



Theme 5

Techniques & Innovations

Workshop 5.1

New techniques of soil-rock mixtures, roadbases, subbases

Session chairman : Luc Rens, managing director of EUPAVE
(European Concrete Paving Association)

in replacement of Carlos Jofré, director of IECA
(Spanish Institute for Cement and its
Applications)

Convenor : Eduardo Fortunato
(Portuguese National Laboratory of Civil
Engineering - LNEC)



Theme 5

Techniques & Innovations

Workshop 5.1

NEW TITLE :

**New techniques and developments
in road infrastructure.**

**Materials for pavements, roadbases, subbases
and engineered structures**

Overview

- 7 titles in the programme – 6 papers
- Europe + South-East Asia
 - Malaysia, Portugal (2), U.K. (2), Thailand
- Variety in applications
 - Base layers, pavement materials, bridges, embankment dams, bedding mortars
- Variety in materials
 - Asphalt, concrete, fly ash, quarry dust, soil-rock mixtures

Overview of the papers

- N°28 :
 - The alternative to resin based bedding mortars
 - Angus Longward, Instarmac Group, U.K.
 - Problem of ironworks in the road (manholes,..)
 - Replacement of resin based by cement based products
 - Key words :
PERFORMANCE & ENVIRONMENT

ATTENTION REQUIRED !!!



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Overview of the papers

- N°242 :
 - Performance comparison of hydrated lime (HL) and ordinary portland cement (OPC) as filler in asphalt concrete mixtures based on marshall method and wheel tracking test
 - Prantyo Rizkiyantoro, University Teknologi Petronas, Malaysia
 - Optimization of performance of asphalt mixtures
 - Scanning Electron Microscopy + XR Diffraction
 - Key words :
PERFORMANCE & ECONOMY

WHAT SHOULD BE THE PAST



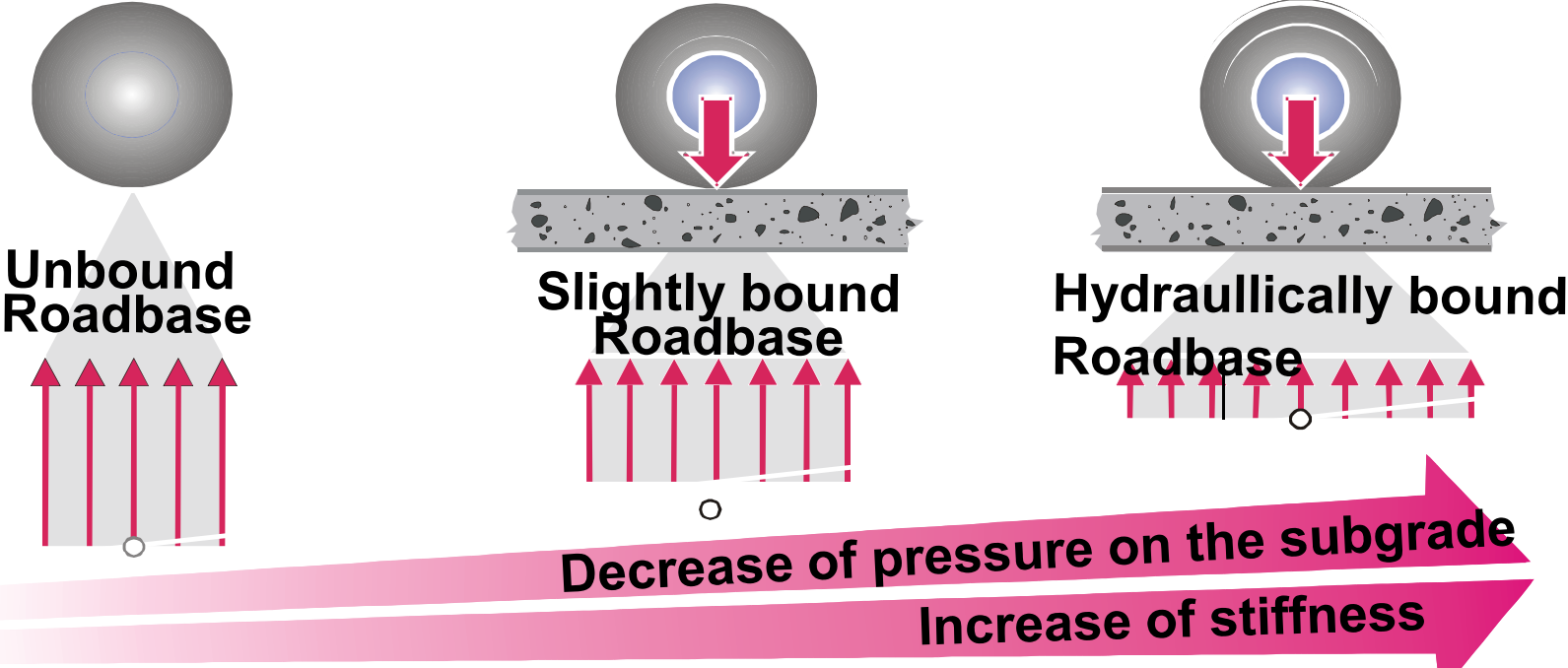
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Overview of the papers

- N°259 :
 - Resilient modulus based investigation to evaluate a new activator for PFA in slightly bound road base material containing high waste quarry dust
 - Behrooz Saghafi, Liverpool John Moores University, UK
 - Use of limestone dust in roadbases
 - Use of PFA + APC (Air Pollution Control Residu)
 - Key words :
RECYCLING – USE OF WASTE AND BY-PRODUCTS

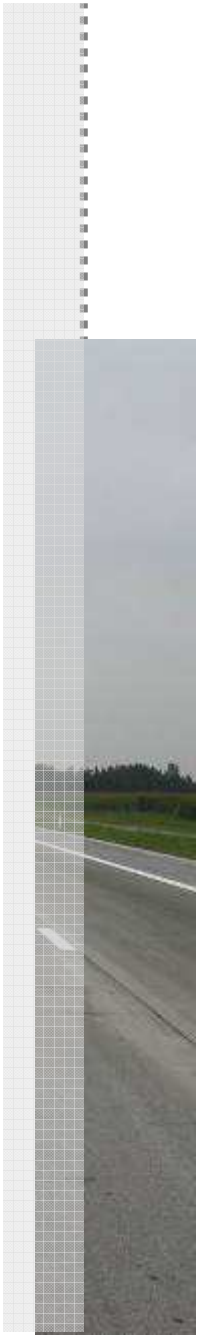
THE BACKBONE OF THE ROAD !!!



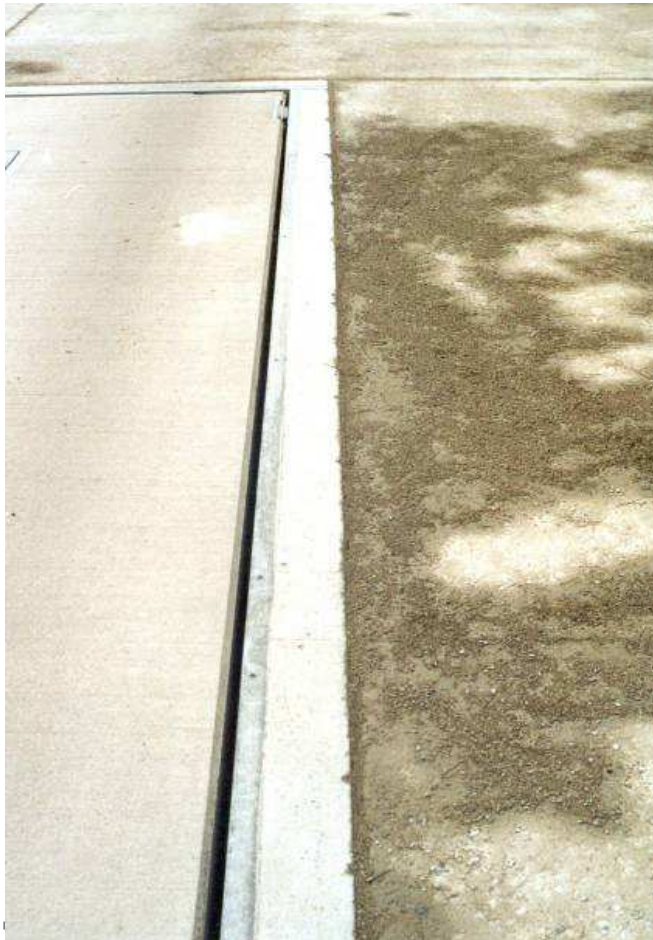
Overview of the papers

- N° 390 :
 - Development of bridge construction technology for rural area in Thailand
 - Chakree Bamrungwong, Ministry of Transport, Thailand
 - Rural road networks
 - Reduce quality problems by a segmental construction concept
 - Key words :
QUALITY – PRECAST

QUALITY BY PRECAST



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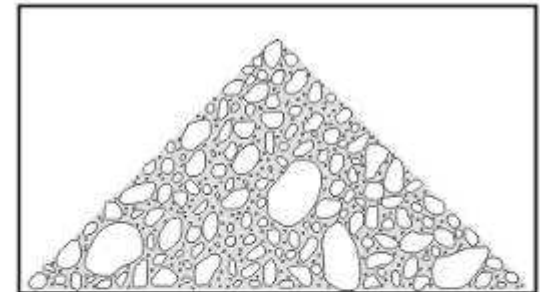
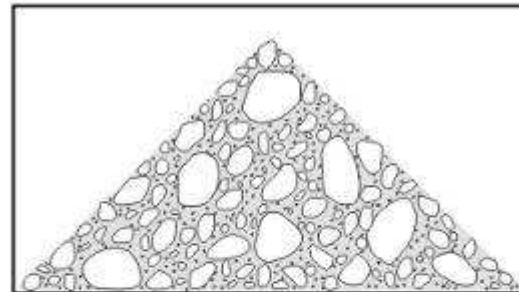
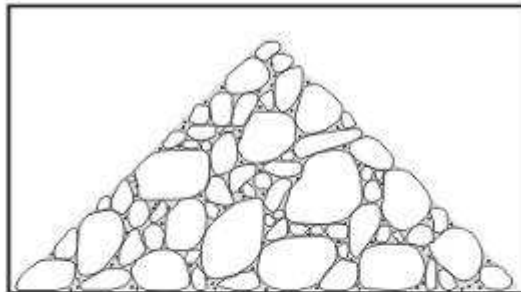


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Overview of the papers

- N° 472 :
 - Applicability of Hilf's method to compaction control of soil-rock mixtures
 - Andrea Brito, National Laboratory for Civil Engineering (LNEC), Portugal
 - Compaction control
 - Dam's
 - Key words :
SAFETY – CONTROL – USE OF NON-TRADITIONAL MATERIALS

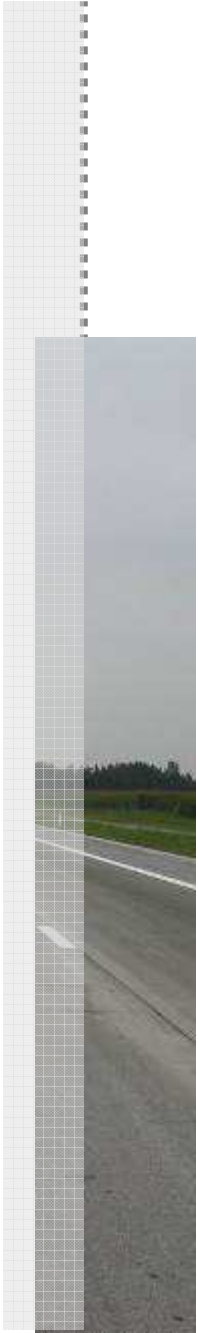
QUALITY OF COMPACTION !!!



Overview of the papers

- N° 476 :
 - Degradation of bridges by internal expansive reactions – Portuguese case studies
 - Antonio Santos Silva, National Laboratory for Civil Engineering (LNEC), Portugal
 - Alkali-silica reaction and/or delayed ettringite formation
 - Preventive methodologies
 - Key words :
SAFETY – PREVENTION

CAN BE AVOIDED !!!



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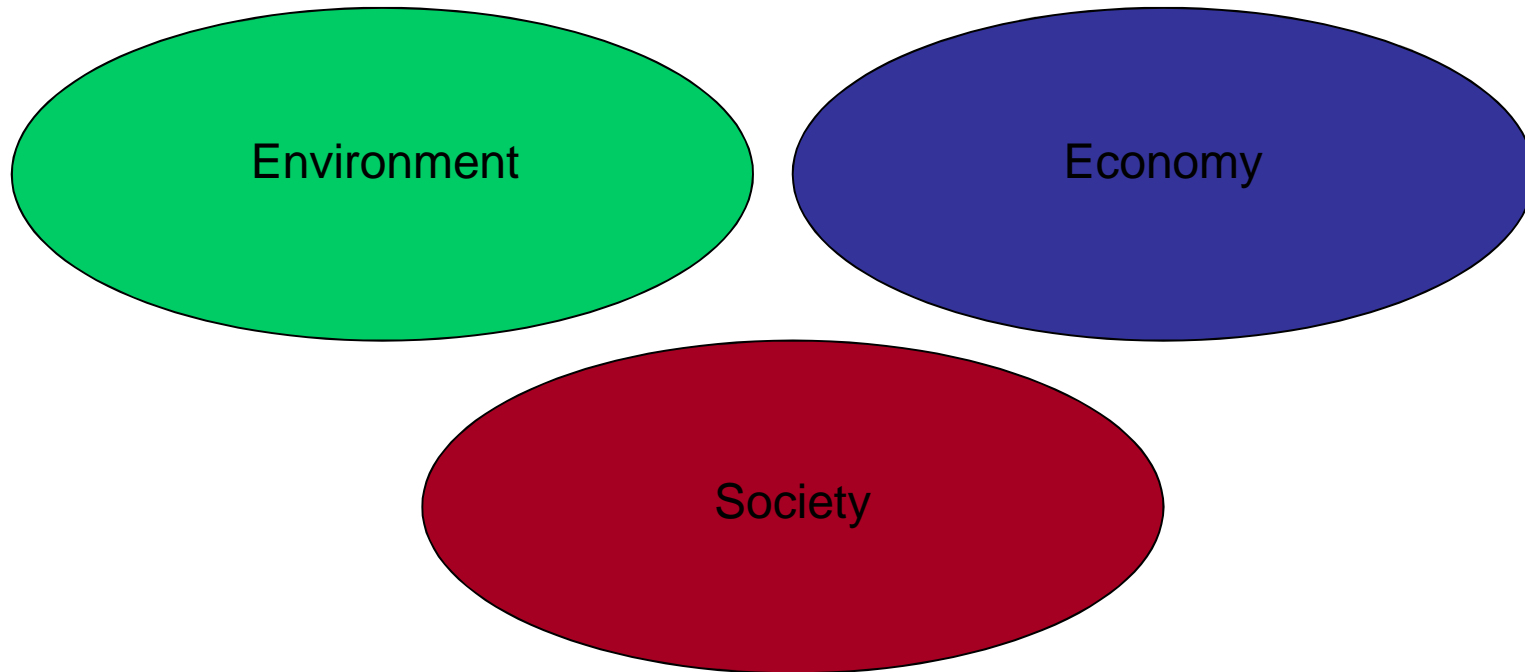
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CONCLUSIONS

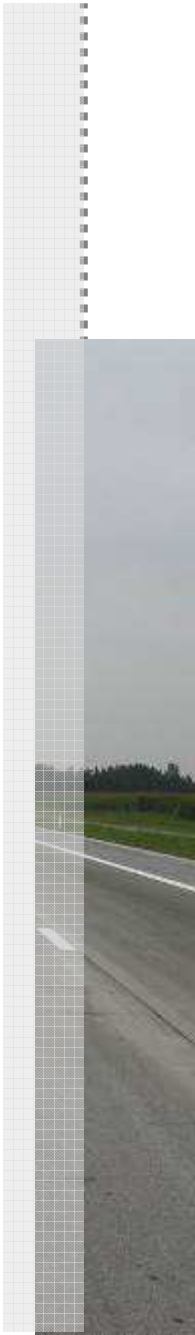
■ KEY WORDS

- PERFORMANCE & ENVIRONMENT
- PERFORMANCE & ECONOMY
- RECYCLING – USE OF WASTE AND BY-PRODUCTS
- QUALITY – PRECAST
- SAFETY – CONTROL – USE OF NON-TRADITIONAL MATERIALS
- SAFETY – PREVENTION

CONCLUSIONS



SUSTAINABILITY DRIVEN BY RESEARCH AND INNOVATION



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Thank you for your kind attention

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