ISAP TECHNICAL COMMITTEES DAY

Annual meeting (2013) of

Technical Committee on Asphalt Pavements and Environment (APE)

Washington DC, OMNI Shoreham Hotel - Governors Room.
January 13th, 2013

ISAP WG6
By-products and Secondary Materials Recycling in Asphalt Pavements

Report on WG activity

Prof. Marco Pasetto

Dept. of Civil, Environmental and Architectural Engineering (DICEA), University of Padova (IT)

Outline

- **Objective of ISAP TC/APE WG6 By-products and Secondary Materials Recycling in Asphalt Pavement**
- **Basis of work**
- **Main goals**
- **Past year activities**
- **Future (2013) activities**

and, preliminarily…

…Thanks to

- **ISAP Board of Directors**
- **APE TC Board (Manfred N. Partl, Gabriele Tebaldi)**

and

- **Dariusz Sybilski**

Objectives of ISAP TC/APE WG6 (1)

➢ **Promotion of use of alternative materials in road pavements construction:**

✓ Reduction of the consumption of natural aggregates (scarcity, quality, etc.)
✓Reduction of the impact of excavation on the environment and the landscape
✓Reduction of wastes to be discharged on landfills (environmental impact, transportation and disposal costs, taxes, public opinion aversion, etc.)
✓Need of new materials and technologies for road construction (wider applications and uses)
✓ Compliance with recent Standards (e.g. EN 13043, etc.)

Objectives of ISAP TC/APE WG6 (2)

➢ **Analysis of potentialities of By-products and Secondary Material Recycling in asphalt pavements, with regard to environmental and technical aspects:**

- ✓ The evaluation of impact on environment (visual, leaching, etc.)
- ✓ The mechanical properties, related to natural materials' ones
- ✓ Specific tests and requirements
- ✓ Functional, performance based test methods, for a more objective evaluation in comparison with natural material

➢ **Promotion of By-products and Secondary Material for:**

- ✓ The enhancement of road construction techniques
- ✓ Savings in Economics
- ✓ A worldwide eco-sustainability (for developing and technologically advanced countries)

Basis of work (1)

- **Literature review and characterization of the "state of the art"**
- **Attention to International collaborative projects completed:**

✓ PIARC (1989), Marginal materials. State of the Art report
✓ OECD (1997), Recycling strategies for road works
✓ ALT-MAT (1998-1999), Fourth Framework Programme research project, partly funded by the European Commission
✓ SAMARIS (Sustainable and Advanced MAterials for Road InfraStructure) (2003-2007), Fifth Framework Programme research project, funded by the European Commission

- **Monitoring of the development in Technical Standards, Specifications, Guidelines, and Law Regulations**

Basis of work (2), some deliverables

- **PIARC:** comprehensive classification of marginal materials and their known utilization.

- **ALT-MAT :** recognition of methods suitable for checking alternative materials finalized to their re-utilization in road construction (mechanical properties, functional requirements, leaching potential and long-term stability); definition of a model for assessing their environmental impact on groundwater quality; motion for social awareness about the potentialities of alternative materials.

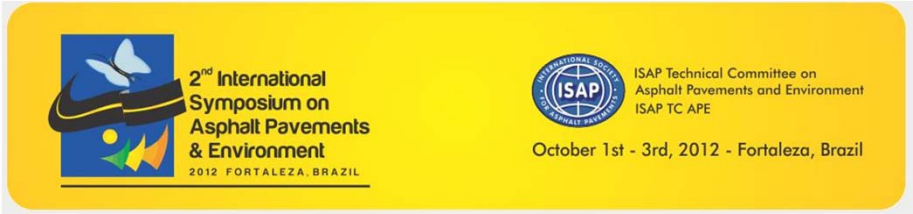
- **SAMARIS** : encouragement of the use of recycled and secondary materials in pavements by detailing how such materials shall be selected and tested in order to secure satisfactory performance, environmentally as well as functionally (particular attention is given to the Central European countries); contribution to the harmonization of European approaches of material specification with CEN Standards.

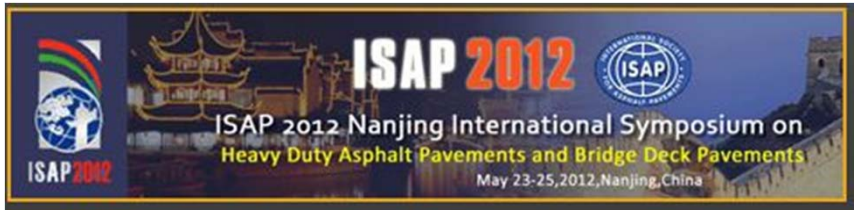
Basis of work (3), some deliverables

- **SAMARIS** (cont'd):
  - ✓ Existing specific national regulations applied to material recycling
  - ✓ Literature review of recycling of by-products in road construction in Europe
  - ✓ State of the art for test methods to detect hazardous components in road materials for recycling
  - ✓Critical analysis of documents from Europe and United States with special reference to assessment of alternative materials
  - ✓ Report recommendations for mixing plants for recycling works
  - ✓ Review of the state of art in road and other industry by-product use in road construction and rehabilitation in the Central and East European countries
  - ✓ Methodology for assessing alternative materials for road construction
  - ✓ Procedures for indentifying hazardous components in materials for asphalt
  - ✓ Guide on techniques for recycling in pavement structures.

Main goals, already scheduled

- **Up-to-date literature review, including development in standards and law regulations, based on international inquiry**
- **Conferences and Workshops on by-products and secondary materials in asphalt pavements (in 2012, even if not specific, Fortaleza, Delft, Nanjing)**





Past year activities

- Implementation of the Working Plan, according to the guidelines arranged after the WG start up
- Identification of new and possible objectives and topics of interest
- Evaluation of possible public dissemination occasions (seminars, workshops, etc.) of knowledge concerning By-products and Secondary Materials Recycling

Future (2013) activities (1)

- Call for participation
- Organization of the WG (TGs are needed?)
- State of the art, concerning:
  - ✓ Literature (articles from journals, papers from proceedings);
  - ✓ Research projects (completed, in progress and starting);
  - ✓ Applications
  - ✓ Technical Standards
  - ✓ Specifications
  - ✓ Law Regulations
  - ✓ Guidelines

  to be gathered in a general report (book?).

Future (2013) activities (2)

- **Evaluation of possible participation to collaborative projects (funding resources to be found)**
- **Organization of a Summer School or a Cycle of Seminars and a Workshop on "the use of By-products and Secondary Materials Recycling in Asphalt Pavements"**

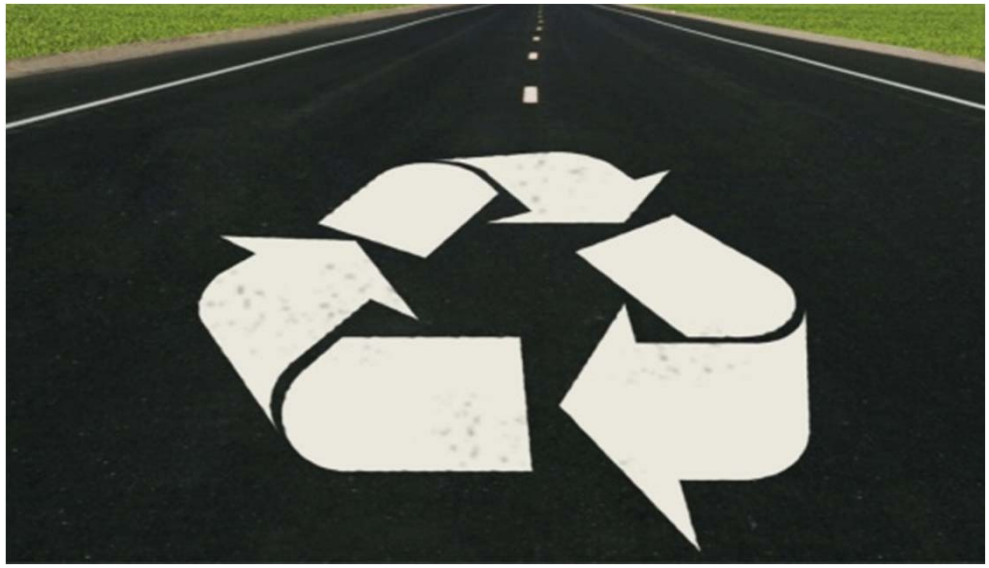
Proposal of joint organization with University of Padova and SIIV (Italian Society of Road Infrastructure).

1st International Workshop on

THE USE OF MARGINAL MATERIALS IN ROAD CONSTRUCTION

Padova, November 19th, 2010

Thank You,



Marco Pasetto
marco.pasetto@unipd.it