



Fuel Prices and Vehicle Taxation

with comparative tables
for more than 160 countries

Pricing Policies for Diesel Fuel,
Gasoline, and Vehicle Taxation
in Developing Countries

by Gerhard P. Metschies

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Cover photo:

Pump prices in Burkina Faso	Local currency	US \$ ¹ per liter	US \$ ¹ per gallon
Super gasoline ("Super")	395 Francs CFA/liter	0.81 US \$/Liter	3.08 US \$ per gallon
Gasoline ("Essence")	358 Francs CFA/liter	0.74 US \$/Liter	2.79 US \$ per gallon
Diesel ("Gazole")	300 Francs CFA/liter	0.62 US \$/Liter	2.34 US \$ per gallon
Kerosin (cooking "Petrol")	160 Francs CFA/liter	0.33 US \$/Liter	1.25 US \$ per gallon
2 Stroke Mix ("Mélange 2T")	380 Francs CFA/liter	0.78 US \$/Liter	2.96 US \$ per gallon

¹Exchange rate on Nov. 20, 1995: 1 US \$ = 486 Fr CFA



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Fuels, fuel prices and fuel taxation are matters of global debate, not only in terms of transport and energy policy, but also with regard to economic, financial and environmental policy. Within that context, international comparisons are playing an increasingly important role.

The present working paper on global fuel prices and global motorization is being published by the GTZ division "Transport and Mobility" and is intended primarily as a source of comparative basic data for a national sector policy within the transportation sector in developing countries. It is the second edition of the publication "Fuel Prices and Taxation", and it offers both an update of fuel price data and an extension of scope compared to the first edition as it now includes data on vehicle taxation as well.

Revenues from the transport sector generated by fuel and vehicle taxation play an important role in the financing of national budgets. If applied properly they can represent a reliable, high-volume source of revenues to cover expenditure for transport investment but also for other sectors as well (like, for example, social expenditure). This revenue side of the national budget has been neglected in the past when the expenditure side (mainly for road and highway construction) has been the predominant policy focus in developing countries.

Sustainable transport policy – like sustainable environmental policy – is based on the user pays principle. Consequently, all around the world, the quest for recovery of costs incurred for transport routes is giving rise to the axiom: "Transport finances transport".

Now that industrialized countries have come to rely increasingly on fuel taxation as a means of financing roads and highways (e.g., on the basis of Germany's "Straßenfinanzierungsgesetz", 1960; and on that of the U.S. Federal Highway Trust Fund), developing countries are also pondering the introduction of appropriate forms of fuel taxation.

Initial suggestions made within the framework of the World Bank's Road Maintenance Initiative¹ postulate that developing countries soon will also be levying a fuel tax of some US cents 10 per liter (and roughly US \$ 75 per passenger vehicle and year) to cover the cost of road maintenance. It should be noted, however, that while such a tax may suffice to cover all expenditures for road maintenance, depreciation, debt servicing, and new highway construction in the United States, it would, as a rule, pay for little more than road maintenance (!) in developing countries, where nowhere near as many vehicles are licensed, i.e., where traffic density is much lower. However, despite political dialogue at international donor conferences, major difficulties are still being encountered in attempts to enforce even such a minimal demand in the interest of independent road maintenance.

By contrast, financing models of the kind one used to encounter in some countries, where the entire road transport sector was financed out of general tax revenues, i.e., taken from the national budget with no appropriate counterfinancing by road users and in the absence of corresponding fuel taxes, are no longer even being considered.

¹ Ian Heggie, Managing and Financing of Roads, World Bank Technical Paper No. 409,

² Statutory taxation of 0.15 DM/liter, earmarked for the German states' absorption of their own regional rail traffic.

On the contrary, the international trend in general transport policy, most notably embodied within the member countries of the European Union, sees the taxation of motor vehicle fuel as a suitable means of covering not only the total cost of roads and highways construction and administration, but also for offsetting railroad deficits (presently on a magnitude of some US cents 9 per liter in Germany²).

Likewise undisputed within the context of general economic policy is the fact that fuel (like transport services in general) must be viewed as a normal industrial good (= an ordinary commodity), which, with all of its various input taxes, is subject to a full + final value-added tax (amounting in Germany to US cents 16 per liter for super gasoline).

At the same time, fuel taxes have emerged as a major source of financing for national budgets within the scope of general fiscal policy. In Germany, where fuel taxation is generating US \$ 31 billion annually, this amounts to the third-largest source of income for the federal budget – following personal income taxes and the value-added tax.

For developing countries, too, many of which have trouble coping with the enormous administrative effort that has to be invested in collecting VAT and personal income taxes, fuel taxes suggest themselves by reason of their inherent "social justice", their airtight simplicity of control, and their potential for direct remittance by the oil companies themselves. In turn, numerous nuisance taxes could be dispensed with.

Excessively steep price increases have occasionally lead to public protests and even riots. These protests may partly be attributed to insufficient public awareness for the inevitability of revenue generation in the transport sector. Often the direct links between revenues from fuel or vehicle taxation and necessary transport investment are not transparent to the public. Protest, however, should not obscure the fact that social acceptance of fuel taxes by the general public has been steadily increasing, not only in Europe. Thus, filling stations have inconspicuously evolved into modern tollgates.

The objection that local purchasing power is not sufficiently taken into account is often raised against international price comparisons. In particular, price comparisons of consumption goods like fuels are often criticised for not sufficiently considering local abilities to pay. In order to cater for national differences in purchasing power this study includes "The Egg-Index" for various countries, an index indicating how many locally produced chicken eggs are needed to buy 1 liter of diesel fuel.

Despite the high pump price (amounting in Germany to about 91 US cents per liter super and 78 US cents per liter diesel), the average consumer appears to have forgotten that the – theoretically and globally possible – original reference prices for untaxed super gasoline and diesel amount to a mere US cents 32 per liter and US cents 30 per liter, respectively. These estimates are based on crude oil prices as of November 2, 2000 (US\$ 31.3 per barrel).

One prerequisite, however, is that smuggling be systematically prevented, particularly between countries with borders that are difficult to control.

The 1992 UNCED conference in Rio and the 1997 follow-on agreements reached in Kyoto have injected new topicality into the international debate over fuel taxation. In order to reduce CO₂ emissions, fossil fuels (such as diesel and gasoline) have to be used more efficiently. To this end, appropriate price signals have to be given to consumers on the grounds of environmental policy. For the transport sector that means that fuel prices have to be raised by increasing fuel taxation.

Despite their international significance, general knowledge of international fuel prices, data and facts remains pronouncedly rudimentary. This is chiefly attributable to the weakness of statistical offices in practically all developing countries. Even the international data pooling points of such organizations as the International Energy Agency, the World Bank or Germany's Federal Statistical Office can not rectify that problem.

Consequently, the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH, with its global network of regional offices and representations in 64 developing countries, has decided to publish a comprehensive database for the global fuel sector.

In addition to fuel taxation, vehicle taxation plays an increasingly important role in state financing. It may take the form of vehicle import taxes or of an annual licence tax. The locally collected annual vehicle licence fees may become the major source of local city financing in many countries. Parts of these revenues may sometimes even be used to cover the city's expenses for basic education. Therefore, international comparative data for vehicle taxation of average passenger cars is included in this publication as well.

The appendix to this report also includes information on the degree of global motorization (including the particularly environmentally relevant two-wheel motorization) in facilitation – together with general economic and demographic data – of calculations regarding crucial infrastructural, economic, financial and environmental policy indicators.

Finally, this brochure's executive summary offers an initial overview of the voluminous data yield. The conclusions drawn, however, are intended only as an initial impetus for nudging the developing countries' various competent ministries into their own deliberations on how to arrive at a sustainable long- and medium-term fuel price policy.

The author wishes to express his special gratitude to all those who have contributed to this database, in particular the GTZ offices (primarily in Africa and Asia), and the German Federal Foreign Office (for such individual countries as North Korea, Macao, Myanmar and Djibouti), the German automobile association ADAC (for the European countries), the GTZ/EU project OLADE in its capacity as energy agency for South America as well as the World Bank.

The Author

This publication draws on data from more than 160 countries – developing, newly industrializing and industrialized – to arrive at the following 10 conclusions:

The globalization of world trade has leveled motor vehicle prices all over the world to such an extent that the price ratio for equivalent products no longer exceeds about 1 to 2 between any two countries. Motor vehicle fuel prices, however, differ on a scale of as much as 1 to 100.

In other words, the fuel price differential is 50 times higher than the motor vehicle price differential.

Therefore, the issue of fuel pricing needs some clarification from an international point. One of the central questions is what should be considered as "normal" or "appropriate" taxation.

According to a GTZ survey, the fuel policies of all countries in the world can be assigned to one or the other of 4 categories:

Category 1 contains oil producing countries and countries subsidizing fuel prices, where fuels are sold at prices below the world market reference price, i.e., without taxation (with prices beginning at 1 US cent per liter for diesel fuel).

Category 2 contains countries – like the USA – which pursue a low-price policy and therefore levy only an average tax of 10 US cents per liter on diesel and gasoline (with diesel selling for 48 US cents per liter or less).

Category 3 contains countries at the threshold between low-price and high-price policy (between 49 and 53 US cents per liter diesel).

Category 4 contains the high-price countries – Japan and the EU – where the tax on diesel ranges from 30 to 90 US cents per liter and the tax on gasoline amounts to between 40 and 110 US cents per liter (so that diesel costs between 55 and 122 US cents/liter).

At 146 US cents per liter, Hong Kong has the highest gasoline prices in the world, nearly four times as high as in neighboring China.

A given country's inclusion in one of the above four categories can not be explained in terms of its economic situation (per capita GNP) and often appears more or less arbitrary. For example, the high-price group includes, for gasoline, such countries as Uganda, Brazil and Bolivia, while comparable countries like Ghana, the Philippines, Guyana and Russia belong to the low-price group.

Subsidizing countries in which prices for imported fuel are not only not taxed but even subsidized or, in the case of domestic production, sold for less than the cost price, constitute a special problem. This category includes countries like Iran and Iraq, but also Turkmenistan, Yemen, Venezuela, Nigeria and Indonesia.

Time-series data on fuel prices allows for a follow-up of national fuel taxation policy over longer periods of time. The data given in this book covers 9 years and shows, for example, a doubling of fuel prices in Tanzania whereas prices were cut to half their 1991 levels in Ghana.

Fuel price increases can become necessary for two reasons: They may have to be relatively adjusted from time to time to offset what frequently amounts to considerable national inflation, and they may require "structural increases" (e.g., in the EU applicant countries). Especially in less developed countries, such increases are frequently implemented "unprofessionally", because price surges in excess of 10 % are to be avoided at all cost for psychological reasons, so that longer-term pricing strategies need to be pursued.

-
- The global motorization data contained in this brochure enable – in combination with average-consumption values – an initial estimation of fuel consumption by motor vehicles in individual developing countries. This, in turn, allows estimation of the potential magnitude of public revenues from fuel taxes and/or from an increase in such taxes. This constitutes a major planning aid not only for the transport sector but also for the shaping of fuel taxes, which in some countries have become the third-largest source of tax revenues.
 - Purchasing power comparisons of fuel prices reveal the political effort of individual governments to implement the burdensome self-financing of the transport sector in practice: While in industrialised European countries like Germany the price for 1 liter of diesel is equivalent to the price of 6 chicken eggs, and in the US to the price of 5 chicken eggs, in some countries like Indonesia or the Yemen 1 liter diesel costs the equivalent of 1 egg only. In other countries like India, China and Uganda, however, 1 liter of diesel costs as much as 11 to 14 chicken eggs.
 - Vehicle taxation constitutes the second important tier in the financing of the transport sector. Three different forms of vehicle taxation can be distinguished: vehicle import taxes, annual vehicle licence fee and tax, and specific charges for heavy trucks.

Vehicle import tax rates vary worldwide from 10 per cent (like the common border tax for passenger and smaller goods vehicles in all EU countries) to up to 100 per cent and more (for passenger cars in less and least developed countries in Africa).

The annual vehicle licence tax or fee varies worldwide between US\$ 0 (as in Togo and very low fees as in the US) and several hundred US\$ (as in Europe and US\$ 375 in Tanzania for small passenger cars).

Specific charges on heavy trucks can be justified on the grounds that trucks, with their high axle loads, contribute excessively to the destruction of roads. A specific, distance-related form of such charges is now being introduced in European countries in the form of electronic road pricing with rates of approximately US\$ 0.11 per kilometer per heavy truck.
 - Finally, this is the first time that separate motorization data have been compiled for mopeds and other two-wheel vehicles. Particularly for Asia, these data draw attention to differences between the motorization strategies adopted by individual countries where two-wheel motorization is much more important than four-wheel motorization (cf. India, Indonesia, Taiwan). This is of particular environmental relevance as gas/oil mixtures required for two-stroke mopeds are more environmentally harmful than fuel for passenger cars.

Method of collection

Around the world, fuel prices vary not only from country to country as a function of global oil prices or due to individual countries' legal provisions, but also within individual countries. Countrywide average filling-station fuel price statistics (pump prices) were utilized for this survey for Europe and South America, whereas for all other developing countries fuel prices as posted at filling stations in the respective capital cities were collected. The latter was done by way of a questionnaire circulated via the Internet.

Data reference date

November 3, 2000, was chosen as the fuel-price reference date, though the data may vary somewhat for some individual prices. The price series stemming from prior surveys are "labeled" with their respective month and year.

Currency conversion

The objective was to compare the fuel-price situation in various countries of the world. The US dollar was chosen as the reference currency because all crude oil prices and most countries' import statistics are stated in dollars.

The conversion rates for the individual countries were also pegged to that of the US dollar as of November 2, 2000, and/or as listed in the international monetary table published in the "Financial Times".

In countries with different, or double, exchange rates, the "market rate / parallel rate / black market rate" was given preference over the official exchange rate, not only because it is the rate that consumers mostly rely on, but also because sooner or later, as experience shows, the official exchange rate tends to be replaced by the parallel exchange rate.

Units of measurement

All fuel prices are based on the metric liter as unit of measurement. The US and, to some extent, the South American prices were converted from US gallons to liters.

1 US gallon = 3.7853 liters 1 barrel = 159 liters 1 Imp. gal. = 4.5 liters

Fuel quality

Since taxation was the point of main interest, the most widely sold grade of gasoline (in terms of quantity) was taken as the respective basis for each country, i.e., unleaded super in European and other industrialized countries, and super (95 or 98 octane) for imported cars in developing and newly industrializing countries. The exception to that rule are the CIS Republics of the Caucasus and Central Asia and several African countries, where regular-grade gasoline is still the norm. No qualitative differences were drawn for diesel fuel, though it should be kept in mind that there are still numerous gasoline-engine trucks on the road in the CIS countries and China.

Data sources

The data pertaining to the industrialized countries stem from various sources, primarily from the German automobile club "Allgemeiner Deutscher Automobil Club" (ADAC) in Munich for the countries of Europe; the GTZ-EU OLADE Project as an energy agency in Quito, Ecuador, for South America; and from the World Bank for various Asian countries. Most of the data for developing countries, especially those located in Africa and Asia, are based on local price surveys conducted by GTZ through its local offices. In some cases, e.g., Macau, North Korea, Myanmar and several Persian

Gulf Countries, the German Federal Foreign Office kindly assisted us in our efforts to collect the relevant data.

■ Untaxed pump price and "world market price"

In calculating the tax burden, the difference between the actual retail pump price and the untaxed retail pump price is decisive. The average global untaxed retail pump price is assumed here as 30 US cents per liter diesel and 32 US cents per liter super gasoline. It is based on a world market price of 19.7 US cents per liter (31.3 US\$ per barrel) crude oil ("Brent") and a mark-up to cover all costs relating to fuel production at the refinery and subsequent distribution. This mark-up is assumed as 10 US cents for diesel and 12 US cents for gasoline.

In the graphs of this publication both the untaxed retail pump price and the Rotterdam spot price for crude oil of North Sea quality ("Brent") are used as reference prices (cf. the two horizontal black lines in the graphs of page 50 and 51). These prices are rather variable over time. When world market prices for crude oil change (as has happened since the time of this survey), the reference lines would have to be shifted as well – with the spot price line for Brent shifting proportionally to the change of the Brent price. The mark-up of 10 and 12 US cents for diesel and gasoline respectively will remain more or less the same. Thus the reference line for untaxed retail pump prices shift as well, but at more or less constant distance to the Brent price line.

For illustrative purposes, the development of the Brent price over the past years is presented in the Annex.

■ Representation of findings

The fuel-price findings are broken down according to continent and presented in 4 different chapters: AFRICA, AMERICA, ASIA and EUROPE (with north and south America grouped together, and with Asia and Australia counting as a single continent). Also, 4 different types of representation were chosen to satisfy different requirements:

- Synoptical representation, in which the countries are arranged alphabetically in tables and prices for super and diesel are listed for the years 1991, 1993, 1995, 1998 and 2000
- Geographical representation, in which pump prices for super (and, in parentheses, for diesel) are shown both for the individual countries and for their neighbors, since political considerations in connection with potential price increases and the prevention of smuggling must, of course, include a comparison with the situation in neighboring countries;
- Price-series representation, in which the countries are arranged in the order of their respective pump prices for super gasoline. This form of representation enables classification of the countries on a given continent as low-, medium- or high-price countries;
- Graphical representation of price developments in individual countries over a 9-year period. This form of representation visualizes how the various governments have attempted to increase or reduce their taxation of super and diesel as a source of revenue for expenditures in, say, the construction and maintenance of roads and highways.

- Africa
- America
- Asia and Australia
- Europe
- Global Fuel Prices for more than 160 Countries
 - World Table of Pump Prices for Super Gasoline and Diesel
 - Ranking of Diesel and Gasoline Prices for more than 160 Countries
 - Conclusions
- Annex: Fuel Prices in Local Currency



Africa



Synoptical Table:

Pump Prices for Super Gasoline and Diesel, 1991-2000



Geographical Representation:

Fuel Prices as of November 2000



Price-series Representation:

Ranking of Fuel Prices as of November 2000



Graphical Representation of Price Developments:

Price Trends in Individual Countries, 1991-2000

Pump Prices for Super Gasoline and Diesel (in US cents per liter) 1991-2000 - Africa -

Fuel prices in US cents per liter												
Country	Super gasoline					Diesel					Source & date of 2000 data	
	1991	1993	1995	1998	2000	1991	1993	1995	1998	2000	Source	Date
Algeria	15	20	40	31	27	4	9	23	16	15	GTZ	Dec 00
Angola*				38	30				19	15	GTZ	Nov 00
Benin	63	62	36	39	48	48	47	28	31	39	GTZ	Nov 00
Botswana	68	41	38	31	42	61	37	35	29	39	GTZ	Nov 00
Burkina Faso	103	100	81	68	68	84	85	62	50	46	GTZ	Nov 00
Burundi	63	59	52	72	101	61	54	48	66	71	GTZ	Dec 00
Cameroon	68	69	68	64	56	58	58	50	48	47	GTZ	Nov 00
Cape Verde	68			81	59	40			43	39	GTZ	Nov 00
Central African Rep.	133	128	82	81		99	98	64	65			
Chad*	105	102	80	70	68	97	95	70	61	60	GTZ	Nov 00
Congo (DemRep)	81	74	73	50	100	73	67	70	50	93	GTZ	Nov 00
Congo (Rep.)	105			72	53	71			40	30	Embassy	Nov 00
Côte d'Ivoire	124	123	83	74	76	115	86	56	45	51	GTZ	Nov 00
Djibouti Republic	77	61	93	91	105	38	56	40	40	53	GTZ	Nov 00
Egypt*	29	30	29	29	26	7	9	12	12	10	GTZ	Nov 00
Equatorial Guinea												
Eritrea*		50	40	37	56		29	19	23	33	Embassy	Nov 00
Ethiopia*	27	26	32	36	46	14	19	24	25	27	GTZ	Nov 00
Gabon	118	116		63	53	83	70		39	37	GTZ	Dec 00
Gambia	73	67		83	64	52	48		63	47	GTZ	Nov 00
Ghana	53	53	38	32	20	43	45	33	30	19	GTZ	Nov 00
Guinea*	67	61		68	85	61	56		56	69	GTZ	Dec 00
Guinea-Bissau	30	27				61	56					
Kenya	53	40	56	70	71	37	33	43	54	60	GTZ	Nov 00
Lesotho				39	50				38	47	GTZ	Nov 00
Liberia												
Libya				22	25				17	16	ADAC	Oct 00
Madagascar	43	54	47	47	76	25	31	32	33	45	GTZ	Nov 00
Malawi*	64	71	65	51	69	56	67	55	45	68	GTZ	Nov 00
Mali Rep	112	114	82	77	70	74	74	57	48	43	GTZ	Nov 00
Mauritania*	86	85		59	67	53	43		31	40	GTZ	Dec 00
Morocco	82	75	94	79	82	45	41	47	47	53	GTZ	Nov 00
Mozambique	74	48	53	55	56	26	21	32	41	54	GTZ	Nov 00
Namibia*	46	42		38	47	41	38		36	44	GTZ	Nov 00
Niger Rep	94	92	79	76	68	81	60	55	52	48	GTZ	Nov 00
Nigeria*	5	2	13	13	27	4	1	3	10	27	Embassy/GTZ	Nov 00
Rwanda*	81	93		72	89	79	88		72	84	GTZ	Nov 00
Senegal	119	123	94	71	73	74	88	62	48	52	GTZ	Nov 00
Sierra Leone	45	49		61		43	44		53			
Somali Rep	21					15						
South Africa		52	51	43	50		52	46	39	50	GTZ	Nov 00
Sudan Rep*	7	58	50	33	28	6	58	25	26	24	GTZ	Nov 00
Swaziland	46	43		37	47	41	40		36	44	GTZ	Nov 00
Tanzania	42	43	56	63	75	25	30	44	57	73	GTZ	Nov 00
Togo Rep	81	72	47	42	48	66	63	40	37	40	GTZ	Nov 00
Tunisia	58	52	64	60	49	33	31	44	33	29	GTZ	Nov 00
Uganda	69	79	98	86	86	55	71	85	68	75	GTZ	Nov 00
Zambia	40	72	60	53		24	66	57	49			
Zimbabwe*	68	47	38	26	85	37	28	29	22	72	GTZ	Nov 00

* 2000 price for regular gasoline

Sources:

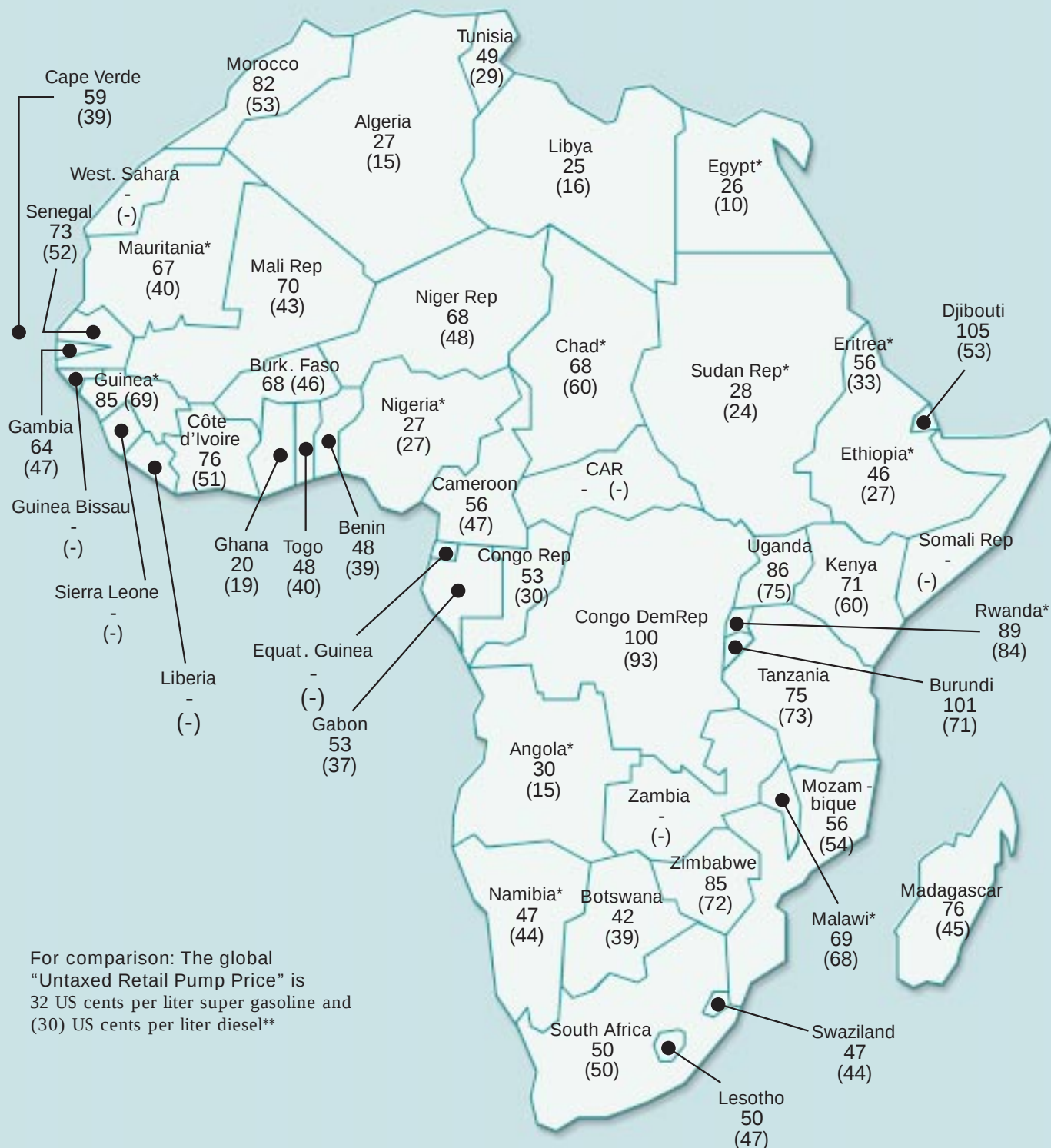
GTZ Fuel Price Surveys 1991, 1993, 1995, 1998, 2000; ADAC Germany; Olade;
(all data from last quarter of each year)



Deutsche Gesellschaft für
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Fuel Prices Africa

in US cents per liter gasoline
(diesel in brackets) November 2000



For comparison: The global
"Untaxed Retail Pump Price" is
32 US cents per liter super gasoline and
(30) US cents per liter diesel**

Data Sources:
GTZ Fuel Price Survey 2000 (Dr. Metschies); ADAC, Germany; OLADE

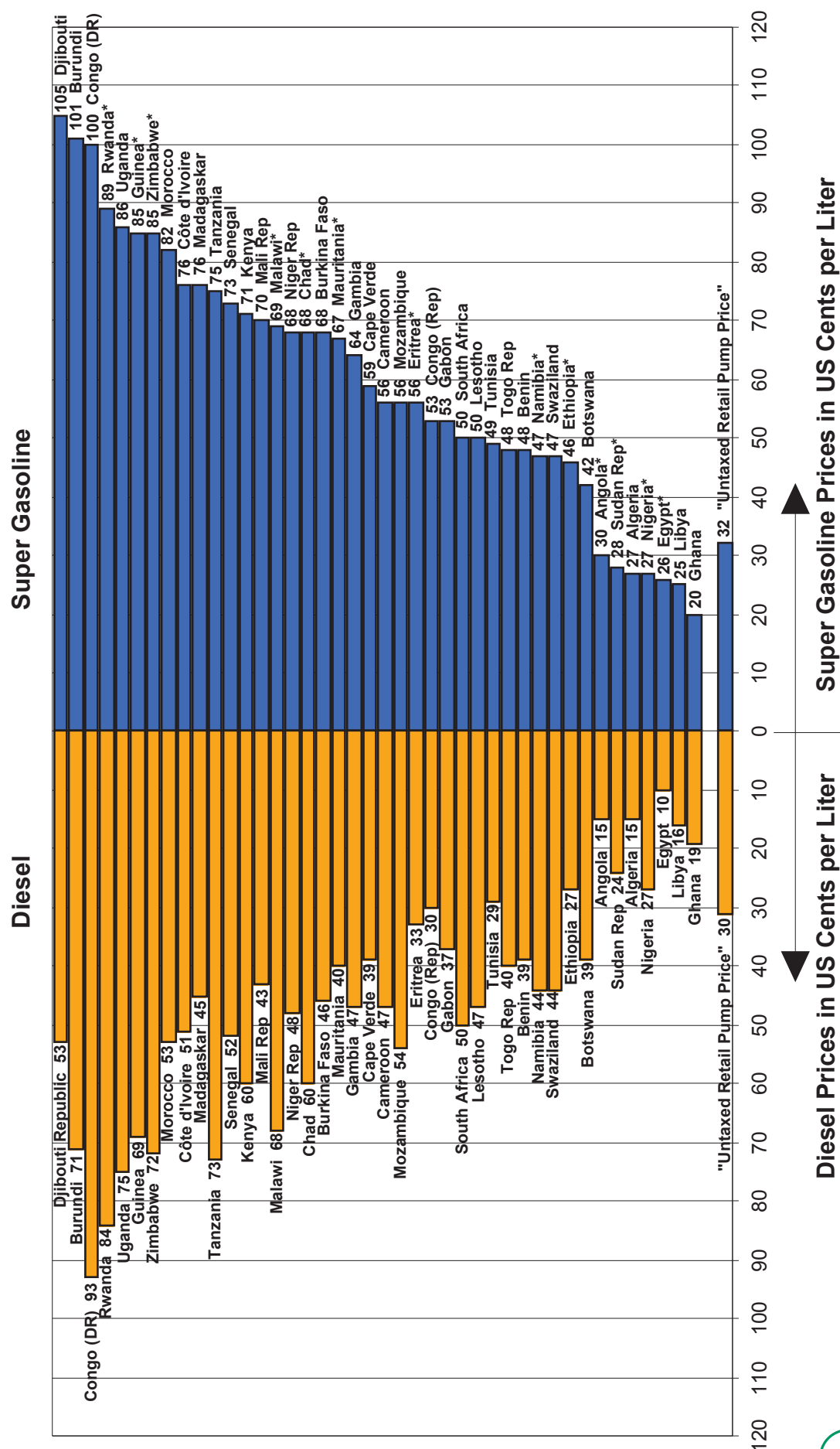
* Price for regular gasoline

** The "Untaxed Retail Pump Prices" are hypothetical reference retail prices
excl. fuel taxes, VAT etc.



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Fuel Prices as of November 2000 - Africa - Average Consumer Prices at Highway Pump in US Cents per Liter



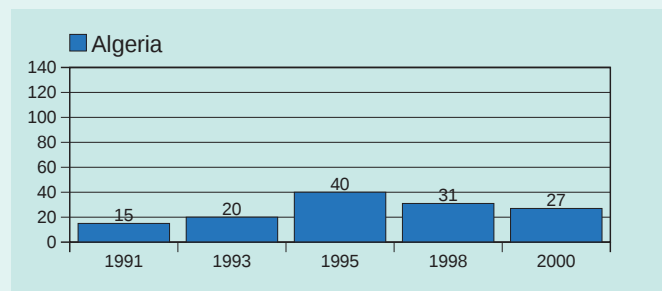
Source: GTZ Fuel Price Survey 2000 (Dr. Metschies); 1 US\$ = 2,26 DM = 1,16 Euro

* The gasoline quality is in general "Super". In those countries marked with " * " the quality is "Regular".

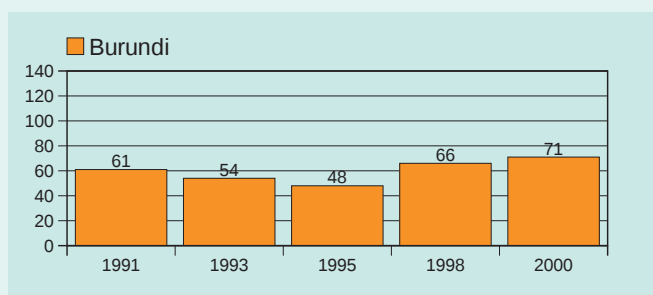
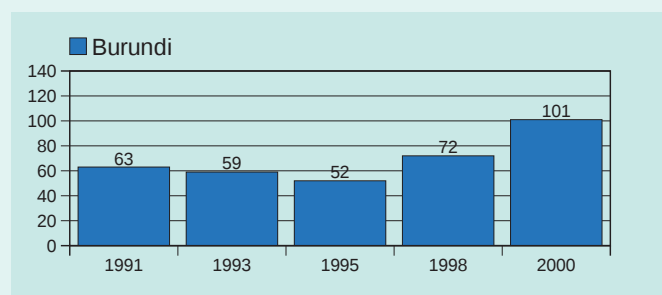
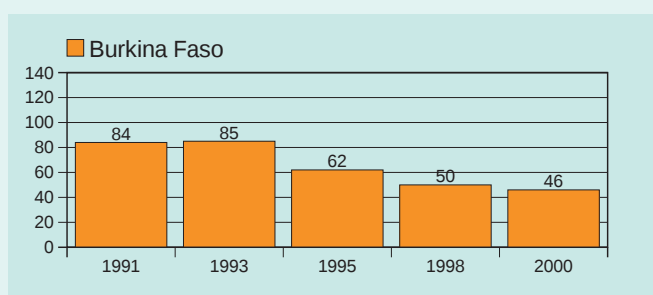
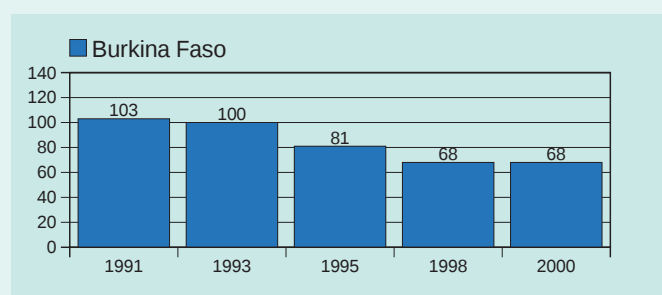
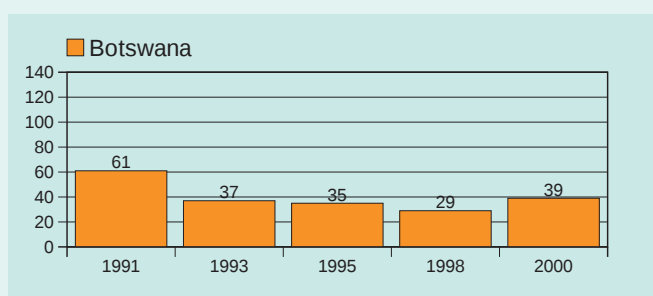
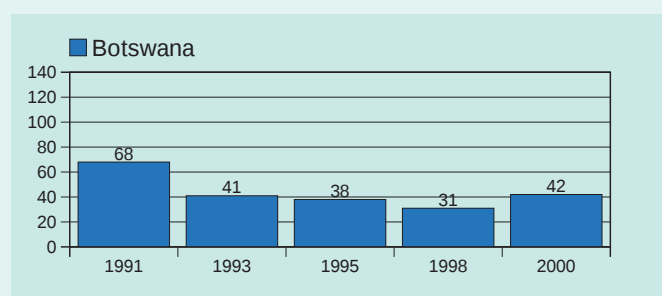
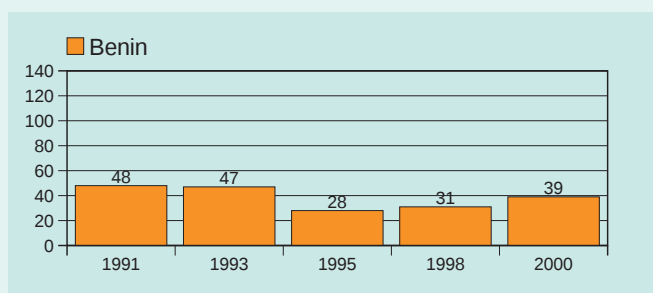
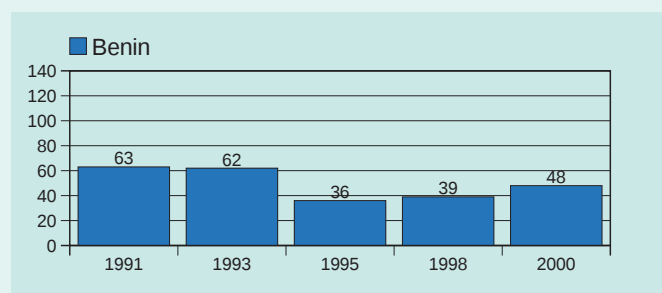
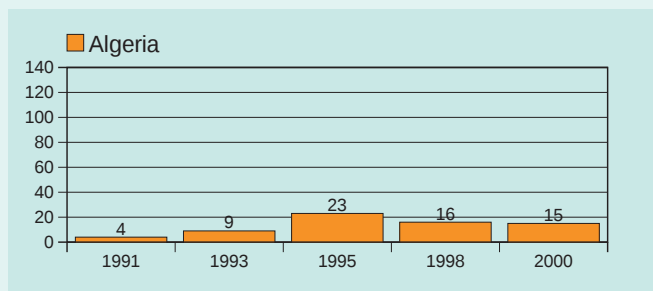
** The "Untaxed Retail Pump Price" is a hypothetical reference retail price including distribution but excluding fuel tax, VAT, etc.

The Development of Fuel Prices Over Time - Africa - pump prices in US cents per liter

Super Gasoline



Diesel

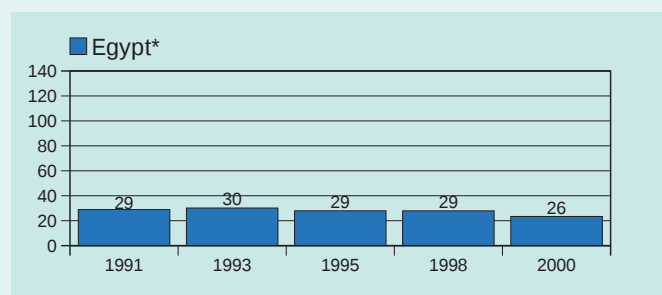
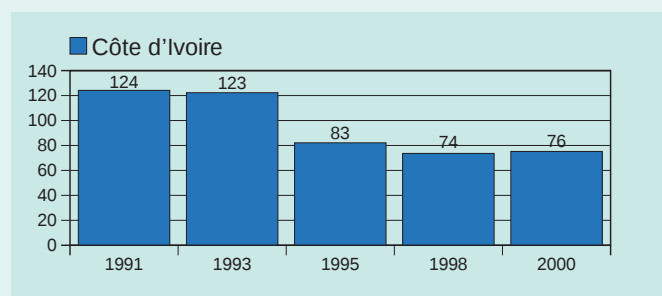
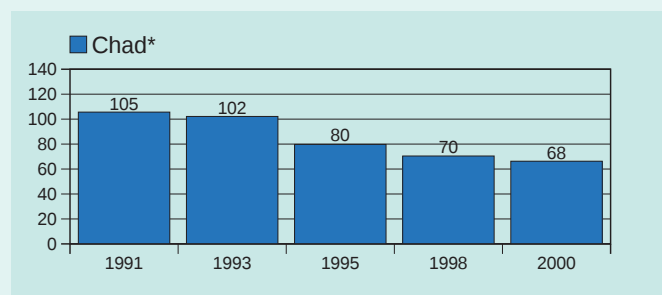
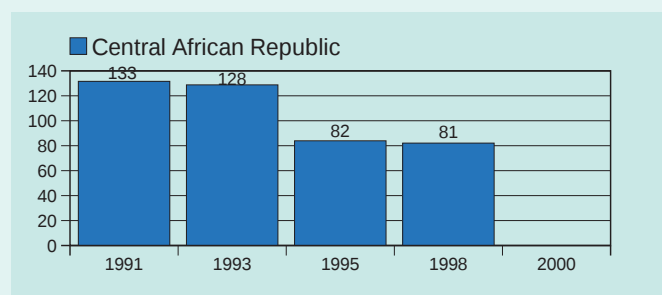
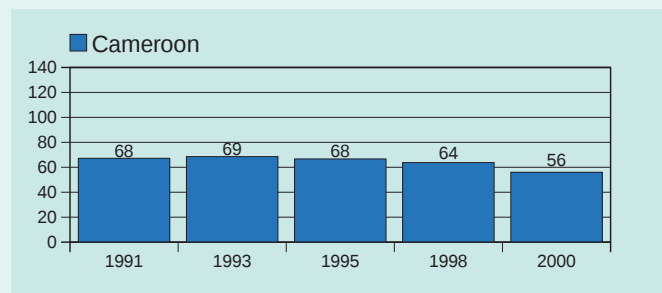


Untaxed Retail Pump Price 32 US cents (2000)

Untaxed Retail Pump Price 30 US cents (2000)

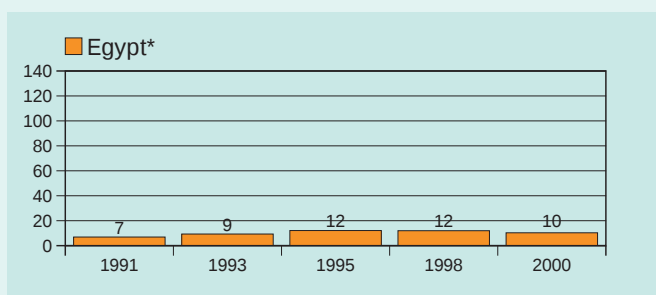
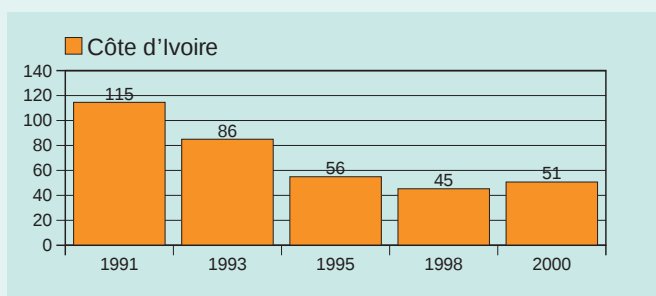
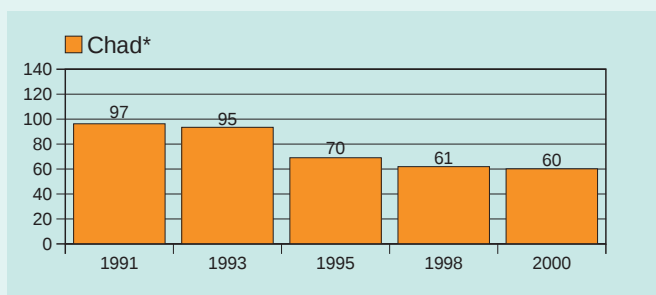
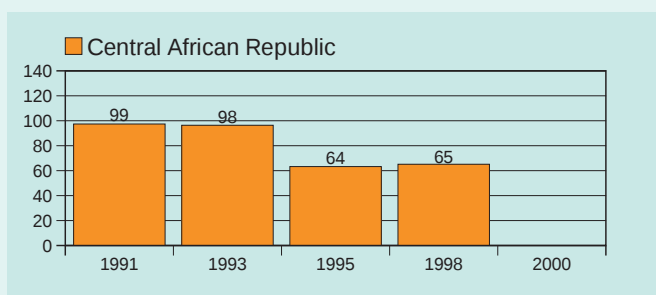
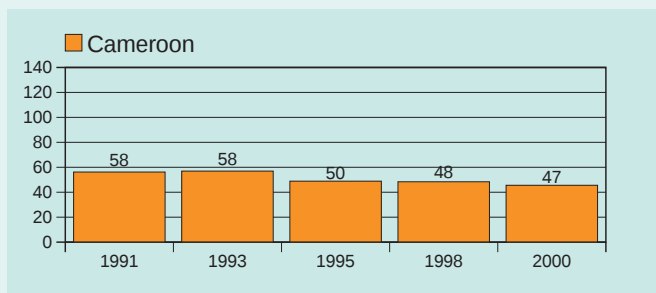
The Development of Fuel Prices Over Time - Africa - pump prices in US cents per liter

Super Gasoline



Untaxed Retail Pump Price 32 US cents (2000)

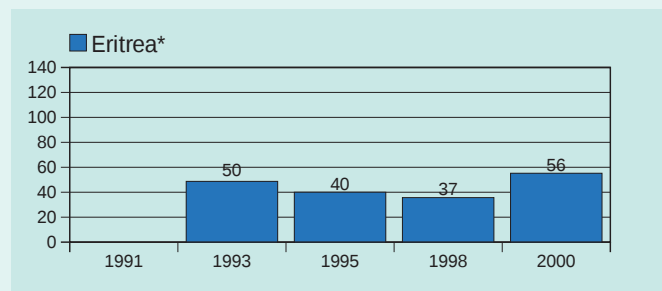
Diesel



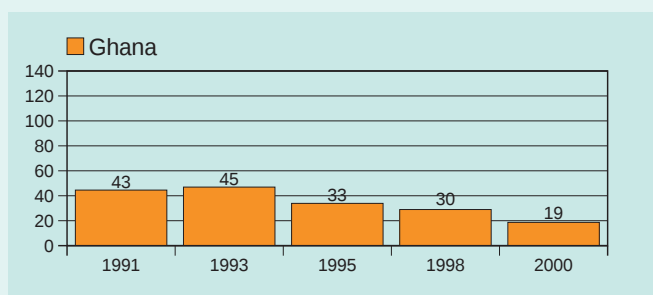
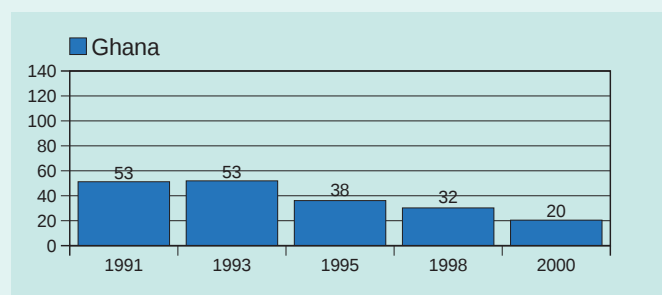
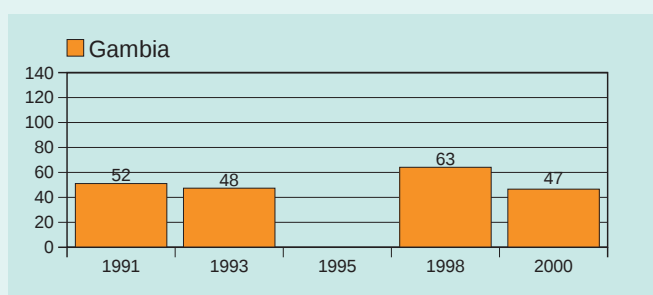
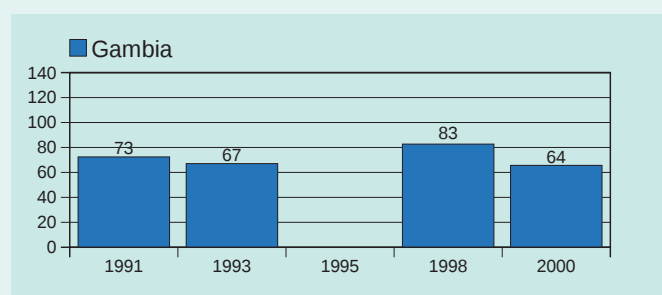
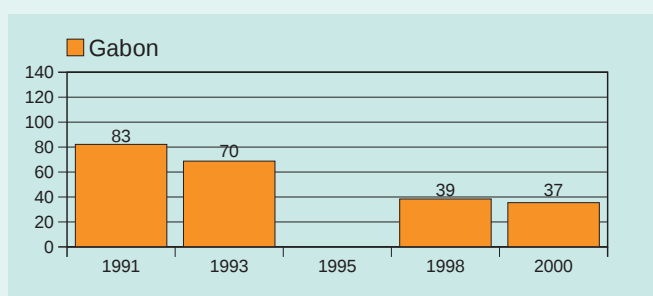
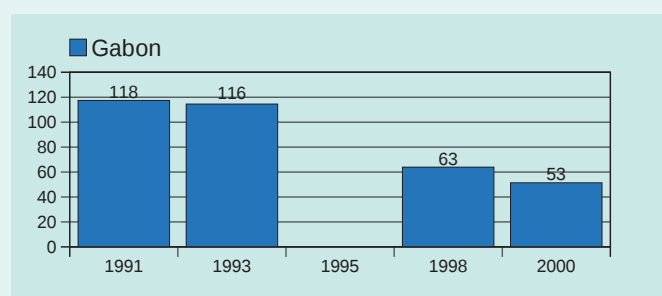
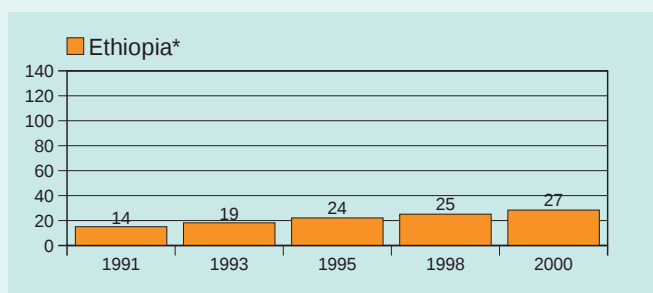
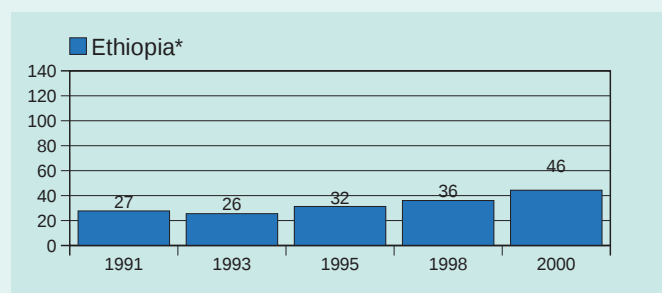
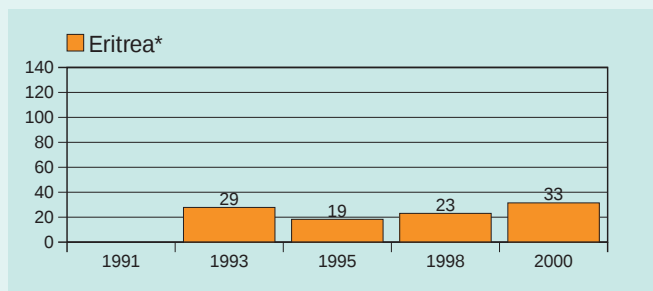
Untaxed Retail Pump Price 30 US cents (2000)

The Development of Fuel Prices Over Time - Africa - pump prices in US cents per liter

Super Gasoline



Diesel

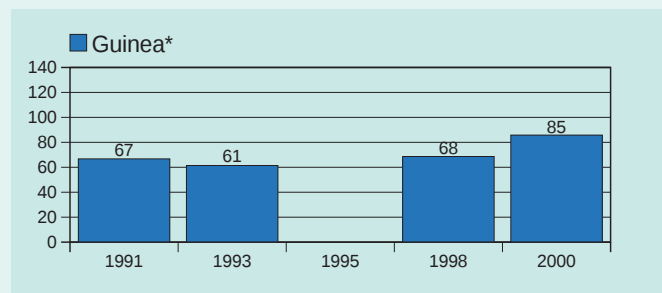


Untaxed Retail Pump Price 32 US cents (2000)

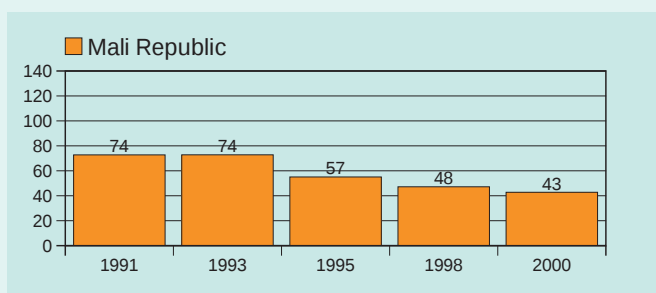
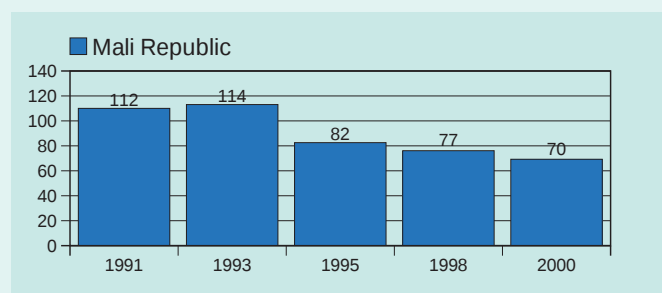
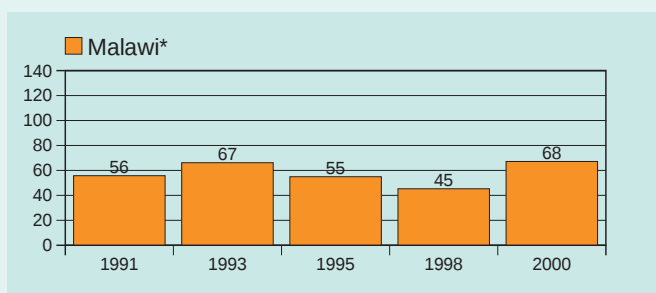
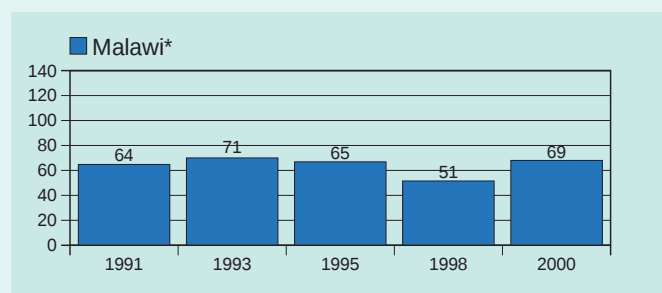
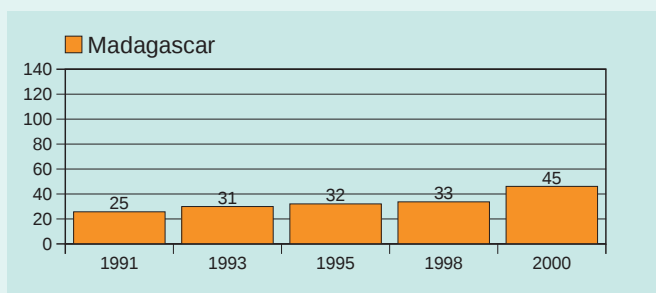
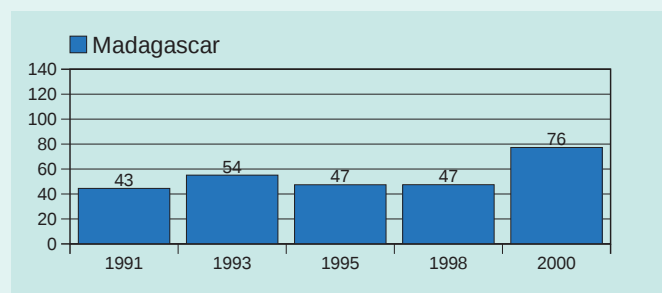
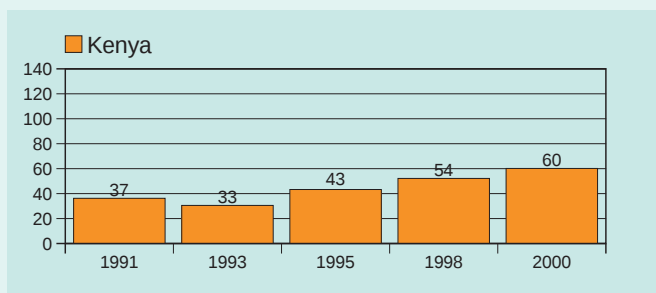
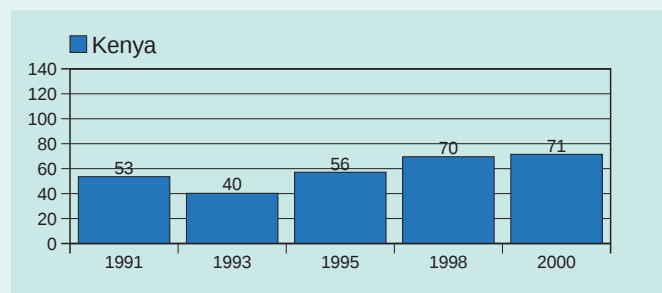
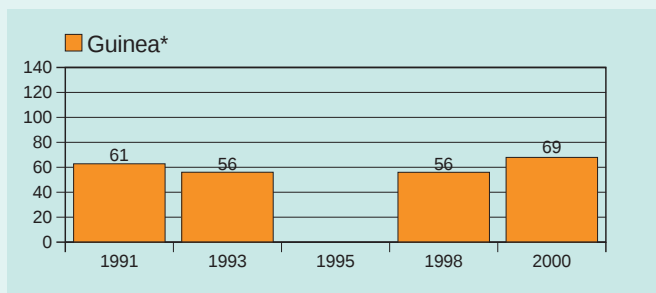
Untaxed Retail Pump Price 30 US cents (2000)

The Development of Fuel Prices Over Time - Africa - pump prices in US cents per liter

Super Gasoline



Diesel

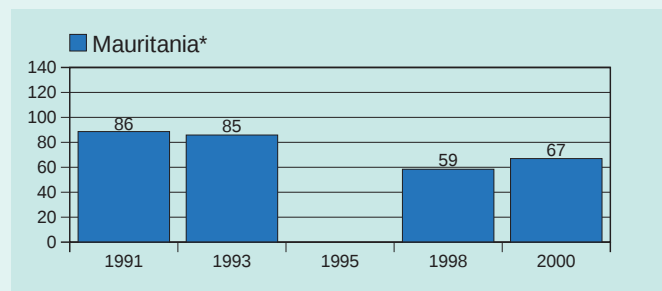


Untaxed Retail Pump Price 32 US cents (2000)

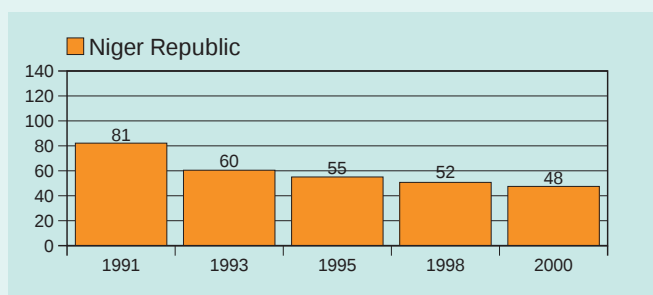
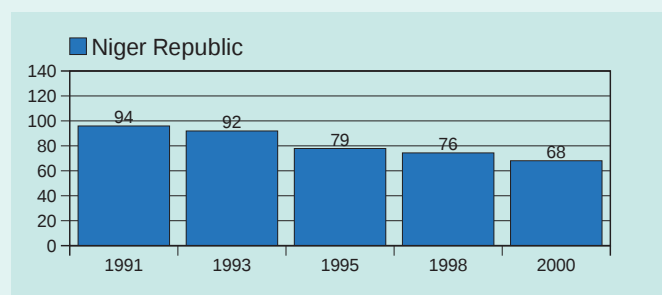
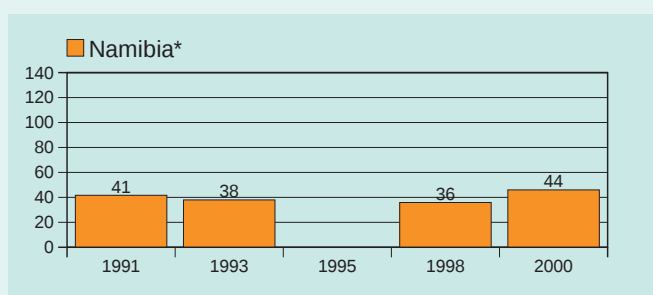
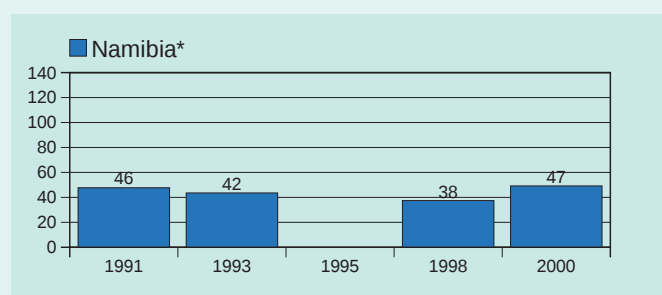
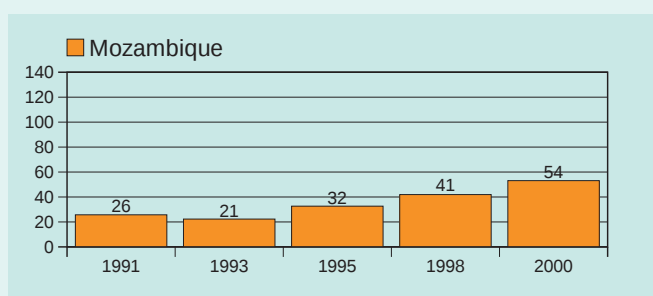
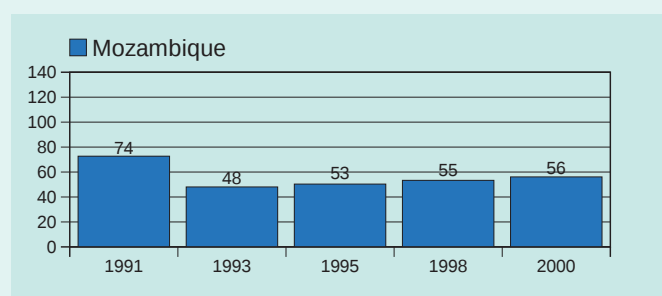
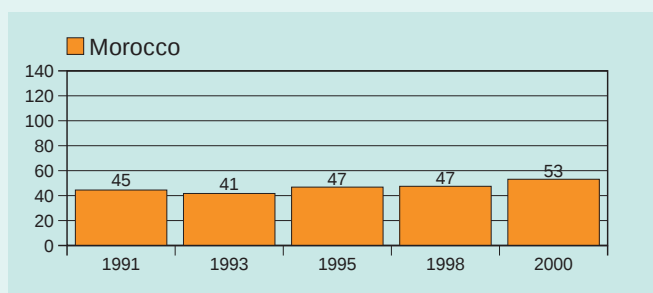
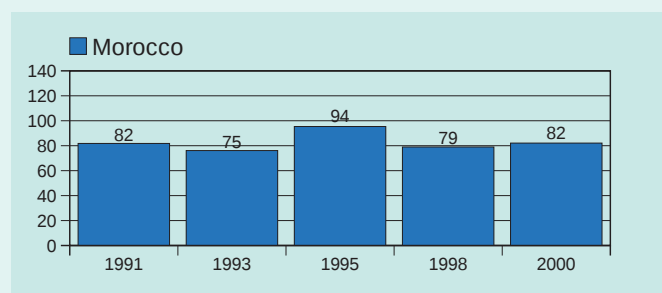
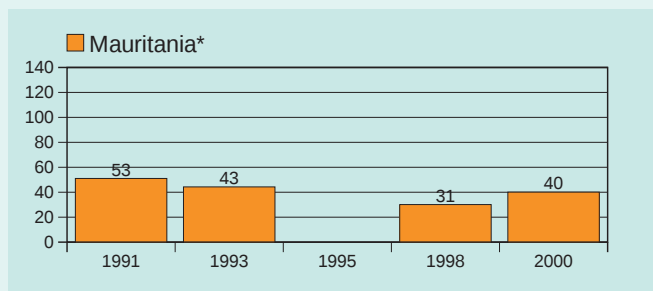
Untaxed Retail Pump Price 30 US cents (2000)

The Development of Fuel Prices Over Time - Africa - pump prices in US cents per liter

Super Gasoline



Diesel

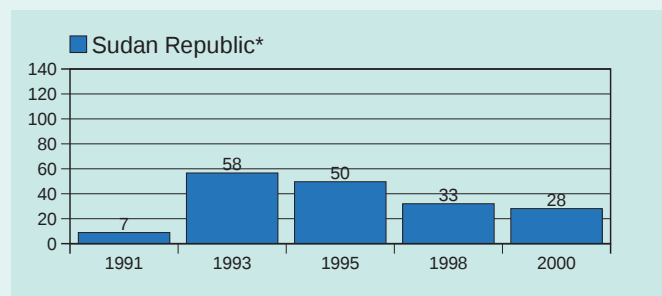
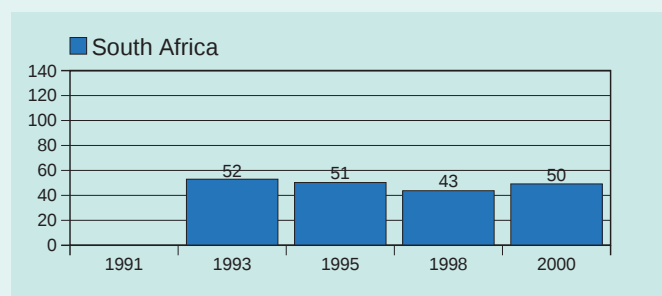
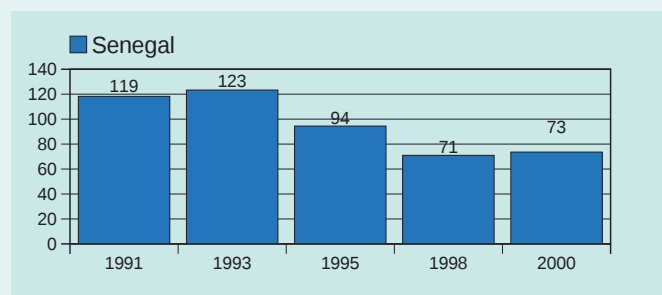
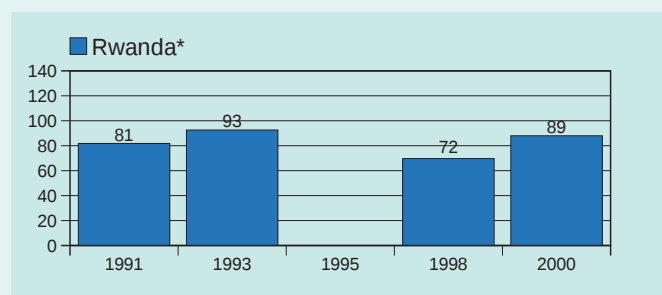
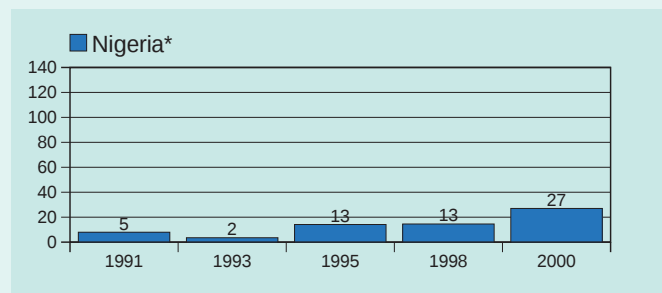


Untaxed Retail Pump Price 32 US cents (2000)

Untaxed Retail Pump Price 30 US cents (2000)

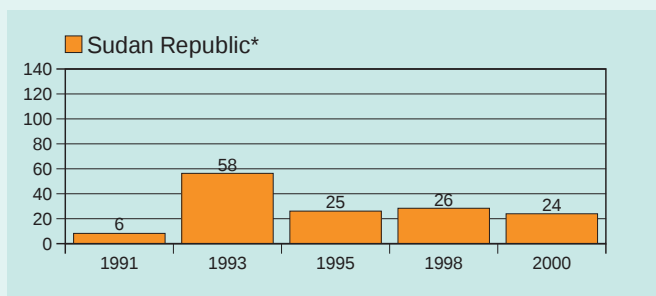
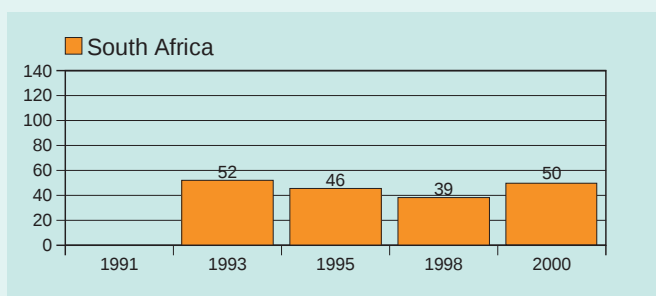
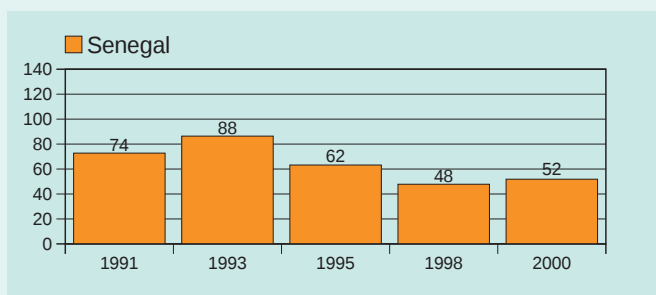
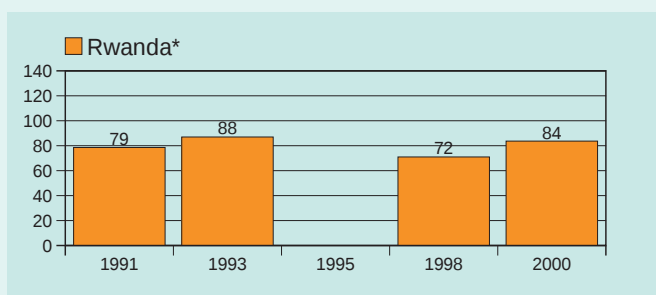
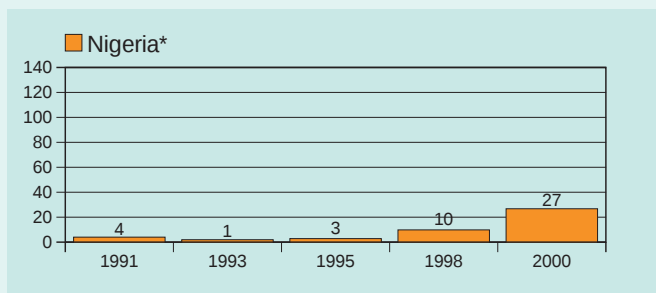
The Development of Fuel Prices Over Time - Africa - pump prices in US cents per liter

Super Gasoline



Untaxed Retail Pump Price 32 US cents (2000)

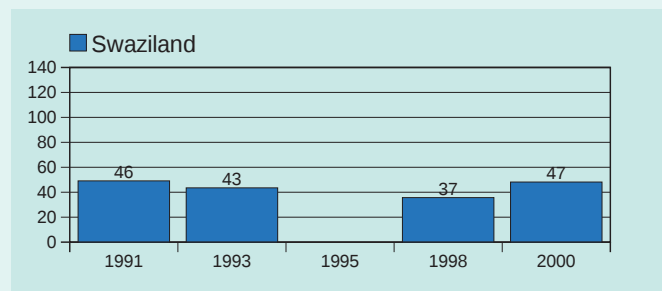
Diesel



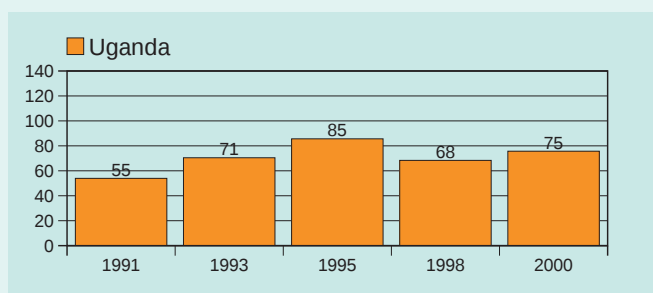
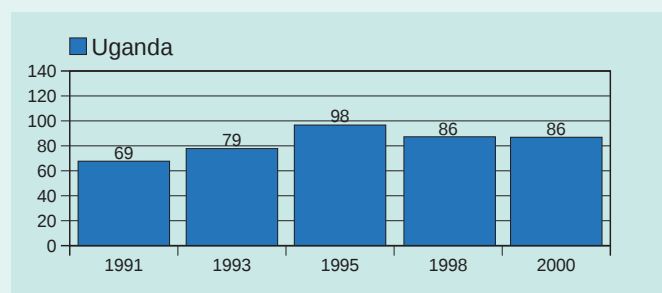
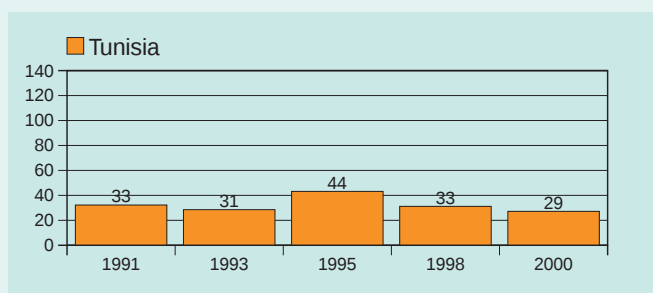
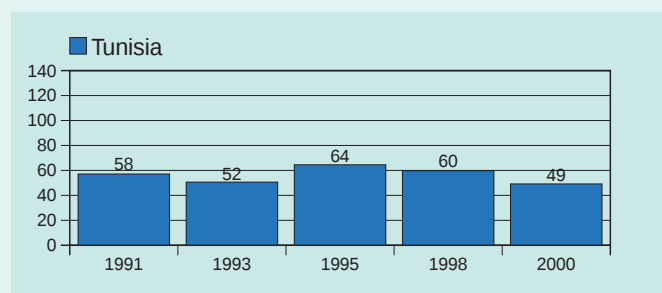
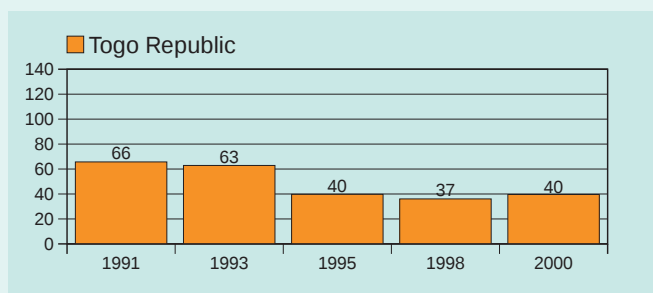
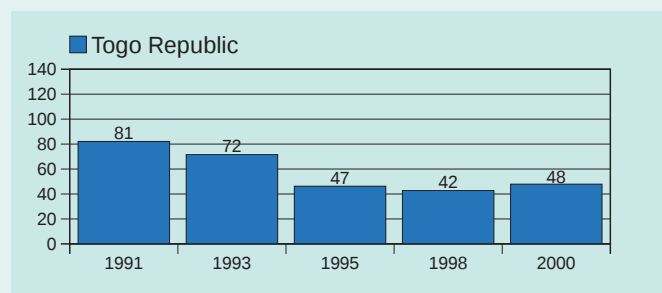
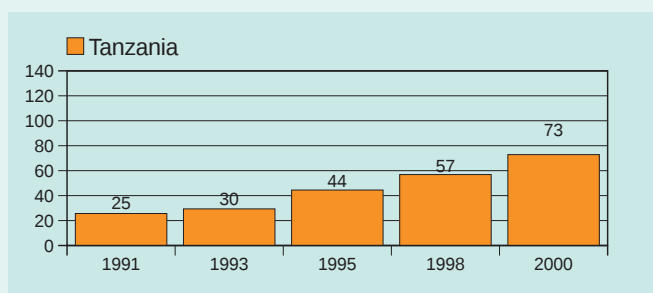
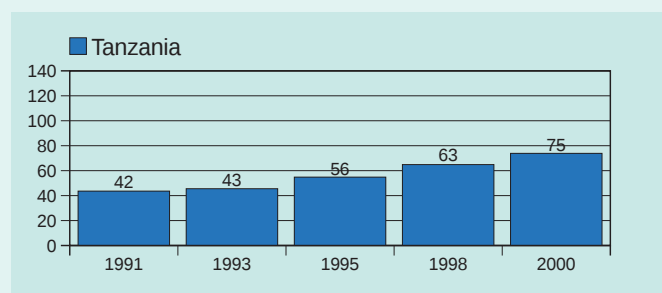
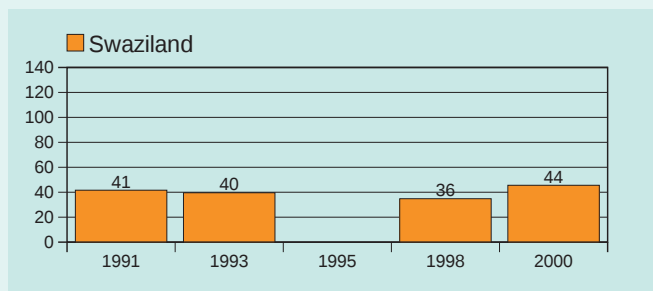
Untaxed Retail Pump Price 30 US cents (2000)

The Development of Fuel Prices Over Time - Africa - pump prices in US cents per liter

Super Gasoline



Diesel

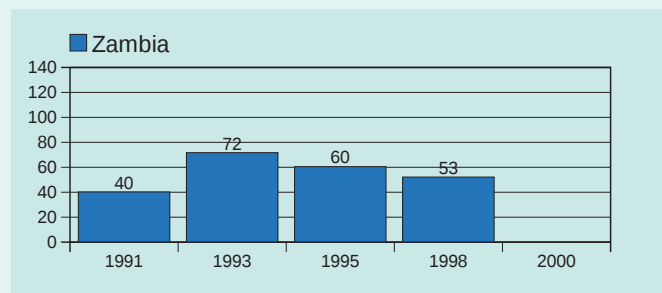


Untaxed Retail Pump Price 32 US cents (2000)

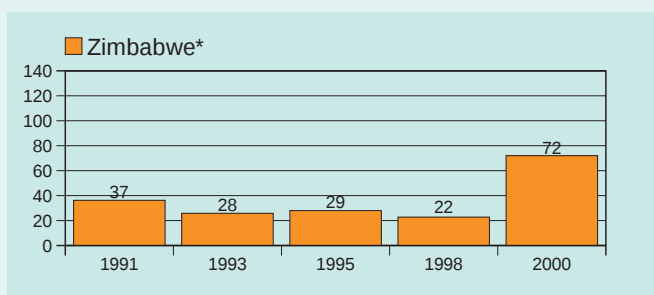
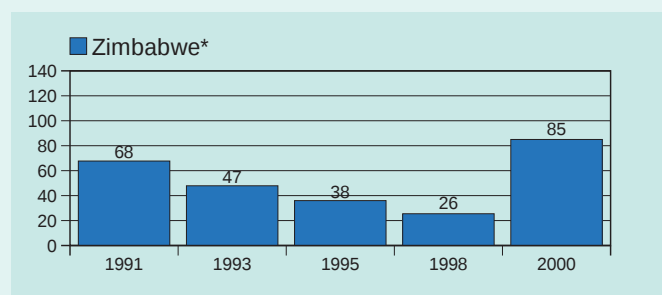
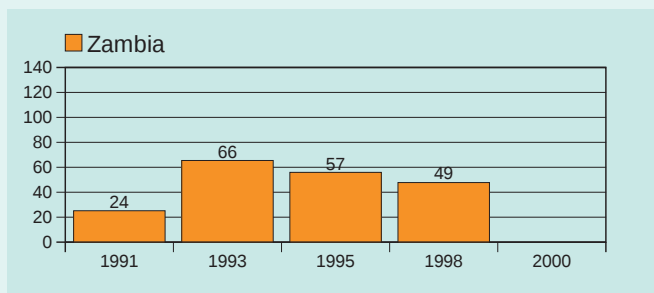
Untaxed Retail Pump Price 30 US cents (2000)

The Development of Fuel Prices Over Time - Africa - pump prices in US cents per liter

Super Gasoline



Diesel



Untaxed Retail Pump Price 32 US cents (2000)

Untaxed Retail Pump Price 30 US cents (2000)



America

-  *Synoptical Table:*
Pump Prices for Super Gasoline and Diesel, 1991-2000
-  *Geographical Representation:*
Fuel Prices as of November 2000
-  *Price-series Representation:*
Ranking of Fuel Prices as of November 2000
-  *Graphical Representation of Price Developments:*
Price Trends in Individual Countries, 1991-2000

Pump Prices for Super Gasoline and Diesel (in US cents per liter) 1991-2000 - America -

Fuel prices in US cents per liter												
Country	Super gasoline					Diesel					Source & date of 2000 data	
	1991	1993	1995	1998	2000	1991	1993	1995	1998	2000	Source	Date
Antigua					56					56	Embassy	Dec 00
Argentina		79	60	94	107		29	28	42	52	GTZ	Nov 00
Barbados				72	95				62	75	Embassy	Dec 00
Bolivia		43	38	53	80		35	31	35	50	GTZ	Nov 00
Brazil		53	63	80	92		38	39	34	34	GTZ	Nov 00
Canada		47	45	41	58		39	36	39	47	ADAC	Oct 00
Chile		43	53	49	64		31	33	29	47	GTZ	Nov 00
Colombia		23	35	24	49		19	27	20	35	GTZ	Nov 00
Costa Rica		37	40	41	65		28	27	28	44	GTZ	Nov 00
Cuba				50					18			
Dominican Republic			40	40	71			28	22	39	GTZ	Nov 00
Ecuador		31	33	38	31		19	28	24	18	GTZ	Nov 00
El Salvador				54	67				30	40	Embassy	Nov 00
Fiji Is				50					37			
Grenada#				54	54				41	41	Olade	Aug 00
Guatemala		32	39	41	53		25	28	32	42	GTZ	Nov 00
Guyana#				30	37				27	37	Olade	Aug 00
Haiti				59	64				36	35	GTZ	Nov 00
Honduras		41	35	50	62		26	25	30	46	GTZ	Nov 00
Jamaica#				37	62				33	49	Olade	Aug 00
Mexico		39	32	36	61		28	25	28	45	GTZ	Nov 00
Nicaragua		69	62	47	62		30	31	35	54	GTZ	Nov 00
Panama		43		41	53		30		28	41	GTZ	Nov 00
Paraguay		43	44	47	72		27	28	24	34	GTZ	Dec 00
Peru		56	68	55	80		32	43	33	54	GTZ	Dec 00
Puerto Rico				34					32			
Sao Tomé*					90					71	GTZ	Nov 00
Suriname				56	56				41	41	Olade	Aug 00
Trinidad and Tobago				39	39				20	20	GTZ	Dec 00
United St. (average)		32	34	32	47		28	33	27	48	GTZ	Nov 00
United States (high)				35					31			
United States (low)				30					26			
Uruguay			89	90	119			38	42	53	GTZ	Nov 00
Venezuela			3	14	12			1	8	6	GTZ	Nov 00

* 2000 price for regular gasoline

Sources:

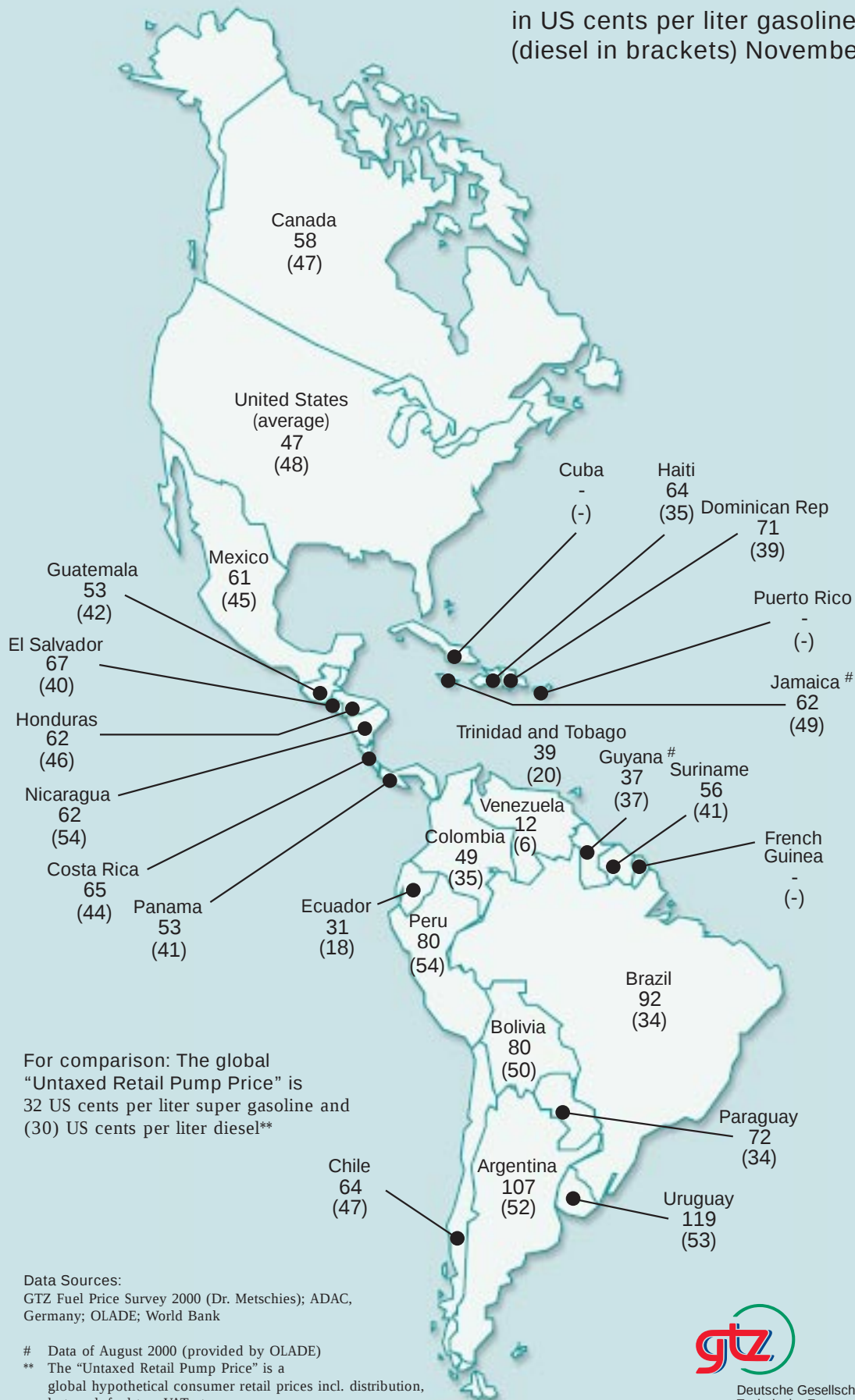
GTZ Fuel Price Surveys 1991, 1993, 1995, 1998, 2000; ADAC Germany; Olade;
(all data from last quarter of each year)



Deutsche Gesellschaft für
Technische Zusammenarbeit (GTZ) GmbH

Fuel Prices America

in US cents per liter gasoline
(diesel in brackets) November 2000



Data Sources:
GTZ Fuel Price Survey 2000 (Dr. Metschies); ADAC, Germany; OLADE; World Bank

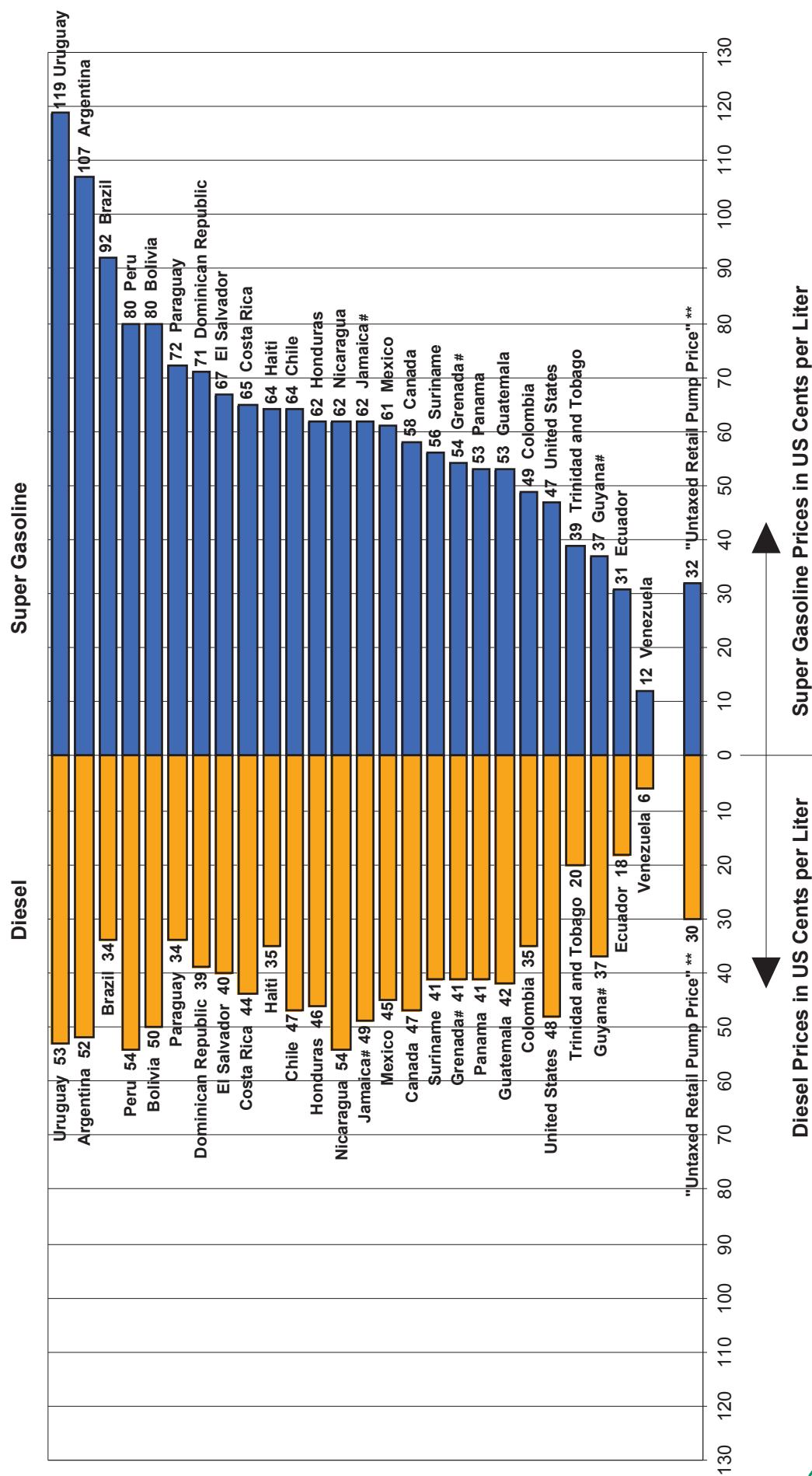
Data of August 2000 (provided by OLADE)

** The "Untaxed Retail Pump Price" is a global hypothetical consumer retail prices incl. distribution, but excl. fuel tax, VAT etc.



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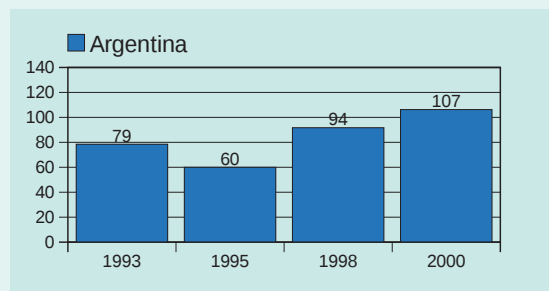
Fuel Prices as of November 2000 - America - Average Consumer Prices at Highway Pump in US Cents per Liter



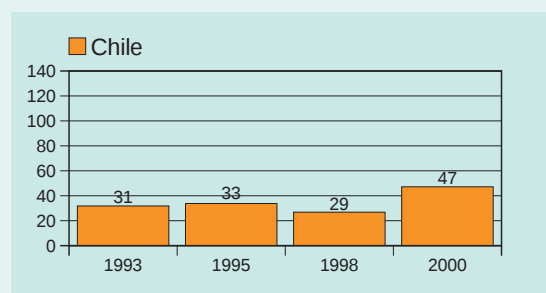
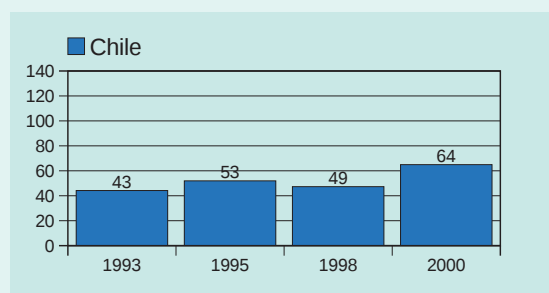
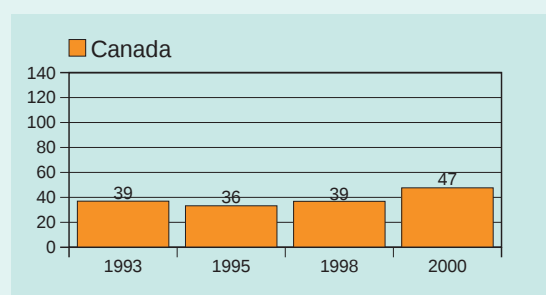
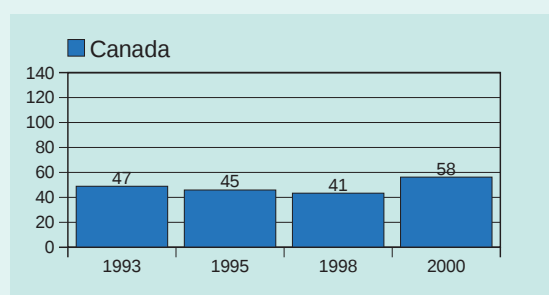
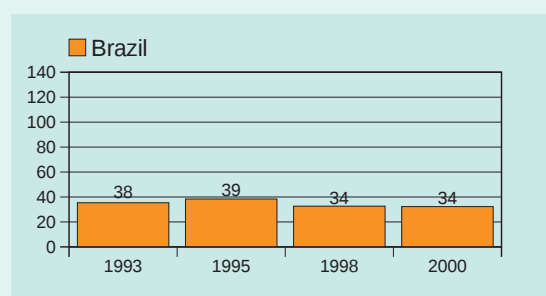
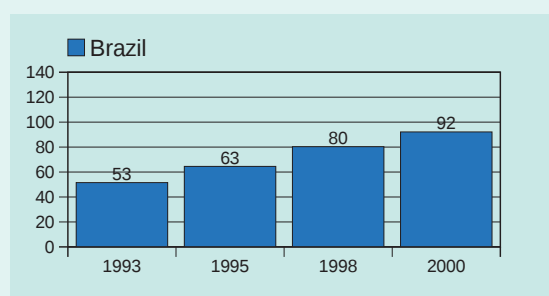
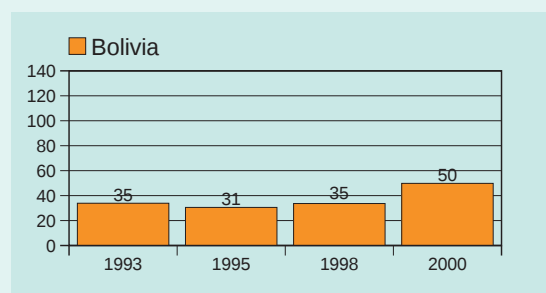
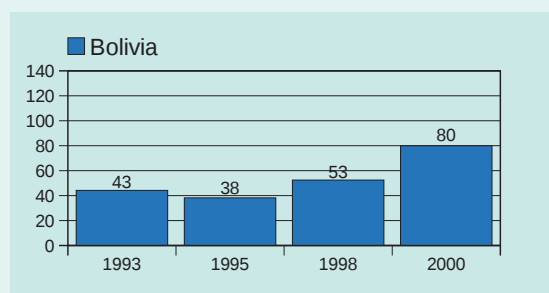
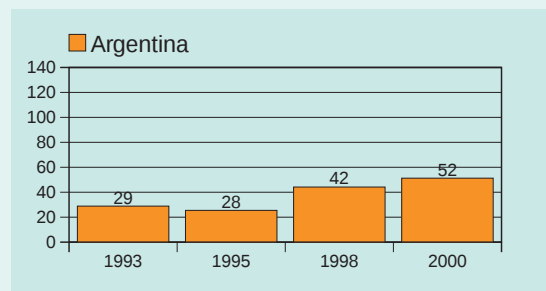
Source: GTZ Fuel Price Survey 2000 (Dr. Metschies); 1 US\$ = 2,26 DM = 1,16 Euro
 * The gasoline quality is in general "Super". In those countries marked with " * " the quality is "Regular". # Data of August 2000 (provided by OLADE).
 ** The "Untaxed Retail Pump Price" is a hypothetical reference retail price including distribution but excluding fuel tax, VAT, etc.

The Development of Fuel Prices Over Time - America - pump prices in US cents per liter

Super Gasoline



Diesel

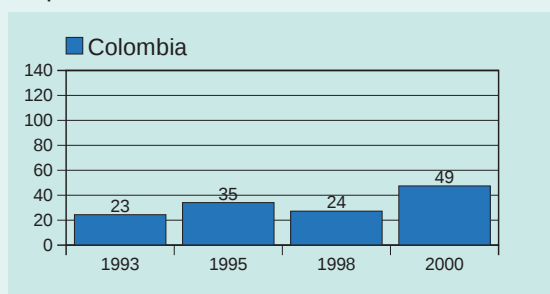


Untaxed Retail Pump Price 32 US cents (2000)

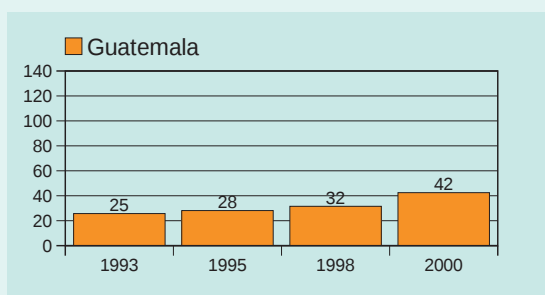
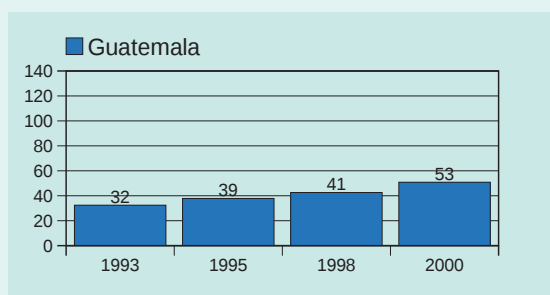
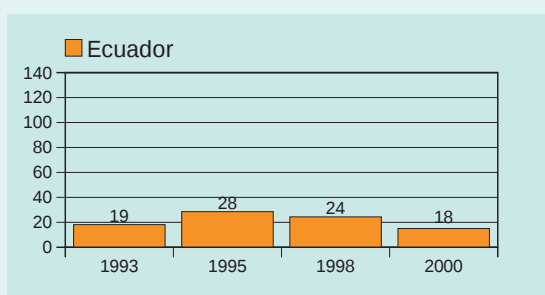
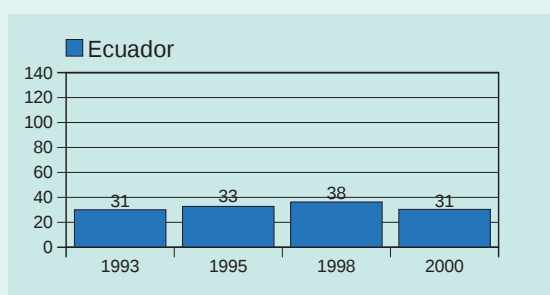
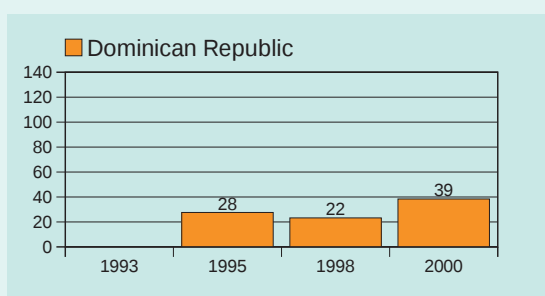
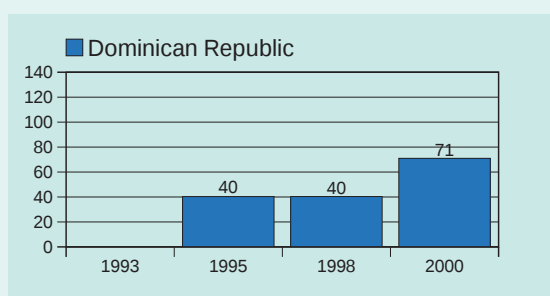
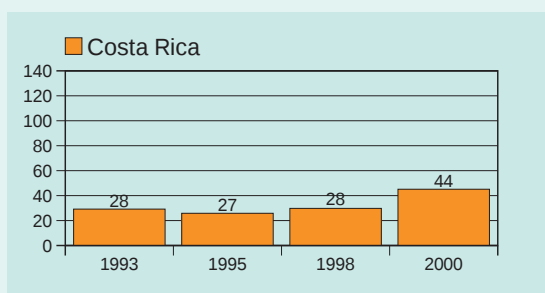
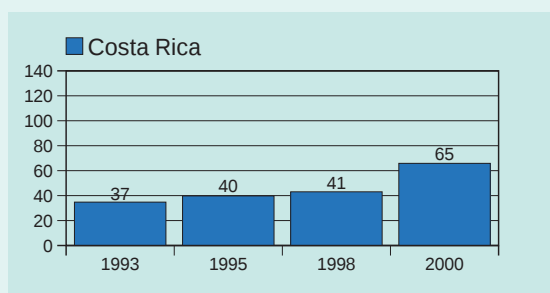
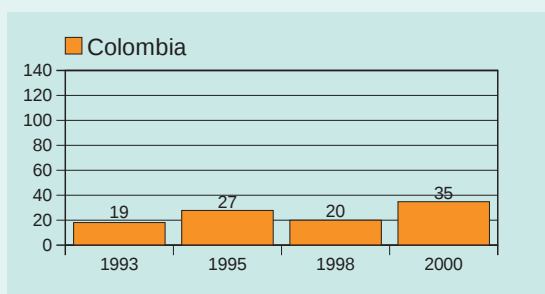
Untaxed Retail Pump Price 30 US cents (2000)

The Development of Fuel Prices Over Time - America - pump prices in US cents per liter

Super Gasoline



Diesel

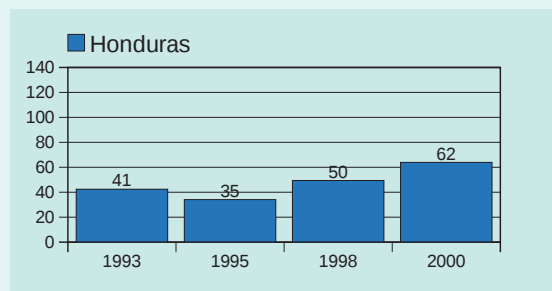


Untaxed Retail Pump Price 32 US cents (2000)

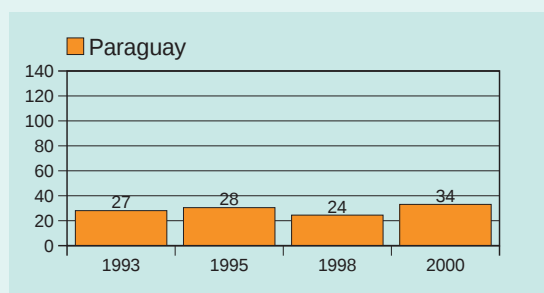
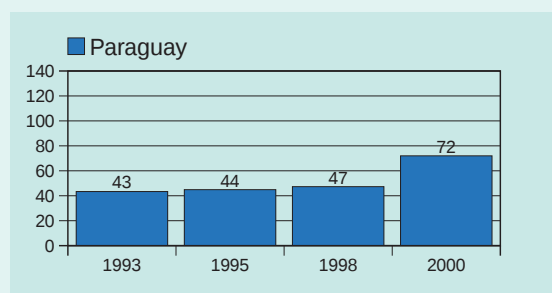
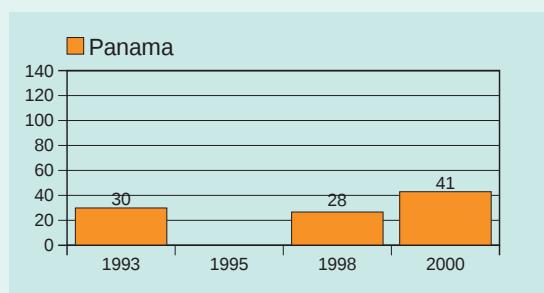
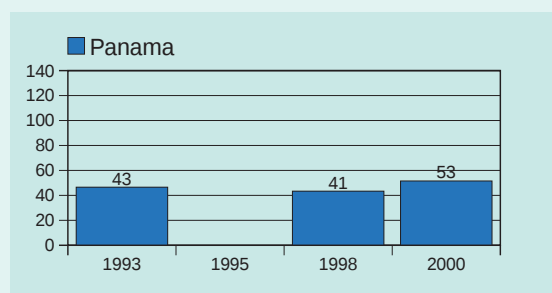
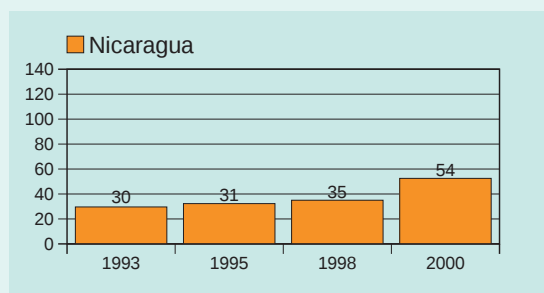
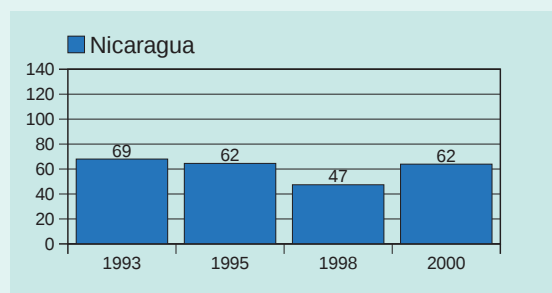
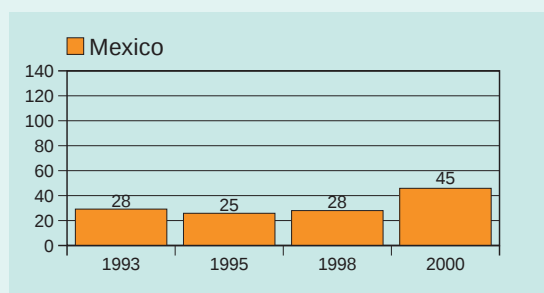
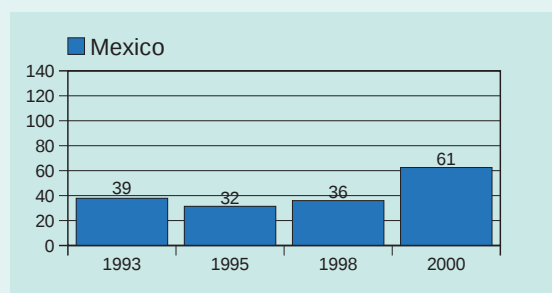
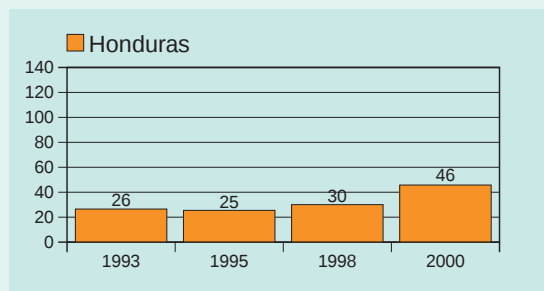
Untaxed Retail Pump Price 30 US cents (2000)

The Development of Fuel Prices Over Time - America - pump prices in US cents per liter

Super Gasoline



Diesel

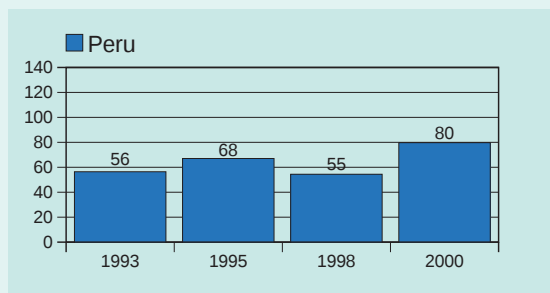


Untaxed Retail Pump Price 32 US cents (2000)

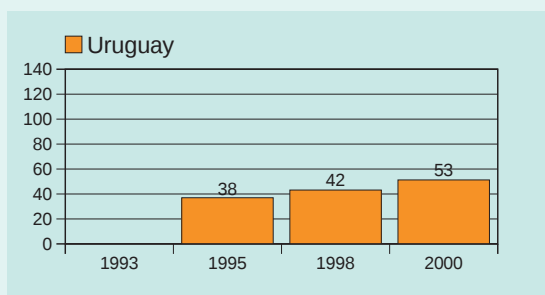
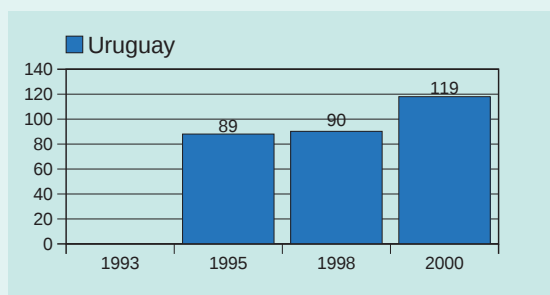
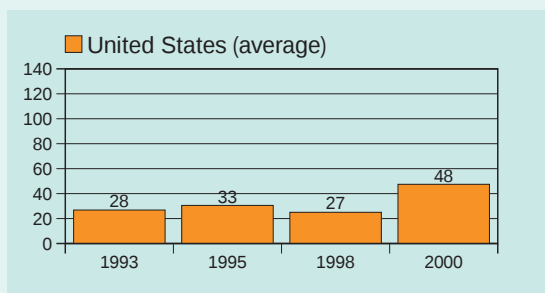
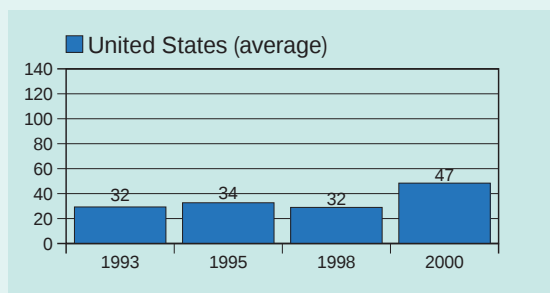
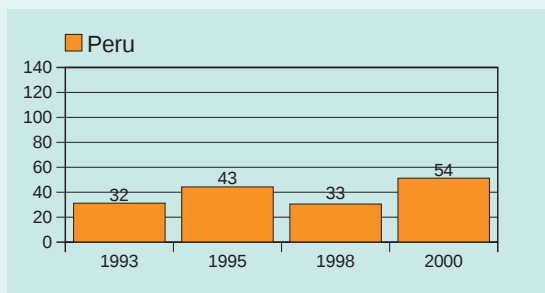
Untaxed Retail Pump Price 30 US cents (2000)

The Development of Fuel Prices Over Time - America - pump prices in US cents per liter

Super Gasoline



Diesel



Untaxed Retail Pump Price 32 US cents (2000)

Untaxed Retail Pump Price 30 US cents (2000)



Asia and Australia



Synoptical Table:

Pump Price for Super Gasoline and Diesel, 1991-2000



Geographical Representation:

Fuel Prices as of November 2000



Price-series Representation:

Ranking of Fuel Prices as of November 2000

Pump Prices for Super Gasoline and Diesel (in US cents per liter) 1991-2000 - Asia and Australia -

Fuel prices in US cents per liter												
Country	Super gasoline					Diesel					Source & date of 2000 data	
	1991	1993	1995	1998	2000	1991	1993	1995	1998	2000	Source	Date
Afghanistan												
Armenia				49	55				25	31	GTZ	Nov 00
Australia				46	57				45	57	Embassy	Dec 00
Azerbaijan				46	39				22	20	Embassy	Dec 00
Bahrain				26	27				18	21	Embassy	Nov 00
Bangladesh			36	47	46			31	26	29	GTZ	Nov 00
Belarus				34	55				13	36	Embassy	Dec 00
Bhutan*				59	58				26	38	GTZ	Nov 00
Brunei				34	31				18	18	Embassy	Nov 00
Burma/Myanmar*				13	33				12	12	Embassy	Nov 00
Cambodia				47	61				28	44	Embassy	Nov 00
China			27	28	40			24	25	45	GTZ	Nov 00
Hong Kong			119	136	146			74	85	80	Embassy	Nov 00
India*			48	56	60			19	21	39	GTZ	Nov 00
Indonesia			44	16	17			20	7	6	GTZ	Nov 00
Iran				8	5				1	2	Embassy	Nov 00
Iraq				1	3				1		GTZ	Dec 00
Israel			73	86	114			31	31	64	Embassy	Dec 00
Japan			125	102	106			75	69	76	ADAC	Oct 00
Jordan			40	42	45			15	15	15	GTZ	Nov 00
Kazakhstan				30	36				24	29	GTZ	Nov 00
Korea North				73	55				41	35	Embassy	Dec 00
Korea South			79	93	92			33	41	66	Trade mission	Nov 00
Kuwait				17	21				13	18	GTZ	Nov 00
Kyrgyzstan				47	44				27	33	GTZ	Nov 00
Laos				31	41				24	32	GTZ	Nov 00
Lebanon				35	53				22	31	Embassy	Nov 00
Macau				74	73				51	50	Embassy	Nov 00
Malaysia			42	28	28			26	17	16	ADAC	Oct 00
Moldova				45	45				31	40	Embassy	Nov 00
Mongolia				23	38				22	38	GTZ	Nov 00
Nepal*			52	59	63			22	24	37	GTZ	Nov 00
New Zealand			61	64	48			32	39	34	Embassy	Dec 00
Oman				31	31				26	29	Embassy	Dec 00
Pakistan			47	46	53			20	19	27	GTZ	Nov 00
Palest. Territories				86	108				31	61	GTZ	Dec 00
Papua New Guinea				41	53				28	34	GTZ	Nov 00
Philippines			34	34	37			27	22	28	GTZ	Nov 00
Qatar				16					15			
Russia			35	28	33			28	18	29	GTZ	Nov 00
Saudi Arabia			16	16	24			9	10	10	GTZ	Nov 00
Singapore				72	84				36	38	Embassy	Nov 00
Sri Lanka*			75	84	66			23	30	27	GTZ	Nov 00
Syria				45	44				14	13	Embassy	Nov 00
Taiwan			59	57	61			38	41	50	GTZ	Dec 00
Tajikistan*				26	45				13	55	GTZ	Nov 00
Thailand			34	30	39			30	27	35	GTZ	Nov 00
Turkmenistan				9	2				5	2	Embassy	Nov 00
U A E				28	25				18	26	Embassy	Nov 00
Ukraine				49	37				25	30	ADAC	Nov 00
Uzbekistan			32	11	14			31	9	9	GTZ	Nov 00
Vietnam*			34	35	38			25	26	27	GTZ	Nov 00
Yemen*				26	21				7	6	GTZ	Nov 00

* 2000 price for regular gasoline

Sources:

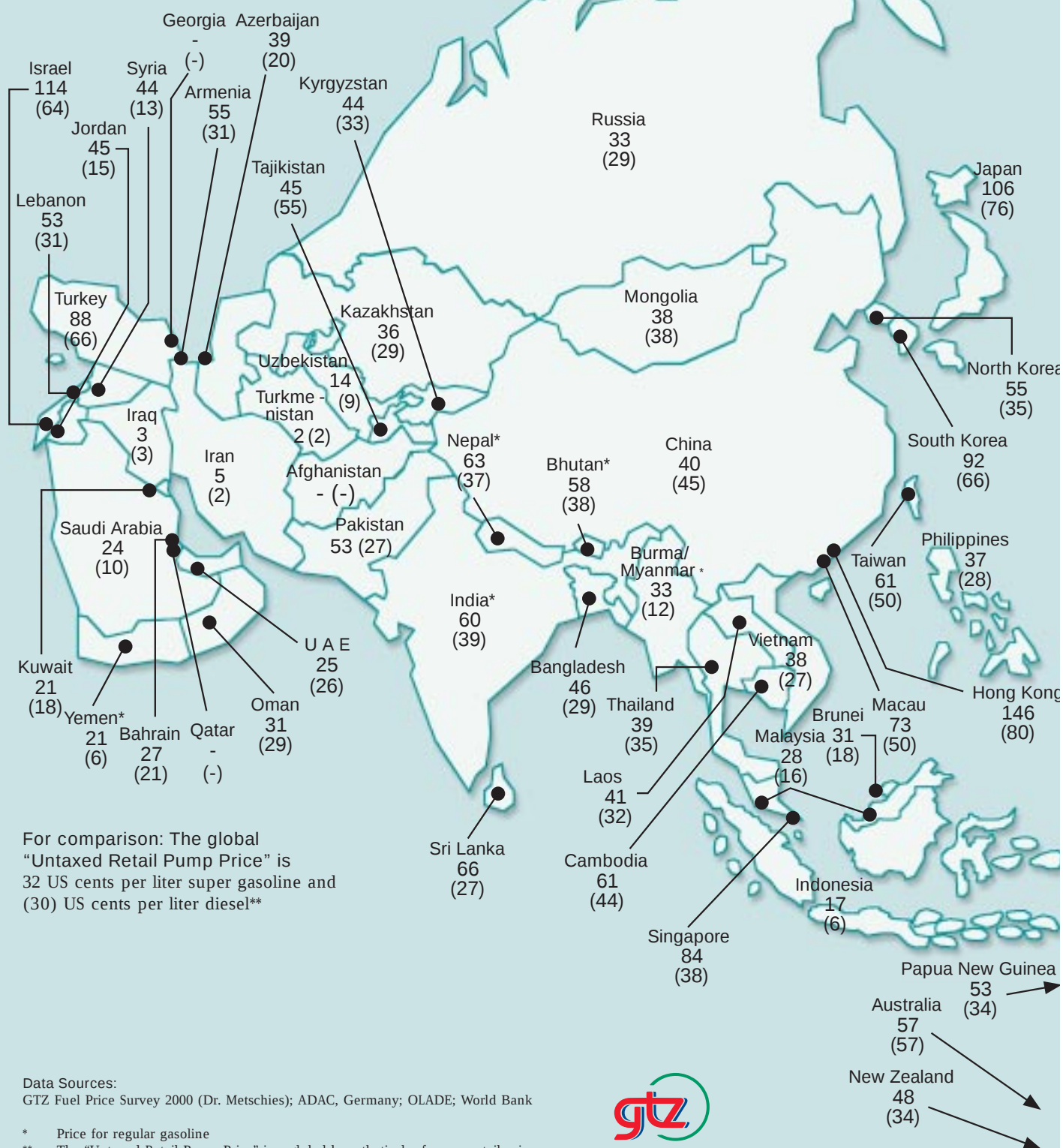
GTZ Fuel Price Surveys 1991, 1993, 1995, 1998, 2000; ADAC Germany; Olade;
(all data from last quarter of each year)



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Fuel Prices Asia and Australia

in US cents per liter gasoline
(diesel in brackets) November 2000



Data Sources:
GTZ Fuel Price Survey 2000 (Dr. Metschies); ADAC, Germany; OLADE; World Bank

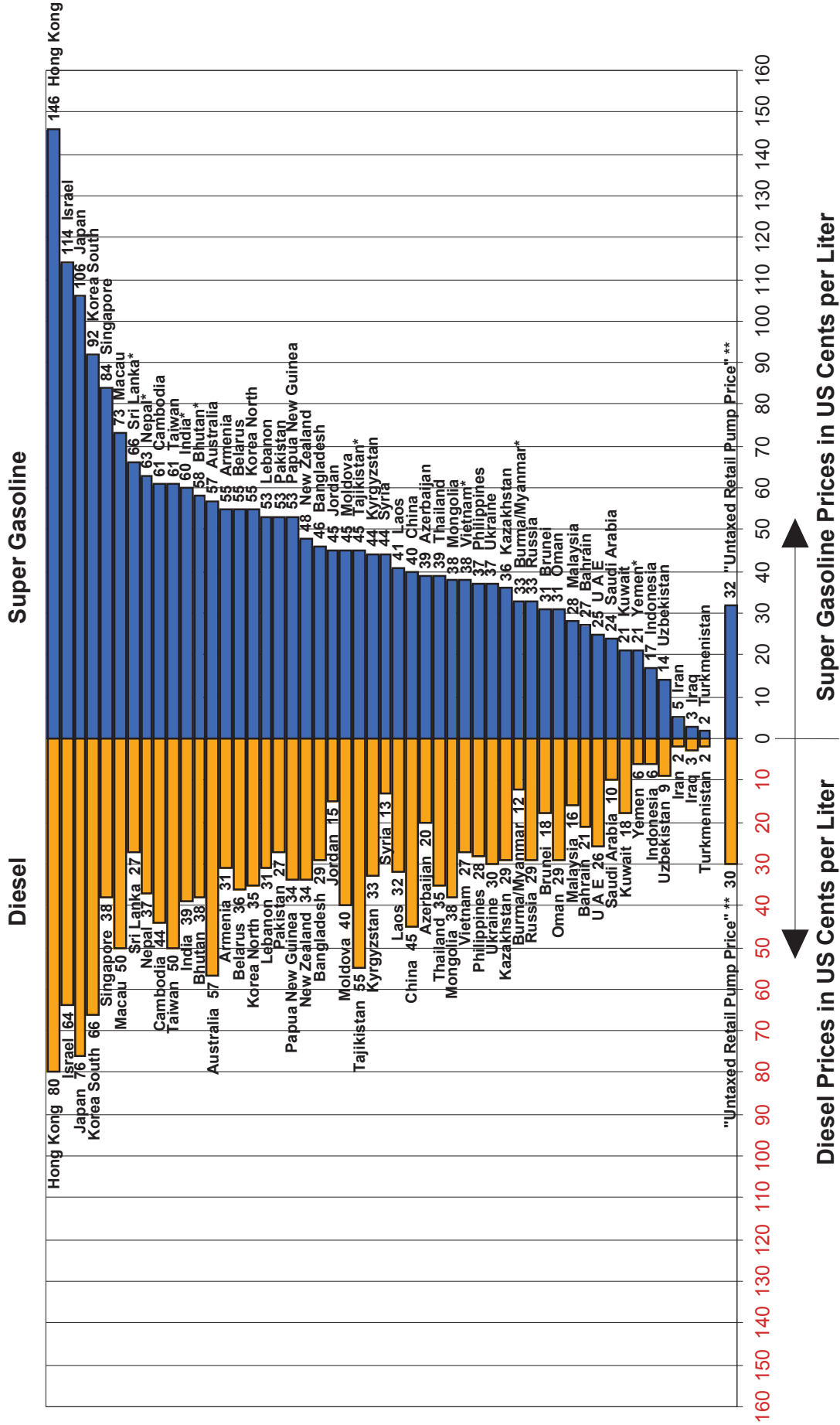
* Price for regular gasoline

** The "Untaxed Retail Pump Price" is a global hypothetical reference retail price incl. distribution, but excl. fuel tax, VAT etc.



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Fuel Prices as of November 2000 - Asia and Australia - Average Consumer Prices at Highway Pump in US Cents per Liter



Source: GTZ Fuel Price Survey 2000 (Dr. Metschies); 1 US\$ = 2,26 DM = 1,16 Euro
* The gasoline quality is in general "Super". In those countries marked with " * " the quality is "Regular".
** The "Untaxed Retail Pump Price" is a hypothetical reference retail price including distribution but excluding fuel tax, VAT, etc.



Europe



Synoptical Table:

Pump Price for Super Gasoline and Diesel, 1991-2000



Geographical Representation:

Fuel Prices as of November 2000



Price-series Representation:

Ranking of Fuel Prices as of November 2000

Pump Prices for Super Gasoline and Diesel (in US cents per liter) 1991-2000 - Europe -

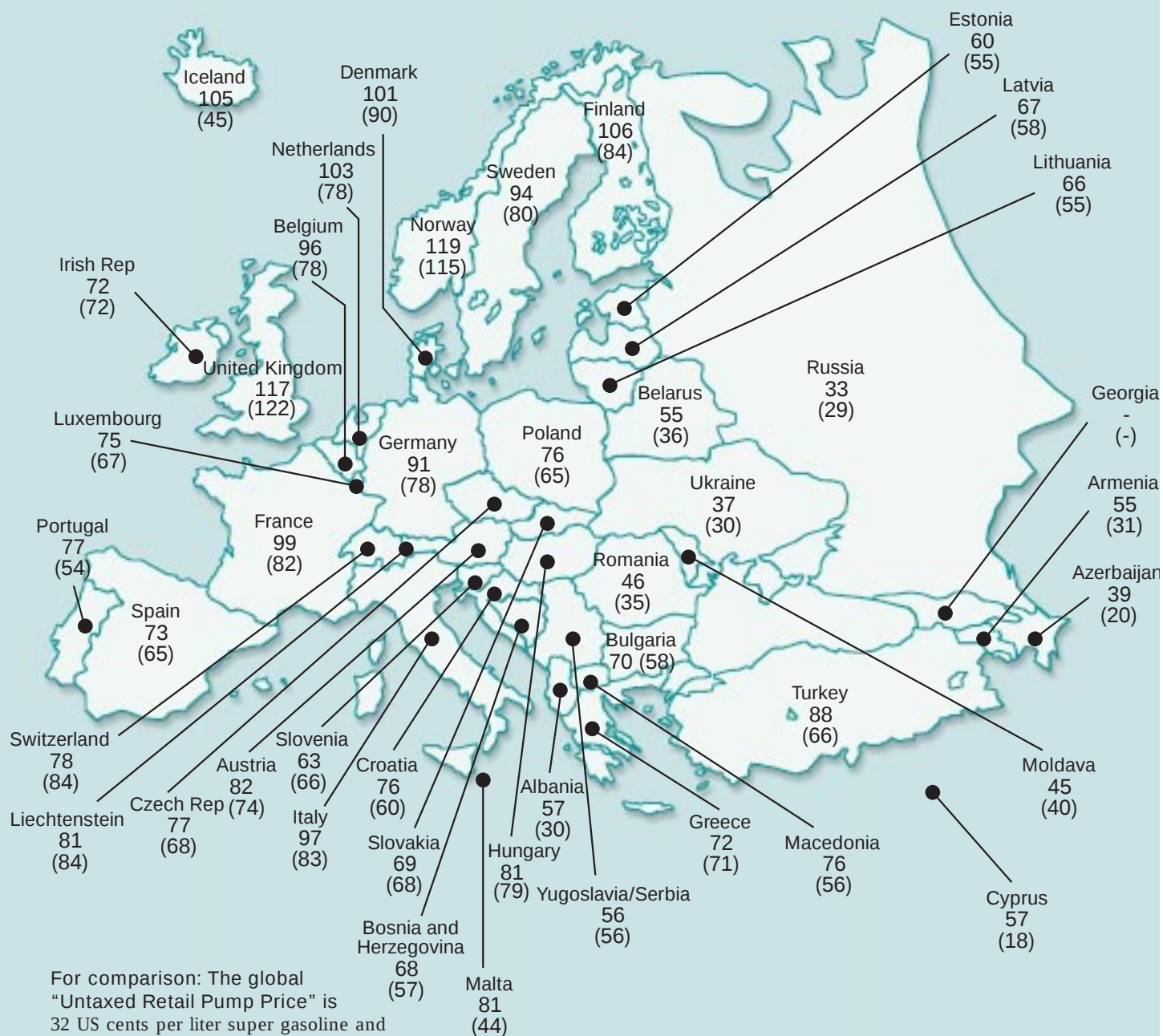
Fuel prices in US cents per liter												
Country	Super gasoline					Diesel					Source & date of 2000 data	
	1991	1993	1995	1998	2000	1991	1993	1995	1998	2000	Source	Date
Albania				86	57				43	30	ADAC	Nov 00
Andorra												
Austria			115	104	82			87	82	74	ADAC	Nov 00
Belgium			118	112	96			82	85	78	ADAC	Nov 00
Bosnia + Herzegovina				66	68				60	57	ADAC	Nov 00
Bulgaria			46	66	70			26	52	58	GTZ	Nov 00
Croatia			75	67	76			64	61	60	ADAC	Nov 00
Cyprus				78	57				25	18	ADAC	Nov 00
Czech Rep			85	72	77			60	60	68	ADAC	Nov 00
Denmark			108	105	101			87	85	90	ADAC	Nov 00
Estonia			33	45	60			33	36	55	ADAC	Nov 00
Finland			120	117	106			85	79	84	ADAC	Nov 00
France			117	111	99			78	77	82	ADAC	Nov 00
Georgia				46					25			
Germany			112	96	91			77	69	78	ADAC	Nov 00
Greece			88	65	72			59	40	71	ADAC	Nov 00
Hungary			74	72	81			65	64	79	GTZ	Dec 00
Iceland				112	105				40	45	ADAC	Nov 00
Irish Rep			96	102	72			87	102	72	ADAC	Nov 00
Italy			118	119	97			86	93	83	ADAC	Nov 00
Latvia			41	55	67			34	35	58	ADAC	Nov 00
Liechtenstein				85	81				89	84	ADAC	Nov 00
Lithuania			35	51	66			30	34	55	ADAC	Nov 00
Luxembourg			84	78	75			68	61	67	ADAC	Nov 00
Macedonia			93	70	76			59	46	56	ADAC	Nov 00
Malta				77	81				49	44	ADAC	Nov 00
Monaco												
Netherlands			121	114	103			82	79	78	ADAC	Nov 00
Norway			133	121	119			109	110	115	ADAC	Nov 00
Poland			55	54	76			42	44	65	ADAC	Nov 00
Portugal				102	77				71	54	ADAC	Nov 00
Romania			29	53	46			19	40	35	ADAC	Nov 00
Slovakia			66	61	69			40	54	68	ADAC	Nov 00
Slovenia			59	66	63			50	64	66	ADAC	Nov 00
Spain			89	84	73			70	70	65	ADAC	Nov 00
Sweden			117	109	94			101	84	80	ADAC	Nov 00
Switzerland			102	86	78			101	91	84	ADAC	Nov 00
Turkey			56	78	88			37	47	66	GTZ	Nov 00
United Kingdom			92	111	117			85	111	122	ADAC	Nov 00
Yugoslavia / Serbia			76	61	56			84	43	56	Embassy	Nov 00

* 2000 price for regular gasoline

Sources:
GTZ Fuel Price Surveys 1991, 1993, 1995, 1998, 2000; ADAC Germany; Olade;
(all data from last quarter of each year)

Fuel Prices in Europe

in US cents per liter gasoline
(diesel in brackets) November 2000



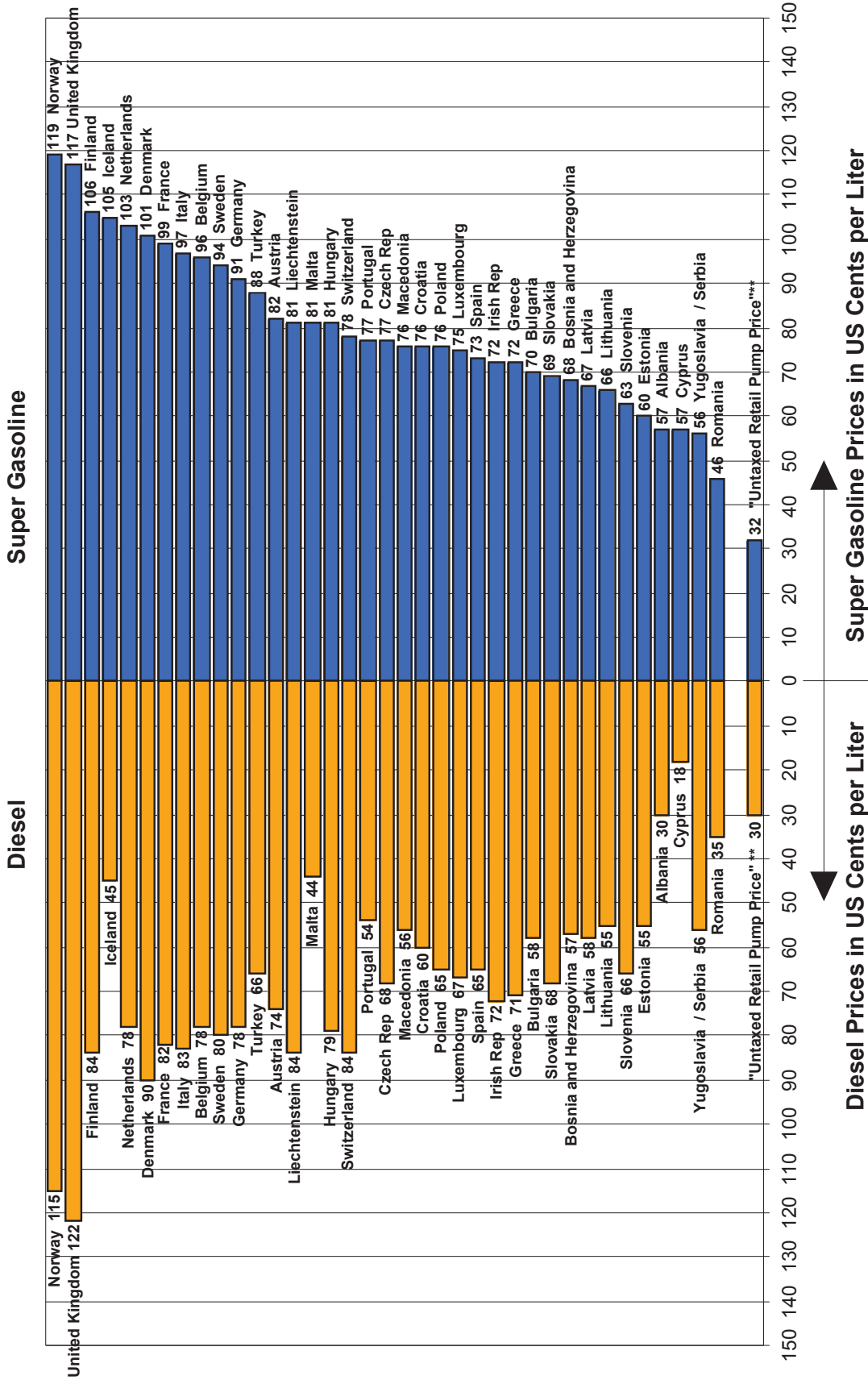
Data Sources:
GTZ Fuel Price Survey 2000 (Dr. Metschies); ADAC, Germany; OLADE; World Bank

** The "Untaxed Retail Pump Price" is a global hypothetical reference retail price incl. distribution, but excl. fuel tax, VAT etc.



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Fuel Prices as of November 2000 - Europe -
Average Consumer Prices at Highway Pump in US Cents per Liter



Source: GTZ Fuel Price Survey 2000 (Dr. Metschies); 1 US\$ = 2,26 DM = 1,16 Euro
* The gasoline quality is in general "Super". In those countries marked with " * " the quality is "Regular".
** The "Untaxed Retail Pump Price" is a hypothetical reference retail price including fuel tax, VAT, etc.

Overview: Global Fuel Prices

 World Table of Pump Prices for Super Gasoline and Diesel

 Ranking of Diesel and Gasoline Prices for more than 160 Countries

 Conclusions

World table of pump prices for super gasoline and diesel [US cents/l], 1991 – 2000

The following table summarizes the fuel prices pertaining to the various continents. It lists more than 160 countries of the world in alphabetical order and indicates their respective fuel prices in US cents per liter. The local prices have been converted according to the valid exchange rates as of the survey date. The respective source of data and the date of the last survey are noted separately. The basic parameters of the survey data (cf. chapter 3) apply as well to this table.

The fuel prices in the individual states of the USA are not mentioned separately but only summarized in the category "average".

Ranking of Diesel and Gasoline prices for more than 160 countries as of November 2000

More than 160 countries (with populations exceeding 1 million) have been listed, in ascending order of fuel prices, in the diesel- and gasoline-price diagrams. In both diagrams two reference lines are included, the lower one representing the world market price for crude oil ("Brent") of 19.7 US cents per liter as of November 2, 2000. The second reference line represents the untaxed retail pump price. It amounts to 30 US cents for diesel and 32 US cents for super gasoline. The difference between Brent and untaxed retail pump prices is basically due to production and distribution costs.

Diesel prices: global country rankings (more than 160 countries)

At 122 US cents per liter diesel, the United Kingdom has the highest diesel prices, and at 2 US cents per liter, Iran and Turkmenistan have the lowest.

The diesel diagram plainly indicates four main country categories:

Category 1 (subsidized); these are the oil subsidizing and producing countries in which diesel fuel is available at liter prices situated below the untaxed pump price of 30 US cents per liter (beginning at 2 US cents per liter).

Category 2 (low-taxed US category), i.e., the USA and other countries that pursue a low-price policy, where diesel and gasoline taxes average out to only 10 US cents per liter (pump price: 31 - 48 US cents/liter diesel).

Category 3 (between US and EU), i.e., countries occupying an intermediate range situated between low-taxed and highly taxed price policies (pump prices between 48 and 55 US cents/liter diesel).

Category 4 (highly taxed EU and Japan), i.e., the EU countries, Japan, and other countries in which the per-liter tax on diesel amounts to between 30 and 90 US cents (resulting in pump prices of 55 - 122 US cents/liter diesel).

Gasoline prices: global country rankings (160 countries)

With local pump prices ranging around 146 US cents/liter for gasoline, Hong Kong drivers pay more for gasoline than anyone else in the world – nearly four times as much as in neighboring China. Conversely, Turkmenistan's gasoline price of 2 US cent per liter is the lowest the world.

The gasoline diagram also comprises 4 different country categories:

Category 1 (subsidized); these are the oil subsidizing and producing countries in which gasoline is available at liter prices situated below the untaxed pump price of 32 US cents per liter (beginning at 2 US cents per liter).

Category 2 (low-taxed US category), i.e., the USA and other countries that pursue a low-price policy, where diesel and gasoline taxes average out to only 10 US cents per liter (pump price: 33 - 47 US cents/liter gasoline).

Category 3 (between US and EU), i.e., countries occupying an intermediate range situated between low-taxed and highly taxed price policies (pump prices between 47 and 72 US cents/liter gasoline).

Category 4 (highly taxed EU and Japan), i.e., the EU countries, Japan, and other countries in which the per-liter tax on gasoline amounts to between 40 and 110 US cents (resulting in pump prices of 72 - 146 US cents/liter gasoline).

Conclusions

A given country's assignment to one of the above 4 categories is not dependent on its economic situation (per capita GNP, cf. motorization table in chapter 7). Indeed, the impression is more or less one of arbitrariness, since the highly taxed gasoline category includes countries like Uganda, Brazil and Bolivia, while comparable countries like Ghana, the Philippines, Guyana and Russia belong to the low-taxed price group.

Pump Prices for Super Gasoline and Diesel (in US cents per liter) 1991-2000

1

Fuel prices in US cents per liter										
Country	Super gasoline					Diesel				
	1991	1993	1995	1998	2000	1991	1993	1995	1998	2000
Afghanistan										
Albania				86	57				43	30
Algeria	15	20	40	31	27	4	9	23	16	15
Andorra										
Angola*				38	30				19	15
Antigua					56					56
Argentina		79	60	94	107		29	28	42	52
Armenia				49	55				25	31
Australia				46	57				45	57
Austria			115	104	82			87	82	74
Azerbaijan				46	39				22	20
Bahamas										
Bahrain				26	27				18	21
Bangladesh			36	47	46			31	26	29
Barbados				72	95				62	75
Belarus				34	55				13	36
Belgium			118	112	96			82	85	78
Belize										
Benin	63	62	36	39	48	48	47	28	31	39
Bhutan*				59	58				26	38
Bolivia		43	38	53	80		35	31	35	50
Bosnia + Herzegovina				66	68				60	57
Botswana	68	41	38	31	42	61	37	35	29	39
Brazil		53	63	80	92		38	39	34	34
Brunei				34	31				18	18
Bulgaria			46	66	70			26	52	58
Burkina Faso	103	100	81	68	68	84	85	62	50	46
Burma/Myanmar*				13	33				12	12
Burundi	63	59	52	72	101	61	54	48	66	71
Cambodia				47	61				28	44
Cameroon	68	69	68	64	56	58	58	50	48	47
Canada		47	45	41	58		39	36	39	47
Cape Verde	68			81	59	40			43	39
Central African Rep.	133	128	82	81		99	98	64	65	
Chad*	105	102	80	70	68	97	95	70	61	60
Chile		43	53	49	64		31	33	29	47
China			27	28	40			24	25	45
Colombia		23	35	24	49		19	27	20	35
Comoros										
Congo (DemRep)	81	74	73	50	100	73	67	70	50	93
Congo (Rep.)	105			72	53	71			40	30
Costa Rica		37	40	41	65		28	27	28	44
Côte d'Ivoire	124	123	83	74	76	115	86	56	45	51
Croatia			75	67	76			64	61	60
Cuba				50					18	
Cyprus				78	57				25	18
Czech Rep			85	72	77			60	60	68
Denmark			108	105	101			87	85	90
Djibouti Republic	77	61	93	91	105	38	56	40	40	53
Dominica										
Dominican Republic			40	40	71			28	22	39
Ecuador		31	33	38	31		19	28	24	18
Egypt*	29	30	29	29	26	7	9	12	12	10
El Salvador				54	67				30	40
Equatorial Guinea										

Sources:

GTZ Fuel Price Surveys 1991, 1993, 1995, 1998, 2000; ADAC Germany; Olade;
(all data from last quarter of each year)



Deutsche Gesellschaft für
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Pump Prices for Super Gasoline and Diesel (in US cents per liter) 1991-2000

2

Fuel prices in US cents per liter												
Country	Super gasoline					Diesel					Source & date of 2000 data	
	1991	1993	1995	1998	2000	1991	1993	1995	1998	2000	Source	Date
Eritrea*		50	40	37	56		29	19	23	33	Embassy	Nov 00
Estonia			33	45	60			33	36	55	ADAC	Nov 00
Ethiopia*	27	26	32	36	46	14	19	24	25	27	GTZ	Nov 00
Fiji Is				50					37			
Finland			120	117	106			85	79	84	ADAC	Nov 00
France			117	111	99			78	77	82	ADAC	Nov 00
Gabon	118	116		63	53	83	70		39	37	GTZ	Dec 00
Gambia	73	67		83	64	52	48		63	47	GTZ	Nov 00
Georgia				46					25			
Germany			112	96	91			77	69	78	ADAC	Nov 00
Ghana	53	53	38	32	20	43	45	33	30	19	GTZ	Nov 00
Greece			88	65	72			59	40	71	ADAC	Nov 00
Grenada#				54	54				41	41	Olade	Aug 00
Guatemala		32	39	41	53		25	28	32	42	GTZ	Nov 00
Guinea*	67	61		68	85	61	56		56	69	GTZ	Dec 00
Guinea-Bissau	30	27				61	56					
Guyana#				30	37				27	37	Olade	Aug 00
Haiti				59	64				36	35	GTZ	Nov 00
Honduras		41	35	50	62		26	25	30	46	GTZ	Nov 00
Hong Kong			119	136	146			74	85	80	Embassy	Nov 00
Hungary			74	72	81			65	64	79	GTZ	Dec 00
Iceland				112	105				40	45	ADAC	Nov 04
India*			48	56	60			19	21	39	GTZ	Nov 00
Indonesia			44	16	17			20	7	6	GTZ	Nov 00
Iran				8	5				1	2	Embassy	Nov 00
Iraq				1	3				1	3	GTZ	Dec 00
Irish Rep			96	102	72			87	102	72	ADAC	Nov 00
Israel			73	86	114			31	31	64	Embassy	Dec 00
Italy			118	119	97			86	93	83	ADAC	Nov 00
Jamaica#				37	62				33	49	Olade	Aug 00
Japan			125	102	106			75	69	76	ADAC	Oct 00
Jordan			40	42	45			15	15	15	GTZ	Nov 00
Kazakhstan				30	36				24	29	GTZ	Nov 00
Kenya	53	40	56	70	71	37	33	43	54	60	GTZ	Nov 00
Kiribati												
Korea North				73	55				41	35	Embassy	Dec 00
Korea South			79	93	92			33	41	66	Trade mission	Nov 00
Kuwait				17	21				13	18	GTZ	Nov 00
Kyrgyzstan				47	44				27	33	GTZ	Nov 00
Laos				31	41				24	32	GTZ	Nov 00
Latvia		41		55	67			34	35	58	ADAC	Nov 00
Lebanon				35	53				22	31	Embassy	Nov 00
Lesotho				39	50				38	47	GTZ	Nov 00
Liberia												
Libya				22	25				17	16	ADAC	Oct 00
Liechtenstein				85	81				89	84	ADAC	Nov 00
Lithuania			35	51	66			30	34	55	ADAC	Nov 00
Luxembourg			84	78	75			68	61	67	ADAC	Nov 00
Macau				74	73				51	50	Embassy	Nov 00
Macedonia			93	70	76			59	46	56	ADAC	Nov 00
Madagascar	43	54	47	47	76	25	31	32	33	45	GTZ	Nov 00
Malawi*	64	71	65	51	69	56	67	55	45	68	GTZ	Nov 00
Malaysia			42	28	28			26	17	16	ADAC	Oct 00
Maldiv Is												
Mali Rep	112	114	82	77	70	74	74	57	48	43	GTZ	Nov 00

Sources:

GTZ Fuel Price Surveys 1991, 1993, 1995, 1998, 2000; ADAC Germany; Olade;
(all data from last quarter of each year)



Deutsche Gesellschaft für
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Pump Prices for Super Gasoline and Diesel (in US cents per liter) 1991-2000

3

Fuel prices in US cents per liter												
Country	Super gasoline					Diesel					Source & date of 2000 data	
	1991	1993	1995	1998	2000	1991	1993	1995	1998	2000	Source	Date
Malta				77	81				49	44	ADAC	Nov 00
Marshall Is												
Mauritania*	86	85		59	67	53	43		31	40	GTZ	Dec 00
Mauritius												
Mexico		39	32	36	61		28	25	28	45	GTZ	Nov 00
Mikronesia												
Moldova				45	45				31	40	Embassy	Nov 00
Monaco												
Mongolia				23	38				22	38	GTZ	Nov 00
Morocco	82	75	94	79	82	45	41	47	47	53	GTZ	Nov 00
Mozambique	74	48	53	55	56	26	21	32	41	54	GTZ	Nov 00
Namibia*	46	42		38	47	41	38		36	44	GTZ	Nov 00
Nauru Is												
Nepal*			52	59	63			22	24	37	GTZ	Nov 00
Netherlands			121	114	103			82	79	78	ADAC	Nov 00
New Zealand			61	64	48			32	39	34	Embassy	Dec 00
Nicaragua		69	62	47	62		30	31	35	54	GTZ	Nov 00
Niger Rep	94	92	79	76	68	81	60	55	52	48	GTZ	Nov 00
Nigeria*	5	2	13	13	27	4	1	3	10	27	Embassy/GTZ	Nov 00
Norway			133	121	119			109	110	115	ADAC	Nov 00
Oman				31	31				26	29	Embassy	Dec 00
Pakistan			47	46	53			20	19	27	GTZ	Nov 00
Palestinian Territories				86	108				31	61	GTZ	Dec 00
Panama		43		41	53		30		28	41	GTZ	Nov 00
Papua New Guinea				41	53				28	34	GTZ	Nov 00
Paraguay		43	44	47	72		27	28	24	34	GTZ	Dec 00
Peru		56	68	55	80		32	43	33	54	GTZ	Dec 00
Philippines			34	34	37			27	22	28	GTZ	Nov 00
Poland			55	54	76			42	44	65	ADAC	Nov 00
Portugal				102	77				71	54	ADAC	Nov 00
Puerto Rico				34					32			
Qatar				16					15			
Romania			29	53	46			19	40	35	ADAC	Nov 00
Russia			35	28	33			28	18	29	GTZ	Nov 00
Rwanda*	81	93		72	89	79	88		72	84	GTZ	Nov 00
San Marino												
Sao Tomé*					90					71	GTZ	Nov 00
Saudi Arabia			16	16	24			9	10	10	GTZ	Nov 00
Senegal	119	123	94	71	73	74	88	62	48	52	GTZ	Nov 00
Sierra Leone	45	49		61		43	44		53			
Singapore				72	84				36	38	Embassy	Nov 00
Slovakia			66	61	69			40	54	68	ADAC	Nov 00
Slovenia			59	66	63			50	64	66	ADAC	Nov 00
Somali Rep	21					15						
South Africa		52	51	43	50		52	46	39	50	GTZ	Nov 00
Spain			89	84	73			70	70	65	ADAC	Nov 00
Sri Lanka*			75	84	66			23	30	27	GTZ	Nov 00
Sudan Rep*	7	58	50	33	28	6	58	25	26	24	GTZ	Nov 00
Suriname				56	56				41	41	Olade	Aug 00
Swaziland	46	43		37	47	41	40		36	44	GTZ	Nov 00
Sweden			117	109	94			101	84	80	ADAC	Nov 00
Switzerland			102	86	78			101	91	84	ADAC	Nov 00
Syria				45	44				14	13	Embassy	Nov 00
Taiwan			59	57	61			38	41	50	GTZ	Dec 00
Tajikistan*				26	45				13	55	GTZ	Nov 00

Sources:

GTZ Fuel Price Surveys 1991, 1993, 1995, 1998, 2000; ADAC Germany; Olade;
(all data from last quarter of each year)



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Pump Prices for Super Gasoline and Diesel (in US cents per liter) 1991-2000

4

Fuel prices in US cents per liter												
Country	Super gasoline					Diesel					Source & date of 2000 data	
	1991	1993	1995	1998	2000	1991	1993	1995	1998	2000	Source	Date
Tanzania*	42	43	56	63	75	25	30	44	57	73	GTZ	Nov 00
Thailand			34	30	39			30	27	35	GTZ	Nov 00
Togo Rep	81	72	47	42	48	66	63	40	37	40	GTZ	Nov 00
Trinidad and Tobago				39	39				20	20	GTZ	Dec 00
Tunesia	58	52	64	60	49	33	31	44	33	29	GTZ	Nov 00
Turkey			56	78	88			37	47	66	GTZ	Nov 00
Turkmenistan				9	2				5	2	Embassy	Nov 00
U A E**				23	25				15	26	Embassy	Nov 00
Uganda	69	79	98	86	86	55	71	85	68	75	GTZ	Nov 00
Ukraine				49	37				25	30	ADAC	Nov 00
United Kingdom			92	111	117			85	111	122	ADAC	Nov 00
United St. (average)		32	34	32	47		28	33	27	48	GTZ	Nov 00
United States (low)				30					26			
United States (high)				35					31			
Uruguay			89	90	119			38	42	53	GTZ	Nov 00
Uzbekistan			32	11	14			31	9	9	GTZ	Nov 00
Vanuatu												
Vatican												
Venezuela			3	14	12			1	8	6	GTZ	Nov 00
Vietnam			34	35	38			25	26	27	GTZ	Nov 00
Yemen*				26	21				7	6	GTZ	Nov 00
Yugoslavia / Serbia			76	61	56			84	43	56	Embassy	Nov 00
Zambia*	40	72	60	53		24	66	57	49		GTZ	Dec 00
Zimbabwe*	68	47	38	26	85	37	28	29	22	72	GTZ	Nov 00

* 2000 price for regular gasoline

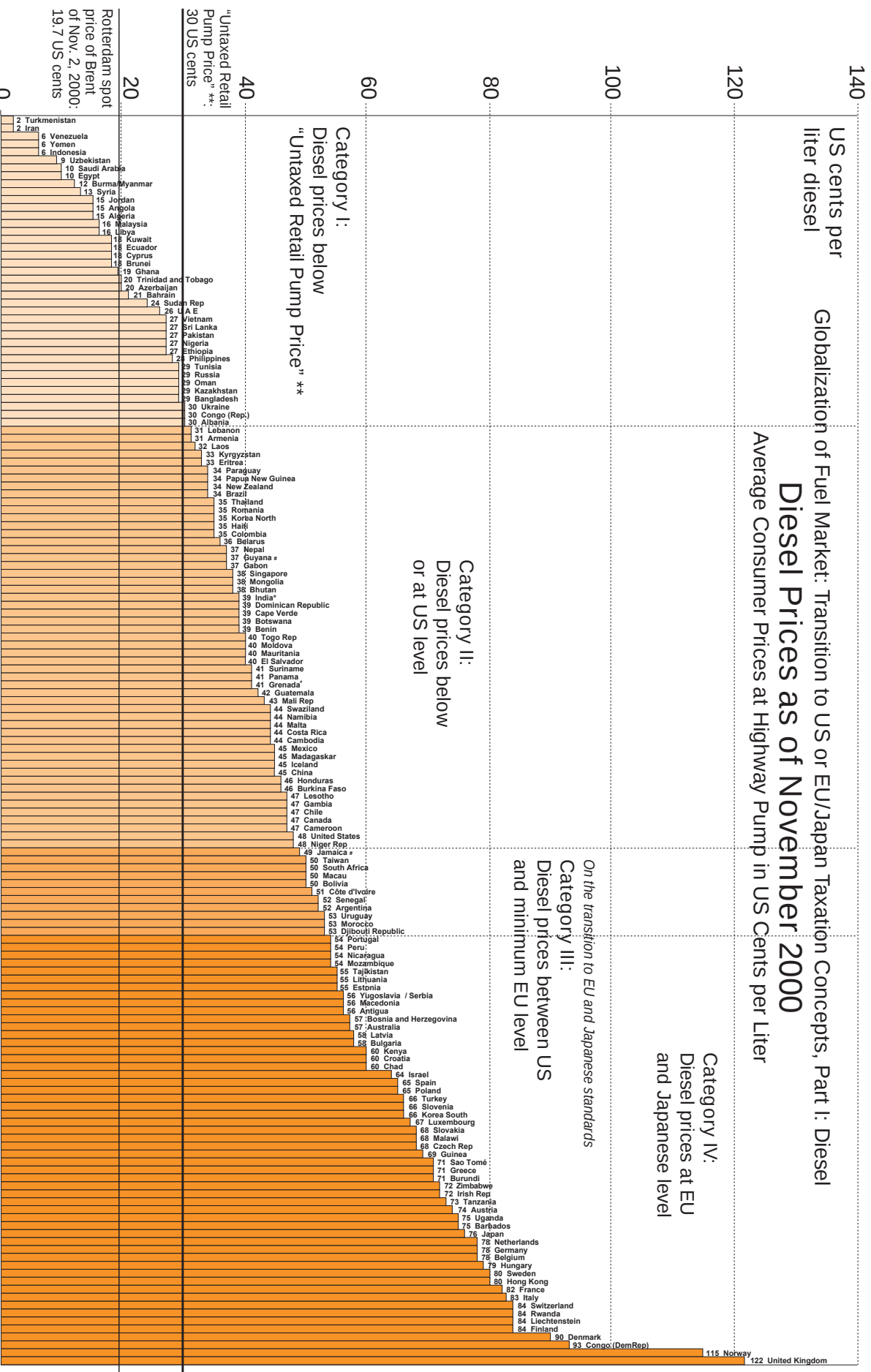
** 1998 prices have been corrected in the second edition of this book

Sources:

GTZ Fuel Price Surveys 1991, 1993, 1995, 1998, 2000; ADAC Germany; Olade;
(all data from last quarter of each year)



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Characteristics:
No fees or taxes to finance roads or state budgets

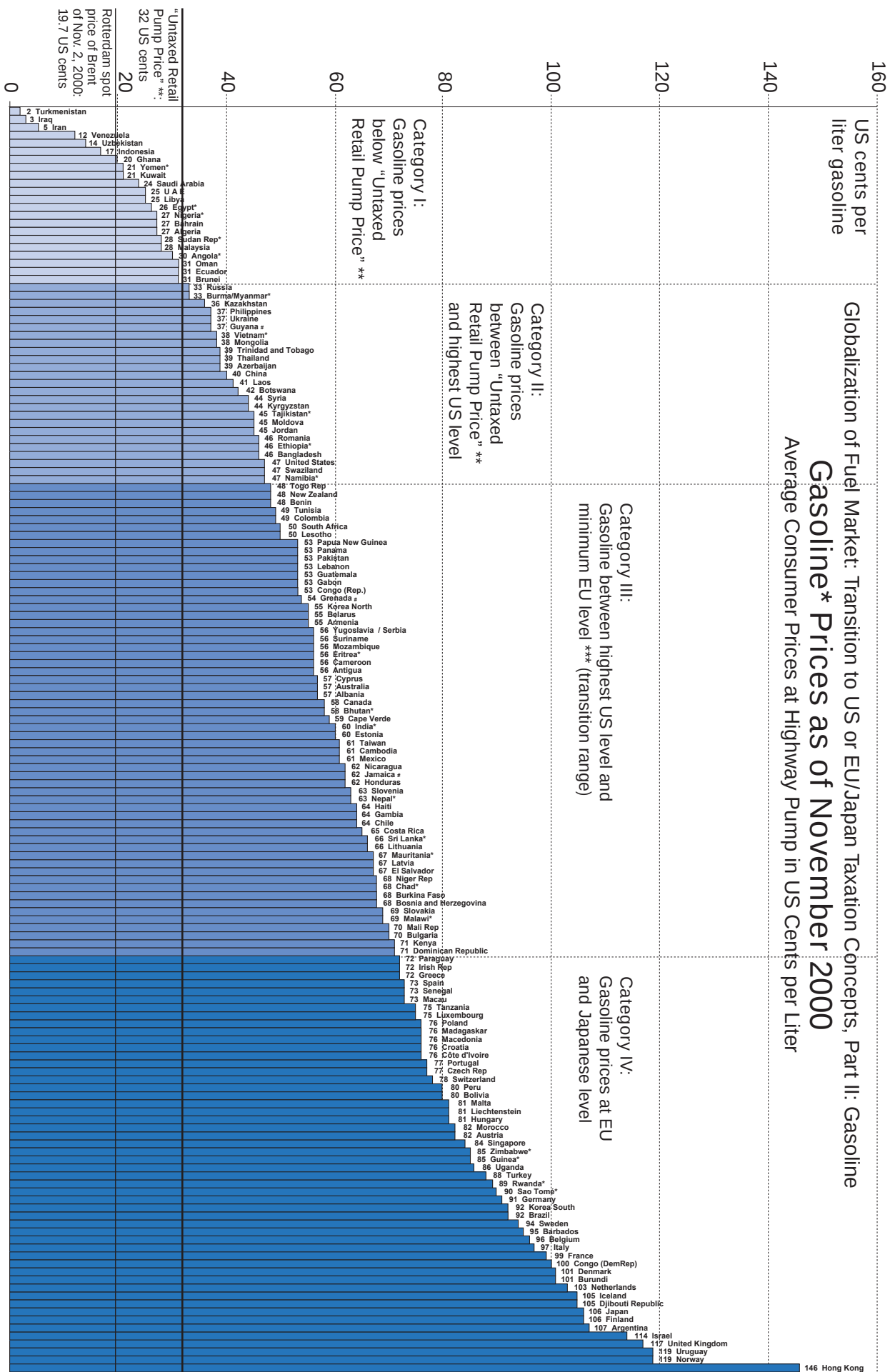
Characteristics:
Level of taxation often too low to guarantee average US road user fee of 10 US cents per liter

Characteristics:
Associated countries (LOME Convention and Mediterranean Countries) as well as EU applicant countries still below EU entry requirements (Acquis Communautaire of 21 US cents per liter government taxes)

Characteristics:
European concept of financing roads, other transport services (cross-subsidies) and state budget (partly)



Source: GTZ Fuel Price Survey 2000 (Dr. Meitschies). 1 US\$ = 2.26 DM = 1.16 EURO
**The "Untaxed Retail Pump Price" is a global retail price for diesel incl. distribution, but excluding fuel tax, VAT etc.



Source: GTZ Fuel Price Survey 2000 (Dr. Mettschies); 1 US\$ = 2.26 DM = 1.16 EURO

* In most cases the prices given refer to super gasoline. Only in those countries marked with * the quality is "regular".

** The "Untaxed Retail Pump Price" is a hypothetical reference retail pump price for super gasoline including distribution but excluding fuel tax, VAT, etc.

*** According to the agreed upon EU minimum taxation ("Acquis Communautaire").

Country Table: Prices in Local Currency (November 2000)

1

Country	Currency	Fuel prices in local currency		Exchange rate**
		Diesel	Super Gasoline	1 US \$ =
Afghanistan				
Albania	Lek	45.00	85.00	148.000
Algeria	Dinar	11.60	21.25	78.252
Andorra				
Angola*	Readje Kwanza	2.00	4.00	13.289
Antigua*		1.51	1.51	2.680
Argentina	Peso	0.52	1.07	0.999
Armenia	Drum	175.00	310.00	564.150
Australia	Australian \$	1.06	1.05	1.845
Austria	Shilling	11.84	13.12	15.934
Azerbaijan	Manat	900.00	1,800.00	4,570.000
Bahamas				
Bahrain	Dinar	0.08	0.10	0.377
Bangladesh	Taka	15.65	25.00	54.100
Barbados	Barb \$	1.48	1.90	1.990
Belarus	Rouble	430.00	660.00	1,190.000
Belgium	Belg. Fr.	36.50	44.80	46.711
Belize				
Benin	CFA Fr	295.00	365.00	759.570
Bhutan*	Ngrultrum	17.60	27.00	46.600
Bolivia	Boliviano	3.12	5.03	6.300
Bosnia and Herzegovina	Convertible Marka	1.30	1.55	2.265
Botswana	Pula	2.08	2.23	5.343
Brazil	Real	0.65	1.77	1.934
Brunei	Brunei \$	0.31	0.53	1.734
Bulgaria	Lev	1.31	1.58	2.256
Burkina Faso	CFA Fr	351.00	517.00	759.570
Burma/Myanmar*	Kyat	40.00	115.00	344.000
Burundi*	Burundi Fr	600.00	850.00	843.326
Cambodia	Riel	1,700.00	2,350.00	3,835.000
Cameroon	CFA Fr	354.00	427.00	759.570
Canada	Canadian \$	0.72	0.89	1.534
Cape Verde	CV Escudo	50.00	75.00	127.430
Central African Republic				
Chad*	CFA Fr	455.00	515.00	759.570
Chile	Chilean Peso	268.00	365.00	574.250
China	Renmimbi	3.73	3.27	8.277
Colombia	Col Peso	740.00	1,057.00	2,140.000
Comoros				
Congo (DemRep)	Zaire	42.00	45.00	44.990
Congo (Rep.)	CFA Fr	2.25	4.00	7.596
Costa Rica	Colon	139.60	204.50	314.680
Côte d'Ivoire	CFA Fr	390.00	578.00	759.570
Croatia	Kuna	5.22	6.63	8.749
Cuba				
Cyprus	Cyprus Pound	0.12	0.38	0.663
Czech Rep	Koruna	27.20	31.10	40.153
Denmark	Danish Crown	7.74	8.67	8.625
Djibouti Republic	Djib. Fr	92.00	181.00	173.000
Dominica				
Dominican Republic	D Peso	6.28	11.40	16.000
Ecuador	Sucre	4,500.00	7,750.00	25,000.000
Egypt*	Egyptian Pound	0.40	1.00	3.810
El Salvador	Colon	3.50	5.86	8.745
Equatorial Guinea				
Eritrea*	Nafka	3.15	5.30	9.500
Estonia	Kroon	9.90	10.80	18.115
Ethiopia*	Ethiopian Birr	2.20	3.79	8.161
Fiji Is				
Finland	Markka	5.79	7.28	6.885
France	FF	6.20	7.52	7.596
Gabon	CFA Fr	275.00	400.00	752.244
Gambia	Dalasi	6.75	9.25	14.500
Georgia				
Germany	DM	1.77	2.05	2.265
Ghana	Cedi	1,350.00	1,420.00	7,200.000

*) Prices in 2000 for regular quality. #) Data from August 2000 (Olade)

**) Exchange rate of local currency against the US\$ according to Financial Times, Nov. 10, 2000

Sources:

GTZ Fuel Price Surveys 1991, 1993, 1995, 1998, 2000; ADAC Germany; Olade;
(all data from last quarter of each year)



Deutsche Gesellschaft für
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Country Table: Prices in Local Currency (November 2000)

2

Country	Currency	Fuel prices in local currency		Exchange rate**
		Diesel	Super Gasoline	
Greece	Drachma	280.00	285.00	393.610
Grenada#				
Guatemala	Quezna	3.28	4.20	7.852
Guinea*	Fr	1,300.00	1,600.00	1,889.000
Guinea-Bissau				
Guyana#				
Haiti	Gourde	7.70	14.15	22.000
Honduras	Lempira	6.92	9.33	15.000
Hong Kong	HK \$	6.25	11.40	7.797
Hungary	Florint	234.90	240.90	296.400
Iceland	Icelandic Krona	38.60	89.90	85.495
India*	Indian Rupee	18.00	28.00	46.600
Indonesia	Rupiah	550.00	1,600.00	9,175.000
Iran	Rial	120.00	385.00	7,900.000
Iraq	Iraqi Dinar	50.00	50.00	1,970.200
Irish Rep	Irish Punt	0.66	0.66	0.912
Israel	Shekel	2.60	4.65	4.091
Italy	Lira	1,860.00	2,180.00	2,242.090
Jamaica#				
Japan	Yen	82.00	114.00	107.385
Jordan	Jordanian Dinar	0.11	0.32	0.710
Kazakhstan	Tenge	41.00	52.00	142.845
Kenya	Kenya Shilling	47.20	56.20	79.150
Kiribati				
Korea North				
Korea South	Won	746.00	1,045.00	1,134.800
Kuwait	Kuwait Dinar	0.06	0.07	0.307
Kyrgyzstan	Som	16.00	21.00	48.052
Laos	New Kip	2,695.00	3,465.00	8,400.000
Latvia	Lats	0.36	0.42	0.624
Lebanon	Lebanese Pound	475.00	800.00	1,513.000
Lesotho	Maluti	3.56	3.80	7.538
Liberia				
Libya	Libyan Dinar	0.09	0.14	0.551
Liechtenstein	Swiss Fr	1.48	1.43	1.765
Lithuania	Litas	2.20	2.66	4.003
Luxembourg	Lux Fr	31.50	34.80	46.711
Macau		4.01	5.83	8.030
Macedonia	Denar	40.00	54.00	71.395
Madagascar	MG Fr	3,000.00	5,100.00	6,669.000
Malawi*	Kwacha	54.50	55.00	79.700
Malaysia	Ringgit	0.62	1.06	3.800
Maldiv Is				
Mali Rep	CFA Fr	325.00	535.00	759.570
Malta	Maltese Lira	0.20	0.37	0.458
Marshall Is				
Mauritania*	Ouguiya	104.00	173.00	257.630
Mauritius				
Mexico	Mexican Peso	4.33	5.87	9.594
Mikronesia				
Moldova	Leu	5.30	6.00	13.325
Monaco				
Mongolia	Tugrik	400.00	400.00	1,064.000
Morocco	Dirham	5.80	9.09	11.039
Mozambique	Metical	8,850.00	9,150.00	16,432.500
Namibia*	SA Rand	3.28	3.52	7.538
Nauru Is				
Nepal*	Nepalese Rupee	27.50	47.00	74.400
Netherlands	Guilder	1.99	2.63	2.552
New Zealand	NZ \$	0.80	1.15	2.370
Nicaragua	Gold Cordoba	6.99	7.99	12.900
Niger Rep	CFA Fr	365.00	515.00	759.570
Nigeria*	Naira	30.00	30.00	110.500
Norway	Nor. Krone	10.59	10.99	9.224
Oman	Rial Omani	0.11	0.12	0.382
Pakistan	Pakist. Rupee	15.25	30.00	57.000

*) Prices in 2000 for regular quality. #) Data from August 2000 (Olade)

**) Exchange rate of local currency against the US\$ according to Financial Times, Nov. 10, 2000

Sources:

GTZ Fuel Price Surveys 1991, 1993, 1995, 1998, 2000; ADAC Germany; Olade;
(all data from last quarter of each year)



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Country Table: Prices in Local Currency (November 2000)

3

		Fuel prices in local currency		Exchange rate**
Country	Currency	Diesel	Super Gasoline	1 US \$ =
Palestinian Territories	Shekel	2.50	4.40	4.091
Panama	Balboa	0.41	0.53	1.000
Papua New Guinea	Kina	1.04	1.62	3.072
Paraguay	Guarani	1,200.00	2,550.00	3,550.000
Peru	New Sol	1.90	2.80	3.508
Philippines	Peso	14.32	18.63	51.000
Poland	Zloty	2.95	3.45	4.518
Portugal	Escudo	125.00	178.00	232.147
Puerto Rico				
Qatar				
Romania	Leu	8,700.00	11,400.00	24,920.000
Russia	Roubel	8.18	9.27	27.855
Rwanda*	Fr	355.00	375.00	421.200
San Marino				
Sao Tomé*	Dobra	6,000.00	7,550.00	8,400.000
Saudi Arabia	Riyal	0.37	0.90	3.751
Senegal	CFA Fr	396.00	555.00	759.570
Sierra Leone				
Singapore	\$	0.67	1.45	1.734
Slovakia	Koruna	34.40	34.60	50.405
Slovenia	Tolar	159.80	153.80	243.620
Somali Rep				
South Africa	Rand	3.74	3.74	7.538
Spain	Peseta	124.90	140.90	192.666
Sri Lanka*	Ruppee	21.50	53.00	80.150
Sudan Rep*	Dinar	61.11	72.22	258.700
Suriname#				
Swaziland	Lilangeni	3.34	3.52	7.538
Sweden	Krona	7.95	9.27	9.891
Switzerland	Fr	1.48	1.37	1.765
Syria	Pound	6.10	20.30	46.000
Taiwan	\$	16.60	20.20	33.000
Tajikistan*	Tenge	1,200.00	1,000.00	2,200.000
Tanzania	Shilling	585.00	600.00	800.000
Thailand	Baht	15.04	17.09	43.430
Togo Rep	CFA Fr	300.00	365.00	757.570
Trinidad and Tobago	\$	1.28	2.45	6.299
Tunisia	Dinar	0.43	0.71	1.460
Turkey	Lira	448,900.00	596,900.00	678,975.000
Turkmenistan	Manat	300.00	400.00	20,000.000
U A E	Dirham	0.97	0.92	3.673
Uganda	New Shilling	1,375.00	1,575.00	1,835.000
Ukraine	Hryvna	1.65	2.00	5.437
United Kingdom	Pound	0.84	0.81	0.690
United States (average)	US \$	0.48	0.47	1.000
Uruguay	Peso Uruguayo	6.50	14.70	12.365
Uzbekistan	Sum	190.00	290.00	2,050.000***
Vanuatu				
Vatican				
Venezuela	Bolivar	40.00	80.00	694.250
Vietnam*	Dong	3,900.00	5,400.00	14,400.000
Yemen*	Rial	10.00	35.00	163.740
Yugoslavia / Serbia	Dinar	38.00	38.00	68.000
Zambia				
Zimbabwe*	Z \$	39.57	46.77	55.030

RC (regional code): 1 - Africa; 2 - Asia / Pacific; 3 - America; 4 - Europe.

*) Prices in 2000 for regular quality. #) Data from August 2000 (Olade)

**) Exchange rate of local currency against the US\$ according to Financial Times, Nov. 10, 2000

***) Unofficial exchange rate (black market)

Sources:

GTZ Fuel Price Surveys 1991, 1993, 1995, 1998, 2000; ADAC Germany; Olade;
(all data from last quarter of each year)



Deutsche Gesellschaft für
Technische Zusammenarbeit (GTZ) GmbH



Fuel Subsidy Policies

- Box: Fuel Price Subsidies in Indonesia



Country-specific Fuel Subsidies



Transport Sector Policy and Fuel Prices



Problems Arising from Fuel-price Increases

- Box: “Dozens die in price rise protests”



Fuel Prices and Purchasing Power

- Box: The “Egg Index”

Fuel Subsidy Policies

While fuel taxation is taken for granted in industrialized countries, there are still a number of countries – primarily developing countries and former Eastern Bloc states – that pursue just the opposite policy, namely to subsidize the price of fuel.

"Let us not overlook the fact that developing countries are subsidizing energy at the rate of US \$ 230 billion per year. That is more than five times the current total of development assistance payments from North to South."¹

Such a – false – political decision in favor of general subsidization of fuels applies not only to the transportation sector (including the relevant fuels) but also to the energy sector per se (including power generation based mainly on diesel generators), and often even extends across a country's infrastructure, including agriculture (fuel for pumps, tractors, fishing boats, etc.).

Consequently, any change in such a country's policy of fuel subsidization often would have to be regarded as only one, if crucial, component of an overall shift in economic policy, or at least in the respective sector policy. Among developing countries, this often yields what is referred to as structural adjustment or, in erstwhile Eastern Bloc countries, a transition policy.

Fuel Price Subsidies in Indonesia

For many years Indonesia has been following a policy of fuel price subsidization. In worldwide comparisons, it is among the countries with the lowest fuel prices. These subsidies have serious consequences, as no revenues from fuel taxation are available for the financing of the transport sector. Thus one of the potentially most important sources of state revenues is left untapped.

This situation may continue although on June 16, 2001, both gasoline and diesel prices were increased from 1,150 Rupiah (10 US cents) per liter Gasoline by 26 per cent to 1,450 Rupiah (13 US cents per liter). Diesel prices were raised by 30 per cent, from 600 Rupiah (5 US cents) to 900 Rupiah per liter (8 US cents). But even by implementing these price hikes, which basically made up for past inflation, fuel subsidies in Indonesia still amount to some 4.8 billion US\$ p.a. – which represents almost 4% of the national GDP. This amount is also considerably higher than the overall development expenditure of the Government of Indonesia, which amounts to 3.4 billion US\$.

(Indonesian Herald, 17 June 2001).

Country-specific Fuel Subsidies

In the present context, the term "fuel subsidies" is understood as the sum total of all official measures, which

- in the case of direct subsidization, make the fuel's pump price cheaper in comparison with a normal industrial good, or
- in the case of indirect subsidization via exemption from VAT or via lower-cost domestic fuel production, make the pump price of the fuel cheaper in comparison with countries that have to depend on the world market.

¹ I. Serageldin, World Bank vice-president for environmentally sustainable development, in "Public Transport International", UITP – Brussels 2/1993, special issue, p. 30

The Global Ranking List of Diesel-subsidizing Countries

Subsidy ranking among 160 countries	Name of country	Untaxed diesel price (US cents/liter)	Note
1	Iran	2	Self-producer
2	Turkmenistan	2	Self-producer
3	Indonesia	6	Partly self-producer
4	Yemen	6	
5	Venezuela	6	Self-producer
6	Uzbekistan	9	Self-producer
7	Egypt	10	Self-producer
8	Saudi Arabia	10	Self-producer
9	Burma/Myanmar	12	
10	Syria	13	
11	Algeria	15	Self-producer
12	Angola	15	Self-producer
13	Jordan	15	
14	Libya	16	Self-producer
15	Malaysia	16	Self-producer
16	Brunei	18	Self-producer
17	Cyprus	18	
18	Ecuador	18	Self-producer
19	Kuwait	18	Self-producer
20	Ghana	19	
21	Azerbaijan	20	Self-producer
22	Trinidad and Tobago	20	Self-producer
23	Bahrain	21	Self-producer
24	Sudan	24	
25	United Arab Emirates	26	Self-producer
26	Ethiopia	27	
27	Nigeria	27	Self-producer
28	Pakistan	27	
29	Sri Lanka	27	
30	Vietnam	27	
31	Philippines	28	
32	Bangladesh	29	
33	Kazakhstan	29	Self-producer
34	Oman	29	Self-producer
35	Russia	29	Self-producer
36	Tunisia	29	
37	Albania	30	Self-producer
38	Congo (DR)	30	
39	Ukraine	30	Partly self-producer
By comparison	India	39	
	China	45	
	United States (average)	48	Self-producer
	Japan	76	
	United Kingdom	122	Self-producer

The above ranking list was drawn up in comparison with the "untaxed retail pump price", which, together with a normal sales tax (VAT), would amount to about 30 US cents per liter diesel (cf. Annex).

Transport Sector Policy and Fuel Prices

There can be no doubt that a sound transport policy – as advocated by most bilateral and multilateral donors and banks – requires a sector policy which essentially comprises the following major steps:

- firstly, the elimination of fuel subsidies,
- secondly, taxation of transport fuels to cover road maintenance and road construction costs all over the country (often amounting to 10 US cents/liter of diesel and gasoline) and
- thirdly, further taxation to balance the entirety of transport sector expenditures (including railways and public transport)

Additionally, in the case of private passenger vehicles, many developing countries levy additional luxury taxes on gasoline prices to cover other government expenses.

These basic principles of national fuel-price policy constitute a major issue in the discussion about WTO (World Trade Organization) membership for developing countries. In the case of applications for EU (European Union) membership, the so-called *acquis communautaire* is applied. This requires that the country in question levy a minimum tax on diesel fuel such as to at least equal the lowest existing pump price in core-EU countries (i.e., Portugal).

Problems Arising from Fuel-price Increases

Fuel prices must be increased from time to time for the following two reasons:

- to compensate for the gradual "relative adjustment" to often quite considerable national inflation levels and/or as a direct result of local currency devaluation;
- to effect "structural price increases", e.g., in the new EU applicant countries, because a higher price level is targeted for the long term.

In developing countries, however, such price rises are frequently implemented in an unprofessional manner. After months or years of official passivity, all the incremental price hikes that should have been instituted in the past are suddenly lumped together and demanded of an unprepared population all at once. Even if the subsidized fuel prices belong to the lowest in the world, this is no appropriate approach.

Numerous past examples document how such irresponsible behavior on the part of governments can lead to riots and bloody conflicts – up to and including the government's own overthrow.

In some cases, such as in Indonesia and Zimbabwe in 1998, popular discontent has forced the state to rescind such price hikes.

Press report on fuel-price riots in Yemen

Dozens die in price-rise protests

Some 34 people were killed and 102 injured in violence following recent increases in the price of fuel and food, the official news agency SABA reported on 30 June. Exiled Yemeni opposition sources claimed that up to 100 people had died in protests across the country since 19 June when the government announced the price rises.

Prime Minister Abdulkarim al-Iryani told parliament that the government would stick to its decision to raise fuel, flour and basic food prices by up to 40 percent but would not increase fuel prices again until 2003. (Middle East Economic Digest, 3.7.98).

It is of particular interest to note that such revolts in opposition to fuel-price rises are always triggered by the relative increase (often 30 % or more), while the absolute increase (frequently only a few cents being added to "dirt cheap" fuel prices) plays practically no role at all.

This applies especially to Nigeria where fuel-price increases have repeatedly led to rioting, even though fuel had already become – viewed objectively – cheaper than drinking water.

Adapting fuel prices to currency devaluation

When local currencies are devaluated relative to the US\$, fuel prices in local currency should be raised accordingly. Only then state revenues from fuel taxes can be kept constant.

An illustrative example for fuel price adjustments after currency devaluation can be found in the CFA Franc Zone in Western and Central Africa: Following a devaluation of the CFA Franc by 50 per cent in January 1994, all world market prices in local CFA currency for imports doubled. This was also the case with regard to world market fuel prices. In some countries of the CFA Franc Zone fuel prices in local currency were adjusted accordingly (e.g. Burkina Faso, Cameroon, Chad, etc.). In other CFA countries (such as the Central African Republic, Gabon, Benin) the government-controlled fuel prices remained constant for the first months after devaluation. This led to a real reduction of local fuel prices and to decreases in public revenues from fuel taxation.

The fuel price adjustments following the 1994 devaluation of the CFA Franc for various countries of the CFA Franc Zone are summarized below:

Country	Prices in local currency				Prices increase	
	October 1993		February 1994			
	Super gasoline	Diesel	Super gasoline	Diesel	Super gasoline	Diesel
Burkina Faso	285 CFA	240 CFA	395 CFA	312 CFA	39 %	30 %
Cameroon	195 CFA	165 CFA	265 CFA	195 CFA	36 %	18 %
Chad	290 CFA	270 CFA	390 CFA	325 CFA	34 %	20 %
Senegal	350 CFA	250 CFA	455 CFA	300 CFA	30 %	20 %
Mali	325 CFA	210 CFA	390 CFA	275 CFA	20 %	31 %
Côte d'Ivoire	350 CFA	245 CFA	405 CFA	275 CFA	16 %	11 %
Central African Rep	365 CFA	280 CFA	365 CFA	280 CFA	0 %	0 %
Togo	205 CFA	180 CFA	205 CFA	180 CFA	0 %	0 %
Gabon	330 CFA	199 CFA	330 CFA	199 CFA	0 %	0 %
Benin	175 CFA	135 CFA	175 CFA	135 CFA	0 %	0 %
Niger	263 CFA	170 CFA	263 CFA	175 CFA	0 %	0 %

Data Source: GTZ Fuel Price Survey 1994

When Ghana discarded its traditional cheap-fuel policy in the 1980s, and fuel prices nearly tripled within a relatively short time, the country got into big trouble. The only way to remedy the situation was for the government to temporarily interrupt the country's supply of fuel. Immediately, black-market traders from neighboring countries began selling fuel at four times the previous price level. After about four weeks, the government resumed its official imports, thus forcing the black-market price down by about one-half. This found the approval of the public at large, and the end result of the politically risky maneuver was that fuel cost twice as much as it did before.

The following logical consequence can be drawn from the above: Whether for inflation-related or structural reasons, the dictates of mass psychology stipulate that fuel price increase should never exceed 10 % of the fuel's pump price at a time.

Instead, long-term price strategies based on numerous regular but modest price increases are to be recommended.

One fuel price adjustment policy that has been politically quite successful was instituted in January 1996 by the 14 countries of the CFA Franc Zone in Western and Central Africa (extending from Senegal across Cote d'Ivoire to Cameroon and the Central African Republic). Although that organization's currency was slashed in value by about 50 % practically overnight, the fuel prices were adjusted to the new exchange rate in a step-by-step manner.

Fuel Prices and Purchasing Power

Undoubtedly, in the macroeconomic sense, such imported goods as motor vehicles and fuels, even the streets and roads in some countries) due to their 75 % foreign-currency share of the overall cost) should be calculated on a foreign-exchange, i.e., US \$, basis because that is how the importer or the government has to render payment.

For the country's political leaders, however, it is important to know that local consumers the world over do not care about the world market; what they care about is their own purchasing power on the home market.

Thus, governments should not only be aware of price levels in neighboring countries, they should also heed the arguments of a protesting populace, i.e., the usual, popular "purchasing power argumentation". As such, in a cheap-fuel country like Nigeria, public debate according to the motto "once again, our fuel is cheaper than Coca Cola, which is little more than water" can be regarded as locally appropriate.

Purchasing-power indices are always relative by nature, and the public must be carefully prepared for any increase in fuel prices, particularly in the case of structural price changes in the aforementioned subsidizing countries.

General purchasing-power statistics like those published by the United Nations are of little help because they are not readily adaptable, and their genesis is practically impossible to investigate.

For the purposes of this publication, then, a universally obtainable, non-subsidized, locally produced and sold commodity was chosen as the benchmark criterion: a hen's egg.

The prices are those of medium-sized eggs at local supermarkets. In some cases, average prices have been calculated.

Subjective assessment of fuel prices
(according to purchasing power or "egg index")

The "egg index" for calculating the purchasing-power value of fuels is designed especially for application in developing and emerging countries where people do not tend to think in terms of world-market prices. Moreover, a country's own domestic currency may not serve reliably as a yardstick, and the people traditionally calculate and reflect in terms of farm-produce prices.

The price to be paid for a chicken's egg is particularly well-suited for use in the conduct of market-oriented price comparisons, because it is practically never state-regulated and usually fully independent of extraneous factors, i.e., it is a strictly local price with no dependence on imports.

This applies as well to "development-assistance-relevant" donor countries within the EU (cf. category 4, above), where eggs cost about 20 US cents apiece.

Thus, the cost of fuel, converted into "egg quantities" on the basis of the global fuel price survey with its various country categories, breaks down as follows for the countries covered by the table below:

Category	Country	Prices, November 2000				
		Price of diesel [US cents/liter]	Price of gasoline [US cents/liter]	Price of eggs [US cents/egg]	Cost of diesel [eggs/liter]	Cost of gasoline [eggs/liter]
4 European Union high taxation of fuel	Luxembourg	67	75	14	4.8	5.4
	Germany	78	91	14	5.6	6.5
	Italy	83	97	14	5.9	6.9
	England	122	117	14	8.7	8.4
3 medium taxation of fuel	Tanzania	73	75	13	5.6	5.8
	Malawi	68	69	8	8.5	8.6
	Madagascar	45	76	7	6.4	10.9
	Macao	50	73	9	5.6	8.1
	North Korea	35	55	10	3.5	5.5
2 low fuel taxation	Gabon	37	53	15	2.5	3.5
	Ghana	19	20	5	3.8	4.0
	El Salvador	40	67	12	3.3	5.6
	USA	48	47	11	4.4	4.3
1 subsidizing and oil-producing countries	Turkmenistan	2	2	4	0.5	0.5
	Indonesia	6	17	5	1.2	3.4
	Saudi Arabia	10	24	8	1.3	3.0

The results of purchasing-power comparison can therefore be summarized as follows:

- In Europe, diesel fuel costs – via purchasing-power comparison 4 - 6 large chicken eggs per liter (average: 5 eggs); and gasoline costs 6 - 8 eggs per liter super (average 7 eggs). That price is generally regarded as reasonable, social and just.
- In subsidizing and oil-producing countries (e.g., Turkmenistan, Indonesia and Saudi Arabia), diesel fuel in particular is likely to cost only one-quarter or even one-tenth as much (read: 1 or even 1/2 chicken egg). Such artificially low fuel prices are rightfully unlikely to find much understanding/acceptance in the international arena.
- In countries with low fuel taxes (e.g., Ghana, Gabon and the USA) purchasing-power comparisons often yield similar results. Here, too, gasoline and diesel cost only about half as much as they do in Europe, namely ca. 3 chicken eggs. Thus, in case of economic difficulties in such countries, e.g., if the government were to be strapped for funds for road construction and maintenance, railroad rehabilitation, etc., there would still be substantial leeway for reasonable price hikes.
- In terms of purchasing-power units, the justifiability of fuel-price increases in countries with medium fuel taxation needs to be investigated on a case-by-case basis.

European Minimum Tax Rates on Fuels

All member states of the European Union and all accession states to the EU are requested to levy fuel taxes. Specific minimum tax rates were set by the Council of the European Union by Directive 92/82. The minimum tax rates are as follows:

	Tax rate in Euro per liter of fuel	Tax rate in US cents per liter of fuel
Leaded gasoline	0.337 Euro	approx. 30 US cents
Unleaded gasoline	0.287 Euro	approx. 25 US cents
Diesel	0.245 Euro	approx. 21 US cents

These minimum rates are part of the so-called *Acquis Communautaire*, a set of regulations that has to be implemented by all member and accession states of the European Union.

These tax rates, however, have to be translated into final taxed retail pump prices. To this end, the tax rate has to be added to the untaxed retail pump prices for diesel (30 US cents) and gasoline (32 US cents). Finally, a national Value Added Tax of about 15 to 20 per cent has to be added as well. All this results in minimum final taxed retail pump prices including VAT of approximately 60 US cents for diesel and 67 US cents for gasoline in European countries. In most countries of the European Union, these minimum levels are significantly exceeded, but the minimum levels serve as benchmarks for the EU accession states.

- General Taxation of Petroleum Products
- Importance of Fuel Taxation for Overall State Revenues
- Potential State Revenues from Fuel Taxation (in million US \$)
 - Motorization
 - Mileage and consumption
 - Estimates for fuel tax revenues
- State Expenditures out of Fuel Taxes
- Problems and Outlook
 - Loss of revenue through fuel smuggling
 - Outlook on fuel taxation and resource bases

General Taxation of Petroleum Products

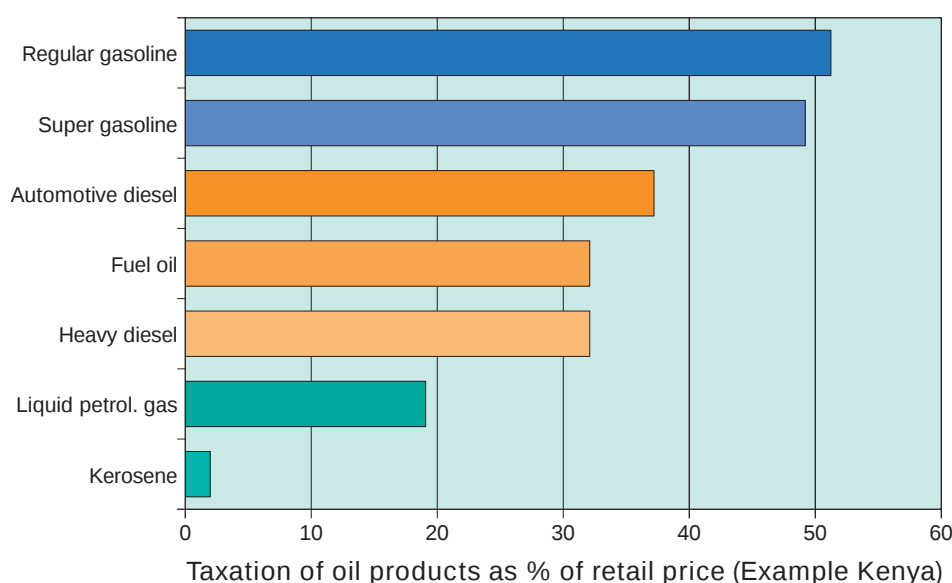
If the general economic policy is to avoid subsidization of fuels and to consider oil products as commercial goods, as outlined in chapter 5, the positive aspects of revenue and expenditures management by the state will require more detailed investigation.

The taxation of petroleum products affects 3 major sectors:

- the transport sector (mainly road, rail and air transport),
- the energy sector (mainly electricity production) and
- the household sector (in developing countries mainly the cooking of meals with kerosene)

It is general practice to differentiate the tax percentages on petroleum products according to their end uses, as exemplified for Kenya below:

Proportional share of taxation in retail prices of petroleum products in Nairobi, Kenya:



Source:

Bereket Kebede: "Petroleum Pricing and Taxation: The Case of Ethiopia, Kenya and Malawi", in: Afrepren: African Energy Policy Research Network, Newsletter No.21, September 1997, pp. 1-3

The taxation of oil products as percentages of retail prices, as illustrated above for Nairobi, may be regarded as a typical example of customary fuel taxation practice. The heaviest taxes are attached to regular and premium gasoline which, like non-commercial passenger vehicles, are often regarded as luxury goods.

Automotive diesel is taxed less severely because of its importance in mining and agriculture as well as for goods transportation by truck.

Fuel oil, heavy diesel, and especially LPG serve primarily in the generation of electricity and for driving industrial processes.

Kerosene, which is used mainly by lower income groups, frequently remains untaxed, both for social reasons and to help prevent massive deforestation.

The main statement of the above diagram is to delimit the ranking of taxation on petroleum products, i.e.:

- Of all fuels, transport fuels carry the highest taxation,
- industrial fuels are taxed less,
- cooking energy may be tax-exempt or even subsidized.

There is, in fact, a general rule of thumb, according to which the taxation of transport fuels – like regular and super gasoline in the above Kenyan case – generally paves the way for taxation of fuels and energy in other sectors as well.

The size of the fuel-consuming sectors and the structure of ultimate energy consumption may vary from country to country, but OLADE¹ has calculated the following average shares for Latin America as a whole:

- 31.6 % for transportation
- 33.4 % for industry
- 35.0 % for residential and other purposes.

Importance of Fuel Taxation for Overall State Revenues

Within the highly sophisticated tax systems of industrialized countries, fuel taxes play an increasingly important role.

In developing countries, collection of income taxes and sales taxes as the main sources of state revenue is quite difficult and much in arrears.

Thus, in sub-Saharan Africa the fuel tax on petroleum products accounts for 35 % of the government's total tax revenues for 1990.²

In some cases, the tax on fuel may even become the single most important tax.

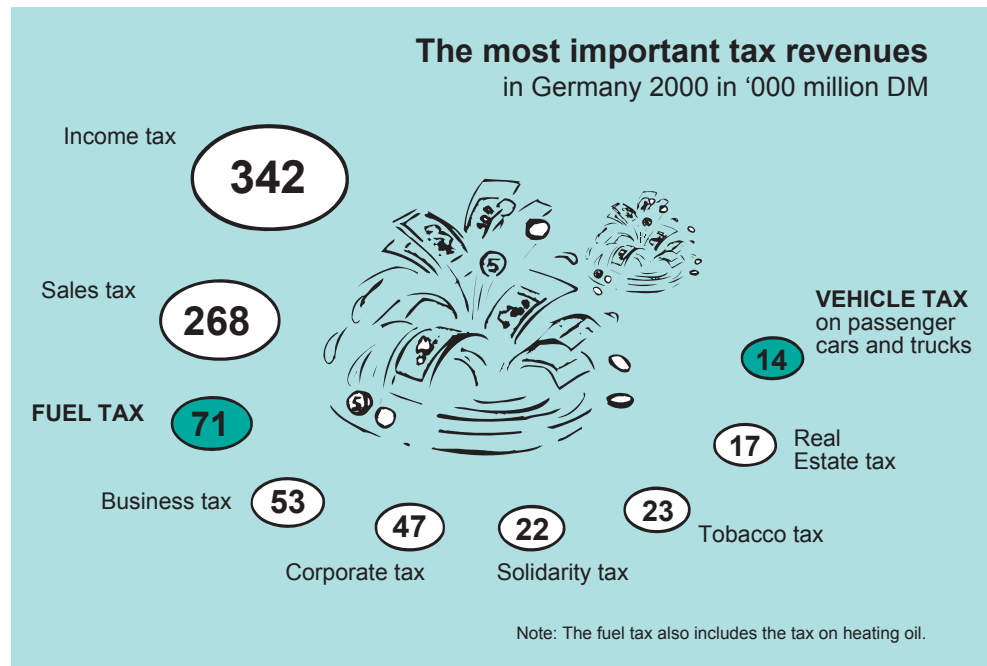
This holds true in countries where civil war has broken out and the governmental organization, including collection of income and sales taxes, has broken down. In such a situation, the fuel tax can easily – or "automatically" – be collected by the oil companies and remitted to the government along with additional collection charges.

In countries like Lesotho, Swaziland, Namibia and the emerging state of The West Bank and Gaza, fuel tax transfers from the respective customs union (of South Africa or Israel, respectively) form the very basis of the government's finances.

¹ OLADE, Organisation Latinoamericana de Energia, Energy Magazine, April – June 1998, p. 34

² Berekt Kebede, "Petroleum Pricing and Taxation, the Case of Ethiopia, Kenya and Malawi", in AFREPREN, African Energy Policy Research Network, Newsletter no. 21, Sept. 1997.

In European countries, fuel taxes frequently constitute the third-most-important tax, as illustrated by the following German federal budget table:



Thus, German taxes on fuel and vehicles in the year 1997 yielded:
 $(71,000 + 14,000) = 85,000$ million DM or 37,600 million US \$.

This enormous amount is the result of a systematic policy of fuel tax increases over the past 40 years (1956 through 1996), as outlined in the following table³:

German fiscal year	Applied gasoline tax rate [DM/100 l]	Pump price of super gasoline [DM/100 l]	Applied diesel tax rate [DM/100 l]	Pump price of diesel [DM/100 l]	Value added tax VAT (on total price)	Total amount of fuel tax collected in Germany per fiscal year [million DM]
1956	31	71	15	50	0 %	1,415
1966	32	61	30	52	2 %	8,016
1976	44	95	42	89	11 %	18,121
1986	53 (98 unleaded)	108	45	99	14 %	25,644
1996	108 (98 unleaded)	161	62	122	15 %	68,251
2000	110	205	74	176	16 %	> 71,000

The above example of fuel-tax evolution in Germany over the past 40 years illustrates the historical background of the present situation in high-tax countries (EU and Japan), as indicated in the global diagrams (pages 50/51) as "category IV" for the year 1998 only.

³ ARAL –Verkehrstaschenbuch 1998/9 (Source: Federal Finance Ministry BFM) pp. 388 - 398

Potential State Revenues from Fuel Taxation (in million US \$)

Estimates of potential state revenues from fuel taxation are meaningful not only for the finance ministry, but also for the ministry of transport/public works. Indeed, they are practically indispensable for the sector approach generally taken by international donors and banks.

All such revenue estimates should be based on fuel consumption volumes and expressed in liters per year.

For cases in which statistical data on annual fuel consumption are restricted, unreliable or even nonexistent (holds true in many developing countries), estimates can instead be based on the number of vehicles, mileage/distance traveled per year by each type of vehicle, and average fuel consumption (e.g., per 100 km).

Motorization

Detailed motorization figures (vehicles per 1000 inhabitants) for individual countries are shown in the tables included in chp. 7, and present-population figures in addition to per-capital GNP have been annexed to the table in chp. 7.

Mileage and consumption

Average aggregate distance traveled per year (in kilometers; 1970 and 1996) per vehicle category in Germany⁴ (1996 population: 82 186 000) may be postulated as follows:

	Average distance traveled in 1970	Average distance traveled in 1996	Number of vehicles in 1996	Average fuel consumption per 100 km in 1996
Mopeds	3,500 km	2,300 km	2,470,451	3.8 liters
Motorcycles	5,000 km	3,900 km	2,470,451	3.8 liters
Passenger cars and vans	15,300 km	12,600 km	40,987,547	8.9 liters
Large busses	46,500 km	43,100 km	89,954	30.6 liters
Trucks	25,500 km	23,100 km	2,273,473	30.0 liters
Trailers (horses)	56,500 km	77,200 km	1,899,874	30.0 liters
Other or special vehicles	9,300 km	8,100 km		

Based on those figures, the annual fuel consumption levels (gasoline and diesel, expressed in liters per year) can be estimated and the potential tax revenues calculated.

⁴ ARAL –Taschenbuch 1999 acc. to German Ministry of Transport/DIW

Assuming a 1 US cent per liter increase in the fuel tax on diesel and gasoline, the resultant additional tax revenues, in millions of US \$ p.a., would read as follows (taking Russia as an example):

Country: Russia

Russia (1996)	No. of vehicles	Average distance traveled	Average fuel consumption	Total fuel consumption	Additional revenue from a 1 US cents/liter price increase
	[millions]	[km p.a.]	[liters/100 km]	[1000 million liters p.a.]	[million US \$ p.a.]
(1)	(2)	(3)	(4)	(2)x(3)x(4)	
Passenger cars	15.81	15,000	10	23.715	237.1
Commercial vehicles	4.97	25,000	30	37.275	372.8
Additional state revenues* in Russia deriving from a fuel price increase of only 1 US cent/liter					609.9
Or: additional state revenues* in Russia deriving from a fuel price increase of 10 US cents/liter					6 099.0

*rough estimate based on generalized fuel consumption patterns.

Further estimates for potential tax revenues deriving from fuel price increases are given in the following section.

Estimates for Fuel Tax Revenues

The State Revenues Increase (in million \$ per year) if fuel price (on diesel and gasoline) is increased by 1 US cent per liter, is indicated below.

The estimates are based on 1996 figures for fuel consumption.

Potential state revenues for a fuel price increase of 1 US cent per liter					
Fuel consumption by motor vehicles in 1996					
Country	in 1,000 tons ^a		in liter ^b		[million US \$ p.a.]
	Gasoline	Diesel	Gasoline	Diesel	
Africa					
- Benin	30	78	40,000,000	91,764,706	1.3
- Burkina Faso	70	50	93,333,333	58,823,529	1.5
- Kenya	380	498	506,666,667	585,882,353	10.9
- Morocco	333	1,469	443,520,000	1,727,658,824	21.7
America					
- Bolivia	413	393	551,000,000	462,494,118	10.1
- Mexico	20,700	10,900	27,600,000,000	12,823,529,412	404.2
Asia					
- Japan	38,967	37,004	51,955,664,000	43,534,161,176	954.9
- Korea, South	7,748	11,511	10,331,048,000	13,542,188,235	238.7
- Thailand	3,860	9,050	5,146,666,667	10,647,058,824	157.9
- Azerbaijan	601	560	801,333,333	658,823,529	14.6
- Yemen	979	607	1,304,666,667	714,000,000	20.2
Europe					
- Germany ^c	28,373	22,780	37,830,000,000	26,800,000,000	646.3
- The Netherlands	5,309	5,070	7,078,400,000	5,964,164,706	130.4
- Sweden	5,523	1,636	7,364,240,000	1,925,223,529	92.9

Note:

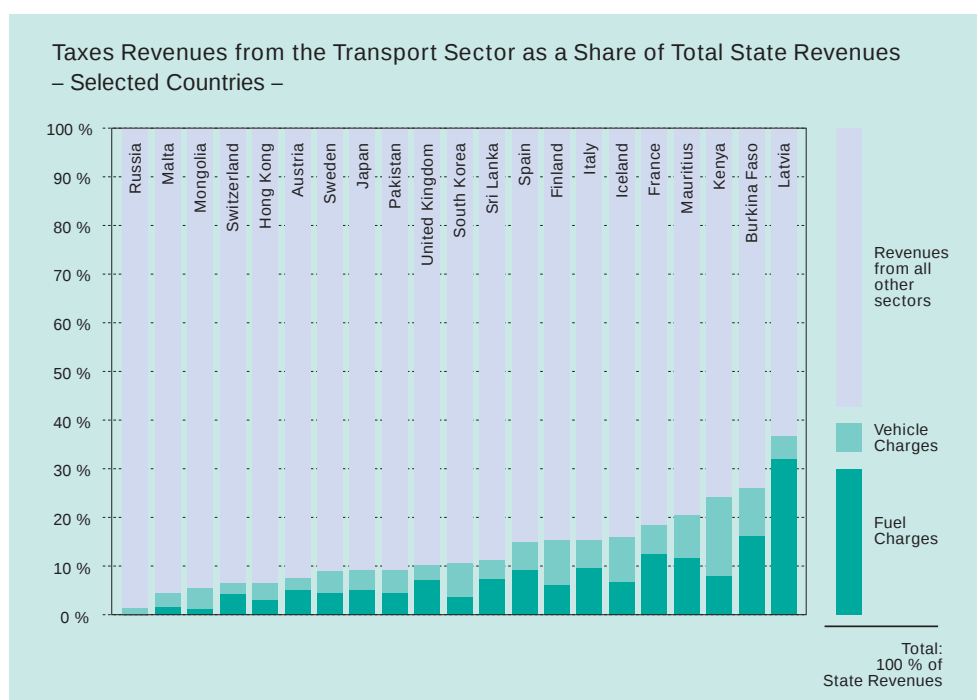
- a Data source: International Road Federation, World Road Statistics 1999, Geneva 1999. The figures indicate total consumption of gasoline and diesel used in road vehicles.
- b The figures for quantity in liters were calculated using the figures for consumption in tons and average densities of 0.75 g/cm³ for gasoline and 0.85 g/cm³ for diesel.
- c An increase in gasoline and diesel fuel prices to the amount of 1 US cent per liter could yield 646.3 million US \$, whereas an increase in fuel tax to the amount of 1 US cent per liter could, thanks to the addition of 16 % VAT, yield additional revenues amounting to $1.16 \times 646.3 = 749.4$ million US \$.

The Importance of Road User Charges within the National Budget

In the context of overall state financing, road user charges play an important role. Both fuel taxes and vehicle taxation can constitute a solid basis of tax revenues. They generate reliable revenues to finance investment in the transport sector. In many countries, revenues from road use charges are even used to cover expenditure in other sectors as well.

Road user charges, and in particular fuel taxes, are rather easy to levy. The fuel tax can be imposed on the producer who will then pass the tax on to the final consumer. Thus the tax has to be collected at a few distribution centres only. This makes the collection process straightforward and administratively easy to handle.

For a number of countries revenues from the transport sector (both vehicle and fuel charges) are summarized below. The revenues are presented as a share of total state revenues.



Source:

GTZ 2001 (Dr. Metschies)

Data Source: International Road Federation (IRF), World Road Statistics 2000

Note: Revenues calculated in Special Drawing Rights (SDR) at the rate of 1 US\$ = 0.73 SDR

It becomes obvious that in some countries (e.g. in Latvia, a former member of the Soviet Union) road user taxes represent a major source of revenues within the overall budget. In other countries (e.g. in Russia, also a former member of the Soviet Union) the contribution of road user taxes is negligible. In the latter case there should be a large potential for the generation of additional revenues. In most cases the ratio between revenues from fuel taxes and revenues from vehicle taxes is approximately 3:1. However, the opposite ratio may also occur as in the cases of Mongolia, South Korea and Kenya.

State Expenditures out of Fuel Taxes

Contrary to the traditional belief that all taxes from whatever source have to merely satisfy the common state revenue budget, it is understood that nowadays – pursuant to the general goal of economic growth – the allocation of taxes has to follow certain principles.

In the case of transport fuel taxes 5 principles (called concepts) have to be considered and applied in strict hierarchical order:

The user-pays concept for the "road fee"

This denotes that the fee for using and damaging the road is generally not levied by special toll stations but by way of a fuel surcharge. Thus, roads & highways-sector financing via fuel surcharges is the primary pricing-policy task in all countries. On a global average, some 80 % to 90 % of all transport-sector revenues derive from fuel taxes. The remaining 10 % to 20 % consist mainly of annual vehicles taxes, whereas small passenger vehicles naturally pay less than large trucks.

- According to past experience, the general magnitude of road-financing fuel taxes is situated at about 10 US cents/l diesel or gasoline in such industrialized countries as the USA. There, that is enough to cover all direct expenditures for the roads & highways sector (maintenance, refurbishment, new construction and capital recovery for the roads & highways departments)¹. Thus, the average US federal tax rate amounts to 18 cents per gallon (= 5 cents per liter), and another 18 cents per gallon is added as the state highway tax rate for roads and highways financing.
- Due to the lower traffic density, i.e., to the presence of fewer vehicles, in the developing countries of Africa and elsewhere, however, 10 US cents/liter only covers day-to-day and periodical road maintenance expenditures but no new construction or capital recovery for the roads and highways network. That standard rate of 10 US cents/per liter fuel (plus a vehicle tax of 75 US \$ per annum for small passenger vehicles and 500 US \$ for medium-size trucks) was adopted by the World Bank within the scope of the International Road Maintenance Initiative².

The road network concept for limited cross-subsidization

Contrary to the traditional practice of justifying new road investments via cost-benefit analysis on a road-by-road project basis, the existing road system is generally regarded as a unified network in which the more heavily frequented, "better-off" roads are expected to help finance the less heavily frequented, "worse-off" roads.

- Industrialized countries like the U.S. with a federal highway trust fund (FHTF) even expect their "better-off" states to help subsidize their "worse-off" states, as indicated by the following 1993 funds-apportionment table (fiscal year: Oct.1 - Sept.30)³:

¹ US Federal Highway Administration FHWA-PL-95-028, Our Nation's Highways, Washington, D.C., p. 6

² World Bank, Ian Heggie, Technical Working Paper No. 275, p. 75

³ FHWA-PL-95-028, p. 43

Cross-subsidization in the U.S. highway system

U.S. State - 1993 (Examples)	Payments into the Federal HTF [million US \$]	Apportionments from the FHTF [million US \$]
Alaska	35.863	215.828
California	1 825.449	2 090.789
Hawaii	43.899	310.330
Texas	1 223.679	1 196.548
Wyoming	68.584	140.182
U.S. TOTAL for the year 1993* (allocations for all states together)	16 046.324	20 186.800

* In the year 1993 only – for technical reasons – overall expenditures exceeded revenues by 25 %.

- In developing countries, cross-subsidization takes place between national roads of the main network on the one hand and rural roads on the other. While most fuel revenues stem from the main roads in countries like Tanzania and Zambia, 20 % - 25% of the road fund is earmarked for rural roads.

The sector concept: "transport finances transport" for the balance of state transport budgets

Modern economic thinking – as outlined in the structural adjustment process for the so-called transition and developing countries – requires a balanced transport sector budget at the national level. This means that deficits for other transport undertakings, often including the railways, which cannot be eliminated in the short run, have to be covered by the profits/surplus achieved in other sub-sectors of the "transport family". This refers primarily to fuel revenues from road transport.

In Germany, for instance, this means that DM 0.155 (= 7 US cents/liter) is reserved for covering the deficits of regionalized railways, and DM 0.052⁴ (= 2 US cents/liter) is invested in solutions for urban traffic problems. In the USA, the fuel-tax-fed highway trust fund is tapped for "surface transportation program", "air quality improvement" and "highway safety program" expenditures.⁵

The concept of surplus "luxury" taxation of gasoline for non-commercial (private) passenger vehicles

The global fuel price tables shown on pages 50/51 illustrate that practically all over the world taxes on gasoline are higher than taxes on diesel. Notwithstanding the fact that heavy goods vehicles cause much more damage to roads than do light passenger cars, the political decision-makers generally view the taxation of gasoline-driven passenger car transport as more justified than the taxation of commercial diesel-driven vehicles. Consequently, gasoline often costs 30% - 50% more than diesel at the pump. As such, the additional "luxury tax" on gasoline need not be earmarked for any particular use.

The commercial VAT concept of value added tax, or sales tax, for general state taxation purposes

The basic understanding of the transport sector as a commercial sector implies that all goods (including vehicles and fuels) are subject to a value added tax. That tax is needed to help defray the cost of general state administration and is calculated on the basis of the goods' sales value, including all other previous taxes.

⁴ According to the "Gemeinde-Verkehrs-Finanzierungs-Gesetz GVFG"

⁵ FHWA-PL-95-028, p.41

Problems and Outlook

Loss of revenue through fuel smuggling

Taxation is generally deemed an act of national sovereignty. Often, however, a comparison with the price situation in neighboring countries is left out of the internal political decisionmaking process.

The continent-by-continent fuel price tables included in chapter 4 summarize the cross-border situation.

For instance, the comparison of fuel prices in Nigeria and Cameroon yields a fuel price ratio of 1 : 2. And since most developing countries' borders can not be effectively controlled, there is enormous potential for fuel smuggling – and that potential is being exploited.

It has been estimated that some 20 % to 50 % of all fuel consumed in Benin, Togo, Ghana, Burkina Faso, Mali, Niger, Cameroon and Chad is of non-taxed origin.⁶

This equates to millions of US \$ in lost national revenues, while the state budget frequently does not even suffice to pay the salaries of state employees on time (with such payments often lagging a quarter of a year behind schedule).⁷

The price data and other figures stated in this report provide a basis for a more detailed calculation of the effects of fuel smuggling. However, the only real remedy for the problem may lie in international agreements on harmonization of taxation levels on the basis of regional customs unions (e.g., ECOWAS and UDEAC in West and Central Africa).

Outlook on fuel taxation and resource bases

It has been mentioned in this report that fuel taxes often represent one of the best-yielding forms of taxation and that there is a global trend toward yet higher taxation of transport fuel. That trend is also being advocated by a waxing number of pressure groups, who cite the following reasons:

- strengthening of the government's tax base (often in place of other taxes that are more difficult to collect);
- financing of the transport infrastructure via commercially secured funds;
- application of a socially acceptable form of taxation (in consideration of the fact that transport requirements tend to expand with rising personal income);
- protection of the environment through avoidance of resource wastage and minimization of CO₂ emissions by the transport sector (to the extent possible).

Simultaneously, the horizon for fuel utilization has been extended beyond the formerly estimated limits. At the moment, petroleum reserves with the capacity for production at today's low world market prices are expected to last another 41 years⁸, i.e., through the year 2040. After that, substantial additional reserves can still be tapped, albeit at higher production costs.

Thus, the issue of fuel prices is bound to become more pressing in the years to come.

⁶ Ian Heggie, *Managing and Financing of Roads*, p. 68

⁷ Metschies, G., *Note on fuel taxation in Togo*, dated Dec. 6, 1995

⁸ Shell Oil Prognosis, cf. *Internet and Frankfurter Rundschau*, May 24, 1999

- Vehicle Import Taxation
- Annual Vehicle Taxation
- Emission Related Vehicle Taxation
- Vehicle Taxation in the World
- Specific Charges for Heavy Trucks

Vehicle Import Taxation

The taxation of vehicle imports is relatively low in car producing countries (10 per cent for vehicle imports into the EU), it is subject to WTO agreements (as for China) and may reach 100 per cent and more in some least developed countries (e.g. in the Senegal).

Annual Vehicle Taxation

Modern taxation strategies are mostly based on the User Pays Principle which states that the road user should pay for all the fixed and current costs of the infrastructure he is using. The infrastructure of inter-urban road networks is used mainly by the moving motor traffic, and users are charged via use-dependent fuel taxes. (In the US, 86 per cent of the Interstate Highway System is financed by fuel taxes.)

In towns, however, infrastructure is basically used by the so-called standing traffic, i.e. cars parked in the streets or on public car parks. This form of infrastructure use cannot be charged by a use-dependent levy as the cars are not in use most of the time. Instead, a fixed charge per vehicle – like the vehicle tax – has to be levied. Annual vehicle licence fees are generally collected by the local communities and – following the principle of earmarked taxes – should also be used locally.

Licence fees are mostly calculated according to motor size (per cubic centimeter, cc). The comparative graph on page 75 displays the vehicle taxes for a small passenger car of 1,400 cc. It is common practice that communities charge higher annual taxes for luxury cars.

Emission Related Vehicle Taxation

According to the Polluter Pays Principle, vehicle-based taxes should take into account the local environmental effects of each individual vehicle. Tax rates should thus be differentiated according to emission levels, with lower tax rates applying to low-emission vehicles. This offers a tax incentive for customers to purchase and drive environmentally-friendly cars with improved emission standards.

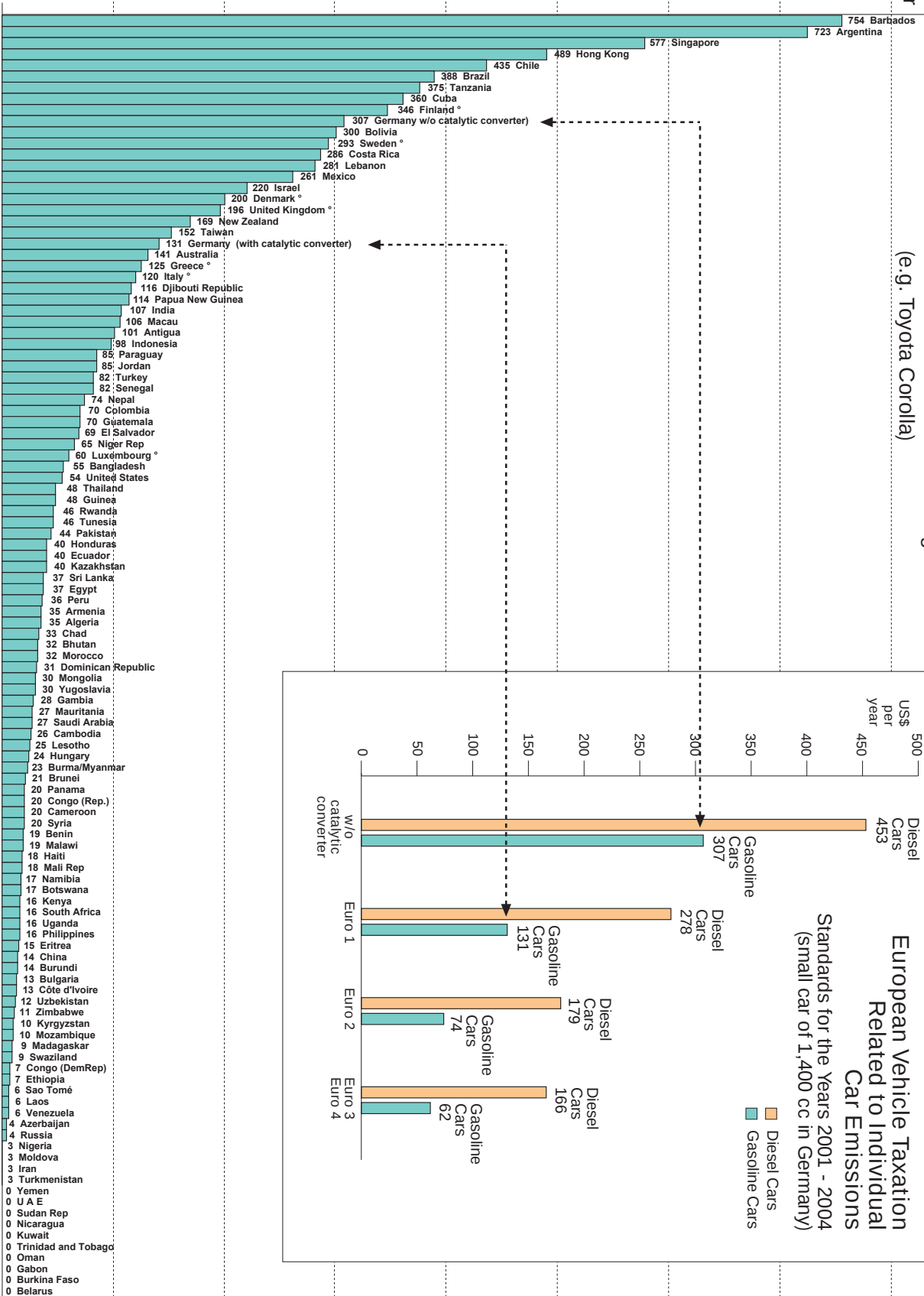
In Europe the tax rate is differentiated according to the emission level of a vehicle. To this end, vehicles are grouped into emission categories and charged accordingly. These groups, called Euro emission norms 1 to 4, are liable to different vehicle tax rates – with the higher rates on the more polluting vehicles. For a medium-sized passenger car of 1,400 cc the tax rates for Germany are given as an example:

Annual Vehicle Taxation in Germany Example: 1,400 cc vehicle (e.g. VW Golf, Toyota Corolla, etc.)		
	Petrol engine	Diesel engine
Euro 4, Euro 3, "3 litre car"	62 US\$	166 US\$
Euro 2	74 US\$	179 US\$
Euro 1	131 US\$	278 US\$
reduced emission vehicles (low emission level)	183 US\$	330 US\$
reduced emission vehicles (medium emission level)	254 US\$	402 US\$
others	307 US\$	453 US\$

US\$
per
year

Vehicle Taxation as of November 2000

Annual Vehicle Licence Fee* for a Small Passenger Car
(e.g. Toyota Corolla)



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Source: GTZ Fuel Price Survey 2000 (Dr. Metschies)
Note: In Countries marked with * data is as of November 1997 (original data in Euro, converted to US\$ at the rate of 1 Euro = 0.86 US\$).
* Or equivalent fee like annual registration fee etc.

Vehicle Taxation in the World

A worldwide comparison of vehicle taxation makes obvious the enormous spectrum of tax rates. As an example, vehicle taxes for some 115 countries have been compiled on page 75. The tax rates represent the annual rate of a national vehicle tax – or the equivalent of an annual registration fee.

Vehicle taxation in Indonesia

While in many countries the vehicle tax is based on engine power (ccm), the Indonesian vehicle tax is based on the purchase price of a vehicle. The annual tax amounts to 1.5 per cent of the present market value (sales price) of a vehicle but decreases with the age of the vehicle, according to official second-hand values. This allows for a more "social" taxation, with lower taxes for old and cheap vehicles and higher taxes for brandnew luxury cars.

Examples for selected vehicles are listed below:

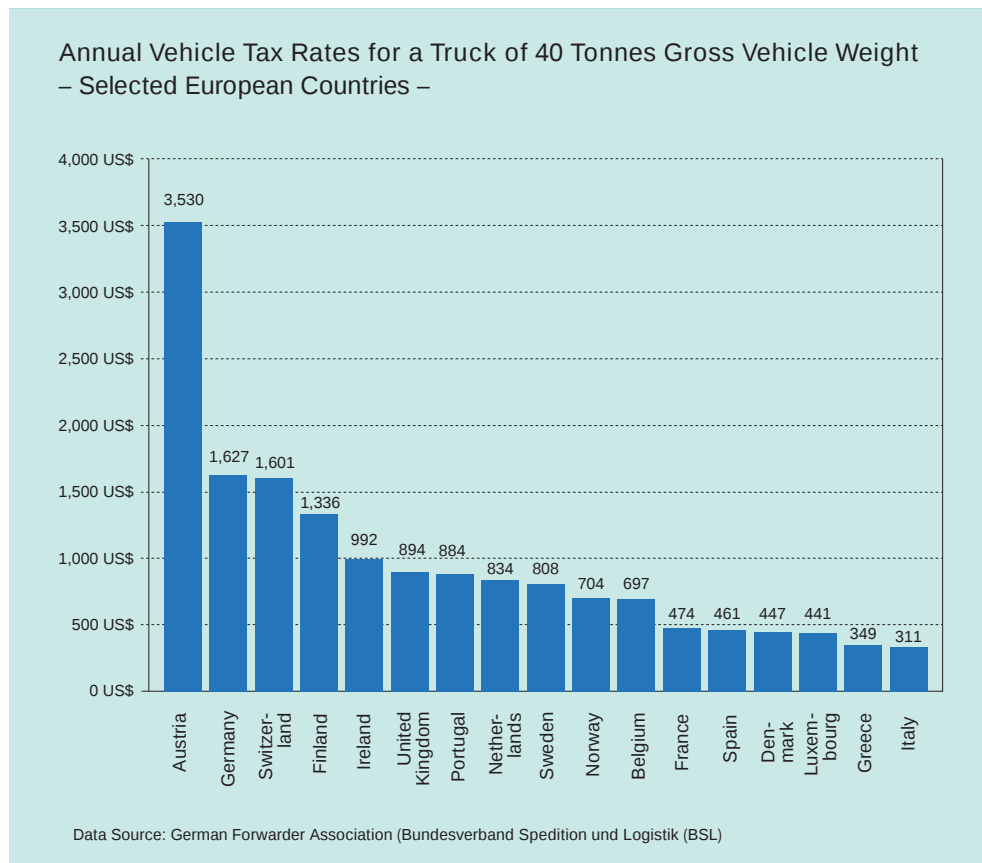
Vehicle	Year of production	Tax rates as of January 2001	
		Tax in Rupiah per year	Tax in US\$ per year
a. Motorcycles			
Jialing JH 150	1999	49,500 Rupiah	5.10 US\$
Yamaha F1-RH	1998	70,900 Rupiah	7.30 US\$
Kijang KF 52/80 STD	1999	369,000 Rupiah	37.90 US\$
Daihatsu Espas S 91	1999	378,000 Rupiah	38.90 US\$
b. Passenger cars			
Toyota Corolla LTD 1.6 (5 years old)	1996	956,000 Rupiah	98.30 US\$
Mazda 626 CRNS 2.5 (3 years old)	1998	1.446,000 Rupiah	148.70 US\$
Opel Blazer DOH c 2.2 (1 year old)	2000	1.920,000 Rupiah	197.40 US\$
Volvo 960 GL A/T (3 years old)	1998	2,358,000 Rupiah	242.50 US\$
Mercedes Benz S 500 (1 year old)	2000	15,600,000 Rupiah	1,604.10 US\$

(Exchange rate January 2001: 9,725 Rupiah = 1 US\$)

Data Source: GTZ survey on effective annual vehicle taxes 2001

Specific Charges for Heavy Trucks

Heavy good vehicles (HGVs) with their high axle loads cause particular damage to transport infrastructure. For that reason, many countries impose special taxes on HGVs. Very often a differentiated system of vehicle taxation, with increasing tax rates for heavier vehicles, is in place. As an example, vehicle tax rates in various European countries for a truck of 40 tonnes gross vehicle weight are displayed in the following graph:



The tax rates should only be seen as approximations as tax systems vary significantly throughout the European Union. Some countries differentiate tax rates by emission or noise levels, whereas others use engine power, load capacity etc. as the main criteria. The rates thus refer to "an average truck" of 40 tonnes gross vehicle weight.

Data on 4-Wheel and 2-Wheel Motor Vehicles, Population and Gross National Product (GNP)

Motor Vehicles with Four Wheels or More

- Geographical Presentation: Africa
- Geographical Presentation: America
- Geographical Presentation: Asia and Australia
- Geographical Presentation: Europe

Two-wheel Motor Vehicles

- Geographical Presentation: Africa
- Geographical Presentation: America
- Geographical Presentation: Asia and Australia
- Geographical Presentation: Europe

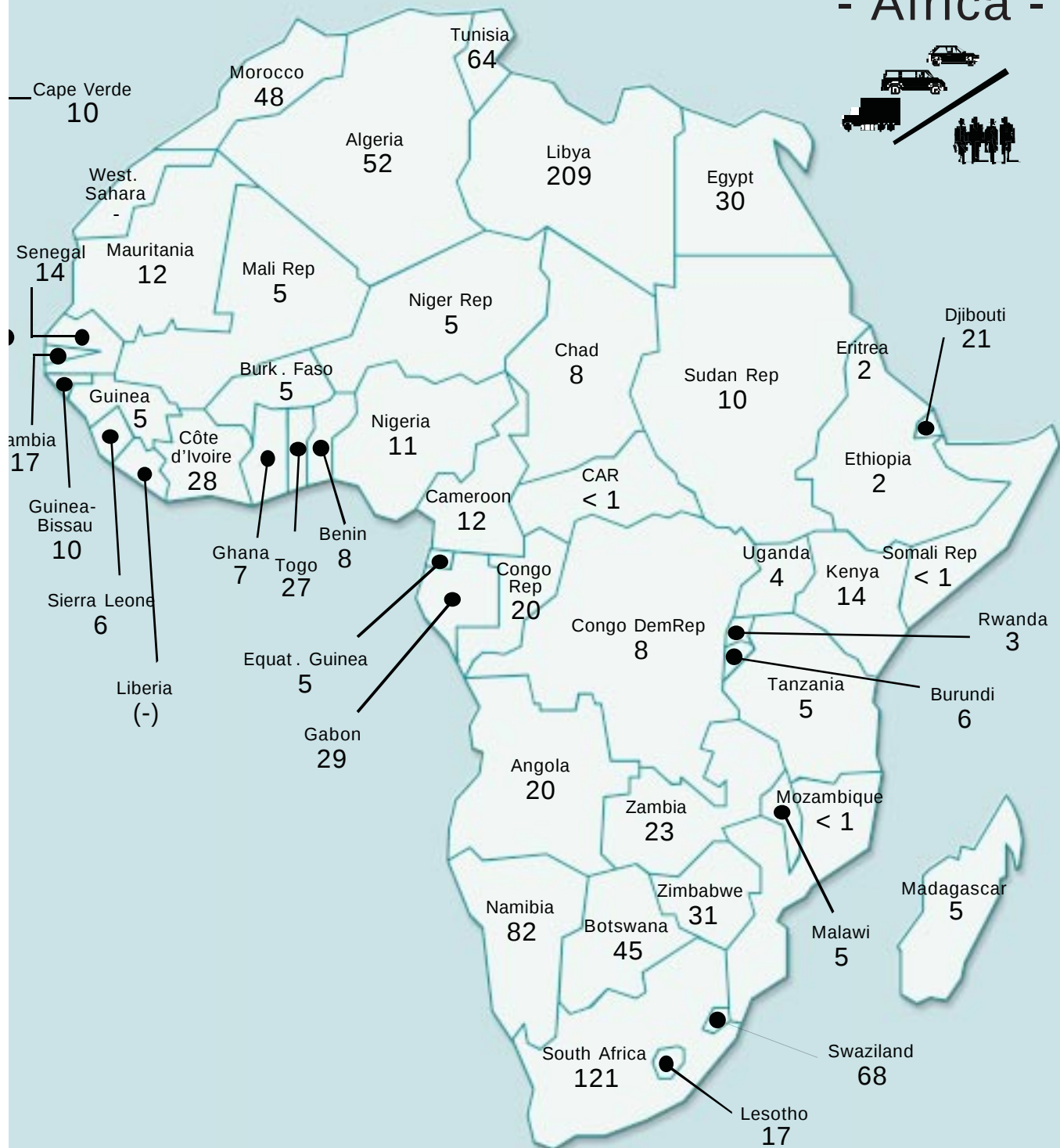
Country Table Motorization:

- Population, GNP, Vehicles in use, 1996

Motorization

4-Wheel* Motor Vehicles per 1000 Inhabitants

- Africa -



* Including vehicles with more than 4 wheels.

Data Sources:
International Road Federation (IRF): World Road Statistics 1999, Geneva 1999.
The figures refer to 1996.

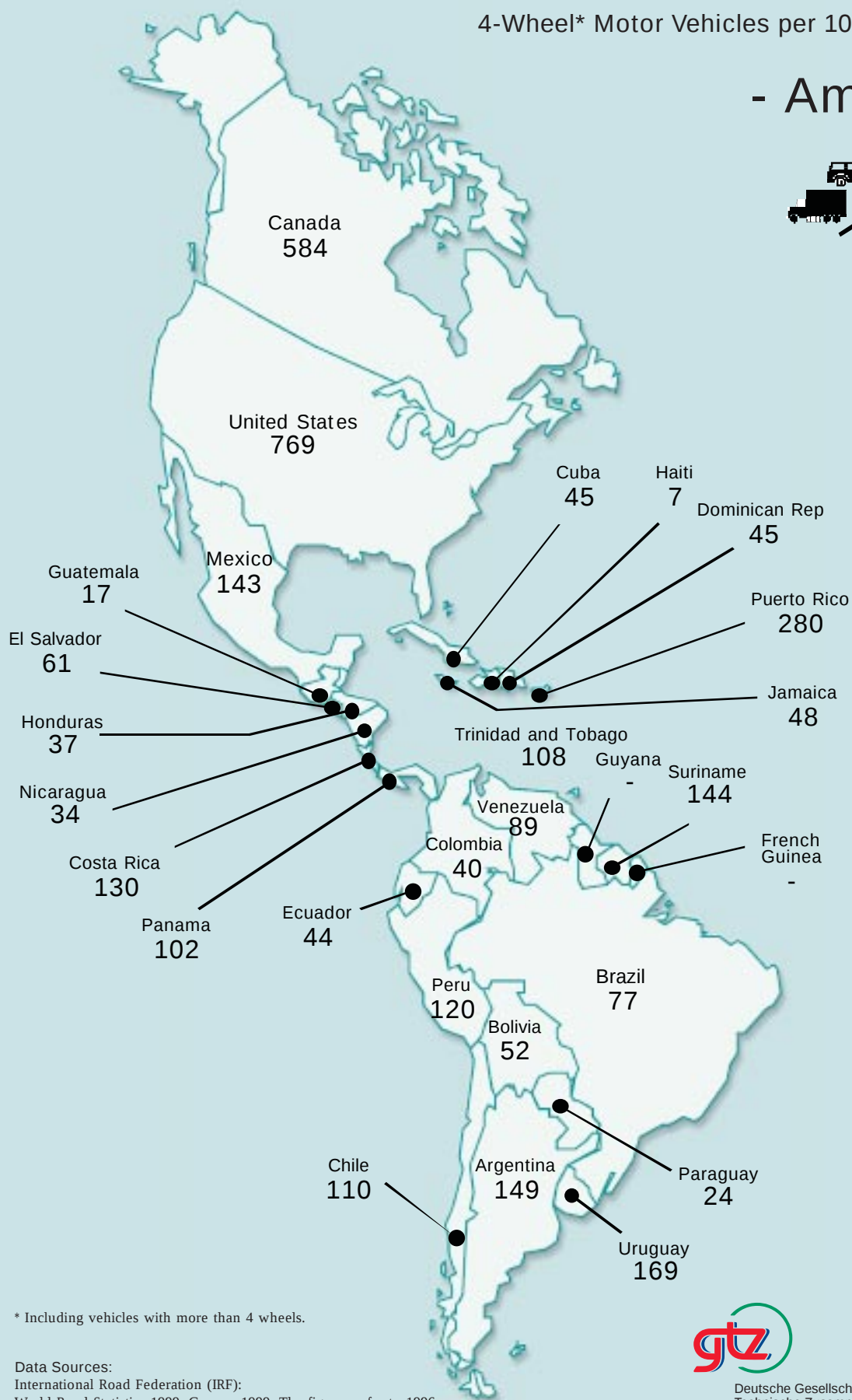
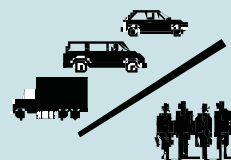


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Motorization

4-Wheel* Motor Vehicles per 1000 Inhabitants

- America -



* Including vehicles with more than 4 wheels.

Data Sources:
International Road Federation (IRF):
World Road Statistics 1999, Geneva 1999. The figures refer to 1996.

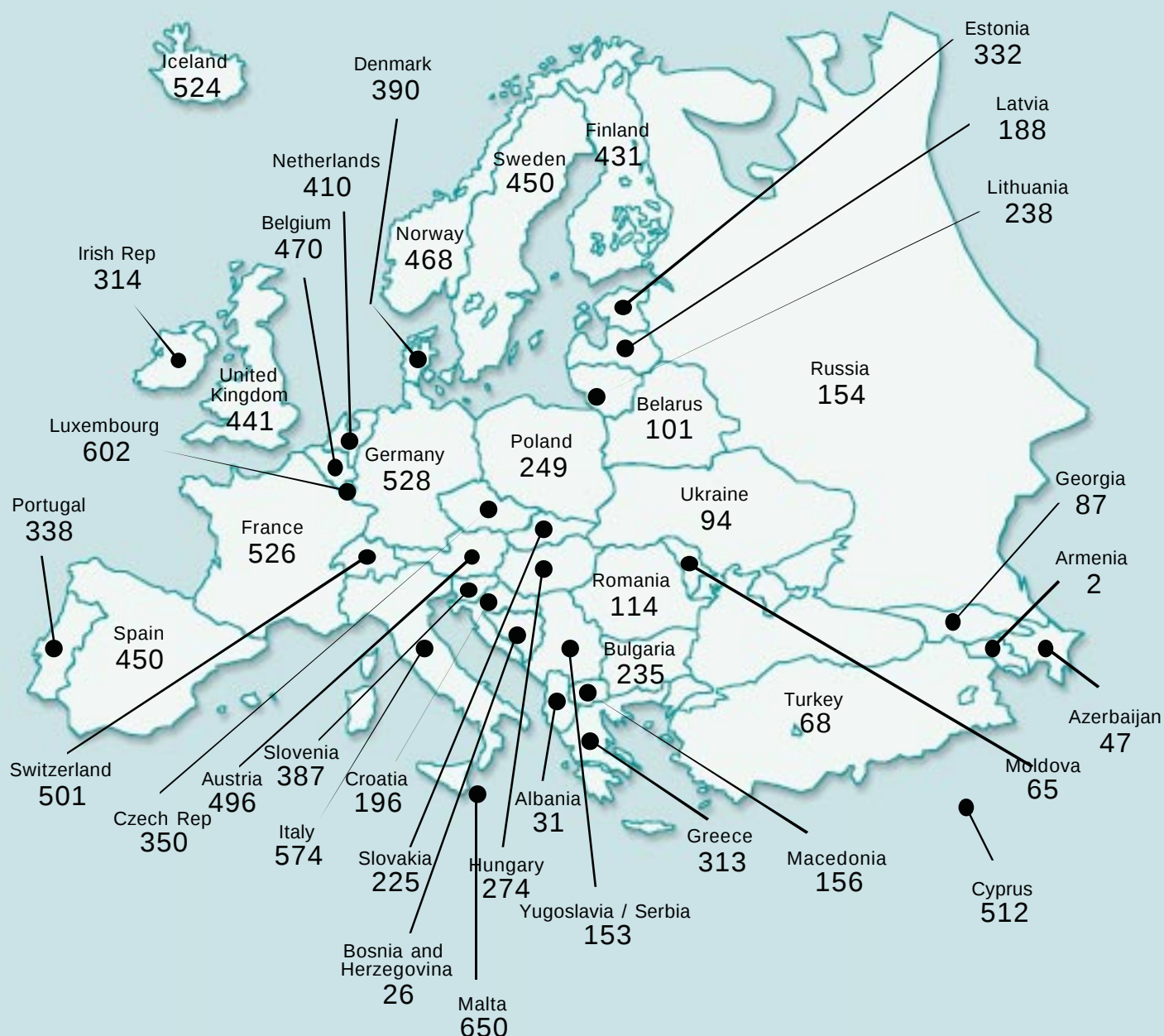
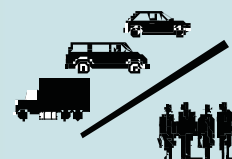


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Motorization

4-Wheel* Motor Vehicles per 1000 Inhabitants

- Europe -



* Including vehicles with more than 4 wheels.

Data Sources:
International Road Federation (IRF): World Road Statistics 1999, Geneva 1999.
The figures refer to 1996.

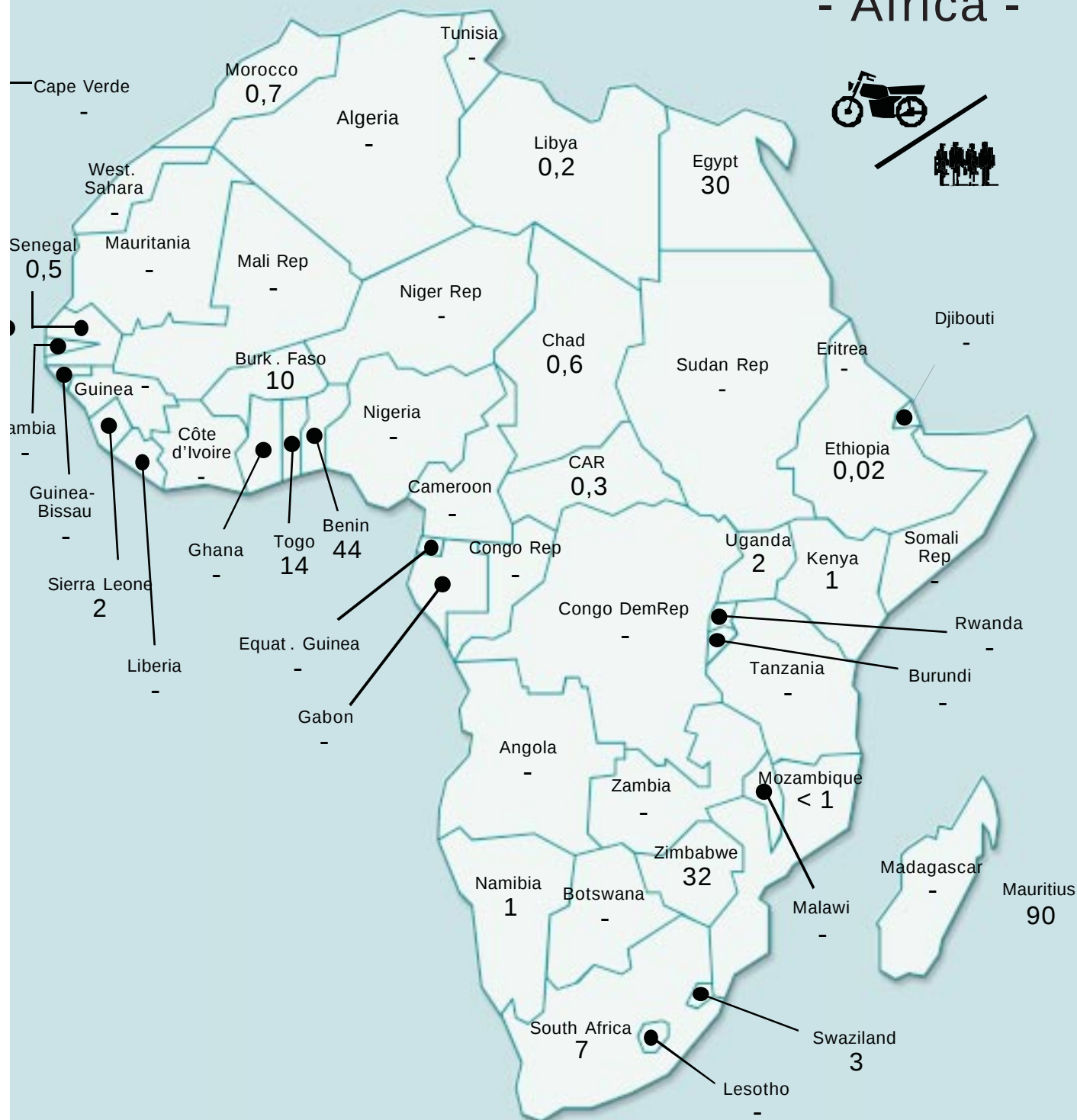


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Motorization

2-Wheel Motor Vehicles per 1000 Inhabitants

- Africa -



Data Sources:
International Road Federation (IRF): World Road Statistics 1999, Geneva 1999.
The figures refer to 1996/7.

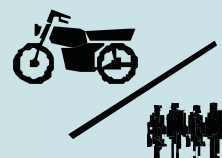


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Motorization

2-Wheel Motor Vehicles per 1000 Inhabitants

- America -



Data Sources:
International Road Federation (IRF):
World Road Statistics 1999, Geneva 1999. The figures refer to 1996/7.

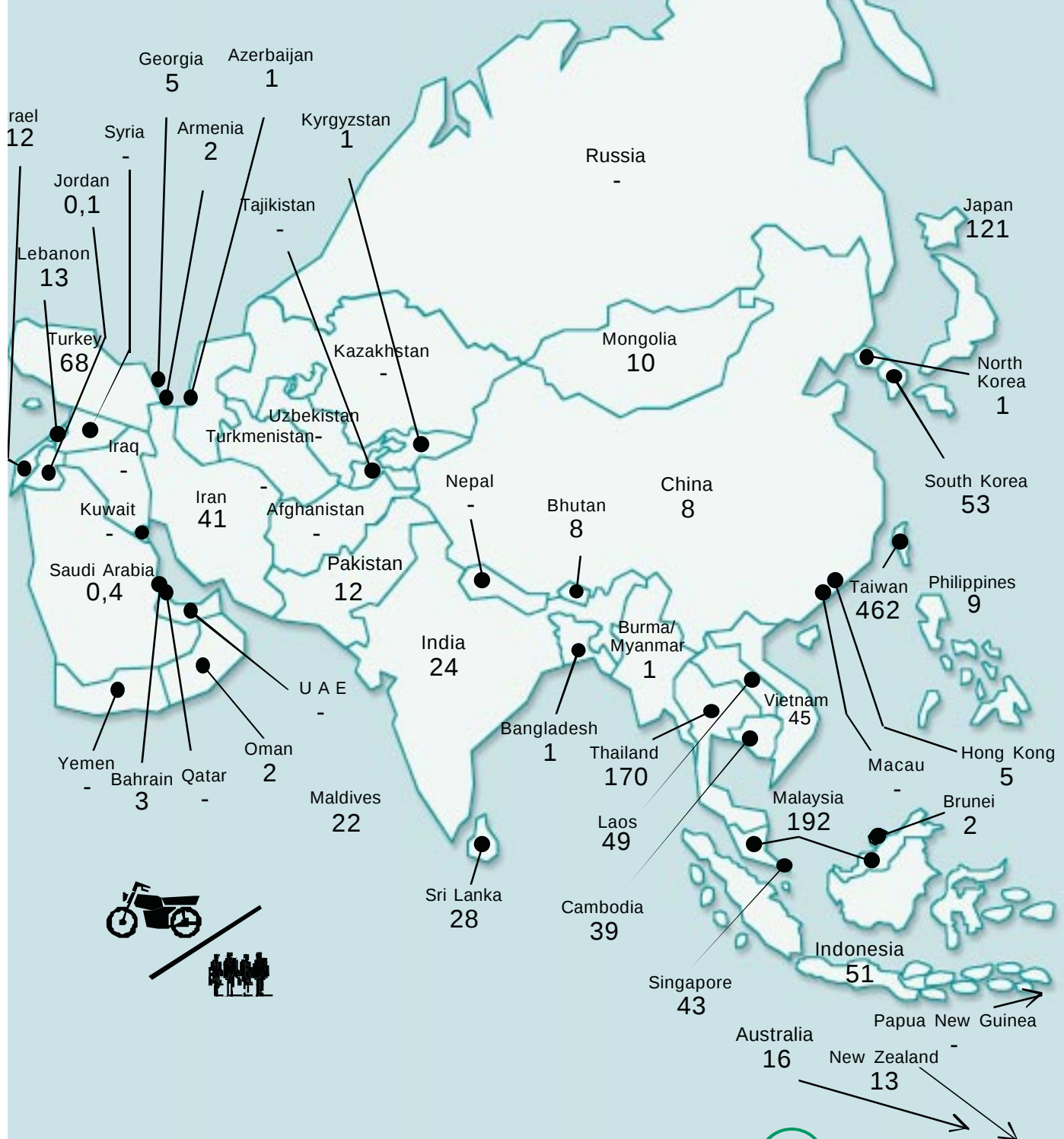


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Motorization

2-Wheel Motor Vehicles per 1000 Inhabitants

- Asia and Australia -



Data Sources:
International Road Federation (IRF): World Road Statistics 1999, Geneva 1999.
The figures refer to 1996/7.

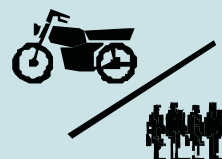


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Motorization

2-Wheel Motor Vehicles per 1000 Inhabitants

- Europe -



Data Sources:
International Road Federation (IRF): World Road Statistics 1999, Geneva 1999.
The figures refer to 1996/7.



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Country Table Motorization: Population, GNP, Vehicles in use 1996

1

Table 1	Population	GNP [US \$]	vehicles in use 1996			Percentage of each vehicle group 1996		
Country	thousands 1996	per capita 1996	Passenger cars	Commercial vehicles	Two- wheelers	Passenger cars	Commercial vehicles	Two- wheelers
Africa								
Algeria	28,734	1,520	725,000	780,000	..	..	..	..
Angola	11,100	270	207,000	25,000	..	..	..	..
Benin	5,632	350	37,772	10,678	250,000	12.6	3.6	83.8
Botswana	1,480	..	22,540	44,000	..	..	..	..
Burkina Faso	10,669	230	38,220	20,380	105,000	23.4	12.4	64.2
Burundi	6,423	170	19,200	18,240	..	..	..	..
Cameroon	13,676	610	98,000	64,350	..	..	..	..
Cape Verde	389	1,010	3,280	820	..	..	..	..
Central African Rep.	3,344	310	358	285	1,067	20.9	16.7	62.4
Chad	6,611	160	10,560	16,950	3,640	33.9	54.4	11.7
Comoros	505	450	9,100	4,950	..	..	..	..
Congo (DemRep)	45,234	130	787,000	598,000	..	..	..	..
Congo (Rep.)	2,705	670	37,240	15,520	..	..	..	..
Côte d'Ivoire	14,347	660	293,000	16,300	..	..	..	..
Djibouti Republic	619	..	9,200	2,040	..	..	..	..
Egypt	59,272	1,080	1,354,000	496,000	418,000	59.7	21.9	18.4
Equatorial Guinea	410	530	1,520	540	..	..	..	..
Eritrea	3,698	..	5,940	..	..	..	..	..
Ethiopia	58,234	100	52,012	41,044	1,151	55.2	43.6	1.2
Gabon	1,125	3,950	24,750	16,490	..	..	..	..
Gambia	1,147	..	8,640	9,000	..	..	..	..
Ghana	17,522	360	90,000	45,000	..	..	..	..
Guinea	6,759	560	14,100	21,000	..	..	..	..
Guinea-Bissau	1,094	250	7,120	5,640	..	..	..	..
Kenya	27,364	320	278,000	109,620	32,000	66.3	26.1	7.6
Lesotho	2,023	660	12,610	25,000	..	..	..	..
Liberia	2,810	..	9,400	32,000	..	..	..	..
Libya	5,167	..	809,514	377,791	1,112	68.1	31.8	0.1
Madagascar	13,705	250	62,000	17,030	..	..	..	..
Malawi	10,016	180	27,000	29,700	..	..	..	..
Mali Rep.	9,999	240	26,190	18,240	..	..	..	..
Mauritania	2,332	470	18,810	10,450	..	..	..	..
Mauritius	1,134	3,710	70,867	25,425	101,754	35.8	12.8	51.4
Morocco	27,020	1,290	1,018,142	305,269	19,874	75.8	22.7	1.5
Mozambique	18,028	80	4,900	7,520	..	..	..	..
Namibia	1,584	2,250	74,875	70,506	1,520	51	48	1
Niger Rep	9,335	200	38,220	15,200	..	..	..	..
Nigeria	114,568	240	773,000	606,000	..	..	..	..
Rwanda	6,727	190	13,000	17,100	..	..	..	..
Sao Tomé	135	330	4,000	1,540	..	..	..	..
Senegal	8,534	570	85,488	36,782	4,062	67.7	29.1	3.2
Seychelles	77	526	7,120	1,980	..	..	..	..
Sierra Leone	4,630	200	20,674	5,490	10,120	57	15.1	27.9
Somali Rep	9,805	..	1,020	6,440	..	..	..	..
South Africa	37,643	3,520	4,004,000	1,664,000	262,000	67.5	28.1	44.4
Sudan Rep	27,272	..	285,000	53,000	..	..	..	..
Swaziland	926	1,210	30,289	33,172	2,727	45.8	50.1	4.1
Tanzania	30,494	170	23,760	122,280	..	..	..	..
Togo Rep	4,230	300	79,200	35,860	59,000	45.5	20.6	33.9
Tunesia	9,132	1,930	269,000	321,000	..	..	..	..
Uganda	19,741	300	35,361	50,473	36,994	28.8	41.1	30.1
Zambia	9,215	360	157,000	81,000	..	..	..	..
Zimbabwe	11,248	610	323,000	39,520	362,000	44.6	5.4	50

Sources:

World Road Statistics 1999, World Bank Atlas 1998



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Country Table Motorization: Population, GNP, Vehicles in use 1996

2

Table 2	Population	GNP [US \$]	vehicles in use 1996			Percentage of each vehicle group 1996		
Country	thousands 1996	per capita 1996	Passenger cars	Commercial vehicles	Two-wheelers	Passenger cars	Commercial vehicles	Two-wheelers
Asia								
Afghanistan	24,167	..	31,000	25,000	..	..	..	..
Bangladesh	121,671	260	55,034	68,336	140,864	20.8	25.9	53.3
Bhutan	715	390	..	..	5,959	..	..	..
Brunei	290	..	149,738	21,693	553	87.1	12.6	0.3
Burma / Myanmar	45,883	..	27,000	42,000	..	..	..	..
Cambodia	10,275	300	46,800	12,253	397,300	10.2	2.7	87.1
China	1,215,414	750	3,894,000	6,655,000	9,760,000	19.1	32.8	48.1
Hong Kong	6,311	24,290	349,332	152,241	30,166	65.7	28.6	5.7
India	945,121	380	4,189,000	5,801,000	23,111,000	12.7	17.5	69.8
Indonesia	197,055	1,080	2,639,523	611,402	11,735,707	17.6	4.1	78.3
Japan	125,761	40,940	46,868,712	22,060,648	15,262,000	55.7	26.2	18.1
Korea North	22,451	..	..	..	..	..	..	..
Korea South	45,545	10,610	7,586,474	2,826,953	2,552,669	58.5	21.8	19.7
Laos	4,726	400	16,320	4,200	231,000	6.5	1.7	91.8
Macau	461	..	..	..	..	..	..	..
Malaysia	20,565	4,370	2,945,992	788,761	3,951,931	38.3	10.3	51.4
Maldives Is	256	1,080	1,080	1,580	5,640	13	19	68
Mongolia	2,516	360	30,001	46,502	25,952	29.3	45.4	25.3
Nepal	22,037	210	..	..	..	..	..	..
Pakistan	133,510	480	604,842	712,526	1,579,551	20.9	24.6	54.5
Philippines	71,899	1,160	702,578	251,033	621,599	44.6	15.9	39.5
Singapore	3,044	30,550	365,568	159,798	131,290	55.7	24.3	20
Sri Lanka	18,300	740	107,000	197,680	513,000	13.1	24.2	62.7
Taiwan	21,700	13,233	4,146,475	761,785	9,283,914	29.2	5.4	65.4
Thailand	60,003	2,960	1,661,000	2,854,721	10,239,000	11.3	19.3	69.4
Vietnam	75,355	290	..	..	3,369,000	..	..	..
Middle East								
Bahrain	599	..	143,878	31,220	1,739	81.4	17.6	1
Iran	62,509	..	1,793,000	692,000	2,565,585	35.5	13.7	50.8
Iraq	21,366	..	772,986	361,146	..	..	..	..
Israel	5,692	15,870	1,184,765	289,094	69,011	76.8	18.7	4.5
Jordan	4,312	1,650	213,874	83,381	369	71.8	28	0.2
Kuwait	1,590	..	538,000	155,000	..	..	..	..
Lebanon	4,079	2,970	1,217,000	86,640	54,450	89.6	6.4	4
Oman	2,173	..	211,000	97,020	4,500	67.6	31	1.4
Qatar	658	..	126,000	64,000	..	..	..	..
Saudi Arabia	19,409	..	1,744,000	1,192,040	8,460	59.2	40.5	0.3
Syria	14,502	1,160	139,592	281,930	..	..	..	..
U A E	2,532	..	201,000	50,370	..	..	..	..
Yemen	15,778	380	240,567	294,586	..	..	..	..
Australia and Pacific								
Australia	18,312	20,090	8,879,000	2,129,470	301,000	78.5	18.8	2.7
Fiji Is.	803	2,470	30,000	29,000	..	..	..	..
Kiribati	82	920	..	..	..	..	..	..
Marshall Is.	57	1,890	..	..	..	..	..	..
Micronesia	109	2,070	..	..	..	..	..	..
Nauru Is	11	7,205	..	..	..	..	..	..
New Zealand	3,635	15,720	1,674,000	388,700	47,000	79.3	18.4	2.3
Papua New Guinea	4,401	1,150	31,000	85,000	..	..	..	..
Solomon Island	404	2,292	..	..	..	..	..	..
Tonga	107	1,820	1,140	780	..	..	..	..
Tuvalu	10	800	..	..	..	..	..	..
Western Samoa	168	1,044	..	..	..	..	..	..
Vanuatu	173	1,290	4,000	2,000	..	..	..	..

Sources:
World Road Statistics 1999, World Bank Atlas 1998



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Country Table Motorization: Population, GNP, Vehicles in use 1996

3

Table 3	Population	GNP [US \$]	vehicles in use 1996			Percentage of each vehicle group 1996		
Country	thousands 1996	per capita 1996	Passenger cars	Commercial vehicles	Two- wheelers	Passenger cars	Commercial vehicles	Two- wheelers
Europe								
Albania	3,286	820	67,031	36,893	5,541	61.2	33.7	5.1
Andorra	71	..	..	..	..	..	..	..
Austria	8,059	28,110	3,782,544	736,154	575,744	74.2	14.5	11.3
Belgium	10,159	26,440	4,307,704	500,982	209,015	85.8	10	4.2
Bosnia + Herzegovina	..	..	96,182	11,106	..	..	..	..
Bulgaria	8,356	1,190	1,707,023	270,075	521,710	68.3	10.8	20.9
Croatia	4,771	3,800	835,714	99,517	31,917	86.4	10.3	3.3
Cyprus	740	..	226,832	106,844	46,855	59.6	28.1	12.3
Czech Rep	10,315	4,740	3,349,008	417,694	1,105,457	68.7	8.6	22.7
Denmark	5,262	32,100	1,741,000	299,000	50,000	83.3	14.3	2.4
Estonia	1,466	3,080	406,598	78,133	4,680	83.1	16	0.9
Finland	5,125	23,240	1,942,752	266,930	162,788	81.9	11.2	6.9
France	58,375	26,270	25,500,000	5,255,000	..	..	..	..
Germany	81,912	28,870	40,987,547	4,263,301	2,470,451	85.9	8.9	5.2
Greece	10,475	11,460	2,339,421	940,805	1,927,432	44.9	18.1	37
Hungary	10,193	4,340	2,434,241	353,993	157,500	82.6	12	5.4
Iceland	3,626	26,580	124,909	16,623	1,950	87	11.6	1.4
Irish Rep	3,626	17,110	987,000	121,580	23,280	87.2	10.7	2.1
Italy	57,380	19,880	30,600,000	2,915,500	2,530,750	84.9	8.1	7
Latvia	2,490	2,300	379,895	136,102	18,444	71.1	25.5	3.4
Liechtenstein	31	..	..	..	..	..	..	..
Lithuania	3,709	2,280	785,088	104,765	19,402	86.4	11.5	2.1
Luxembourg	416	45,360	231,666	25,529	8,406	87.2	9.6	3.2
Macedonia	1,980	990	274,680	31,594	1,734	89.2	10.2	0.6
Malta	373	..	152,081	36,825	9,884	76.5	18.5	5
Moldava	4,327	590	166,757	72,135	109,822	47.8	20.7	31.5
Monaco	32	..	21,120	2,850	5,400	71.9	9.7	18.4
Netherlands	15,517	25,940	5,740,000	655,000	878,000	78.9	9	12.1
Norway	4,381	34,510	1,661,247	392,087	200,485	73.7	17.4	8.9
Poland	38,618	3,230	8,054,448	1,608,716	1,649,079	71.2	14.2	14.6
Portugal	9,930	10,160	2,671,000	952,300	778,200	60.7	21.6	17.7
Romania	22,608	1,600	2,408,000	636,550	329,000	71.4	18.9	9.7
San Marino	25	16,900	..	..	..	..	..	..
Slovakia	5,343	3,410	1,058,425	216,639	79,479	78.1	16	5.9
Slovenia	1,991	9,240	727,554	91,088	8,022	88	11	1
Spain	39,260	14,350	14,753,809	3,200,304	1,308,208	76.6	16.6	6.8
Sweden	8,843	25,710	3,654,920	326,504	236,834	86.7	7.7	5.6
Switzerland	7,074	44,350	3,268,073	650,455	716,511	70.5	14	15.5
Turkey	62,697	2,830	3,456,850	871,035	854,150	66.7	16.8	16.5
United Kingdom	58,782	19,600	21,172,000	3,011,000	609,000	85.4	12.1	2.5
Vatican	0,5	..	..	..	..	..	..	..
Yugoslavia / Serbia	10,574	..	1,583,943	310,293	39,388	81.9	16.1	2.0
CIS								
Armenia	3,774	630	1,300	15,240	7,200	5.5	64.2	30.3
Azerbaijan	7,581	480	273,656	118,635	9,583	68.1	29.5	2.4
Belarus	10,298	2,070	1,035,750	29,407	533,934	64.8	1.8	33.4
Georgia	5,411	850	427,000	56,550	28,130	83.5	11	5.5
Kazakhstan	16,471	1,350	997,539	398,854	..	..	..	..
Kyrgyzstan	4,576	550	146,000	18,430	4,200	86.6	10.9	2.5
Russia	147,739	2,410	15,815,000	4,967,600	..	..	..	..
Tajikistan	5,927	340	680	8,190	..	..	..	..
Turkmenistan	4,598	940	..	..	..	..	..	..
Ukraine	50,718	1,200	4,736,015	..	3,000,516	..	..	..
Uzbekistan	23,228	1,010	..	..	..	..	..	..

Sources:
World Road Statistics 1999, World Bank Atlas 1998



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Country Table Motorization: Population, GNP, Vehicles in use 1996

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Table 4	Population	GNP [US \$]	vehicles in use 1996			Percentage of each vehicle group 1996		
Country	thousands 1996	per capita 1996	Passenger cars	Commercial vehicles	Two- wheelers	Passenger cars	Commercial vehicles	Two- wheelers
Middle America								
Antigua	66	7,330	..	..	..	..	..	..
Bahamas	284	..	46,000	12,000	..	..	..	..
Barbados	264	..	35,000	9,000	..	..	..	..
Belize	222	2,700	9,282	10,585	607	45.3	51.7	3
Costa Rica	3,442	2,640	277,888	170,597	51,433	55.6	34.1	10.3
Cuba	11,019	..	216,575	284,390	215,921	30.2	38.7	30.1
Dominica	74	3,090	..	..	..	..	..	..
Dominican Republic	7,964	1,600	224,000	151,550	..	..	..	..
El Salvador	5,810	1,700	168,234	217,189	38,330	39.7	51.3	9
Grenada	99	2,880	..	..	..	..	..	..
Guatemala	10,928	1,470	102,000	97,000	..	..	..	..
Haiti	7,336	310	32,000	21,000	..	..	..	..
Honduras	6,101	660	..	..	..	..	..	..
Jamaica	2,547	1,600	104,000	22,000	..	..	..	..
Mexico	93,182	3,670	8,607,000	4,426,000	..	..	..	..
Nicaragua	4,503	380	73,000	68,690	22,770	44.4	41.8	13.8
Panama	2,674	3,080	203,760	74,637	7,243	71.3	26.2	2.5
Puerto Rico	3,783	..	878,000	190,000	..	..	..	..
Saint Kitt & Nevis	42	7,785	..	..	..	..	..	..
Saint Lucia	151	5,312	14,550	1,070	600	89.7	6.6	3.7
Saint Vincent & the G.	119	4,226	..	..	..	..	..	..
Trinidad and Tobago	1,297	3,870	122,000	24,000	..	..	..	..
North America								
Canada	29,964	19,020	13,217,336	586,825	32,179	95.5	4.2	0.2
United States	265,284	28,020	130,000,000	76,636,815	3,871,237	61.7	36.5	1.8
South America								
Argentina	35,220	8,380	4,459,000	955,000	35,640	81.8	17.5	0.7
Bolivia	7,588	830	223,829	138,546	66,113	52.3	32.3	15.4
Brazil	161,365	4,400	..	..	..	..	..	..
Chile	14,419	4,860	1,017,052	586,825	32,179	62.2	35.9	1.9
Colombia	37,451	2,140	762,000	672,000	..	..	..	..
Ecuador	11,698	1,500	464,902	55,589	20,870	85.9	10.3	3.8
Guyana	839	690	..	..	..	..	..	..
Paraguay	4,955	1,850	71,000	50,000	..	..	..	..
Peru	24,288	2,420	1,420,000	1,510,000	..	..	..	..
Suriname	432	433	50,250	16,600	30,000	51.9	17.1	31
Uruguay	3,203	5,760	485,109	63,036	328,406	55.3	7.2	37.5
Venezuela	22,311	3,020	1,520,000	434,000	..	..	..	..

Sources:
World Road Statistics 1999, World Bank Atlas 1998



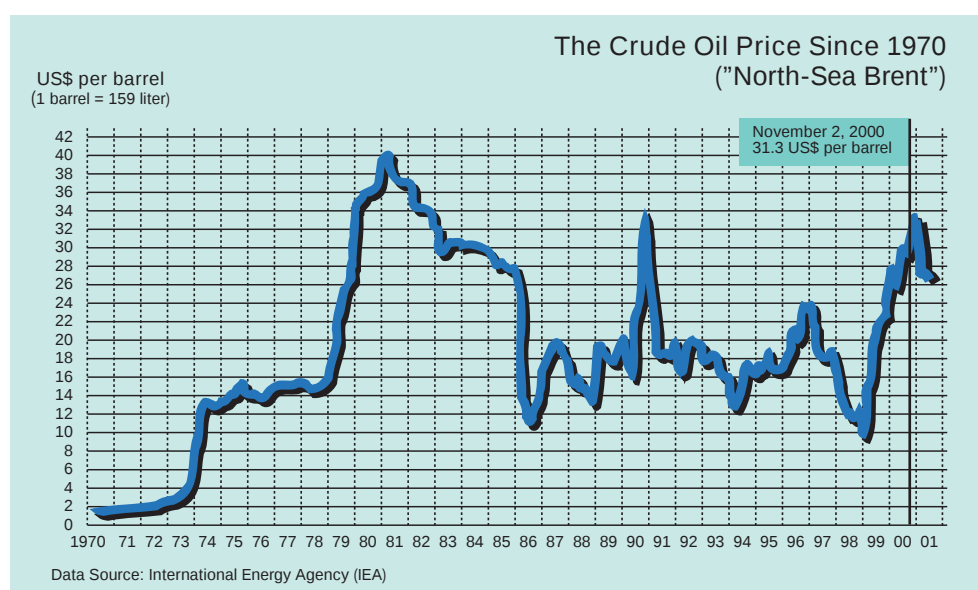
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- The Crude-Oil Price
- Fuel Taxation and Value Added Tax (VAT)
- Bibliography

The Crude-Oil Price

In the preceding chapters the "untaxed retail pump price" has been used as a benchmark to assess national fuel price policies. This reference price, however, is a hypothetical price only. It is the result of rough calculations of average production and distribution costs.

The spot price for crude oil serves as a starting point in calculating the reference price. More specifically, the "North-Sea Brent" quality as traded in Rotterdam was chosen. As the graph below shows, this price has been (and continues to be) rather variable over time.



At the time of the GTZ fuel price survey (November 2, 2000) the Brent price amounted to US\$ 31.3 per barrel, which equals to 19.7 US cents per liter. This price level is represented in the graphs on pages 50 and 51 as the lower of the two reference lines.

Varying crude oil prices lead to varying reference prices per liter, and the reference line in the graphs would have to be shifted accordingly. Some alternative price levels per barrel and their equivalent levels per liter are presented below:

Crude oil price ("North-Sea Brent") per barrel	Crude oil price ("North-Sea Brent") per liter
20.0 US \$ per barrel	12.6 US cents per liter
25.0 US \$ per barrel	15.7 US cents per liter
31.3 US \$ per barrel (as of November 2, 2000)	19.7 US cents per liter (as of November 2, 2000)
35.0 US \$ per barrel	22.0 US cents per liter

In addition to crude oil prices, costs for production at the refinery and for regional distribution, as well as profit margins have to be added. These costs may vary regionally. Past analysis, however, have shown that regional differences are rather small – in particular when compared to the absolute price levels. They can be assumed to be approximately 2.8 US cents per liter diesel and 3.7 US cents per liter gasoline. These and all the following estimates for production and distribution costs are based on cal-

culations done for the 1998 edition of this working paper. Further details may be found in the annex of that paper.

Adding the costs for production and regional distribution to the crude oil price yields the "untaxed wholesale price". To eventually arrive at the untaxed retail pump price, local industry margins, oil company service fees and the local dealer margin have to be added. These amount to approximately 4.0 US cents per liter for the local industry margin. The local dealer margin is assumed to be approximately 3.0 US cents.

The above calculations are summarized in the table below:

	Calculation for diesel price per liter [US cents]	Calculation for gasoline price per liter [US cents]
Crude oil price	19.7	19.7
Production costs at the refinery	2.8	3.7
Regional distribution (shipping etc.)	1.4	1.7
Local industry margins and oil company service fees	4.0	4.0
Local dealer margin	3.0	3.0
Untaxed retail pump price	30.9	32.1

These calculation should be regarded by a rough benchmark only. However, they provide a helpful reference price to assess national fuel taxation. For the time of the GTZ fuel price survey in this publication, the following average prices were assumed for the fuel market:

Average "Untaxed Retail Fuel Pump Price" for November 2000	
Diesel	30 US cents per liter
Gasoline	32 US cents per liter

These levels are represented as the upper reference lines in the worldwide overview of fuel taxation in November 2000 in chapter 4 (pages 50 and 51). If national fuel prices exceed these levels, the difference may be attributed to national fuel taxation, whereas national prices below these levels may indicated subsidization of fuel prices. However, demand and supply side effects and competitive effects may also have some influence on the actual price level within a country.

Again, changes in the crude oil price – which forms the basis of the overall calculation – will lead to changes in the level of the "untaxed retail pump price". Production and distribution costs are rather stable for the medium-term. In addition, most of the costs are fixed and only a small part is proportional to crude oil price level. The mark-up over the crude oil price can thus be assumed to be rather stable as well. It can be assumed to be in the range of 10 US cents per liter for diesel and 12 US cents per liter for gasoline.

Fuel Taxation and Value Added Tax (VAT)

The "untaxed retail fuel pump price" is often used in international discussions on transport sector financing as a reference price. However, the discussion (chiefly political) on appropriate fuel price levels may be misleading if the whole difference between the untaxed pump price and the actual – often highly taxed – pump price is attributed solely to "state fuel tax" as this difference normally also includes a Value Added Tax (VAT) – the proceeds of which go into the general budget, and not into the specific transport budget.

According to European Transport Policy as outlined by the European Commission, transport (and its constituent parts, such as tariffs, infrastructure costs, vehicles and fuels) basically should not be subsidized, but should instead be considered "as any other industrial good". In this sense a final Value Added Tax on (not specifically taxed) fuels should be understood as "normal" and not incorporated into the "state fuel tax". Thus a global benchmark line for fuel should include 15 – 20% Value Added Tax (turnover tax).

The exemption of fuels from the VAT (as has, for example, recently been introduced in Ghana or as practiced in Germany for river shipping) has to be considered as a hidden subsidy.

- Aberle, G. (1992): "Novellierung des GVFG – veränderte Quantitäten und Strukturen bei der Nahverkehrsförderung bringen viel Licht und einigen Schatten", Editorial, Internationales Verkehrswesen, 44. Jg., H. 5 (Mai), S. 157
- ADAC (1998): Kraftstoffpreise in Europa, Telefaxnachricht, Stand: 16. November 1998
- Aral AG Öffentlichkeitsarbeit (Hrsg.) (1991): Aral Verkehrstaschenbuch 1991/92, Bochum (Aral AG Öffentlichkeitsarbeit)
- Barnes, T. (1998): Nationwide and State-by-State Motor Fuel Taxes, American Petroleum Institute, Policy Analysis and Strategic Planning Department, Background Paper, Juli 1998
- Bundesminister für Verkehr (Hrsg.) (1998): Verkehr in Zahlen, 27. Jg., Hamburg (Deutscher Verkehrs-Verlag)
- Bundesverband des Deutschen Güterfernverkehrs (BDF) e.V. (Hrsg.) (1983): Verkehrswirtschaftliche Zahlen 1983, Frankfurt (BDF)
- CEPAL (1996): Istmo Centroamericano: Estadísticas de Hidrocarburos 1995, Comisión Económica para América Latina y el Caribe (CEPAL), Unidad de Energía, Naciones Unidas, Convenio de Cooperación CEPAL / República Federal de Alemania, Sede Subregional México, 1996
- CEPAL (1996): Istmo Centroamericano: Informe sobre Abastecimiento de Hidrocarburos, 1994 y primer semestre de 1995, Comisión Económica para América Latina y el Caribe (CEPAL), Unidad de Energía, Naciones Unidas, Convenio de Cooperación CEPAL / República Federal de Alemania, Sede Subregional México, 1996
- CEPAL (1995): Istmo Centroamericano: Informe sobre Abastecimiento de Hidrocarburos: Datos actualizados al primer semestre de 1994, Comisión Económica para América Latina y el Caribe (CEPAL), Unidad de Energía, Naciones Unidas, Convenio de Cooperación CEPAL / República Federal de Alemania, Sede Subregional México, 1995
- Europäische Kommission (1998): EU transport in figures – Statistical pocketbook – 1998, Luxembourg (Office for Official Publications of the European Communities)
- Europäische Kommission (1991): Donors technical conference on the maintenance and rehabilitation of Sub-Saharan African roads : minutes of meeting and conclusions, Brüssel, 25.-26.11.1991, Commission of the European Communities, Directorate – General for Development, 10.12.1991
- Europäische Kommission (1991): EEC – ACP policy in the road transport sector, Brüssel, 25.-26.11.1991, Commission of the European Communities, Directorate – General for Development, Oktober 1991
- Global Environment Facility (1998): Elements of a GEF Operational Program on Transport, GEF Council, Washington D.C., October 14-16, 1998, Agenda Item 15, GEF/C.12/14/Rev. 1, 27. Oktober 1998, Washington D.C. (?) (GEF)



Bibliography

- Gwilliam, K. (1997): Road User Charges and Taxes, World Bank, TWU, Discussion Paper, September 1997
- Heggie, I.G.; Vickers, P. (1998): Commercial Management and Financing of Roads, World Bank Technical Paper No. 409, Washington D.C. (Weltbank)
- Imperial Ethiopian Government: Imperial Highway Authority (1969): Highway Financing in Ethiopia, To be presented at the African Highway Conference, Addis Abeba / Äthiopien, 20.-25. Oktober 1969
- International Energy Agency (1994): World Energy Outlook: 1994 Edition, Paris (OECD)
- International Road Federation (1999): IRF World Road Statistics: 1999 edition, Genf (IRF)
- Johansen, F. (1989): Earmarking, Road Funds and Toll Roads, A World Bank Symposium, Baltimore, 21.-22. November 1988, The World Bank Policy Planning and Research Staff, Infrastructure and Urban Development Department, Discussion Paper, Washington D.C. (Weltbank) Juni 1989
- Knoll, E. (Hrsg.): Der Elsner 1998: Handbuch für Straßen- und Verkehrswesen, Dieburg (Elsner)
- Lang, G. (1992): Elektrizitätspreise im internationalen Vergleich, 2. Aufl., Frankfurt (VWEW)
- Malhotra, A.K.; Koenig, O.; Sinsukprasert, P. (1994): A Survey of Asia's Energy Prices, World Bank Technical Paper, No. 248, Asia Technical Department Series, Washington D.C. (Weltbank)
- Metschies, G. (1998): Financing and Institutional Aspects of Rural Roads, Keynote Address, World Road Association (PIARC) Committee on Technological Exchanges and Development C 3, International Commission of Agricultural Engineering (CIGR) Section 1 - Land and Water Use, 3rd International Workshop on Secondary Rural Roads, 19.-21. Mai 1998, Józefów / Polen, Eschborn (GTZ)
- Metschies, G. (1996): Asset Management in the Roads Sector ("Cashflow for Roads"), Regional Seminar on Management and Financing of Road Maintenance, UN-Escap Conference Centre, Bangkok / Thailand, 17. September 1996
- Metschies, G. (1995): Road Transport Taxation and Fuel Prices in West Africa, 10th RMI / RTTP Annual Coordination Committee Meeting, Yaounde, 16.-19. Oktober 1995
- Metschies, G. (1995): Straßentransportbesteuerung und Treibstoffpreise : Grundlagen eines Verkehrsfinanzierungsgesetzes: Ergebnisse Togo (DR 16.-18.11.95), Mitteilung OE 4150 Energie und Transport, 6.12.95
- Metschies, G. (1995): Weltweite Energie-Subventionen (update Dez. 1996), GTZ OE 4150 -Energie und Verkehr, 17.12.1996
- Metschies, G.; Rausch, E. (1996): Financing Road Maintenance, Preprint, Eschborn (GTZ)



Bibliography

- Metschies, G. (1999): Fuel Prices and Taxation, Eschborn (GTZ)
- OECD (1994): Scientific Expert Group IR3 on "Ressource Allocation for Road Maintenance and Rehabilitation Programmes", Final Report, Organisation for Economic Co-operation and Development, Directorate for science, technology and industry, Road transport research programme, Paris
- Olade (1996): Energía en cifras, Sistema de Información Económica-Energética, Version No. 8, Organización Latinoamericana de Energía, Quito, Juli 1996
- Olade (1996): Revista Energética: Energy Magazine, 20. Jg., Nr. 2 (Mai-August 1996), Organización Latinoamericana de Energía
- o.V. (1998): "Yemen: Dozens die in price rise protests", in: MEED, 10. Juli 1998, S. 24
- Sylte, O.K. (1996): Review of the Road Sector in Selected COMESA Countries in Africa (12 Countries), World Bank – SSATP, Working Paper No. 23, Juni 1996
- UBS: Prices and Earnings Around the Globe, An International Comparison of Purchasing Power, 2000 Edition, Zurich (download: www.ubs.com)
- United Nations (1997): Management and financing of road maintenance, Report of the ESCAP / World Bank Seminar, Bangkok, 17.-20. September 1996, Economic and social commission for Asia and the Pacific, New York (United Nations)
- U.S. Department of Transportation : Federal Highway Administration (1995): Highway Taxes and Fees : How they are collected and distributed, Publication No. FHWA-PL-95-036, Washington D.C.
- U.S. Department of Transportation: Federal Highway Administration (1995): Our Nation's Highways, Selected Facts and Figures, Washington D.C.
- U.S. Department of Transportation: Federal Highway Administration (1992): Financing Federal-Aid Highways, Publication No. FHWA-PL-92-016, Washington D.C.
- Weltbank (1998): World Bank Atlas 98, Washington D.C. (World Bank)
- Weltbank (1997): World Development Indicators, Washington D.C.
- Weltbank (1994): World Development Report: Infrastructure for Development, New York (Oxford University Press)
- Zeissig, Hilmar (1995): Istmo Centroamericano: Comparación de leyes, decretos y anteproyectos de importación y comercialización de hidrocarburos, CEPAL