

# **RECYCLING AND REHABILITATION IN DEVELOPING COUNTRIES**

Friday 24 October 2003 (1.30 – 5.00 p.m.)

## **SESSION AGENDA & INTRODUCTORY REPORT**

# Session Agenda

## **1. Opening address**

Mr. Nelson RIOUX (PIARC C7/8 Committee Chairperson/CANADA-QUEBEC)

## **2. Feedback report on the proceedings and outcomes of the Seminar on Road Pavement Recycling held in Poland in October 2002**

Mr. Jan van der ZWAN  
(PIARC C7/8 Sub-Group leader for Pavement Recycling/THE NETHERLANDS)

## **3. Overview of the Southern African environment**

Dr. Charles KUNAKA  
(Technical Unit of the Southern African Transport and Communication Commission/MOZAMBIQUE)

## **4. Good governance principles for the management and maintenance of southern African road networks**

Mr. Justin RUNJI (National Roads Authority/NAMIBIA)

## **5. Southern African experience in the regravelling and upgrading of unsealed roads**

Dr. Phil PAIGE-GREEN  
(CSIR Division of Roads and Transport Technology/SOUTH AFRICA)

Discussion

## **6. Recycling of flexible pavements with the use of foamed bitumen and bitumen-emulsion: synthesis of southern African experience**

Ms. Elzbieta SADZIK  
(Gauteng Department of Public Transport, Roads and Works/SOUTH AFRICA)

## **7. Appropriate rehabilitation techniques that enable the employment of labour to be maximised**

Mr. Robert PETTS (PIARC C20 member, Intech Associates/UK)

## **8. The use of cementitious materials in pavement recycling and rehabilitation**

Mr. Carlos JOFRÉ (Spanish Institute of Cement and its Applications/SPAIN)

Discussion

## **9. Closure**

Mr. Philip HENDRICKS

(Session Chairperson, PIARC C20 English-speaking Secretary of PIARC C20  
Committee/SOUTH AFRICA)

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PIARC Technical Committee C7/8, which deals with Road Pavements, has convened this Special Session on Recycling and Rehabilitation that is aimed at the needs of developing countries, and more particularly those of southern Africa. The Additional Session will be held on Friday afternoon, 24 October 2003.

The Additional Session targets funding agencies, road managers, pavement engineers and contractors in road rehabilitation, and particularly those who are interested in issues related to, and are seeking appropriate solutions for, pavement recycling and rehabilitation in developing countries.

The session will be chaired by Philip Hendricks, Director of CSIR Division of Roads and Transport Technology, SOUTH AFRICA, Secretary of PIARC Technical Committee C20 and Chairperson of the Committee on Research and Development of the Association of Southern African National Road Authorities (ASANRA).

The programme will consist of the following presentations:

### **Opening address by the Chairperson of PIARC Technical Committee C7/8**

Mr Nelson Rioux, *Chef du Service des Matériaux d'infrastructures*, Transports Québec, CANADA-Québec.

### **Feedback report on the proceedings and outcomes of the Seminar on Road Pavement Recycling held in Poland in October 2002**

Mr Jan van der Zwan, Dienst Weg- en Waterbouwkunde, Rijkswaterstaat, NETHERLANDS, and C7/8 Subgroup leader for Pavement Recycling.

### **Overview of the Southern African environment**

Dr Charles Kunaka, Technical Unit of the Southern African Transport and Communication Commission (SATCC-TU), MOZAMBIQUE.

An overview of the activities of SATCC-TU and the Association of Southern African National Roads Agencies (ASANRA) will be presented. The environmental conditions and other factors influencing the design, construction and maintenance of road infrastructure in southern Africa will be addressed, and an overview of the most prevailing road pavement recycling and rehabilitation techniques used in these countries will be provided, including an overview of the harmonised regional guidelines and specifications for road design and construction.

### **Good governance principles for the management and maintenance of southern African road networks**

Mr Justin Runji, Chief Executive Officer of the Namibian National Roads Agency, NAMIBIA, and Vice-president of ASANRA.

There has been a world-wide shift in focus from the traditional public service delivery approaches to other, more innovative means, which are considered to be more effective, cost-efficient, customer-orientated, businesslike and flexible. The management challenges with which government is faced have intensified and there is increasing pressure to do more with less. Fiscal constraints and taxpayer perception of bureaucratic inefficiency have contributed to a drive for greater productivity. At the same time, interest groups and customers are expecting and demanding more. Good governance has become a prerequisite. Governance is generally understood to encompass authority, stewardship, leadership, direction and control. Governance therefore refers to the processes by which institutions are directed, controlled and held accountable. The adoption of good governance principles as a prerequisite for the efficient and effective management and delivery of roads in southern Africa will be addressed in this paper.

## **Southern African experience in the re-gravelling and upgrading of unsealed roads.**

Dr Phil Paige-Green, CSIR Division of Roads and Transport Technology, SOUTH AFRICA.

A large proportion of the road network in developing countries consists of unsealed roads. Because of its extensive length and susceptibility to erosion, both by traffic and weather, the maintenance costs are disproportionately high when measured against vehicle kilometres of travel. In South Africa, for instance, it is estimated that some 150 million tons of gravel are stripped from its roads per annum, which need to be replaced. This practice is clearly unsustainable and alternatives to frequent re-gravelling need to be explored. The above issues and potential solutions will be addressed in this paper.

## **Recycling of flexible pavements with the use of foamed bitumen and bitumen-emulsion: synthesis of southern African experience**

Ms Elzbieta Sadzik, Gauteng Department of Public Transport, Roads and Works, SOUTH AFRICA.

The use of bitumen emulsion or foamed bitumen treatment as a rehabilitation option for recycling pavements has expanded considerably, both in developed and developing countries. Whereas the use of bitumen emulsions in cold in-place recycling has been fairly well understood, until recently there were no comprehensive guidelines available for the mix design, structural design and construction of foamed bitumen treatments. In order to address these deficiencies, a comprehensive research programme was put together funded by both the public and private sector. In the presentation, the outcomes of this research programme will be discussed, as well as case studies in southern Africa where these cold in-place or in-plant recycling technologies were applied successfully.

## **Appropriate rehabilitation techniques that enable the employment of labour to be maximised**

Mr Robert Petts, Intech Associates, UNITED KINGDOM.

Since the 1980s, many policy makers in developing countries have been experimenting with labour-based technologies to improve the standard of living of rural communities through infrastructure provision, to generate employment for rural, unskilled people, and to conserve, in some instances, scarce foreign funding. Many projects and programmes across the world have shown that labour-based methods can be technically feasible and economically justifiable in many civil construction projects, especially road projects. The issues relating to labour-based construction will be discussed, and examples where it has been employed successfully in the maintenance, rehabilitation and upgrading of both urban and rural roads will be presented.

## **The use of cementitious materials in pavement recycling and rehabilitation**

Mr Carlos Jofré, Technical Director, Spanish Institute of Cement and its Applications (IECA), SPAIN.

Cementitious materials offer a wide range of cost-effective rehabilitation alternatives, including recycling and several types of resurfacing (unbonded, thin bonded, with vibrated concrete, with roller compacted concrete etc). This permits the rehabilitation procedure to be tailored to the type and condition of the existing pavement and to its intended future use, as well as to the available construction methods, equipment and financial resources. Examples will be presented on the successful use of these techniques in several countries to upgrade low-volume roads.