Workshop – BRIDGE DESIGN TO EUROCODES
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Since the 31st of March 2010, the Eurocodes have replaced the current national codes for the design of construction works, and bridges in particular. We do not need to give the good example: their usability has been checked since several years, the design loads cover correctly physical loads and their rules are modern and reliable.
You can ignore the Eurocodes ...

Or you can limit the traffic volume and magnitude of loads ...
Many beautiful bridges have been design in the past without the Eurocodes …
Therefore, are standards and more particularly the Eurocodes useful for the design of bridges?
The design of a civil engineering structure

- Direct and indirect actions
- Functional Requirements
- Architect(ure) (aspect)
- Structural Requirements (reliability levels, durability, adaptability, robustness, etc.)
- REGULATIONS
- Structural analysis
  Numerical models

- Materials Products (properties)
- STRUCTURE
- CODIFIED MODELS
- PHYSICAL MODELS
First aspect

Improvement of durability and evolution of material properties

(requirements, design rules and detailing)
Corrosion phenomena

Alkali-silica reaction
Second aspect:
The magnitude of traffic loads increases permanently
Third aspect: accidental design situations and accidental actions, robustness

EN 1990 - 3.2 (3)P The selected design situations shall be sufficiently severe and varied so as to encompass all conditions that can reasonably be foreseen to occur during the execution and use of the structure.
Fourth aspect:
Dynamic behaviour and serviceability criteria for slender structures
Vibration of footbridges
Rain-Wind induced vibrations
Design of bridges with the Eurocodes

EN 1990
Basis of Structural Design
Combinations of Actions

EN 1991
Self-weights
Traffic Loads
Climatic Actions
Accidental Actions
Actions during execution

EN 1999
Design of Structures
for Earthquake Resistance

PRODUCT STANDARDS
(EN 1337 Bearings, ...)
TECHNICAL APPROVALS

STRUCTURAL
EUROCODES
EN 1991 - EN 1993
EN 1994 - EN 1995
(EN 1999)

EXECUTION
STANDARDS
EN 13670
(Concrete)
EN 1090
(Steel)

MATERIAL
STANDARDS
EN 206
(Concrete)
EN 10025
(Steel)
...
A dream: building bridges with Eurocodes for a better world, a link between planets!

Thank You for your attention