

Challenges of pavement  
rehabilitation in Central and Eastern  
Europe (CEE) region  
*Wyzwania rehabilitacji nawierzchni w  
Europie Środkowo-Wschodniej*

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# Need for roads

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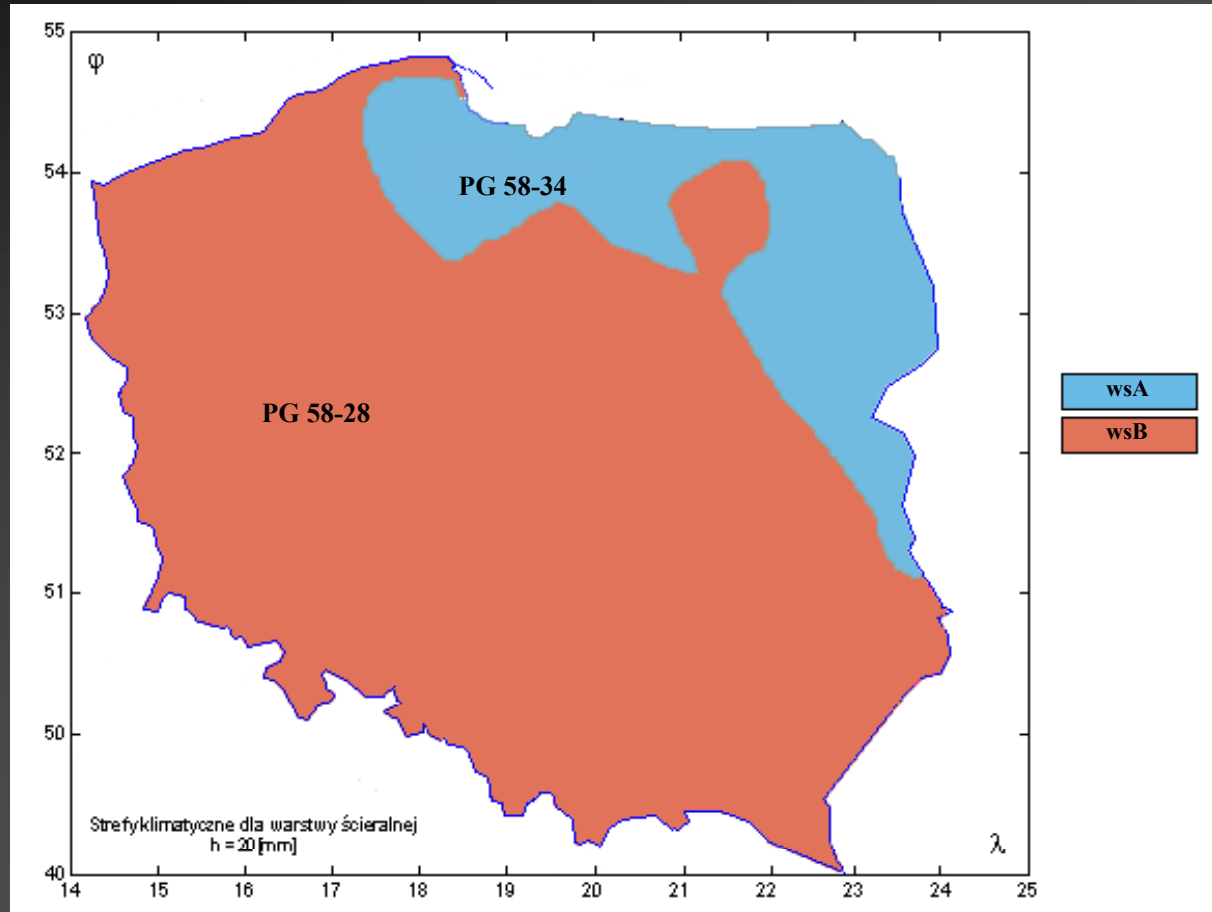
- Freedom of movement of people, goods and capital is one of the major founding principles of the European Union. An efficient transport system is a necessary condition for the proper functioning of a market economy. Regional accessibility, whether for person flows or goods flows, is particularly important because it is a prerequisite for trade and therefore economic development (Wanda Debauche, PIARC C19)

# CEE specific challenges

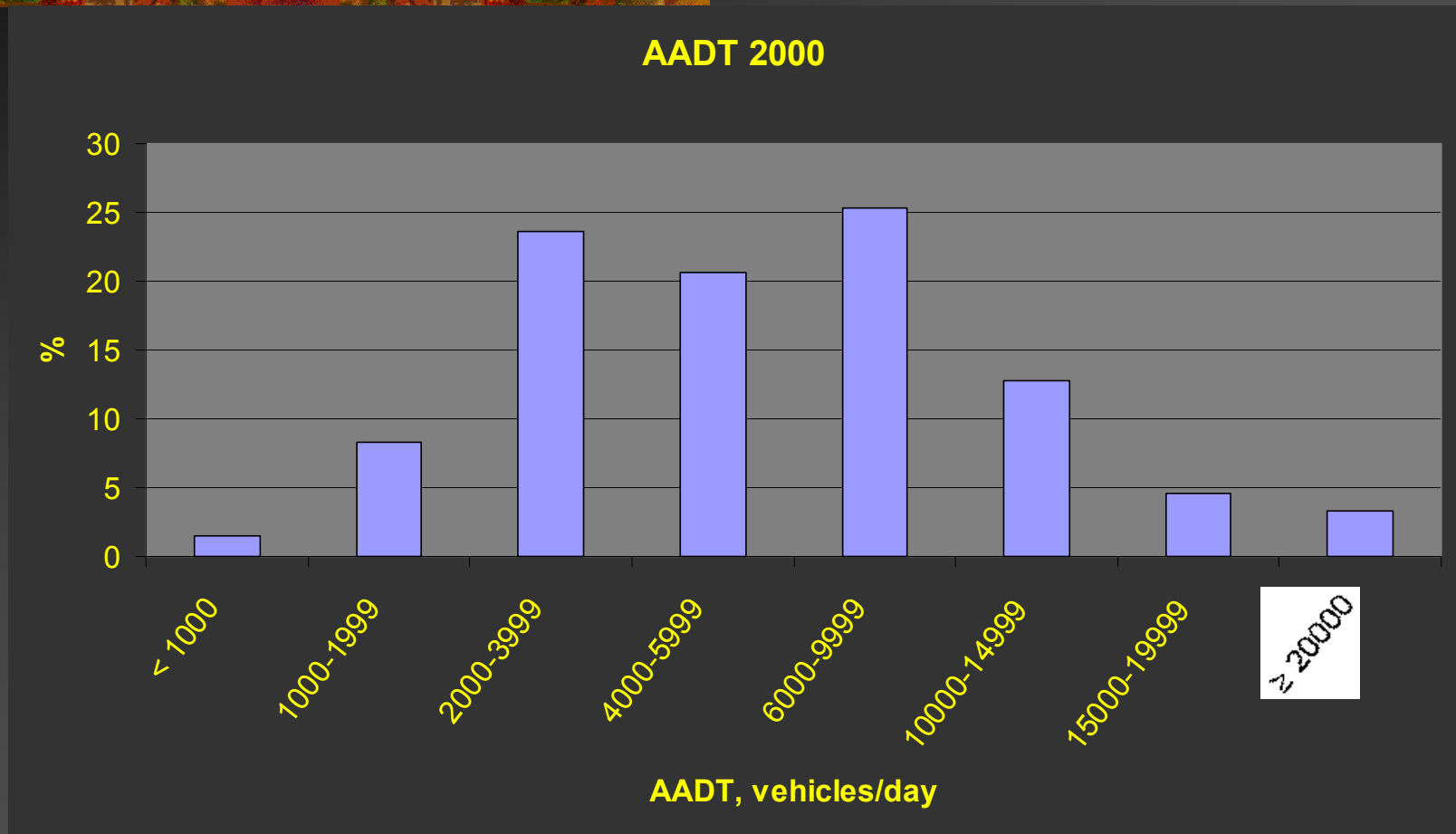
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- Climate
- Road traffic growth
- Existing pavements

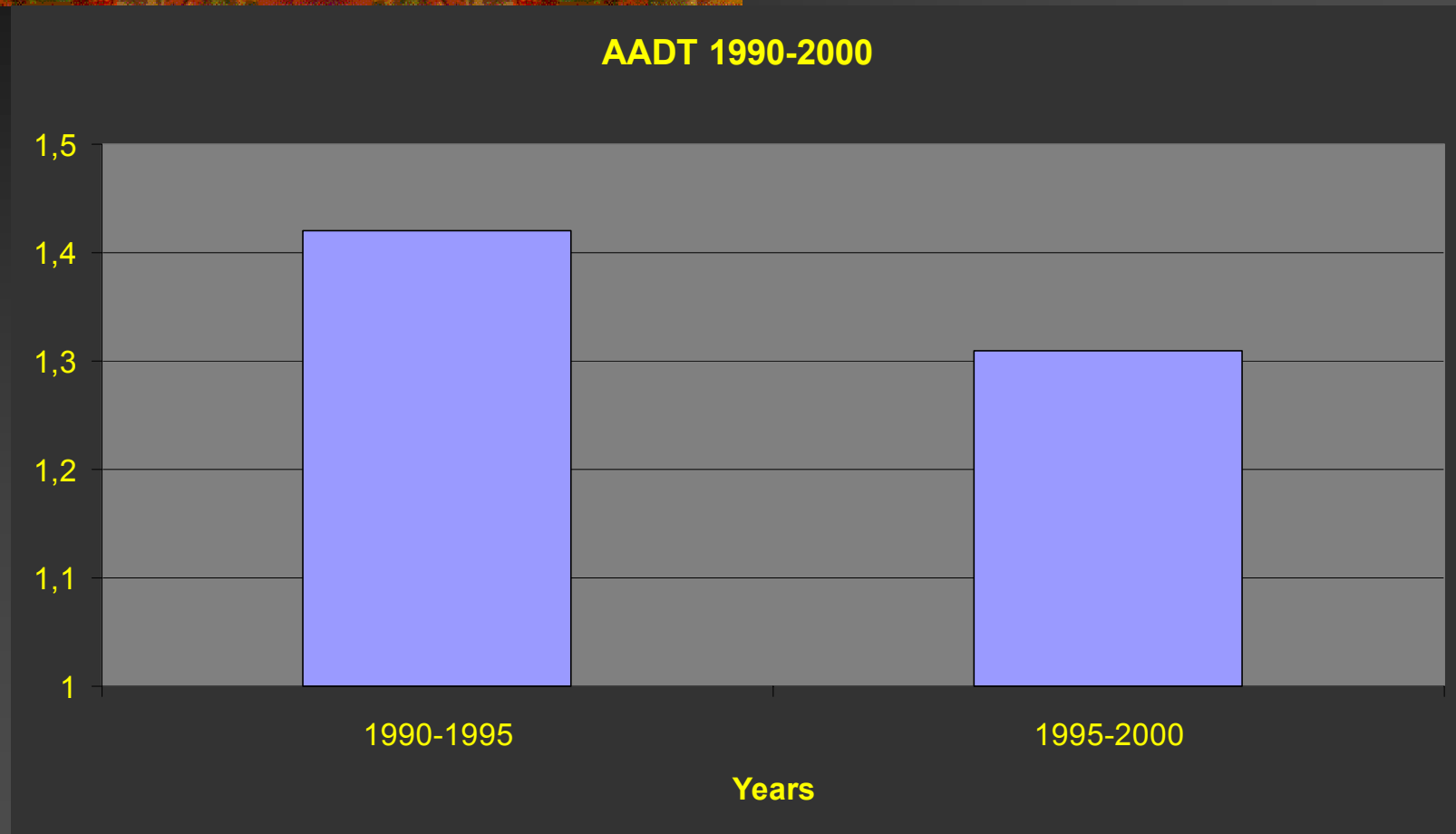
# Climate



# Road traffic

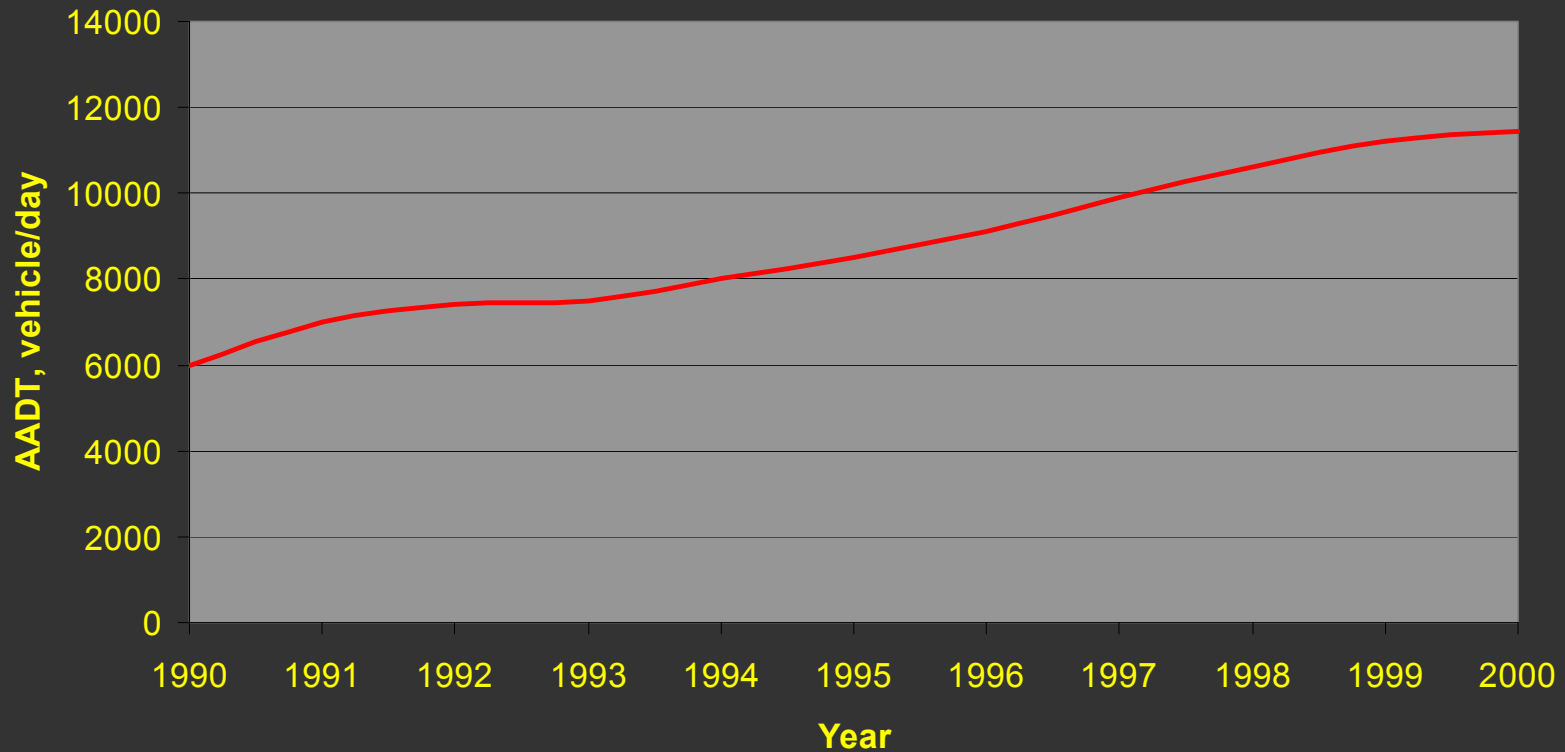


# Road traffic

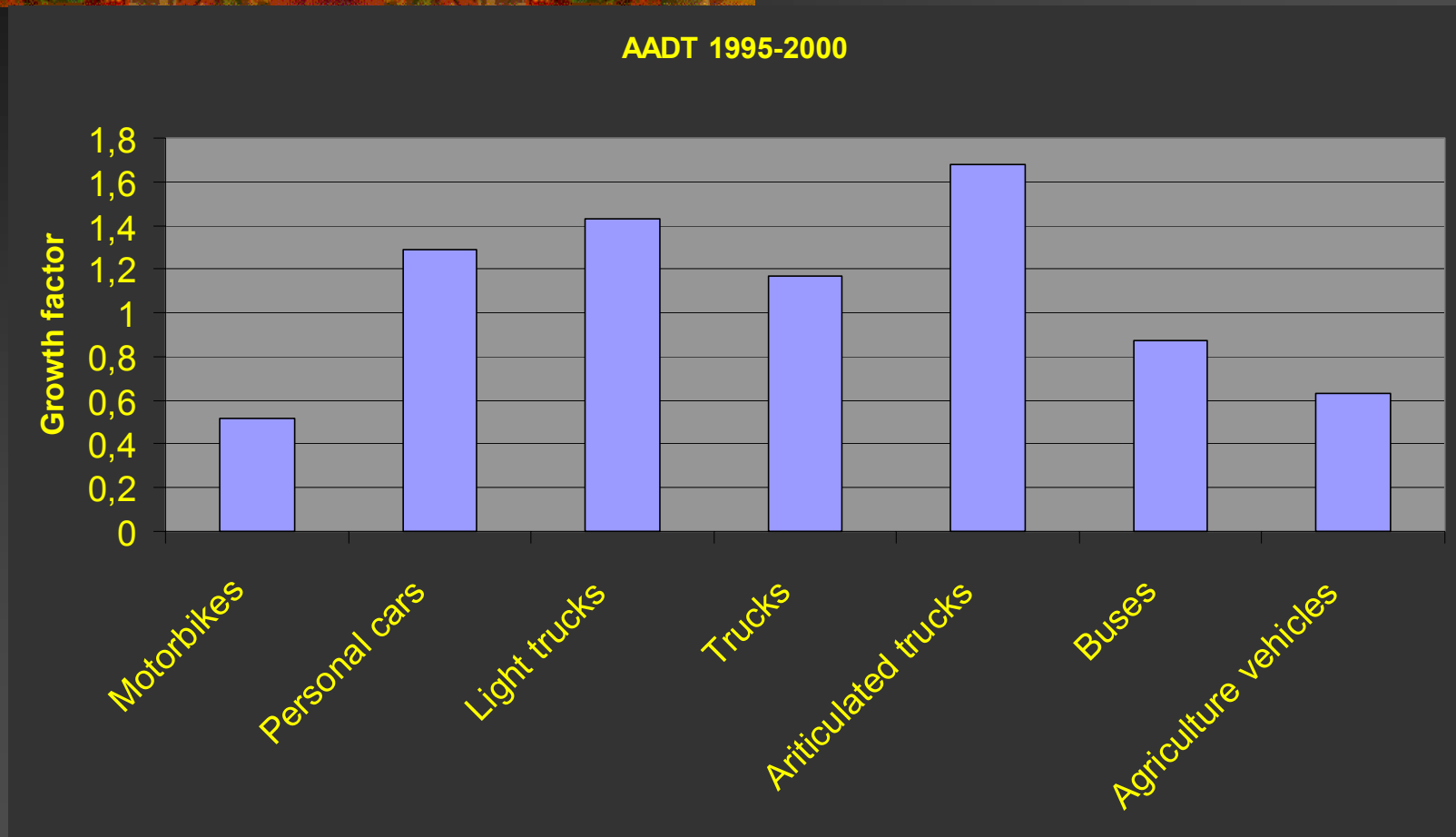


# Road traffic

**AADT 1990-2000, International roads**



# Road traffic





# Road traffic

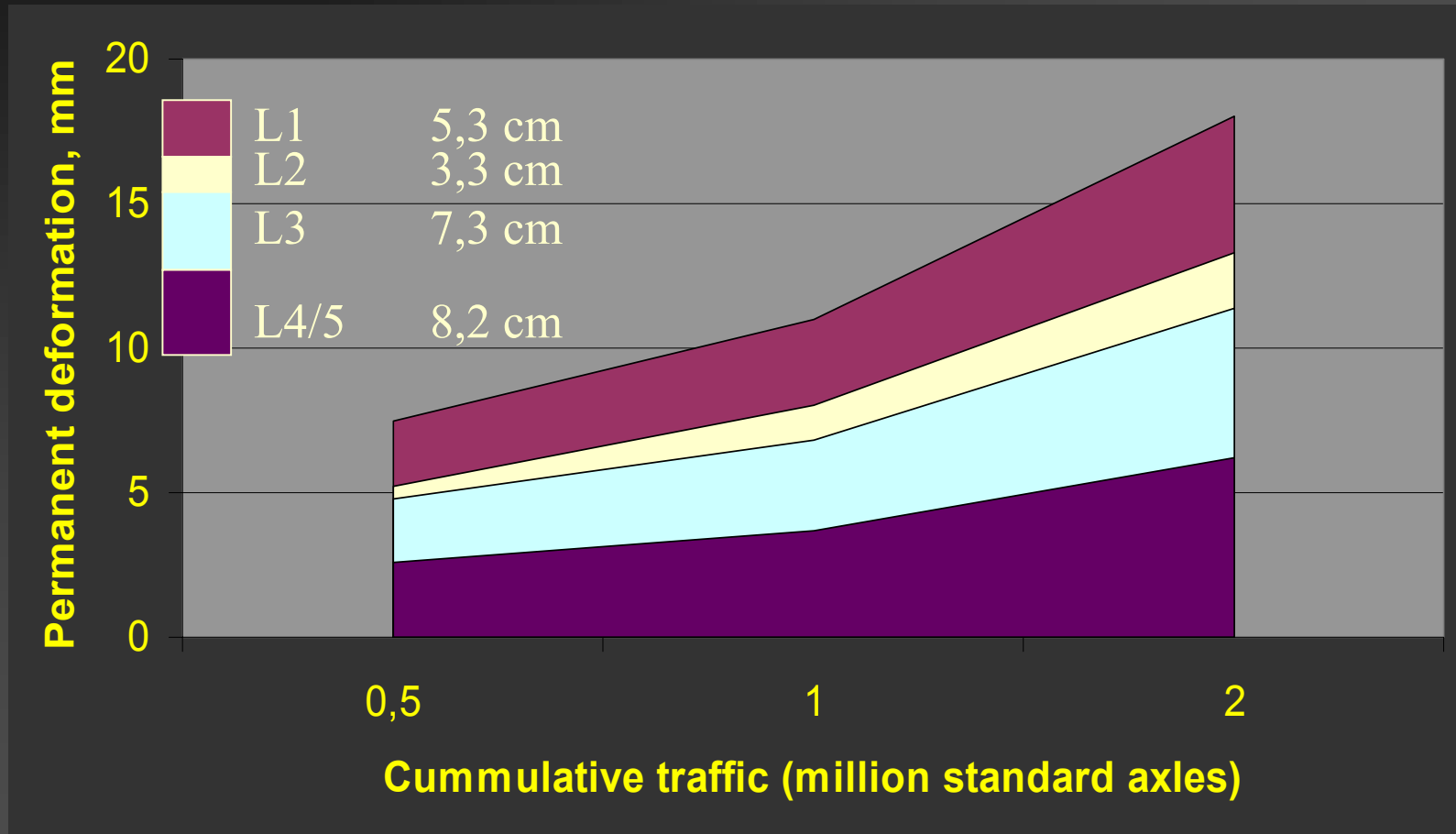
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## ■ Conclusions

- the growth is steady in the period 1990-2000
- the most aggressive vehicle category of articulated trucks (including Super Singles) exhibits the highest growth in this period – the number of these vehicles almost doubled

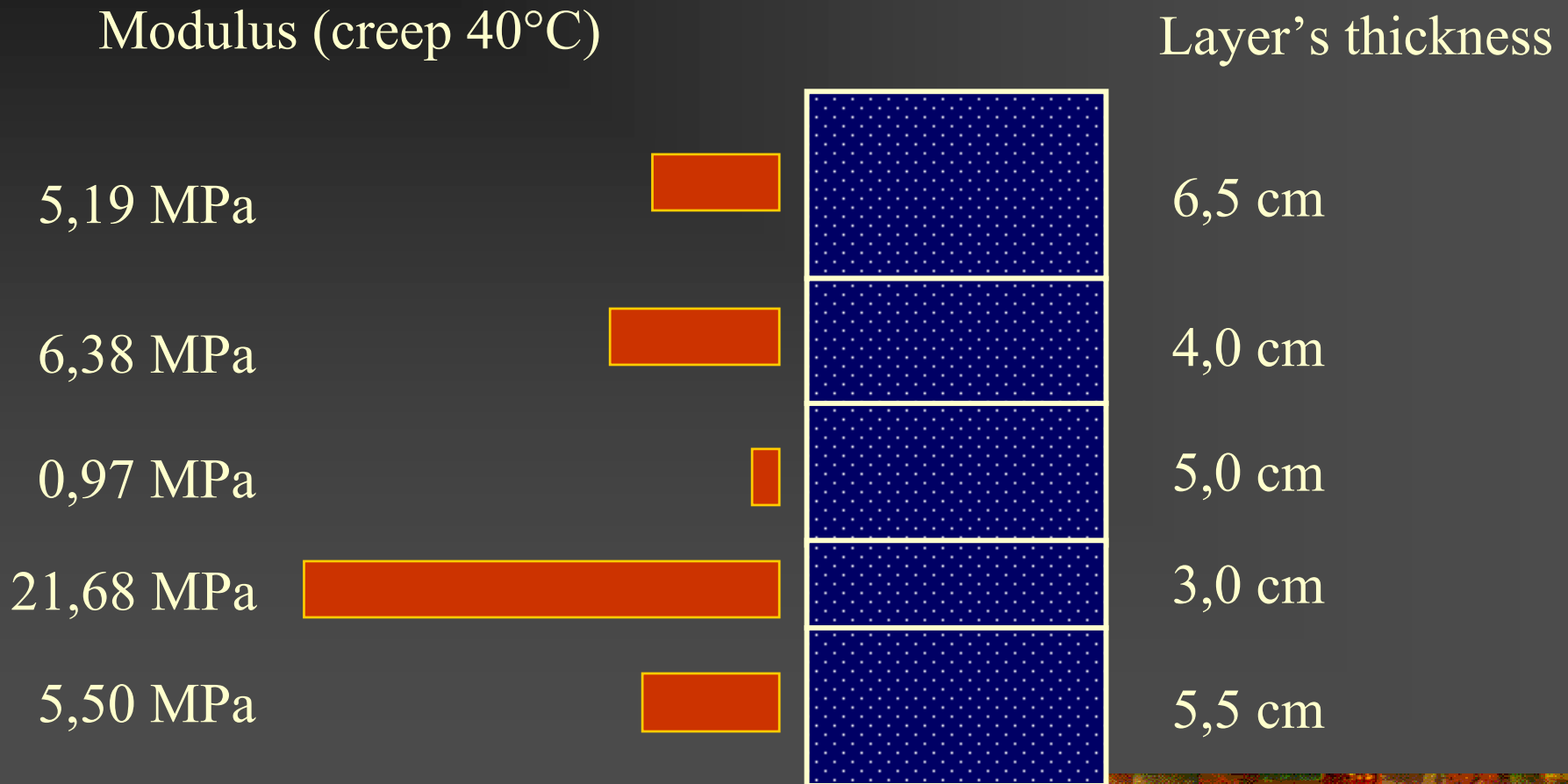
# Existing pavements:

## Case study - permanent deformation (R. Elliot)



# Existing pavements:

## Case study - Hot recycling in place DK8

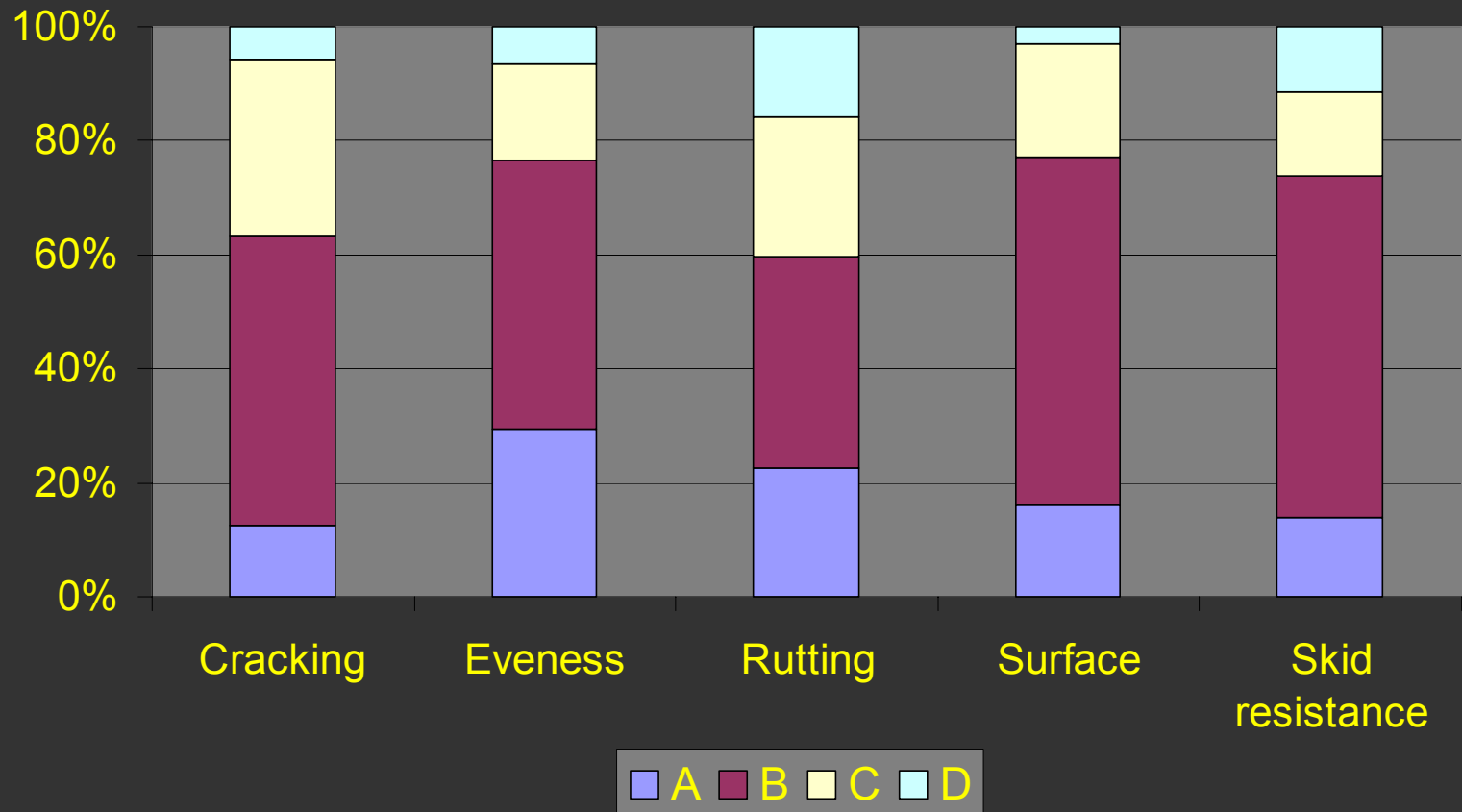


# Existing pavements

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- Environmental aspect:
  - Road tar frequently used in the past
  - Need for detection
  - Need for application of appropriate technique with regard to environmental and financial point of view

# Need for strengthening

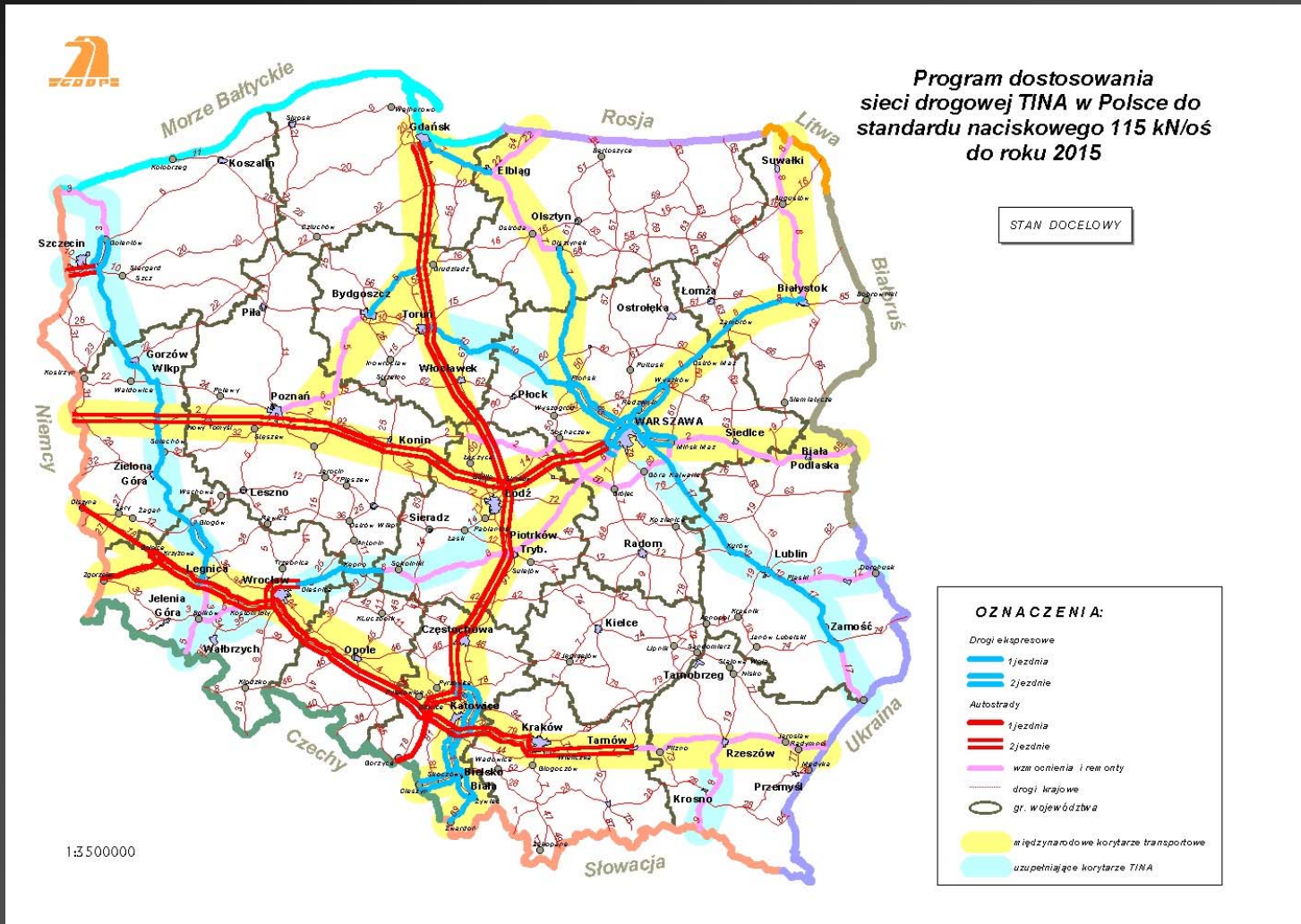


# Need for strengthening

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- 1 % of national roads in Poland prepared for 115 kN axle load
- 4800 km to be strengthened by 2015 to meet EU standards (30% of national roads network)

# Need for strengthening



# New materials and techniques

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- Open market
- New products
- System of Technical Approvals for non-standardised products
- Road&Bridge Research Institute appointed by the Ministry in the area of roads and bridges
- 1350 Technical Approvals since 1998



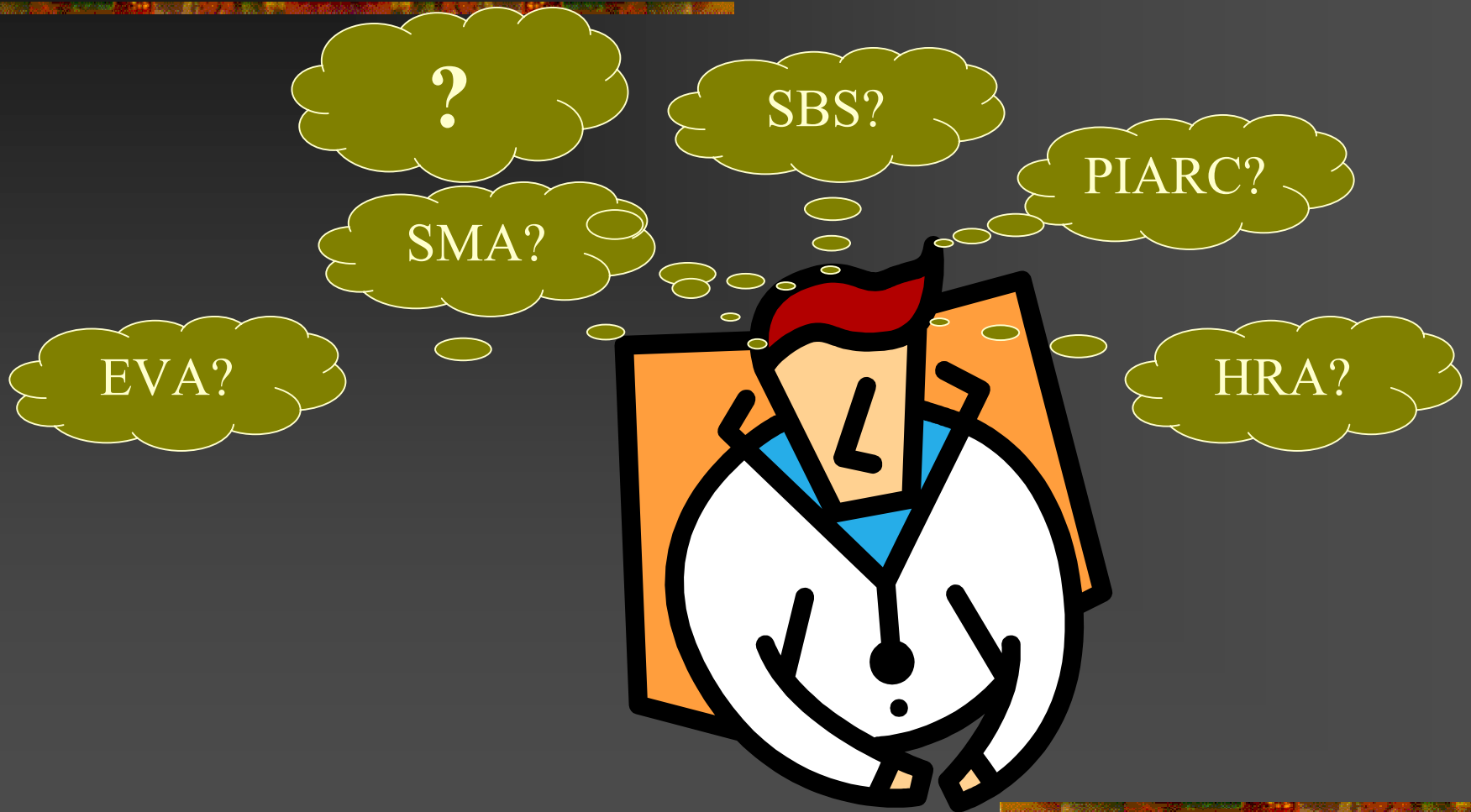
# New materials and techniques

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- Technical Approval does not take responsibility from designer, investor, contractor
- Technical Approval is not a product's quality certificate
- Innovations might bring confusion and problems

# Technical Approvals

## *Aprobaty Techniczne*



# New materials and techniques

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- Stone Mastic Asphalt SMA
- Gap graded asphalt mixtures (BBTM)
- Thin asphalt layers
- High stiffness asphalt mixtures
- Polymer-modified binders
- Geosynthetics
- Hot and cold recycling

# New materials and techniques

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- Need for pavement structure and materials
  - to combat rutting resistance and low-temperature cracking resistance
  - to provide long fatigue life and bearing capacity

# Pavement design, modeling and material testing

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- New tools available
  - Mechanistic pavement design
  - Visco-elastic-plastic pavement modeling
  - Performance related laboratory material testing
- Need for practical applications

# Conclusions

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- CEE region of expected potential great development of economy and transport infrastructure
- Demand for rehabilitation of existing and construction of new roads
- The best available techniques and materials should be applied, even at higher costs but providing longer life and meeting the technical requirements and demands of the society
- Recycling of asphalt pavements is a set of important techniques