

ENVIRONMENT 2005

Sustainable Transportation in Developing Countries
ABU DHABI , 2 Feb 2005

Essentials of Sustainable Transport Financing in Asian Cities

- Experiences and Perspectives for Good Governance -



Foto G. Metschies

Dhacca City / Bangla Desh


German Technical Cooperation
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Sustainable Transportation in Developing Countries

The 3 Essentials of Sustainable Transport Financing in Asian Cities

- **Cost-covering road and transport budgets**
based on fuel taxation, vehicle taxation and land development charges
- **Special financial incentive schemes**
as tax reductions and direct transport investments
- **Far-sighted city planning for growing urbanisation**
based on building regulations and their enforcement

**Conclusion: Action plan for financing sustainable
transport in Asian cities**

The 4 Influence Factors of Mobility in Asian Cities

- 1. Urban Population Growth** (with population doubling in 20 years)
- 2. Extending City Limits** (lead to increases of individual trip lengths)
- 3. Economic Growth** (enables the change of means of transportation:
from bike to motorbike, from bus to car, ...)
- 4. Relatively small Space for Transport** (leads to traffic jams)

The Basic Problem: The Growth Aspect of Urban Population and Infrastructure

Initially being countries with rural population, the situation has changed. In the years ahead most of the population increase will take place in the cities.

Based on the annual growth rate of 3.6 % p.a. for the urban population in most countries the

doubling period for these cities is approximately 20 years.

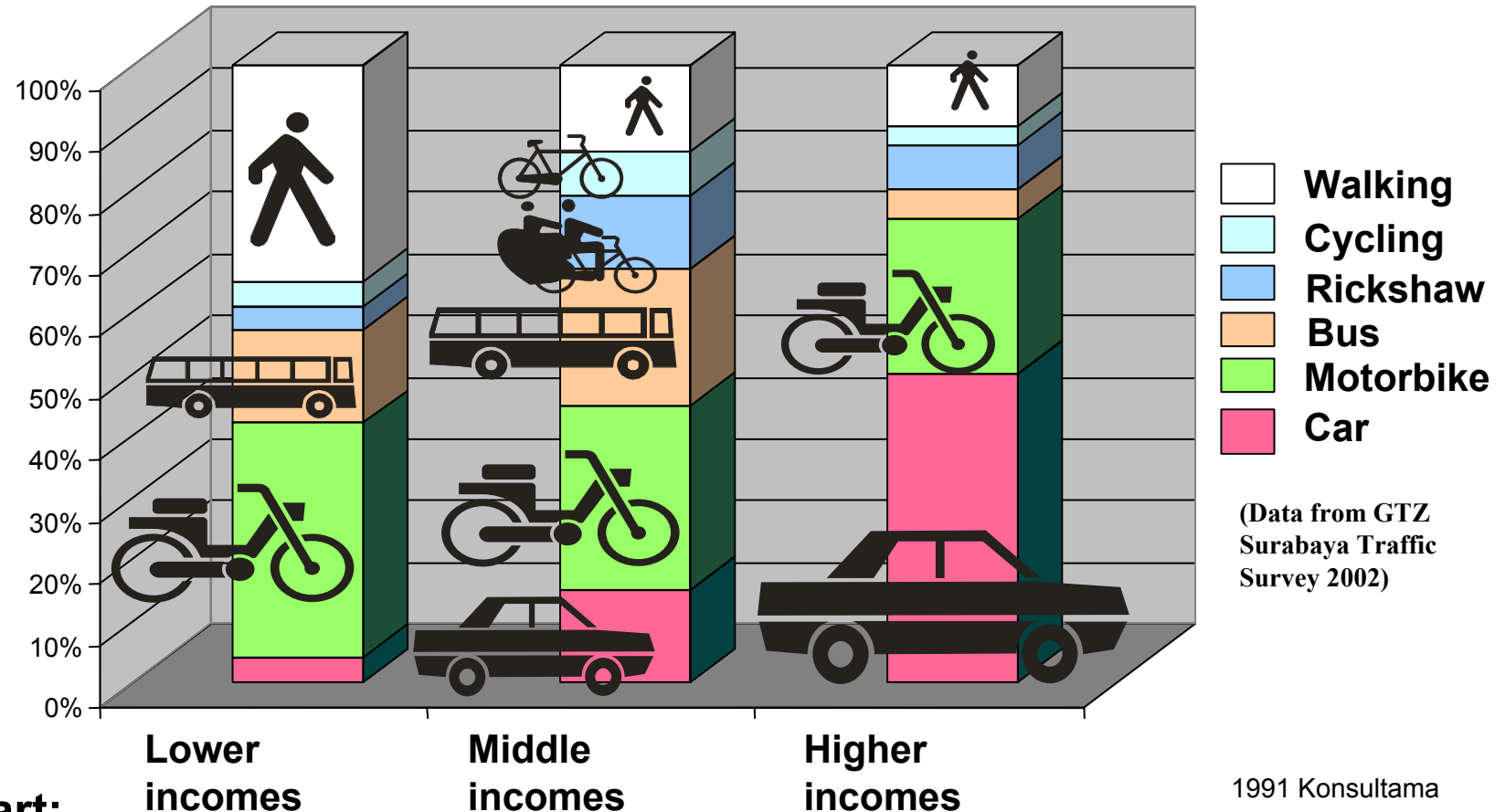
Who will pay for the DOUBLING of the existing infrastructure during the next 20 years ?

**- the general budget ? or
the user of the infrastructure ?**

And who will bear the additional costs for sustainable transport ?

Car explosion in Indonesian cities with rising living standards

Which transport modes are used, when incomes rise ?



Facts from the chart:

- ♦ There is a clear hierarchy: from walking to rickshaw, to bus, to moped and car.
- ♦ Non-motorized transportation and cycling / rickshaw might have no future: from 42% to 32% and 24%.
- ♦ Growth in private motor vehicle use: from 43% to 47% and 76%.
- ♦ Local public transport, i.e. bus use: rises and declines from 14 % to 22% and 4%.
- ♦ Car use rises with income from 4% to 16% and 51%.

Conclusion: Imminent traffic congestion by cars requires an active transport policy.



Dhakka City / Bangla Desh

The Economic Alternatives

- a) **Social Service for all kinds of infrastructure**
(everything financed by general budget /resp. nothing) (East Europe)
- b) **Economic Service based on the user pays principle**
(profitability of each single project) (America)
- c) **Economic Service, but with limited SOCIAL adjustments**
(profitability of the roads subsector e. g. via road funds)
Cross subsidies from motor fuels to mass transit in towns (Central Europe)

The Basic Principles

- a) **User Pays Principle in Commercial Infrastructure**
Roads, electricity, telephone and drinking water should be treated as a received service and payed with charges depending on the individual usage.
Any other concept may contribute to public insolvency and declining service quality as experienced in the countries of the former Eastern Bloc.
- b) **Efficiency Principle by use of Private Management**
All services with intensive maintenance depreciation (i.e. everything that requires the service providers working on a commercial basis with private-enterprise balance sheets.
- c) **Referee Principle for Public Management**
The role of the state remains necessary to safeguard the competition and to look for social corrections.

The 3 Financing Sources of Urban Roads and Urban Transport

Financing Source	Fuel (taxes per litre)		Vehicles (annual vehicle fees)	Land Development (pre-paid charge per m ²)
For what purpose?	National + Provincial + Rural ROADS	Rapid Mass Transport (optional)	Maintenance of the Urban Road Network (incl. Residential Roads)	New Construction of Local Residential and Commercial Urban Roads
Why?	Taxation of the moving traffic based on motor fuel consumption		Taxation of the standing traffic («Parking Tax»: based on motor capacity, horsepower, total weight or on vehicle value)	Supply Charge for Urban Infrastructure (not for illegal settlements outside the city border)
Who collects ?	Central Government (Road Fund)		Ctr.Gov. / City Council (Vehicle Registration Office)	City Council (Trust Fund)
How much?	10 US Cents per litre petrol and diesel for the National Road Fund, with 10% for the cities	appr. 3 - 8 US Cents per litre**	appr. 75 – 200 \$ US per year on cars taxis and trucks (minimum for vehicles of 1400 ccm)	appr. 2 - 10 US \$ per m ² by selling plots of land*
Who pays?	Vehicle User		Vehicle Owner	Land Owner

* Basic rule: the price of land (including its development charges) may be in the range of 10% of the total for city houses.

** transfers (In Germany: 3 US cents / litre in towns for rapid transit systems and mass traffic (law GVFG), for which city contribution often is only 10%. In Colombia: Fuel surcharge for Bogota's new bus system was appr. 5 - 8 US cents/litre (during 1998 to 2000).

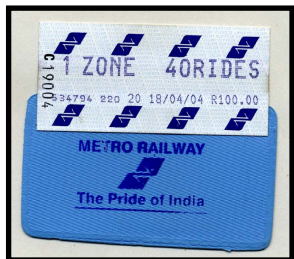
“Zero Fare” at an Urban Metro in India



Metro Entrance „Esplanade Station“ in Kolkata (Calcutta) City Foto: March 2004 / Metschies / GTZ



Informal Restaurant in Kolkata City Foto: March 2004 / Metschies / GTZ



1 Ticket in the Central Zone of Kolkata City (8 stations) for 40 rides (20 working days single and return) costs 100 Indian Rupies (valid for 4 weeks).

Thus the price for 1 ride is 2.5 Indian Rupies (=100 Indian Rupies / 40 rides).

(1 Euro = 57.53 Rupies (FT 09. Feb. 2004) => 2.5 Rupies = 4.3 Euro-Cent)

=> A Metro Railway Ride in Kolkata / India costs less than 5 Euro-Cents.
The subsidisation share is estimated to be more than 80%.

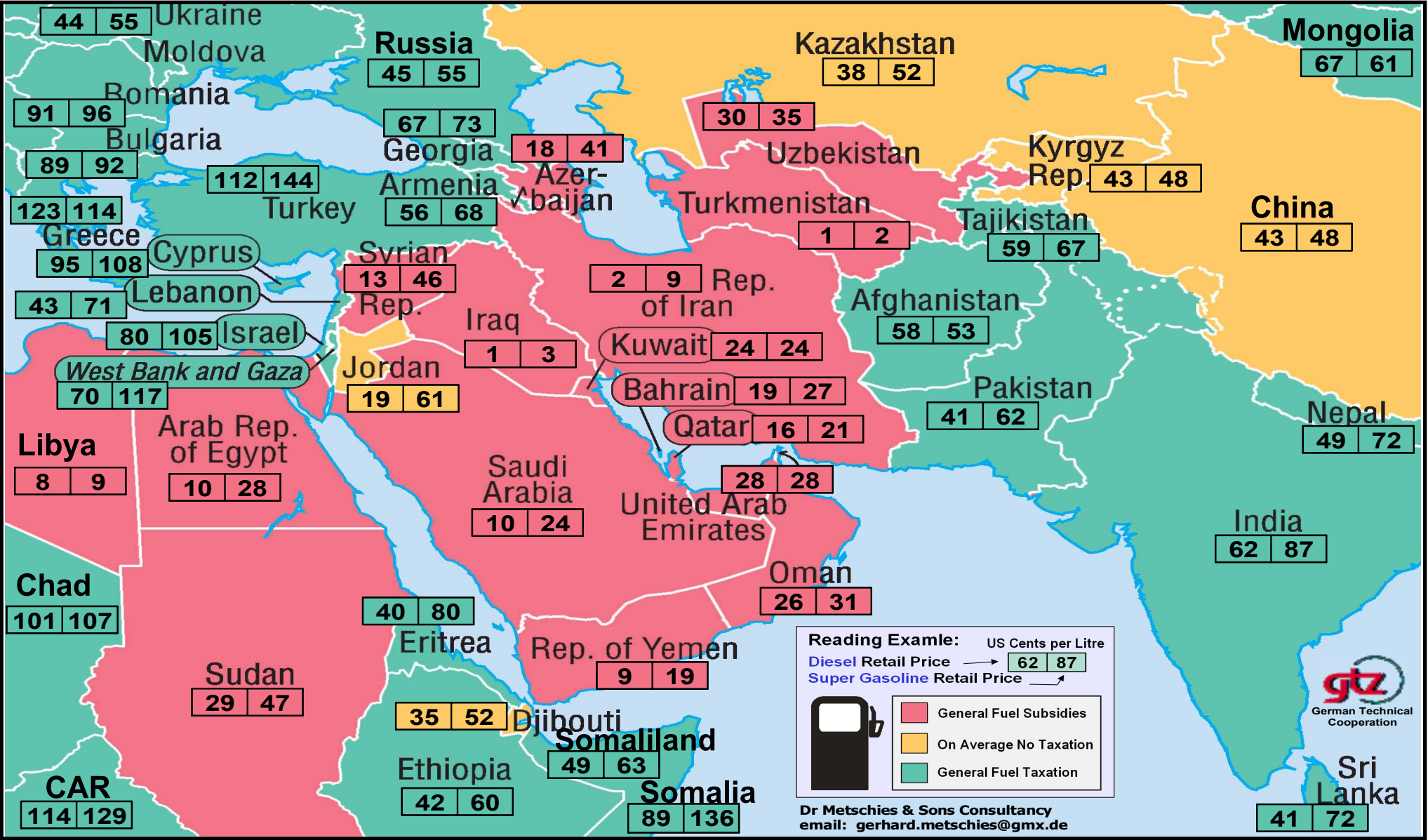


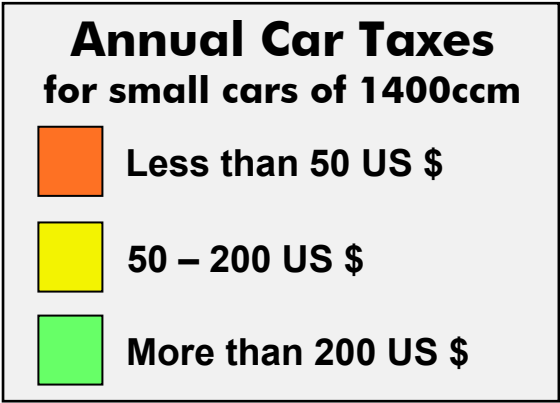
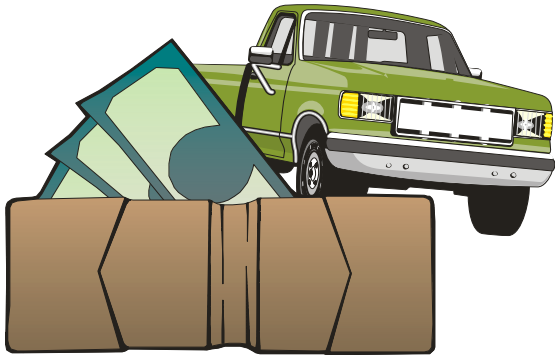
1 Coca Cola (200 ml) in Calcutta City costs 5 Indian Rupies (= 8.6 Euro-Cent).

1 subsidised metro ride costs 5 Euro Cents [half of 1 local Coca Cola].
But 80% of the metro costs have to be born by all the Indian tax payers.
Is this sustainable metro financing ?

Retail FUEL Prices in the Middle East

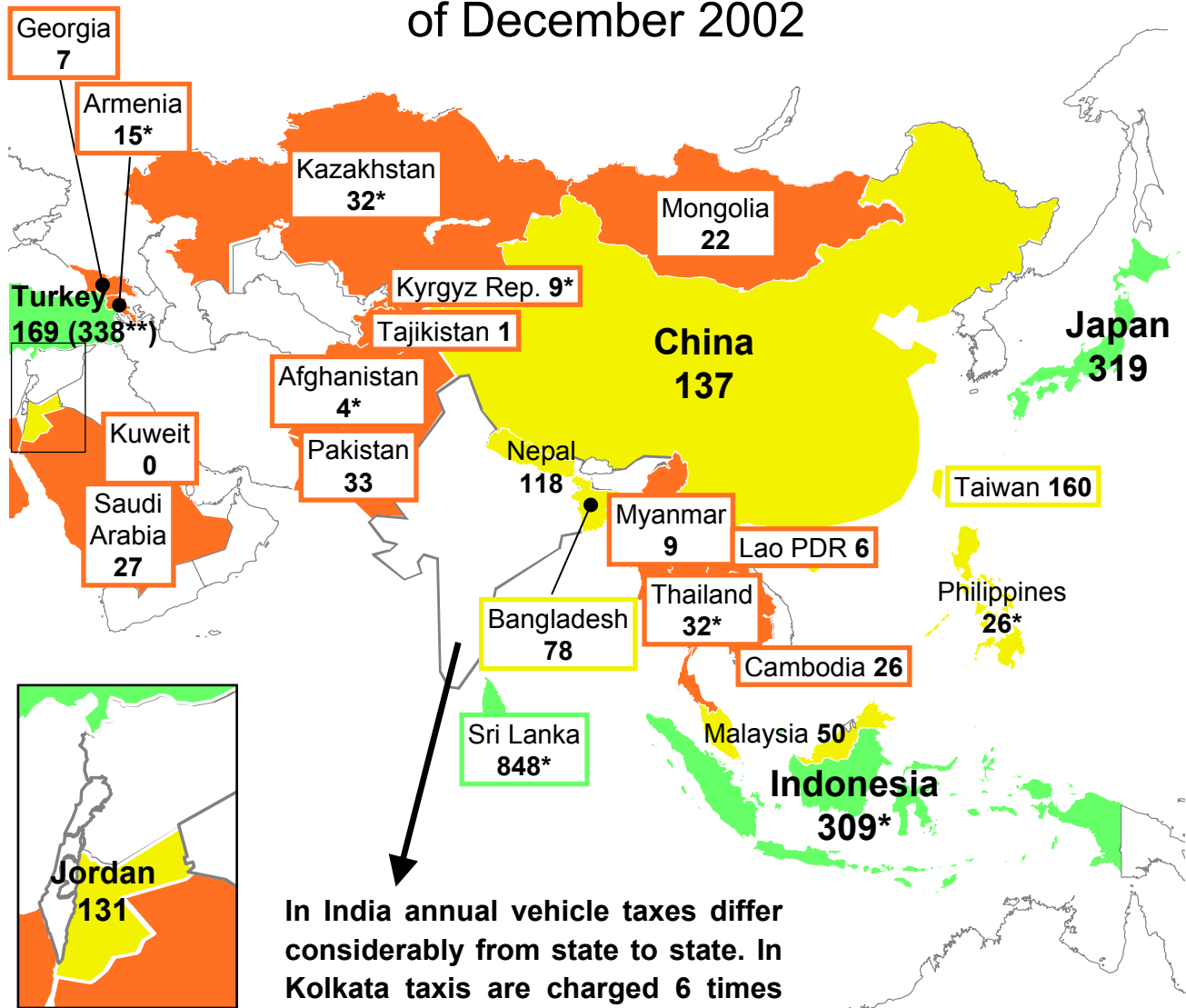
in US Cent per Litre based on the GTZ Survey from 17-20 Nov. 2004





* annual tax is reduced for older cars
** since 01.01.2003

Private Passenger Car Taxation in Asia of December 2002



In India annual vehicle taxes differ considerably from state to state. In Kolkata taxes are charged 6 times higher than normal cars, what is 70% below the taxi charge of Dhaka.
The vehicle tax in Kolkata is 36 \$.

Urban Road Financing according Land Development By-Law ¹

Kind of Costs	Kind of <u>Urban</u> Roads	Municipal Road Owner (Public Cost Bearer)	Resident Plot Owner (Private Cost Bearer)
Construction Costs of <u>new</u> Road	Residential Roads ²	10%	90% ⁴
Maintenance Costs of <u>existing</u> Roads	Residential Roads ³	100%	0%
Rehabilitation and Upgrading Costs of <u>existing</u> Roads	Main Traffic Roads (including lighting and drains)	90% ⁵	10% ⁵
	Main Residential Artery Roads (incl. lighting and drains)	70% ⁵	30% ^{5, 6}
	Residential Roads	50% ⁷	50% ⁷

1) Land development law, example of Nordrhein-Westphalia/GERMANY. Used also in Australia, Japan, Korea, Togo, Namibia

2) Roads based on existing legal development plans (DEVELOPMENT STATUTE acc. to Federal Construction Law) in Urban Promotion Areas (UPAs).

3) CONTRIBUTION STATUTE according to Provincial Law. In exceptional cases the local town council may decide that rehabilitation of urban main roads financed fully out of municipal funds (if available).

4) distribution key according to access to plot width bordering the road

5) 50% for sidewalks and parking lanes

6) up to 6.50 m width

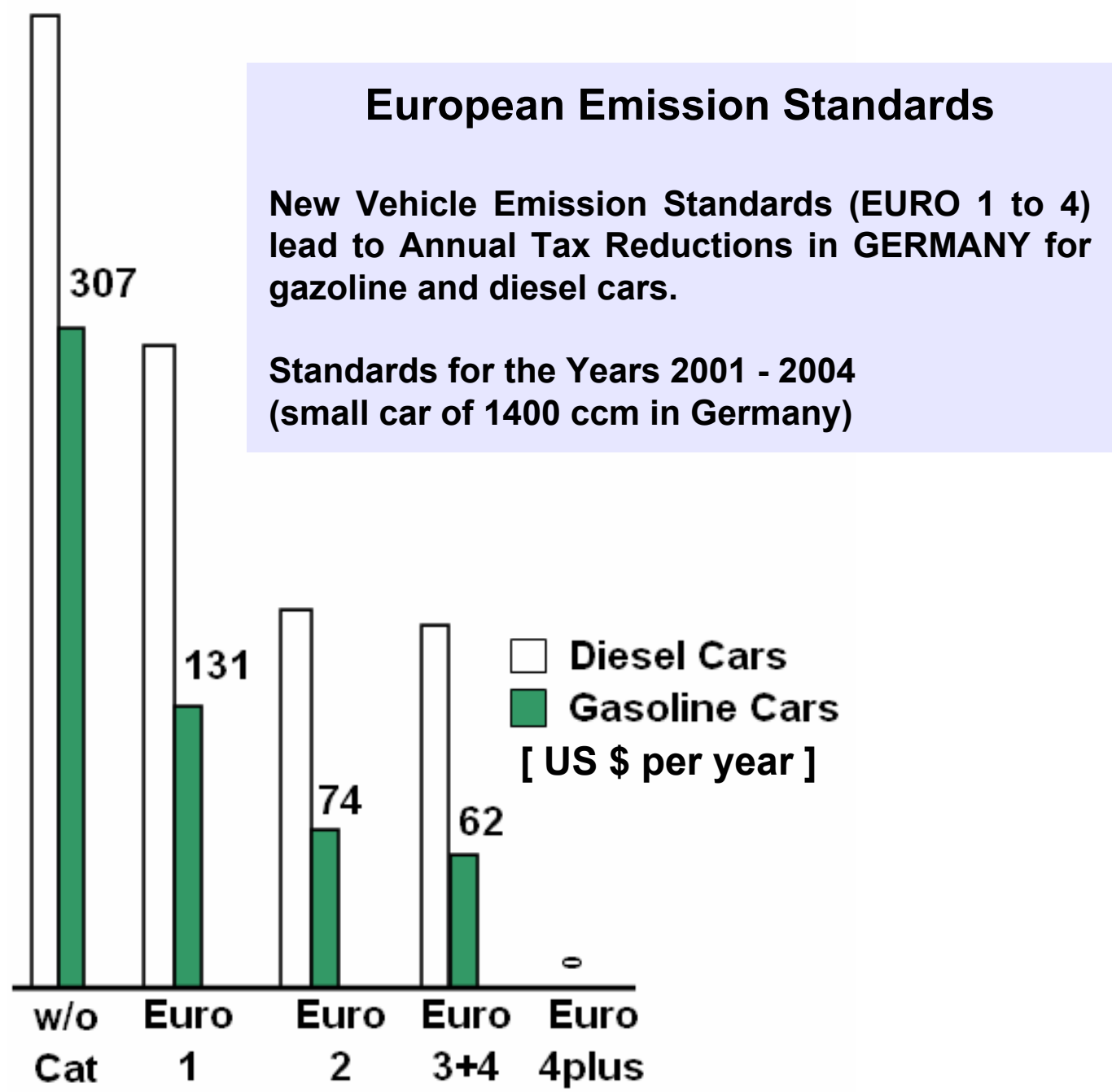
7) of 5.50 m lane

General Rule:

The construction of new residential roads should be paid mainly by the Residents.

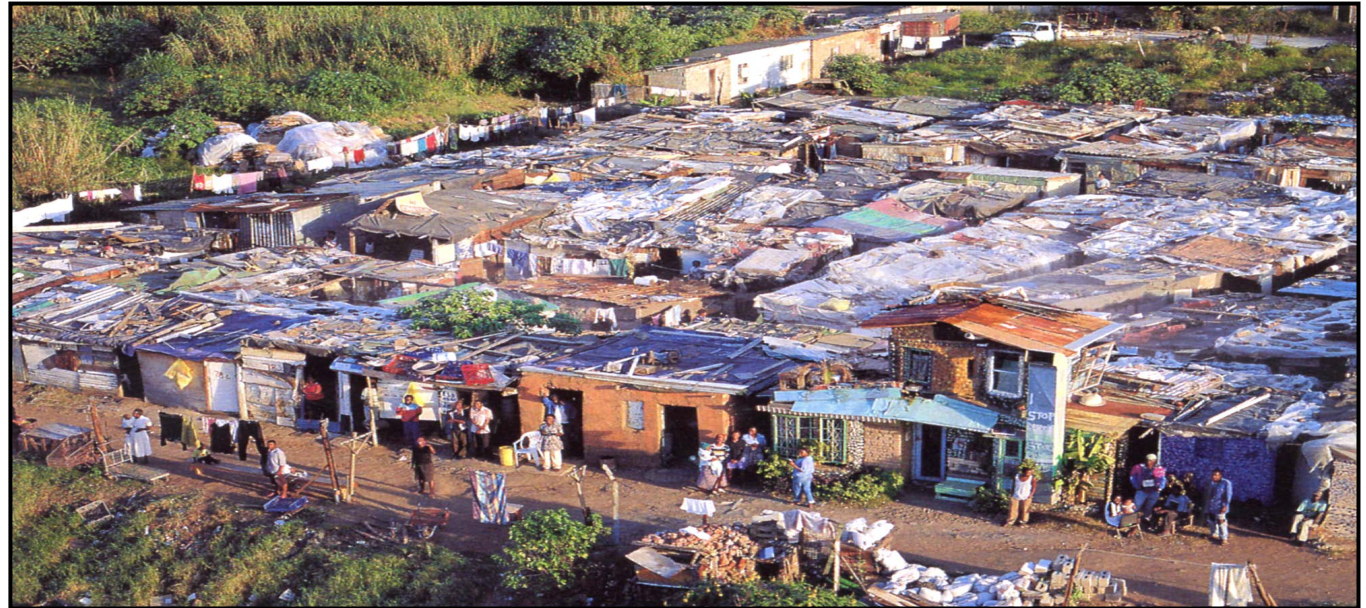
The maintenance of all roads should be paid mainly by the City.

The upgrading of roads should be paid partly by the city, the shop owners and the residents.



Informal Urban and Transport Situation

Increase of illegal settlers without ownership certificate and without property taxation (tolerated by the government).



South Africa

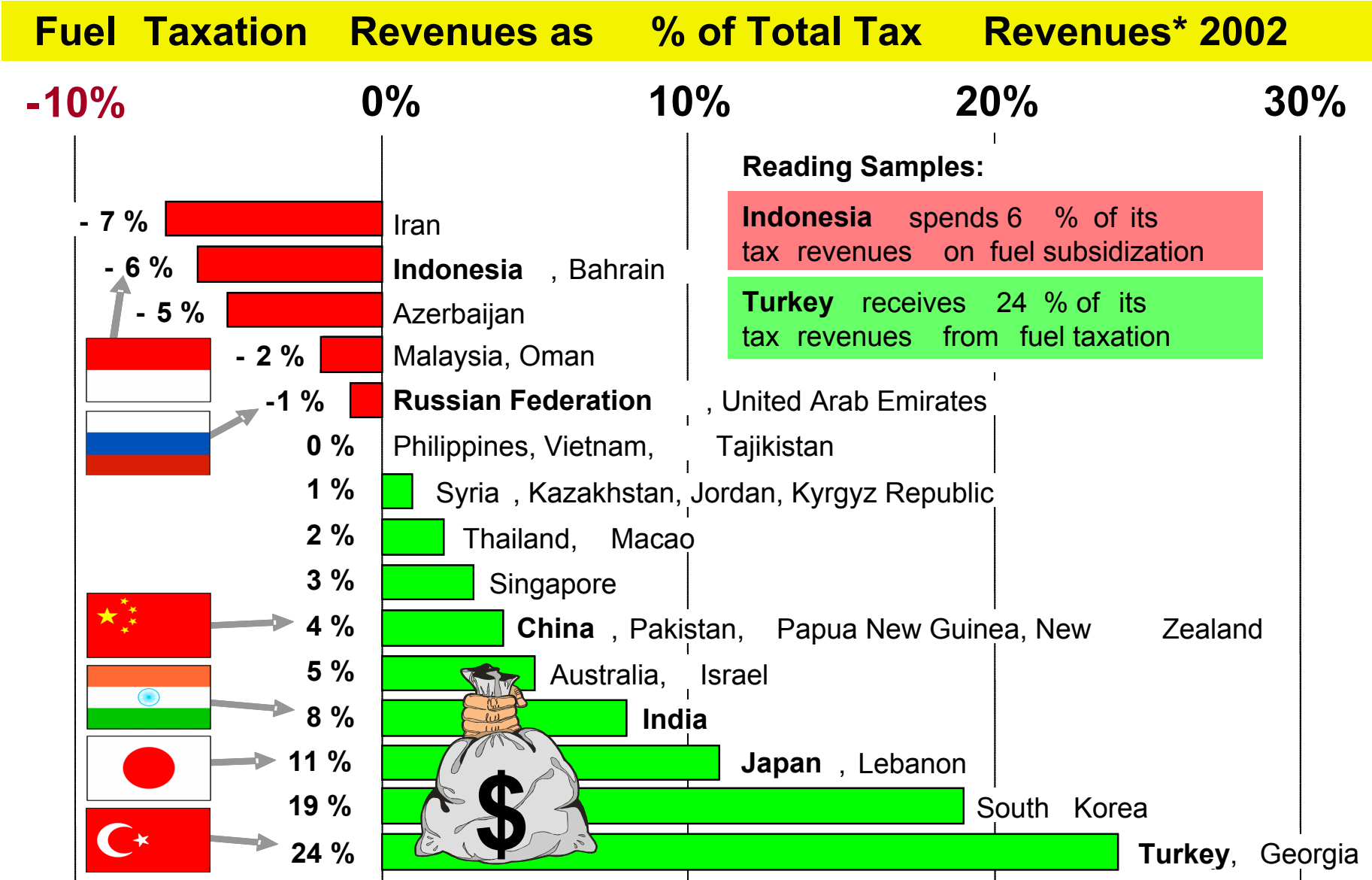
Sustainable Urban and Transport Development

A successful co-operation of the three stakeholders,

- Central Government,
- City Council and
- Citizens.



Guangzhou / China



Note: Current fuel taxation revenues have been calculated using a fuel consumption of 10 litres / 100 km for a car and 25 litres / 100 km for a commercial vehicle. The average annual distance travelled for cars has been estimated at 10,000 km per year, if exact data is not available. The average annual distance travelled for commercial vehicles has been estimated at 25,000 km per year (average of pick-up, truck and public service vehicles). Fuel taxation per liter has been estimated at sales price of 10 Dec. 2002 minus "Normal Sales Price (excluding fuel taxation)". (for details see chapter 8.1 and 8.2)

* Most recently available consolidated central government tax revenues from the International Monetary Fund have been used. Currencies have been converted using the average exchange rate of the fiscal year concerned. (for details see chapter 8.3)

Source:
International
Fuel Prices
www.zietlow.com



Summary and Conclusion

Three main financial sources were identified for the improvement of urban transport affecting the activities of the three main stakeholders:

1. CENTRAL GOVERNMENT

Improvement of fuel taxing policy (for the increased transfers)

- a) to the Road Fund and**
- b) to the cities for public transport**

2. CITY COUNCIL

Introduce legislation to tax “windfall gains” experienced by land speculators as well as congestion charges for the inner cities

3. CITIZEN

General acceptance of the user pays principle and acceptance of restrictions for passenger car use in the inner city, if urban traffic space is too scarce.

All these 3 elements may become effective, if put into practice by a determined executive body and – as the case may be – by additional efforts of the international cooperation.