



SIMBA II Road Infrastructure Cooperation

Adewole Adesiyun

Forum of European National Highway Research Laboratories

Session: Road Transport Research Cooperation Between Europe and ICPCs

TRA 2010, Brussels

07 - 10 June, 2010



SIMBA II is a Support Action funded by the European Commission's DG Research



1

SIMBA II - Infrastructure



India



Russia



South Africa

- ◆ Why cooperation with these countries is important
- ◆ Challenges facing road infrastructure
- ◆ What SIMBA II is doing to tackle these challenges
- ◆ Lessons learnt from SIMBA II



2

Road transport in India



- ◆ Second largest road network in the world – 3,3 mln km
- ◆ National highways carry 40% of total traffic but account for only 2% of road network
- ◆ About 65% of freight and 80% of passenger traffic is carried by the road network
- ◆ Number of vehicles has been growing at an average pace of 10% per annum over the last five years
- ◆ 90000 deaths/year



3

Road transport in Russia



- ◆ Largest country in the world, > 17 mln km²
- ◆ Length of road network > 900000 km
- ◆ Federal roads (~ 100000 km) carry about 45 – 50 % of all cargo
- ◆ The estimated level of motorization by 2015 is more than 320 cars per 1000 households (60 and 130 cars in 1995 and 2003 respectively)
- ◆ 33000 deaths/year



4

Road transport in South Africa



- ◆ Road network of 754000 km
- ◆ 9,600 km of surfaced national toll and non-toll roads
- 56,000 km of surfaced provincial roads
- 300,000 km of gravel provincial roads
- 168,000 km of surfaced and un-surfaced urban roads
- 221,000 km of unclassified roads (predominantly access roads in rural communities and roads in settlements on the urban periphery).
- ◆ 19000 deaths/year

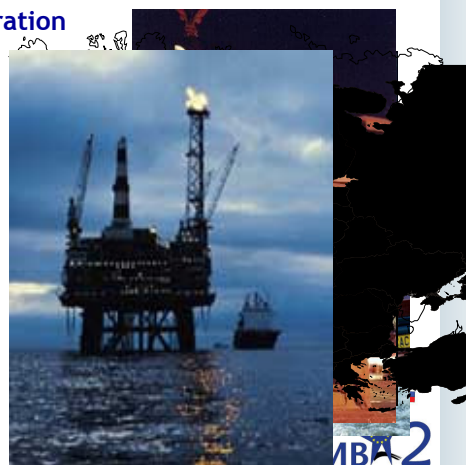


5

Challenges facing road infrastructure



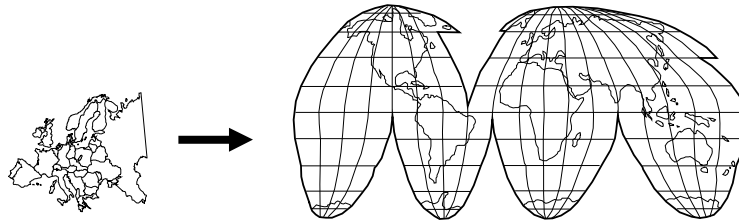
- European enlargement & integration
- Ageing population
- Climate change
- Energy supply
- Security
- Globalisation issues



“Global Research”?



- Road transport research is changing and part of this change is reflected internationally.



- Not only the (global) challenges but also the need for necessary skills



SIMBA II objectives



Build on success and findings of first SIMBA project, objectives in India and South Africa were to:

- Hold a series of local expert meetings.
- Hold workshops with European organisations to discuss and refine research priorities and cooperation areas.

Cooperation with Russia

- Establish first contact with local stakeholders
- Jointly establish country priorities and common interests
- Hold local expert meetings
- Carry out joint workshops with local and European organisations to discuss and refine research priorities



Cooperation with India



Monitoring and analysis of the performances of low volume traffic roads constructed by using locally available marginal materials

◆ Rural infrastructure development in India

Aim of the programme - to improve rural road infrastructure and thereby allow rural economics to grow

◆ Use of Marginal Material for low volume traffic roads

Use of Marginal Materials on road construction serves two purposes: (a) As alternative raw materials, (b) Disposal of waste materials. Marginal materials are waste products from industry which include "Fly Ash", "Construction and Demolition (C&D) Wastes" "Iron Slag", "Copper Slag", "Plastic Wastes", Crumb Rubber etc. Waste products have unique characteristics in terms of their ability to be used as road construction materials.



9

Cooperation with India



10

Cooperation with India



ReRoad - *End of life strategies of asphalt pavements*

- FP7 project, 2009 - 2012
- Aims to develop knowledge and innovative technologies for end-of-life strategies for asphalt road structures
- Project is addressing the technical and environmental aspects in recycling procedures of asphalt material
- Topics include: dismantling strategies, handling strategies, cost-effective recycling
- <http://re-road.fehrl.org>



11

Cooperation with India



Proposed Study

Aim: The aim is to use different waste materials for road construction and analyse their performance and economic benefits.

The methodology will entail the design, construction, performance monitoring and analysis of trails in distinct regions.

Accelerated loading testing - e.g. by Heavy Vehicle Simulators -planned in some selected sections.
Attention to paid to approval methods for materials and completed work.



12

Cooperation with Russia



- **SIMBA II key Partners in Russia involved:**

- ITS - Russia
- Professional Association in Vehicle Risk Prevention
- Federal Agency for technical regulation and metrology
- Ministry of Transport
- Russian Federal Road Agency
- Russian Federal enterprise "Roads of Russia"
- State Technical University MADI
- RosDorNII
- SoyusDorNII
- GiproDorNII

- **SIMBA II key Partners in EU involved:**

Forum of European National Highway Research Laboratories

BAST Germany; DRI Denmark; IBDiM Poland; KTI Hungary;
LCPC France; VTI Sweden; ZAG Slovenia; EPFL Switzerland



13

SIMBA II Infrastructure activities in Russia



SIMBA II Infrastructure Event, 27-28 November 2008, Moscow

Day 1: Federal Road Safety Programme
State Technical University - MADI

Day 2: Infrastructure workshop

Road infrastructure safety
Pavement management systems/Bridge and tunnels management systems
Heavy vehicles and road wear
Alternative and recycled construction materials



14

SIMBA II Infrastructure activities in Russia



SIMBA II Infrastructure Event, 19 March 2010, Moscow

PIARP/ITS Russia

- Federal Road Agency
- Roads of Russia
- State Technical University MADI
- SoyusDorNII
- RosDorNII
- GiproDorNII

FEHRL

- BAST Germany

- establish partnerships in road research activities between Russia and the EU
- identifying priority areas and themes for international cooperation
- ways of developing research projects and disseminating results

Research activities of FEHRL

Examples of collaborative projects

The vision of roads of the future - Forever Open Road

BAST's research activities

15

Cooperation with Russia



- EU - Russia transport corridors
- Modern city development for Sochi and other regional cities of Russia
- Road infrastructure safety and road infrastructure for “smart” vehicles



16

Cooperation with Russia

- Tolling roads as an element of Road Safety Federal programs: «Moscow - St.-Petersburg», «Moscow - Don»



- Improving training activities on infrastructure development (project management training & highway engineers training)
 - Organise workshops/seminars with EU and Russian participants
 - Develop training programmes based on FEHRL experience



17

Cooperation with South Africa

South Africa Expert Group

- Council of Scientific and Industrial Research (CSIR)
- South African Road Federation (SARF)
- Cement and Concrete Institute (C&CI)
- South African Bitumen Association (SABITA)
- eThekweni Municipality
- Stones & Stones

EU Expert Group

- Forum of European National Highway Research Laboratories
 - KTI Hungary
 - TRL United Kingdom
 - VTI Sweden

Evaluation of new alternative materials – holistic approach

- Technical evaluation
- Environmental evaluation
- Financial evaluation
- Special construction requirements



18

Cooperation with South Africa



- Decision tree for prioritising waste material research → Standard protocol for material assessment → Guidelines, standards, specifications for acceptance and use
- Optimised Usage of alternative materials vis-à-vis embodied energy
- Information system for use of alternative materials in construction

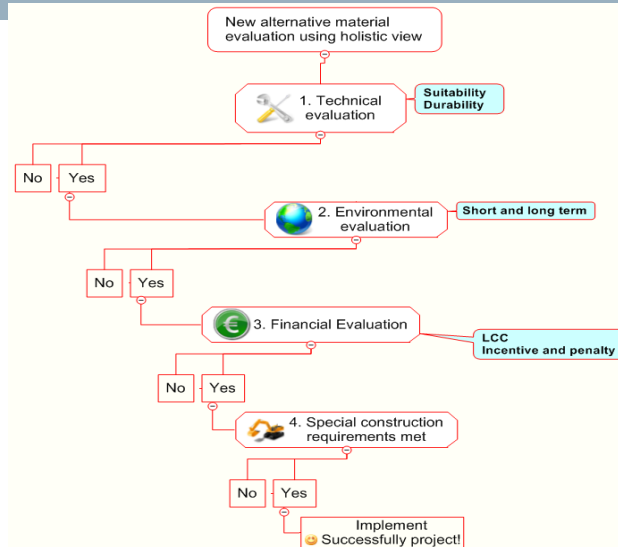
- Advancement of greener technologies in the municipal sphere (and associated guidelines)
- Sustainability issues relating to unsealed roads
- Means of reducing water utilisation in construction

Other issues

- Guidelines for the design and implementation of climate change adaptation strategies
- SA's involvement with MIRIAM (reduced rolling resistance without impacting on skid resistance and other functional attributes)
- SA's contribution to Forever Open Roads

19

Cooperation with South Africa



20

SIMBA II - Infrastructure Recommendations

	India	Russia	S Africa
Mobility, Transport and Infrastructure			
Road freight transport	x	x	x
Design and Production			
Design of road infrastructure for protection against climate change impacts	x	x	x
New road maintenance management and rapid maintenance techniques	x	x	x
Safety and Security			
Road safety audits and inspection	x	x	x
Protection of critical infrastructures	x	x	x
Energy, Environment and Resources			
Tyre/road interaction and development of low-rolling resistance pavements	x	x	x
Use of alternative materials and C&DW	x	x	x

 SIMBA 2

21

Some outcomes



- ◆ Expert Group on alternative materials in road construction
CSIR South Africa, KTI Hungary, VTI Sweden
- ◆ Research project is being developed between CRRI India and other FEHRL institutes
Monitoring and analysis of the performances of low volume traffic roads constructed by using locally available marginal materials
- ◆ Contacts made and cooperation is being developed with the main highway research institutes in Russia

 SIMBA 2

22

Acknowledgements



SIMBA II Infrastructure team

India: Deepankar Mukhopadhyay

Russia: Vladimir Kryuchkov

South Africa: Kobus Labuschagne, Benoit Verhaeghe, Phil Paige-Green

EU: Gunilla Franzén, László Gáspár, Akram Ahmedi, Steve Phillips



23

Thank you for your attention



24