Road Safety

İzzet ISIK
Ministry of Transport,
Republic of Turkey
Road Safety

- Size of Road Transport Market
- Road Safety issues/WDC
- International standards/rules
- W&D Inspection practices in Turkey
Road Safety Issues

- Maximum authorized Weights and Dimensions
- Periodical technical inspections/Roadworthiness Tests
  - Technical roadside inspection
  - Speed limitation devices
  - Seat belts
  - Tyres
  - Driving and resting
- road design and road maintenance
GOODS AND PASSENGER TRANSPORT
BY ROAD
DOMESTIC PASSENGER AND FREIGHT TRANSPORT

<table>
<thead>
<tr>
<th>Mode</th>
<th>Passenger (%)</th>
<th>Freight (%)</th>
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<tbody>
<tr>
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<td>89</td>
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<tr>
<td>Rail</td>
<td>4.4</td>
<td>4.52</td>
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<td>Maritime</td>
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<td>Air</td>
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</table>

- **Passenger (%)**
- **Freight (%)**
Use the word "Goods transport"
Two Main new Legislations put into force:

- **Road Transport Law**
  [19.07.2003]
  A framework Law for the access to the market and to the profession

- **Road Transport Regulation**
  [25.02.2004]
  A secondary legislation elaborated in accordance with EU legislation concerning access to the market and to the profession

Harmonization with int rules

98% of the domestic freight transport market licensed with the introduction of licensing system.

295,450 Domestic licences, 1,630 int licences
## NUMBER OF REGISTERED VEHICLES

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cars</td>
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<tr>
<td>Minibuses</td>
<td>383,577</td>
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<tr>
<td>Buses</td>
<td>200,070</td>
</tr>
<tr>
<td>Pickup Trucks</td>
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<td>Lorries</td>
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<td>Vehicles for special purposes</td>
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<tr>
<td>Tractors</td>
<td>1,361,596</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>14,143,991</strong></td>
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</table>

Source: TURKSTAT (2009)
Road Accidents
# Road Accidents

## Statistics about road accidents in TÜRKİYE

<table>
<thead>
<tr>
<th>Year</th>
<th>No of vehicles</th>
<th>Total accidents</th>
<th>Total fatalities</th>
<th>Total casualties</th>
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<td>8.655.170</td>
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<td>2004</td>
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<td>584.371</td>
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<td>2009(9)</td>
<td>14.143.991</td>
<td>919.904</td>
<td>2.255</td>
<td>122.529</td>
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</table>

Ps. Improving public awareness and construction of dual carriage roads
## Road accidents

<table>
<thead>
<tr>
<th>Fault ratio in road accidents (%)</th>
<th>2002</th>
<th>2008</th>
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</thead>
<tbody>
<tr>
<td>Driver</td>
<td>97.15</td>
<td>87.6</td>
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<tr>
<td>Pedestrian</td>
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<td>0.3</td>
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<tr>
<td>Vehicle</td>
<td>0.25</td>
<td>0.3</td>
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</table>
Road Safety

• Road safety on Turkey’s roads remains of considerable concern.

• Over 9,000 people die on the roads every year – of which 4,600 on the spot of the accident – and over 180,000 people are seriously injured.

• Such figures cause Turkey to take into consideration very seriously the road safety issue.
MOT Strategic Plan for 2009-2013

- **Strategic Goal 2.**
  - Introducing effective regulations, enforcement and inspections for a sustainable transport system ensuring utmost safety of life and property.
    - Withdrawing 50,000 of the old vehicles that threaten safety on roads by the end of 2013
    - Making available 150 additional vehicle inspection stations and 200 WDC by 2013 for an effective inspection system
    - Improving the road network, construction additional dual carriageways in a total of 6,500 km by 2013; by using the BOT model and public funds.
  - Reconditioning traffic accident black spots....
Road Safety
technical standardization
Inspection and Control
Road safety

Vital elements

- Human Behaviour
  - Public awareness
  - Safety culture
  - Quality within driving schools

- Availability of GOOD infrastructure
  - Improvement/development of quality of roads
  - Signs and signals etc.
  - Black spots

- Vehicle Technology-Improving the Technical conditions of Vehicles
  - Vehicle inspection stations
  - Fleet renewal/Withdrawing of old vehicles etc.

- Enforcement
  - Strict roadside inspection and control
  - In-company inspection

Road safety issues are caused by – at least – these factors
Road Safety

• Public Awareness-Safety Culture
  – Improve General awareness of road safety at company, and government level
  – Improve the awareness of professional drivers on road safety issues through initial and advanced training
  – Introducing safety culture programs at company level,
  – Safe and economic driving techniques for professional drivers

• Method----Train the trainers
Road Safety

➢ road infrastructure

➢ adequate road design and road maintenance, in particular municipal and regional roads, black spots

- Based on an Urgent Action Plan put into practice by the government,
  - The construction of 16,700 km of dual carriageways has been completed.
- Under this programme
  - it is targeted to reach a number of 22,500kms until the end of 2012.
- This progress has significantly affected road safety by reducing the number of accidents.
**Inspection and Controls**

**Enforcement - commercial vehicles**

- **Roadside inspection**
  (carried out by enforcement authorities on certain points previously defined)

- **Inspection and control on the move**
  (monitoring violations when vehicles are on the move, getting on vehicle)

- **Inspection and control during the application**
  (Checking at the application stage of the licensing)

- **In-company inspection**
  (checking the licensed operator at their premises)
Inspection and Control

INSPECTION AUTHORITIES

1. Ministry of Transport
   - General-Directorate of Land Transport
   - Regional Office (12 RO)

2. Ministry of Interior
   - Police
   - Gendarme

3. Municipalities
   - Staff on duty intercity coach terminals

4. Customs
   - Staff on duty border gates
   - Ministry of Finance
     - Relevant sections
To increase effectiveness, efficiency, reduced cost and time taken by inspection by establishing a “Single window” for enforcement actions.
Inspection and Control

• Agreement/Protocol signed with other institutions to organize inspections together at the same spot and same time.

• Police, Gendarmerie, Ministry of Finance, Ministry of Environment, Ministry of Agriculture and Ministry of Transport.

• This is an important step forward.

• Pilot implementation is being carried out at certain spots/WDC Stations.
Inspection and Controls

Inspection and Control by MOT

- Weight (Overloading) and dimension controls

- Checking of vehicles’ technical capacity
- Controls for vehicle registration, insurance and required documents by means of a developed U-NET Computerized online System
- Control of certificate of professional competence (CPC)
- Control at the border gates for compliance with international transport rules
- Control for compliance with national legislation
- Controls for compliance with fair market conditions (violation of main activity area)
Strict Inspections

- for market access conditions as from 01.07.2006
- for weight and dimensions as from 01.07.2007
- for technical inspections as from 01.01.2008
Weight and dimension control for certain road vehicles
“Weight and Dimension Control” is being carried out in accordance with the Road traffic law No.2918 item no. 65 and Article 128 of the Road traffic regulation.
Weight and dimension control for road vehicles

Legal Base

- Law and Regulation are in line with
  - EU Vehicle Weights & Dimensions Legislation
  - 96/53/EC ----Amended by 2002/7/EC
  - Aim to set maximum limits for weights and dimensions of vehicles and vehicle combinations

- Dir. 96/53/EC (OJ L 235 of 17.9.1996)
- (brought into force by 9 March 2004)
Weight and dimension controls for road vehicles

Legal Base

  - Annex 8-Facilitation of Border Crossing Procedures for int. Road Transport
  - Appendix 2 to Annex 8 to the Convention
Weight and dimension controls for road vehicles

Introduction of the International Vehicle Weight Certificate

• The International Vehicle Weight Certificate (IVWC) is part of Annex 8 and, should be implemented too.

• Introduction of International Vehicle Weight Certificate;
  – facilitate the border crossing procedures.
  – avoiding repetitive weight measurements of road vehicles
  – Issue certificate of IVWC at the country of origin
  – Publish a list of authorized weighing stations

• Some CIS Countries (Russia, Moldova, Belarus and the Ukraine) have already started to apply a system similar to the Annex 8 of 1982 Convention.

• TR has started the ratification procedure in June 2009.. Customs and MOT are making necessary arrangements.
Directive 96/53/EC

- Vehicle categories M2, M3, N2, N3
  - M2 = Passengers; > 1+8 seats, max mass ≤ 5t
  - M3 = Passengers, > 1+8 seats, max mass > 5t
  - N2 = Goods; 3,5t < max mass ≤ 12t
  - N3 = Goods; max mass > 12t
Directive 96/53/EC

Maximum Dimensions

- **Length**
  - Motor vehicle 12,00m
  - Trailer 12,00m
  - Articulated vehicle 16,50m
  - Road train 18,75m
  - Articulated bus 18,00m

- **Width**
  - all vehicles 2,55m
  - conditioned 2,60m

- **Height** 4,00m
Directive 2002/7/EC

• Scope
  – Articulated bus 18,75m (18,00m)
  – Bus with 2 axles 13,50 m
  – Bus with more than 2 axles 15,00 m
  – Bus + trailer 18,75 m
Directive 2002/7/EC

• **Weights**
  – **Vehicle weight**
    • 2-axle motor vehicle 18t
    • 3-axle motor vehicle 25t/26t
    • Vehicle combinations (< 5 axles) 36t
    • Vehicle combinations (≥ 5 axles) 40t/ 44t
  – **Axle weight**
    • Single non-driving axle 10t
    • Driving axle 11,5t

• **Ps. Mx. Authorized Weight:** Max. Weight for use of a laden vehicle in international traffic.
• **Max. Authorized axle weight:** Max. Weight in international traffic of a laden axle or group of axles
Weight and dimension controls for road vehicles

- All vehicles on international journeys meeting these rules shall be guaranteed free circulation throughout the member states/Contracting Parties.

- Countries may have opted for different national limits.

- In national traffic, may allow vehicles or vehicle combinations exceeding max. Authorized W/Ds.

- May limit the weight/dimensions of vehicles on certain roads (in a non discriminatory way).
Weight and dimension road vehicles

Maximum width 2.55/2.60 m
Weight and dimension road vehicles

Maximum height 4.00 m
Weight and dimension road vehicles

Maximum Lengths

Motor vehicles: 12.00 m.
Weight and dimension road vehicles

- Trailer 12.00 m.
Weight and dimension controls for road vehicles

Bus with 2 axles: 13.50 m.
Weight and dimensions road vehicles

Bus with more than 2 axles: 15.00 m
Weight and dimensions road vehicles

- Articulated vehicle 16.50 m.
Weight and dimensions road vehicles

- Articulated bus 18.75m (18.00m)
Weight and dimensions road vehicles

-Bus + trailer 18.75 m
Weight and dimension road vehicles

Roadtrain: 18.75 m.

18.75 metre

(22 meters since 2007 in TR)
Maximum Length

- 16.4m
- 15.65m
- 12.0m
- No less than 3m
- 18.75m
Maximum Weights

- Not Powered: 10t
- Powered: 11.5t
Maximum Weights

Twin Axle Group

- Motor Vehicle 11.5t - 19t

Depending on axle spacing, tyres and suspension
Maximum Weights

Twin Axle

- Trailer
  - 11t - 20t

Depending on axle spacing
Maximum Weights

Triple Axle

- Trailer
  21t - 24t

Depending on axle spacing
Maximum Weights

Vehicle

- 18t
- 25t-26t*
- 32t

*If fitted with twin tyres and road-friendly suspension

Depending on tyres and suspension
Maximum Weights

Articulated Vehicle

Depending on axle spacing, tyres and suspension

36-38t

40t

40t
Maximum Weights

Road trains

- 36t
- 40t
- 40t
Maximum Weights

- 6 Axles
- Road-friendly suspension

Carrying a 40-foot ISO container as a combined transport operation: 44 t
National limits

- Exceptions national traffic only
- Combinations of existing modules
- Max weight/dimension 25.25m/ 60t
- Applied in Sweden and in Finland
- Trials Germany, The Netherlands and Denmark
## National limits

### Maximum dimensions in Europe

<table>
<thead>
<tr>
<th>Country</th>
<th>Height</th>
<th>Width</th>
<th>Length Lorry or Trailer</th>
<th>Length Road Train</th>
<th>Length Articulated Vehicle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albania</td>
<td>4 m</td>
<td>2.50 m</td>
<td>12 m</td>
<td>18.75 m</td>
<td>16.50 m</td>
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<td>2.55 m(3)</td>
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<td>12 m</td>
<td>18.75 m</td>
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</table>

1. For vehicle
2. Increased
3. Refrigerated
### National Limits

#### Permissible Maximum Weights in Europe (in tonnes)

<table>
<thead>
<tr>
<th>Country</th>
<th>Weight per lorry 3 axles</th>
<th>Weight per drive axle</th>
<th>Lorry 2 axles</th>
<th>Lorry 4 axles</th>
<th>Road Train 4 axles</th>
<th>Road Train 5 axles and +</th>
<th>Articulated Vehicle 5 axles and +</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albania</td>
<td>10</td>
<td>18</td>
<td>25</td>
<td>36</td>
<td>44</td>
<td>44</td>
<td>40</td>
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<tr>
<td>Austria</td>
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<td>18</td>
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<td>36</td>
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<tr>
<td>Azerbaijan</td>
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<td>36</td>
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The countries in blue:
1. With air suspension
2. 2 axles tractor +
3. For vehicles regis
4. Incurred values
5. Road per drive
6. About 10.12% of Ministry of Transi
7. National: 38t; int
8. With the condition
9. For vehicles engi
10. 5 axles = 48t; 0 a
### WEIGHT AND DIMENSION CONTROLS

<table>
<thead>
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<th>Why WD Controls?</th>
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<tr>
<td>Preventing Unfair Competition</td>
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<tr>
<td>Road Safety</td>
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<td>Environmental Safety</td>
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<td>Maintaining Technical Specifications of Vehicles</td>
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<tr>
<td>Preserving Country's Economy</td>
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<tr>
<td>Preserving the Quality of Roads</td>
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</table>
WEIGHT AND DIMENSION CONTROLS

PREVENTING UNFAIR COMPETITION

Overloading - affects the unit haulage prices, reduces the actual carriage rate. As a result, an unfair competition in road haulage sector.

Every kilogram of load exceeding the permissible capacity is the load that another hauler must carry.
WEIGHT AND DIMENSION CONTROLS

ROAD SAFETY

High risk for the road safety, the overloaded GOODS can cause the increase of braking distance by the overheating of the brake lining systems,

The impatient drivers following can make faults that may cause traffic accidents.
Due to overloading; the vehicle systems and components like brakes, axles, tires and transmission systems are being damaged.

This causes the driver TO MAKE MORE EFFORTS for his control over the steering wheel and therefore to get exhausted.
By the effect of the overloading; the exhaust emission gases produced by vehicles, tyre and brake lining wear, the increase in noise levels, etc. will have a negative environmental impacts.
WEIGHT AND DIMENSION CONTROLS

ROADS DEFORMED AS A RESULT OF OVERLOADING
WEIGHT AND DIMENSION CONTROLS

ROADS DEFORMED AS A RESULT OF OVERLOADING
ROADS DEFORMED AS A RESULT OF OVERLOADING
Life-spans of roads

When the standards are followed 20 years
With 10% of overloading 13 years
With 20% of overloading 8.5 years
The damage that a single vehicle with an axle load of 8.2 tons causes on a certain section of road is equal to the passing of 285 cars.
NEGATIVE IMPACT ON HIGHWAYS

• 10 tonluk dingil yüküne sahip kamyonun yola verdığı zarar

• AZF= \( \left(\frac{10}{8.2}\right)^4 = 2.21 \)

The damage that a single vehicle with an axle load of 10 tons causes on a certain section of road is equal to passing of 621 cars.
NEGATIVE IMPACT ON ECONOMY

Overloading effects the:

- Maintenance cost of highways
- Maintenance cost of vehicles
- Road safety/traffic accidents
Control Stations for Weight and Dimensions of Commercial Vehicles handed over from DG of Highways to DG Land Transport (10.05.2006)

01.07.2007

Inspection of heavy loaded vehicles by MoT

With 24 WIM Stations

By 12 Regional Offices
• The existing 24 WDC Stations have been modernized.

  200 mobile weighing scales have been purchased and distributed to regional authorities.

• Objective: to make available 72 weight/dimension stations by the end of 2013, for an efficient road inspection system.

• With an upcoming EU-supported project; 22 new weight and dimension inspection stations (with preselection system) will be realized, including the supply of the equipment and comprehensive training of staff.

  New stations will be located at heavy traffic arteries, borders, bottlenecks and at the hinterlands of seaports.

• further studies on dimension controls

• Stations are running on 7 days 24 hours operation
WEIGHT AND DIMENSION CONTROLS in TURKEY

Cities marked with red crosses represent the locations where weight and dimension controls are implemented.

- İstanbul
- Ankara
- Zonguldak
- Samsun
- Artvin
- Erzurum
- Balıkesir
- Manisa
- İzmir
- Afyon
- Antalya
- Konya
- Kayseri
- Hatay
- Adana
- Gaziantep
- Ş. Urfa
- Sivas
- Konya
- İzmir
Previous situation
The new roadside inspection station
WEIGHT AND DIMENSION CONTROLS IN TURKEY
The new roadside inspection station
WEIGHT AND DIMENSION CONTROLS in TURKEY

The new roadside inspection station
WEIGHT AND DIMENSION CONTROLS IN TURKEY

HAREKETLI AĞIRLIK ÖLÇÜM İSTASYONU
Weigh in motion
The new roadside inspection station
WDC Station with pre-selection system
The new roadside inspection station (WDC Station)

Camera system in all stations.
The new roadside inspection station (WDC Station)

Vehicle registration plate detection system in all stations.
The new roadside inspection station (WDC Station)

Digital panel/screen showing measured weight and registration plate of vehicle-visible for driver.
The new roadside inspection station
(WDC Station)

Digital panel/screen showing measured weight and registration plate of vehicle. Visible for driver. An overloaded vehicle...
The new roadside inspection station
(WDC Station)
Mobile Weight and Dimension station

Weighing terminal

Laptop

USB

Seviyelendiriciler

Weighing Platform

7.6 kg

31.0 kg

24.6 kg

WEIGHT AND DIMENSION CONTROLS in TURKEY
WEIGHT AND DIMENSION CONTROLS in TURKEY

Mobile Weight and Dimension station
WEIGHT AND DIMENSION CONTROLS IN TURKEY
WEIGHT AND DIMENSION CONTROLS IN TURKEY
WEIGHT AND DIMENSION CONTROLS IN TURKEY

THE WEIGHT AND DIMENSION CONTROLS MADE IN 2008 COUNTRY-WIDE,

- VEHICLES BEEN INSPECTED = 3,622,570
- NUMBER OF VEHICLES FINED = 73,650
- AMOUNT OF FINE = € 50,715,000
THE WEIGHT AND DIMENSION CONTROLS MADE IN FIRST 10 MONTHS OF 2009 COUNTRY-WIDE,

VEHICLES BEEN INSPECTED = 3,013,251

NUMBER OF VEHICLES FINED = 48,299

AMOUNT OF FINE = € 40,670.00
Checking the correct loading

Correct

Incorrect
Checking the correct loading

Correct

Incorrect

1 m. 2 m. 4 m.
### Positive contribution of WDC on traffic accidents (Road accident statistics on ADANA-POZANTI motorway in 2007-2008)

<table>
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<tr>
<th>KAZA DURUMU</th>
<th>2007</th>
<th>2008</th>
<th>DEĞİŞİM (+,-) %</th>
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<td>239</td>
<td>- 11</td>
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<td>TOPLAM KAZA SAYISI(No of Acc.)</td>
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<td>ÖLÜ SAYISI (Fatalities)</td>
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<td>- 47</td>
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<tr>
<td>YARALI SAYISI (casualties)</td>
<td>612</td>
<td>539</td>
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<td>MADDİ HASAR TUTARI (000) TL</td>
<td>4,969,150,00</td>
<td>3,587,650,00</td>
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Thank you for your attention

Ministry of Transport, Republic of Turkey
Directorate-General for Land Transport