on Sustainable Urban Transport

- addresses the key areas of sustainable transport policy framework
- consists of over 70 modules, technical papers and training packages
- intended for policy-makers and their advisors

Contact: transport@giz.de



"In terms of infrastructure, what differentiates advanced cities are not highways or subways but quality sidewalks and cycleways"
Enrique Penalosa, Mayor of Bogota, Colombia

Thanks!

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