

PERFORMANCE and IMPACT INDICATORS for TRANSPORT
(work in progress, February 27, 2004)

Dimension	Mode	Indicator
ACCESS		
	Roads	Rural Accessibility (% of total rural population)
	Urban	Urban Mobility (km)
	Roads	Rural Mobility : Average distance to nearest transport stop for rural population (km)
	Roads	Road Density : in terms of population (km/1,000 people)
	Roads	Road Network Coverage : in terms of land area (km/1,000 km ²)
	Rail	Railway Density : in terms of population (route-km/1,000 people)
	Rail	Railway Coverage : in terms of land area (route-km/1,000 km ²)
	Roads	Rural Motor Vehicle Ownership : Private Cars etc (% of rural households)
	Roads	Rural Motorcycle Ownership : Motorcycles (% of rural households)
	Roads	Rural Bicycle Ownership : Bicycles (% of rural households)
	Urban	Urban Motor Vehicle Ownership : Private Cars etc (% of urban households)
	Urban	Urban Motorcycle Ownership : Motorcycles (% of urban households)
	Urban	Urban Bicycle Ownership : Bicycles (% of urban households)
	Roads	Bicycle Ownership : Bicycles (% of households)
ADVISE	Air	Aircraft Departures (thousands)
AFFORDABILITY		
	Road	Motor Vehicle Gasoline Prices : Super/Regular (US\$/ liter)
	Road	Motor Vehicle Gas/Diesel Oil Prices (US\$/liter)
	Urban	Urban Household Spending on Transport : Spending on Transport Services (% of Household Expenditure)
	Rural	Rural Household Spending on Transport : Spending on Transport Services (% of Household Expenditure)
	Rail	Rail Passenger Tariff (US\$/passenger-km)
	Rail	Rail Freight Tariff (US\$/tonne-km)
	Roads	Road User Charge : Share of Total Road Expenditure (%)
define	Ports	Port Handling Cost (US\$/TEU)
define	Ports	Cargo Handling Cost : General Cargo (US\$/ton)
QUALITY (*Technical Dimension*)		
	Roads	Paved Roads (% of Total Road Network)
	Roads	Roads in Fair/Good Condition (% of Total Road Network)
	Rail	Rail Traffic Density (traffic units/km)
	Rail	Length of Multi-tracked Rail Lines (% of total route-km)
	Rail	Rail Service Frequency (passenger train-km/route-km)
	Roads	Road motor vehicle fatalities per vehicles (Fatalities/10,000 vehicles)
	Roads	Road motor vehicle fatalities per population (Fatalities/100,000 people)
	Urban	Work Trips in urban areas by mode (% of work trips by transport mode)
check	Ports	Seaport Traffic: containers
check	Ports	Seaport Traffic: general cargo
	Rail	Railway Passenger Share (% of domestic passenger travel)
	Road	Road Passenger Share (% of domestic passenger travel)
check	Water	Waterway Passenger Share (% of domestic passenger travel)
	Air	Airways Passenger Share (% of domestic passenger travel)
	Rail	Railway Freight Haulage Share (% of domestic freight carriage)
	Road	Road Freight Haulage Share (% of domestic freight carriage)
check	Water	Waterway Freight Haulage Share (% of domestic freight carriage)
	Air	Airways Freight Haulage Share (% of domestic freight carriage)
QUALITY (*Perception*)		
	All	Travel time by rural households (hours/day by rural household)
	All	Travel time by urban households (hours/day by urban household)
	Urban	Travel time to work in main cities (minutes/one-way work trip in main cities)
	Roads	Commercial Perception of Road Department/Public Works Services
	Rail	Commercial Perception of Railway Services
	Air	Commercial Perception of Air Transport Services
	Ports	Commercial Perception of Port Facilities and Inland Waterways
check	Ports	Cargo Handling Services: Market Openness

Dimension	Mode	Indicator
EFFICIENCY (*Cost*)		
	Ports	Shipping Costs (ratio)
	Rail	Railway Employee Productivity (Annual Output/Employee)
EFFICIENCY (*Economic*)		
	Roads	Road Transport System Technical Efficiency (US\$/km)
FISCAL COST		
	Roads	Road Expenditure as share of GDP (%)
	Roads	External Funds as Share of Total Road Expenditure (%)
	Roads	Road Maintenance Effectiveness: Actual/Required Expenditure (%)
FINANCIAL AUTONOMY		
	Roads	Vehicle Expenditure: on Owning and Operating Vehicles per year (US\$)
INSTITUTIONS and GOVERNANCE		
	Roads	National Roads Boards (NRB) Exists and Reports (at least annually) (Y/N)
	Roads	Private Sector Representatives form majority of NRB (Y/N)
	Roads	Main (National) Road Agency operating with Annual Report published (Y/N)
	Roads	Main (National) Road Agency publishing Technical and Financial Audits (Y/N)
	All	Competitive Private Sector Participation in Transport Services (Y/N)
	Roads	National Road Safety Action Plan (Y/N)
	Roads	Social Assessment of Road Projects Mainstreamed (Y/N)
	All	Gender assessment (Y/N)
	All	Access for all (Y/N)
	All	Planning (Y/N)
	Roads	Environmental Assessment of Road Projects Mainstreamed (Y/N)
	Roads	Communicable disease control (Y/N)
	All	Core labor standards (Y/N)
	All	Health and safety (Y/N)

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DEFINITIONS and SOURCES

ACCESS

Roads **Rural Accessibility** (% of total rural population)

Definition *The number of rural people living within 2km (about 20 minutes walk) of an all-season road as proportion of the total rural population. An all-season road is a road that can be traveled by the prevailing means of rural transport (often a pick-up or a truck that does not have four-wheel-drive) all year round. Predictable interruptions of short duration during inclement weather (e.g. heavy rainfall) are permitted, particularly on low volume roads. Depending on the traffic volumes, well constructed earth roads are often going to be sufficient (IDA-14 Measurement System, Update Note, 2003).*

Source Household surveys, such as Living Standard Measurement Surveys (LSMS), Household Budget Survey (HBS), Priority Survey (PS), Household Expenditure Survey (HES) and CWIQ (Core Welfare Indicators Questionnaire) might have a relevant question in the questionnaire.

Coverage

Comments Partnership with USAID (DHS surveys) and UNICEF (MICS surveys) in order to include relevant question in the questionnaire are being explored. The indicator is a proposed IDA-14 performance measurement indicator.
This measure is favored for inclusion in the set of indicators for measuring progress of IDA-14. At least 30 IDA countries by mid-2004; at least 50 countries by mid-2005.
Please contact Peter Roberts (TUDTR) and Cordula Thum (TUDTR) with respect to locating the specific questions in the household survey questionnaires.
Propose to include relevant question (How long does it take you to reach the closest all-season road (answer ___ minutes)? How do you go there (answer ___ by foot, by bus, etc.)?) in DHS/MICS

All - Urban **Urban Mobility:** Average distance to nearest transport stop for urban population (km)

Definition

Source Household surveys, such as Living Standard Measurement Surveys (LSMS), Household Budget Survey (HBS), Priority Survey (PS), Household Expenditure Survey (HES) might have a relevant question in the questionnaire.

Coverage
Comments

All modes **Rural Mobility:** Average distance to nearest transport stop for rural population (km)

Definition

Source Household surveys, such as Living Standard Measurement Surveys (LSMS), Household Budget Survey (HBS), Priority Survey (PS), Household Expenditure Survey (HES) might have a relevant question in the questionnaire.

Coverage
Comments

Roads **Road Density:** in terms of population (km/1,000 people)
 Definition *Kilometer length of total road network per 1,000 people. The total road network includes (a) motorways, (b) highways, main or national roads, (c) secondary or regional roads, (d) urban roads and (e) rural roads* (Glossary of Transport Statistics, 2003).
 Source For kilometer length of the total road network see SIMA/WDI published 2002.
 Original source: International Road Federation, World Road Statistics, and Eurostat
 Coverage 180 countries, 1990-2000.
 For population figures WDI published 2002, 180 countries, 1990-2000.
 Comments Annual coverage of countries by IRF data has deteriorated badly in the five years to 2001. Development Data Group and TUDTR are discussing with IRF how the Federation might improve this in a sustainable manner. Subject to the outcome of these discussions, TUDTR proposes to use definitions of road categories which are as close as is practical to those of IRF.

Roads **Road Network Coverage:** in terms of land area (km/1,000 km²)
 Definition *Kilometer length of the total road network per 1,000 km² of land area. The road network includes all roads in a given area: (a) motorways, (b) highways, main or national roads, (c) secondary or regional roads, (d) other roads: urban and rural* (Glossary of Transport Statistics, 2003).
 Source For road network length see SIMA/WDI published 2002.
 Original source: International Road Federation, World Road Statistics, and Eurostat.
 Coverage SIMA/WDI: 180 countries, 1990-2000.
 For total land area see WDI published 2002, 180 countries, 1990-2000.
 Comments Annual coverage of countries by IRF data has deteriorated badly in the five years to 2001. Development Data Group and TUDTR are discussing with IRF how the Federation might improve this in a sustainable manner. Subject to the outcome of these discussions, TUDTR proposes to use definitions of road categories which are as close as is practical to those of IRF.

Rail **Railway Density:** in terms of land area (route-km/1,000 km²)
 Definition *Kilometer route length of all railways (railway network) per 1,000 km²* (Glossary of Transport Statistics, 2003).
 Source Global Development Finance & World Development Indicators central (April 2003).
 Original source: Louis Thompson Rail Database at <http://www.worldbank.org/html/fpd/transport/rail/rdb.htm>
 Coverage 89 developing countries, 1995-2001. Only a few observations per year, except for 2000.
 For total land area see WDI published 2002. 180 countries, 1990-2000.
 Comments

Rail **Railway Coverage:** Lines Density in terms of population (route-km/1,000 people)
 Definition *Kilometer route length of all railways (railway network) per 1,000 people* (Glossary of Transport Statistics, 2003).
 Source Global Development Finance & World Development Indicators central (April 2003).
 Original source: Louis Thompson Rail Database at <http://www.worldbank.org/html/fpd/transport/rail/rdb.htm>
 Coverage 89 developing countries, 1995-2001. Only a few observations per year, except for 2000.
 For population figures WDI published 2002, 180 countries, 1990-2000.
 Comments

Roads **Rural Motor Vehicle Ownership:** Private Cars (% of Rural Households)
 Definition *Percentage of rural households owning at least one private car. Private cars are road motor vehicle, other than motor cycles, intended for the transport of passengers and seating not more than nine persons (including the driver). The term private car does not cover taxis and hired vehicles* (Glossary of Transport Statistics, 2003).
 Source Demographic and Health Survey (DHS)
 Coverage One/three surveys per country between 1990 and 2001.
 49 countries
 Rural/urban breakdown is provided.
 Comments It might be worth exploring partnership with USAID, Demographic and Health Surveys to incorporate additional questions regarding access to transport services in their standardized surveys. Conversations with DHS-ORC Macro are taking place in order to either get the raw data or work together in WB-Transport specialized tabulations of the existing DHS data.
Propose to include relevant question in DHS/MICS

Roads **Rural Motorcycle Ownership: Motorcycles (% of Rural Households)**
 Definition *Percentage of rural households owning at least one motorcycle. Motorcycles include two-wheeled road motor vehicle with or without side-car, including motor scooter, or three-wheeled road motor vehicle not exceeding 400kg (900 lb) unladen weight (this term does not include mopeds).* (Glossary of Transport Statistics, 2003).
 Source Demographic and Health Survey (DHS)
 Coverage One/three surveys per country between 1990 and 2001.
 50 developing countries.
 Rural/urban breakdown is provided.
 Comments It might be worth exploring partnership with USAID, Demographic and Health Surveys to incorporate additional questions regarding access to transport services in their standardized surveys. Conversations with DHS-ORC Macro are taking place in order to either get the raw data or work together in WB-Transport specialized tabulations of the existing DHS data.
Propose to include relevant question in DHS/MICS

Roads **Rural Bicycle Ownership: Bicycles (% of Rural Households)**
 Definition Percentage of households owning at least one bicycle.
 Source Demographic and Health Survey (DHS)
 Coverage One/three surveys per country between 1990 and 2001.
 51 Developing Countries
 Rural/urban breakdown is provided.
 Comments Another source of these data can be the WB-LSMS surveys. However, their questionnaires are not standardized over time and across countries. From the total universe of 31 countries already surveyed with LSMS, about only 10 were asked more elaborate questions on transportation modal types and time spent on getting to work, etc. Judy Baker is leading a task in order to design a standard LSMS module in transport, defining what could be the questions to be included in the LSMS core questionnaires.
Propose to include relevant question in DHS/MICS

Urban **Urban Motor Vehicle Ownership: Private Cars (% of Urban Households)**
 Definition *Percentage of urban households owning at least one private car. Private cars are road motor vehicle, other than motor cycles, intended for the transport of passengers and seating not more than nine persons (including the driver). The term private car does not cover taxis and hired vehicles* (Glossary of Transport Statistics, 2003).
 Source Demographic and Health Survey (DHS)
 Coverage One/three surveys per country between 1990 and 2001.
 49 countries
 Rural/urban breakdown is provided.
 Comments It might be worth exploring partnership with USAID, Demographic and Health Surveys to incorporate additional questions regarding access to transport services in their standardized surveys. Conversations with DHS-ORC Macro are taking place in order to either get the raw data or work together in WB-Transport specialized tabulations of the existing DHS data.
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 Definition *Percentage of urban households owning at least one motorcycle. Motorcycles include two-wheeled road motor vehicle with or without side-car, including motor scooter, or three-wheeled road motor vehicle not exceeding 400kg (900 lb) unladen weight (this term does not include mopeds).* (Glossary of Transport Statistics, 2003).
 Source Demographic and Health Survey (DHS)
 Coverage One/three surveys per country between 1990 and 2001.
 50 developing countries.
 Rural/urban breakdown is provided.
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Propose to include relevant question in DHS/MICS

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 Source Demographic and Health Survey (DHS)
 Coverage One/three surveys per country between 1990 and 2001.
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 Rural/urban breakdown is provided.
 Comments Another source of these data can be the WB-LSMS surveys. However, their questionnaires are not standardized over time and across countries. From the total universe of 31 countries already surveyed with LSMS, about only 10 were asked more elaborate questions on transportation modal types and time spent on getting to work, etc. Judy Baker is leading a task in order to design a standard LSMS module in transport, defining what could be the questions to be included in the LSMS core questionnaires.
Propose to include relevant question in DHS/MICS

Urban **Bicycle Ownership: Bicycles (% of Households)**
 Definition *Percentage of households owning at least one bicycle.*
 Source Demographic and Health Survey (DHS)
 Coverage One/three surveys per country between 1990 and 2001.
 51 Developing Countries
 Rural/urban breakdown is provided.
 Comments Another source of these data can be the WB-LSMS surveys. However, their questionnaires are not standardized over time and across countries. From the total universe of 31 countries already surveyed with LSMS, about only 10 were asked more elaborate questions on transportation modal types and time spent on getting to work, etc. Judy Baker is leading a task in order to design a standard LSMS module in transport, defining what could be the questions to be included in the LSMS core questionnaires.
Propose to include relevant question in DHS/MICS

Air **Aircraft Departures (thousands) [subject to confirmation]**
 Definition *The number of domestic and international takeoffs of air carriers registered in the country.*
 Source WDI, 2002
 International Civil Aviation Statistics Yearbook
 Coverage
 Comments **Other indicators are under consideration.**

AFFORDABILITY

Road **Motor Vehicle Gasoline Prices: Super/Regular (US\$/liter)**
 Definition *The average amount paid by road motor vehicle users for one liter of gasoline (regular/super). Fuel prices refer to the most widely sold grade of gasoline (in terms of quantity) as the respective basis for each country. In countries where regular-grade gasoline is still the norm this fuel is used by GTZ instead of super gasoline (GTZ).*
 Source GTZ (also World Development Indicators)
 Coverage 168 countries for the following years: 1991, 93, 95, 98, 2000.
 165 countries for 2002.
 Comments

Road **Motor Vehicle Gas/Diesel Oil Prices (US\$/liter)**
 Definition *The average amount paid by road motor vehicle users for one liter of diesel.*
 Source GTZ (also World Development Indicators)
 Coverage 168 countries for the following years: 1991, 93, 95, 98, 2000.
 165 countries for 2002.
 Comments

All modes	Urban Household Spending on Transport: Spending on Transport Services (% of Household Expenditure)
Definition	<i>Aggregate average of reported share of total urban household expenditure on transport services.</i>
Source	Household surveys, such as Living Standard Measurement Surveys (LSMS), Household Budget Survey (HBS), Priority Survey (PS), Household Expenditure Survey (HES) might have a relevant question in the questionnaire.
Coverage	
Comments	A source of these data can be the WB-LSMS surveys. However, their questionnaires are not standardized over time and across countries. From the total universe of 31 countries already surveyed with LSMS, about only 10 were asked more elaborate questions on transportation modal types and time spent on getting to work, etc. Judy Baker is leading a task in order to design a standard LSMS module in transport, defining what could be the questions to be included in the LSMS core questionnaires.
All modes	Rural Household Spending on Transport: Spending on Transport Services (% of Household Expenditure)
Definition	<i>Aggregate average of reported share of total rural household expenditure on transport services.</i>
Source	Household surveys, such as Living Standard Measurement Surveys (LSMS), Household Budget Survey (HBS), Priority Survey (PS), Household Expenditure Survey (HES) might have a relevant question in the questionnaire.
Coverage	
Comments	A source of these data can be the WB-LSMS surveys. However, their questionnaires are not standardized over time and across countries. From the total universe of 31 countries already surveyed with LSMS, about only 10 were asked more elaborate questions on transportation modal types and time spent on getting to work, etc. Judy Baker is leading a task in order to design a standard LSMS module in transport, defining what could be the questions to be included in the LSMS core questionnaires.
Rail	Rail Passenger Tariff (US\$/passenger-km)
Definition	<i>Total rail passenger fare box revenue in US dollars divided by total passenger train-kilometers. A passenger train-kilometer is the transport of one rail passenger by rail over a distance of one kilometer (Glossary of Transport Statistics, 2003).</i>
Source	Global Development Finance & World Development Indicators central (April 2003). Original source: Louis Thompson Rail Database at http://www.worldbank.org/html/fpd/transport/rail/rdb.htm
Coverage	62 countries, 1986-2000. One year per country.
Comments	Fares for inter-city, intra-city and rural transport are considered separately. Typical fares for one or more itineraries can be selected as samples (H.Levy)
Rail	Rail Freight Tariff (US\$/tonne-km)
Definition	<i>Total rail freight transport revenue in US dollars divided by total rail freight tonne-kilometers. A freight tonne-kilometer is the movement of one tonne of goods by rail over a distance of one kilometer (Glossary of Transport Statistics, 2003).</i>
Source	Global Development Finance & World Development Indicators central (April 2003). Original source: Louis Thompson Rail Database at http://www.worldbank.org/html/fpd/transport/rail/rdb.htm
Coverage	62 countries, 1986-2000. One year per country.
Comments	Rates for inter-city and rural transport are considered separately. Rates for one or more key commodities, transport from rural areas to city destination may be selected as a sample (H.Levy)
Road	Road User Charge: Share of Total Road Expenditure (%)
Definition	<i>The total funds collected per year through indirect and direct (public and private) charges for road services that are levied as fees as share of Total Road Expenditure. Tolls for instance refer to direct charges that can function like prices (analogous to public utility tariffs). An indirect charge could include a surcharge on fuel taxes. It also includes the amount of public taxes per year collected in relation to transport provision and operations (vehicle and parts import duties, sales taxes, fuel taxes, etc.) that contribute to general revenue. The total amount of expenditure includes new construction and extension of existing roads, i.e. reconstruction, maintenance, renewal and major repairs of roads per year.</i>
Source	In country sector knowledge
Coverage	
Comments	

Ports **Port Handling Cost (US\$/TEU)**
 Definition [*TEU (Twenty-Foot-Equivalent Unit) from ship to gate and vice-versa. Available from tariff published by operators of public access terminals, can be checked with shipping lines.]*
 Source
 Coverage
 Comments **TUDTR Ports and Logistics TG to finalise details.**

Ports **Cargo Handling Cost: General Cargo (US\$/ton)**
 Definition [*Less straightforward since some tariff schedules still differentiate between commodities, making it hard to come up with a meaningful average; also covers only the ship-to-shore handling, so additional costs for delivery to the port gate may apply (difference from the integrated container terminal operation). But can be used to track handling costs of significant volumes of specific uncontainerized commodities. The freight forwarders will be the adequate information source to get a consolidated view of cost.]*
 Source
 Coverage
 Comments **TUDTR Ports and Logistics TG to finalise details.**

QUALITY (*Technical Dimension*)

Roads **Paved Roads (% of Total Road Network)**
 Definition *The length of all roads that are surfaced with crushed stone (macadam) and hydrocarbon binder or bituminized agents with concrete or with cobblestones as proportion of the kilometer length of the total road network. The total road network includes (a) motorways, (b) highways, main or national roads, (c) secondary or regional roads, (d) urban roads and (e) rural roads. (Glossary of Transport Statistics, 2003).*
 Source SIMA/WDI published 2002.
 Original Source: IRF, World Road Statistics and Eurostat,
 Coverage 180 countries, 1990-2000.
 Comments Annual coverage of countries by IRF data has deteriorated badly in the five years to 2001. Development Data Group and TUDTR are discussing with IRF how the Federation might improve this in a sustainable manner. Subject to the outcome of these discussions, TUDTR proposes to use definitions of road categories which are as close as is practical to those of IRF.

Roads **Roads in Fair/Good Condition (% of Total Road Network)**
 Definition *Total length of roads that are in good and regular conditions as proportion of the total road network. Roads in good condition include paved roads, largely free of defects, requiring only routine maintenance and perhaps surface treatment. Unpaved roads which need only routine grading and localized repairs. Roads in regular condition include paved roads with defects and weakened structural resistance. They require resurfacing of the pavement, but without the need to demolish the existing pavement. Unpaved roads, which require grading and additional new gravel, plus drainage repair in some places (ECLAC, 1993, p.33)*
 Source Road Authority
 Coverage
 Comments

Rail **Rail Traffic Density (Traffic units/route-km)**
 Definition *Railway traffic density is the sum of passenger train-kilometers and freight tonne-kilometers - together, traffic units - divided by total route-kilometers of rail line. A passenger train-kilometer is the transport of one passenger by rail over a distance of one kilometer. A freight tonne-kilometer is the transport of one tonne of goods by rail over a distance of one kilometer (Glossary of Transport Statistics, 2003).*
 Source Global Development Finance & World Development Indicators central (April 2003).
 Original source: Louis Thompson Rail Database at <http://www.worldbank.org/html/fpd/transport/rail/rdb.htm>
 Coverage 62 countries, 1986-2000. One year per country.
 Comments

Rail	Length of Multi-tracked Rail Lines (% of total route-km)
Definition	<i>The kilometer route length of multi-tracked rail lines as a proportion of the total route length.</i>
Source	Global Development Finance & World Development Indicators central (April 2003). Original source: Louis Thompson Rail Database at http://www.worldbank.org/html/fpd/transport/rail/rdb.htm
Coverage	62 countries, 1986-2000. One year per country.
Comments	
Rail	Rail Service Frequency (passenger train-km/route-km)
Definition	<i>Rail service frequency is passenger train-km divided by kilometer route length of all railways.</i>
Source	Source yet to be defined
Coverage	
Comments	
Roads	Road Motor Vehicle Fatalities per vehicles (Fatalities/10,000 vehicles)
Definition	<i>Number of fatalities from road motor vehicle accidents resulting in at least one person killed (with 30 days of the accident's occurrence) per 10,000 road motor vehicles registered. Included in the accidents are: collisions between road vehicles, between road vehicles and pedestrians, between road vehicles and animals or fixed obstacles and with one road vehicle alone. Included are collisions between road and rail vehicles. Multi-vehicle collisions are counted as only one accident provided that nay successive collisions happen at very short intervals (Glossary of Transport Statistics, 2003).</i>
Source	IRF
Coverage	IRF database 1963-1989 and 1990-2001 (numbers of fatalities and total vehicles registered), Coverage in the 1990s is very limited
Comments	"transport risk measure"
Roads	Road Motor Vehicle Fatalities per population (Fatalities/100,000 people)
Definition	<i>Number of fatalities from road motor vehicle accidents resulting in at least one person killed (within 30 days of the accident's occurrence) per 100,000 people. Included in the accidents are: collisions between road vehicles, between road vehicles and pedestrians, between road vehicles and animals or fixed obstacles and with one road vehicle alone. Included are collisions between road and rail vehicles. Multi-vehicle collisions are counted as only one accident provided that nay successive collisions happen at very short intervals (Glossary of Transport Statistics, 2003).</i>
Source	IRF/ WDI
Coverage	IRF database 1963-1989 and 1990-2001 (numbers of fatalities), Coverage in the 1990s is very limited WDI database for population data
Comments	"transport - public health measure"
Urban	Work Trips in urban areas by mode (% of work trips by transport mode)
Definition	<i>Percentage of work trips undertaken by (a) private car, (b) train and tram, (c) bus or minibus, (d) motorcycle, (e) bicycle, (f) foot, and other modes.</i>
Source	UN-Habitat at http://www.unhabitat.org/programmes/quo/gui.asp
Coverage	Available for 128-137 cities in 76-77 countries, depending on transport mode, 1998.
Comments	In order to aggregate data at the country level we used simple averages of number of trips to work by a specific modal within cities for the available cities. However, the list of cities is not exhaustive. Both the data aggregation method and the sample coverage are not the optimal. A better approach, should more data become available for a comprehensive list of cities per country, would be to calculate national averages weighting data of each city by population or whatever criteria might weigh the city in the context of a national average (e.g. city GDP). Quality of UN-Habitat data is questionable (Cecilia)

Ports CHECK Definition	<p>Seaport Traffic: containers (TEU)</p> <p><i>Standard unit is the Twenty-foot Equivalent Unit (TEU).</i></p>
Source	Often available in the Fairplay ports database (on metaframe), or on the ports websites, or from annual reviews from UNCTAD or the Journal de la Marine Marchande (France), or Containerization International.
Coverage	
Comments	<p>TUDTR Ports and Logistics TG to check definition.</p> <p>For some countries (including those which are landlocked) import and export by other modes may be significant.</p> <p>Containerization Index: container traffic (measured in tons)/(container traffic + general cargo-breakbulk). Can be illustrative of the degree of diversification of international trade in value-added products, which may often also be linked to the capacity and performance of the domestic transport system.</p>
Ports CHECK Definition	<p>Seaport Traffic: general and bulk cargo (tons)</p> <p><i>Total tonnage of all non-containerised freight which is imported or exported by sea.</i></p>
Source	Often available in the Fairplay ports database (on metaframe), or on the ports websites, or from annual reviews from UNCTAD or the Journal de la Marine Marchande (France).
Coverage	
Comments	<p>TUDTR Ports and Logistics TG to check definition.</p> <p>For some countries (including those which are landlocked) import and export by other modes may be significant.</p>
Rail Definition	<p>Railway Passenger Share (% of domestic passenger travel)</p> <p><i>Passenger distance travelled by rail as proportion of total passenger domestic travel.</i></p>
Source	ICP?
Coverage	
Comments	
Roads Definition	<p>Road Passenger Share (% of domestic passenger travel)</p> <p><i>Passenger distance traveled by road as proportion of total passenger domestic travel.</i></p>
Source	ICP?
Coverage	
Comments	
Water CHECK Definition	<p>Waterway Passenger Share (% of domestic passenger travel)</p> <p><i>Passenger distance traveled by inland waterway and coastal shipping as a proportion of total passenger domestic travel by all transport modes.</i></p>
Source	ICP?
Coverage	
Comments	
Air Definition	<p>Airways Passenger Share (% of domestic passenger travel)</p> <p><i>Domestic air travel of passengers (person kilometer) with air carriers in a country as proportion of total passenger travel per year.</i></p>
Source	<p>WDI (?)</p> <p>Original Source: International Civil Aviation Statistics Yearbook</p> <p>For the number of passengers carried by Air see WDI, see also UN Statistics Office at http://unstats.un.org/unsd/cdb/cdb_source_xrxx.asp?source_code=41</p>
Coverage	Number of Passenger Carried, 177 countries, 1990-2000
Comments	<p>Need to establish distance traveled by domestic passengers</p> <p style="text-align: right;">** check</p>

Rail	Railway Freight Haulage Share (% of domestic freight carriage)
Definition	<i>Freight ton kilometers carried by rail as proportion of total freight domestic carriage.</i>
Source	ICP?
Coverage	
Comments	
Roads	Road Freight Haulage Share (% of domestic freight carriage)
Definition	<i>Freight ton carried by road as proportion of total freight ton carried.</i>
Source	ICP?
Coverage	
Comments	
Roads	Waterway Freight Haulage Share (% of domestic freight carriage)
CHECK	
Definition	<i>Freight ton carried by inland and coastal shipping as proportion of total freight ton carried.</i>
Source	ICP?
Coverage	
Comments	
Air	Airways Freight Haulage Share (% of domestic freight carriage)
Definition	<i>The sum of the metric tons of freight, express, and diplomatic bags carried on each flight staged (the operation of an aircraft from takeoff to its next landing) multiplied by the stage distance of air carriers registered in the country.</i>
Source	WDI Original Source: International Civil Aviation Statistics Yearbook For the number of passengers carried by Air see WDI, see also UN Statistics Office at http://unstats.un.org/unsd/cdb/cdb_source_xrxx.asp?source_code=41
Coverage	Tons of Freight Carried, 177 countries, 1990-2000
Comments	*** check

QUALITY (*Perception*)

All modes	Travel time by rural households (hours/day by rural household)
Definition	<i>The total time (in hours) spent on traveling by members of rural households per day (including waiting time at transport stop, etc.).</i>
Source	Household surveys, such as Living Standard Measurement Surveys (LSMS), Household Budget Survey (HBS), Priority Survey (PS), Household Expenditure Survey (HES) might have a relevant question in the questionnaire.
Coverage	
Comments	
All modes	Travel time by urban households (hours/day by urban household)
Definition	<i>The total time (in hours) spent on traveling by members of urban households per day (including waiting time at transport stop, etc.).</i>
Source	Household surveys, such as Living Standard Measurement Surveys (LSMS), Household Budget Survey (HBS), Priority Survey (PS), Household Expenditure Survey (HES) might have a relevant question in the questionnaire.
Coverage	
Comments	

Urban
Travel time to work in main cities (minutes/one-way work trip)
 Definition *Average time in minutes for a one-way work trip. This is an average over all modes of transport. Train and bus times should include average walking and waiting times and car times should include parking or walking to the workplace.*
 Source UN-Habitat at <http://www.unhabitat.org/programmes/quo/gui.asp>
 Coverage Available for 171 cities in 88 countries for the year 1998.
 Comments In order to aggregate data at the country level we used simple averages of travel time to work within cities for the available cities. However, the list of cities is not exhaustive. Both the data aggregation method and the sample coverage are not the optimal. A better approach, should more data become available for a comprehensive list of cities per country, would be to calculate national averages weighting data of each city by population or whatever criteria might weigh the city in the context of a national average (e.g. city GDP).
Quality of UN-Habitat data is questionable (Cecilia) – Propose to include relevant question in DHS/MICS?

Roads
Commercial Perception of Services Delivered by Road Department/ Public Works
 Definition *Perception ratings of quality and efficiency of services delivered by the Road Department/Public Works. The rating ranges from 1 as being very bad to 7 as very good.*
 Source World Bank-Firm Level Surveys, World Business Environment Survey:
 Coverage 80 developing countries, 2000
 Comments The question in WBES 2000 is: "Please rate (from 1 to 6) the overall quality and efficiency of services delivered by the Roads Department/Public Works. 1= very good and 6= very bad." Data are indexes having different rating scales. Results need to be normalized and considerations with respect to sample size and statistical significant of results might become important caveats to overcome. Though a very rough measure of quality, it is a thought-provoking indicator. In this particular case, the direction of the scale was normalized to make it comparable to other quality indexes. In the original data 1= very good. For our calculations 1= very bad. In addition, the data was normalized to base 7. This indicator does not take into account technical considerations and it is more easily related with business environment than quality of service. We do expect, eventually and with the help of the transport network, to substitute this index with a technical indicator of quality tailored for the sector. As a next/immediate step we could partner with WEF throughout the WBI to include water and sanitation tailor-made questions and expand the number of countries where the survey is applied. In a more solid and long-run perspective, the Investment Climate exercise should become the provider of these type of quality perception indexes for PSI.

Ports and inland wat.
Commercial Perception of Port Facilities and Inland Waterways
 Definition *Weighted average of firm-perception ratings of quality services in port facilities based on a predetermined scale (1 = underdeveloped. 7 = as developed as the world's best)*
 Source Global Competitiveness Report 1996-2003
 Coverage 80 countries (industrialized and developing countries) 2002-03.
 83 developing countries , 2001-02.
 Comments The question in the GCR survey is: "Rank from 1 to 7 port facilities and inland waterways in your country. 1 = underdeveloped. 7 = as developed as the world's best" (question 6.03 in GCR 2002).

Rail
Commercial Perception of Railway Services
 Definition *Weighted average of firm-perception ratings of quality of railroad services based on a predetermined scale (1 = underdeveloped. 7 = as developed as the world's best)*
 Source Global Competitiveness Report 2002-03 and 2001-02
 Coverage 80 countries (industrialized and developing countries) 2002-03.
 83 developing countries , 2001-02.
 Comments The relevant question in the GCR survey is: Rank from 1 to 7 the railroads in your country. 1 = underdeveloped. 7 = as extensive and efficient as the world's best (question 6.02 in GCR 2002).

Air
Commercial Perception of Air Transport Services
 Definition *Weighted average of firm-perception ratings of quality of air transport services based on a predetermined scale (1 = underdeveloped, 7 = as developed as the world's best)*
 Source Global Competitiveness Report 2002-03 and 2001-02
 Coverage 80 countries (industrialized and developing countries) 2002-03.
 83 developing countries , 2001-02.
 Comments The relevant question in the GCR survey is: Rank from 1 to 7 air transport in your country. 1 = infrequent and inefficient, 7 = as extensive and efficient as the world's best (question 6.04 in GCR 2002).

Ports

CHECK

Cargo Handling Services: Market Openness

Definition

The cargo handling services index measures restrictions or special requirement imposed in a country to potential foreign suppliers of cargo handling services (foreign suppliers means, in this case, locally registered companies with foreign participation in their capital or branches of firms established in other countries). The index values are 0, if there is no restriction, 0.25 if minor restrictions exist, 0.5 if a joint venture condition is imposed, 0.75 if a high national participation in the capital of the company is required, and 1 if foreign companies are not allowed to provide cargo handling services at all (Fink, Mattoo, Neagu 2000).

Source

Fink, Mattoo, Neagu 2000.

Coverage

Data available for 37 developing and 22 developed countries (John Wilson)

Comments

The original data source has to be identified!

EFFICIENCY (*COST*)

Ports	Shipping Costs (ratio)
Definition	<i>Average CIF (cost-insurance-freight)/FOB (free on board) ratio measures shipping costs for each country from the point of view of the country's imports. The CIF price measures the cost of the imported item at the point of entry into the importing country, inclusive of the costs of transport, including insurance, handling and shipping costs, but not including customs charges. The FOB price measures the cost of an imported item at the point of shipment by the exporter, specifically as it is loaded on to a carrier for transport.</i>
Source	SIMA - IMF Direction of Trade Statistics
Coverage	100+ countries
Comments	Originally proposed as an IDA14 indicator for the transport sector. It is argued that it is more related to trade performance than to the transport sector performance. This ratio is very dependent on factors external to the country in question. In particular, it tells us more about international shipping costs, international demand patterns and shipping routes than it does about the efficiency of a country's own transport sector. TUDTR Ports and Logistics TG to review and advise.
Rail	Railway Employee Productivity (Annual Output/Employee)
Definition	<i>Employee productivity is annual output (in traffic units) per employee. Traffic units are the sum of passenger train-kilometers and freight tonne-kilometers. A passenger train-kilometer is the transport of one passenger by rail over a distance of one kilometer. A freight tonne-kilometer is the transport of one tonne of goods by rail over a distance of one kilometer (Glossary of Transport Statistics, 2003).</i>
Source	Global Development Finance & World Development Indicators central (April 2003). Original source: Louis Thompson Rail Database at http://www.worldbank.org/html/fpd/transport/rail/rdb.htm
Coverage	90 developing countries, 1995-2001. Only a few observations per year, except for 2000.
Comments	

EFFICIENCY (*ECONOMIC*)

Road	Road Transport System Technical Efficiency (US\$/km)
Definition	<i>The 'Highway Development and Management' model HDM-4 is an internationally recognized economic model which provides a rigorous estimate of the average unit economic cost for the national vehicle fleet to use the road network (US\$/km).</i>
Source	This measure requires substantial representative data on the nation's fleet of road vehicles, their annual use and their operating costs as well as on the composition of the network in terms of road type and condition.
Coverage	Many low income countries do not yet have the full data required for this measure.
Comments	This measure can be normalized against the equivalent measure for a developed country.

FISCAL COST

Road	Road Expenditure as Share of GDP (%)
Definition	<i>The total amount of expenditure on new construction and extension of existing roads, including reconstruction, maintenance, renewal and major repairs of roads per year as percentage of GDP (Glossary of Transport Statistics, 2003, p.19).</i>
Source	WDI database for GDP Road Authority for Annual Road Expenditure
Coverage	
Comments	Annual Road Expenditure is the Aggregate of Road Network Capital Investment and Road Network Maintenance Expenditure

Road	External Funds as Share of Total Road Expenditure (%)
Definition	<i>The total amount of external funds provided for new construction and extension of existing roads, including reconstruction, maintenance, renewal and major repairs of roads per year as percentage of total road expenditure (Glossary of Transport Statistics, 2003, p.19).</i>
Source	Road Authority
Coverage	
Comments	Annual Road Expenditure is the Aggregate of Road Network Capital Investment and Road Network Maintenance Expenditure
Road	Road Maintenance Effectiveness: Actual/Required Expenditure (%)
Definition	<i>Ratio of road maintenance expenditure to road maintenance requirement. Road maintenance expenditure includes the total expenditure for keeping roads in working order. This includes maintenance, patching and running repairs (work relating to roughness of carriageway's wearing course, roadsides, etc. Road maintenance requirement includes the amount of financing required per year to keep roads in working order. This includes maintenance, patching and running repairs (work relating to roughness of carriageway's wearing course, roadsides, shoulder, drains, structures, slopes, signs, etc). (Glossary of Transport Statistics, 2003, p.19).</i>
Source	Road Authority
Coverage	
Comments	Annual Road Expenditure is the Aggregate of Road Network Capital Investment and Road Network Maintenance Expenditure

FINANCIAL AUTONOMY

Road	Vehicle Expenditures: on Owning and Operating Vehicles (US\$)
Definition	<i>Estimate of the total cost of annual vehicle usage together with the cost of owning the vehicles. This may be best achieved by applying the HDM-4 model. using financial rather than economic costs. The great majority of this cost is incurred by the private sector which, typically, owns and operates most vehicles</i>
Source	HDM-4 database.
Coverage	Only a limited number of low income countries currently have the data required.
Comments	

INSTITUTIONS and GOVERNANCE

Roads	National Roads Boards (NRB) Exists and Reports (at least annually) (Y/N)
Definition	<i>Does an institution that advises the Minister on various matters pertaining to management [and financing] of roads, namely a National Roads Board (NRB) (or Road Council, Highways Agency Board) exist and reports at least annually? (Heggie, 1999).</i>
Source	In country sector knowledge
Coverage	
Comments	
Roads	Private Sector Representatives form majority of NRB (Y/N)
Definition	Do private sector representatives form majority of NRB?
Source	In country sector knowledge
Coverage	
Comments	

Roads	Main (National) Road Agency operating with Annual Report published (Y/N)
Definition	Does the main (national) Road Agency – responsible for the main road network – operate with a report published at least on an annual basis?
Source	Road Authority
Coverage	
Comments	
Roads	Main (National) Road Agency publishing Technical and Financial Audits (Y/N)
Definition	Are technical and financial audits published by the Main (National) Road Agency?
Source	Road Authority
Coverage	
Comments	
Roads	Competitive Private Sector Participation in Transport Services (Y/N)
Definition	<i>Are there clear and reasonable processes for transport operators to be legally able to deliver different forms of transport service in a competitive manner?</i>
Source	In country sector knowledge
Coverage	
Comments	
Roads	National Road Safety Action Plan (Y/N)
Definition	Is there a government endorsed plan to improved road safety, which is published and being actively implemented?
Source	In country sector knowledge
Coverage	
Comments	
Roads	Social Assessment of Road Projects Mainstreamed (Y/N)
Definition	<i>Are road construction works and road traffic measures subject by law to a thorough appraisal (at least equivalent to the standards required by World Bank investment) of social impact and monitoring?</i>
Source	In country sector knowledge
Coverage	
Comments	
All	Gender assessment (Y/N)
Definition	<i>Is there a requirement to (or are there significant public initiatives taken to) differentiate and take account of transport needs and impacts by gender?</i>
Source	In country sector knowledge
Coverage	
Comments	
All	Access to all (Y/N)
Definition	<i>Is there a requirement to assess the particular transport needs of different segments of the population (eg. People with disability, the aged) and to plan and implement in such a way as to meet their needs?</i>
Source	In country sector knowledge
Coverage	
Comments	
All	Planning data disaggregated (Y/N)
Definition	<i>Is key information, on the basis of which policy and investment decisions are taken routinely surveyed in a disaggregated manner which permits the impacts on important segments of the population (women/men, young/aged, those with disability, etc.) to be assessed?</i>
Source	In country sector knowledge
Coverage	
Comments	

Roads **Environmental Assessment of Road Projects Mainstreamed (Y/N)**
Definition *Are road construction works and road traffic measures subject by law to a thorough appraisal (at least equivalent to the standards required for World Bank investment) of environmental impact and monitoring?*
Source In country sector knowledge
Coverage
Comments

Roads **Communicable disease control (Y/N)**
Definition *Are requirements in force (either through environmental appraised or otherwise) which require on-going assessment of the risks through transport and transport-related activity (e.g. road construction) of transmitting communicable diseases (including HIV/AIDS) and the planning and implementing of measures to reduce those risks?*
Source In country sector knowledge
Coverage
Comments

All **Core labor standards**
Definition *Are the Core Labor Standards of the International Labor Organization legislated by the Government and actively implemented by the construction and transport industries?*
Source In country sector knowledge
Coverage
Comments

All **Health and safety**
Definition *Are appropriate health and safety standards legislated by the Government and actively practiced, monitored and reported by the construction and transport industries?*
Source In country sector knowledge
Coverage
Comments

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Roberts
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