



Road (Surface) Transport Research in South Africa: Opportunities and Challenges for Europe and SA Relationship

Transport Research Arena, Ljubljana, Slovenia
21-24 April 2008



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Overview of Presentation

- ❑ **FACTS and FIGURES: For context**
- ❑ **OPPORTUNITIES FOR COLLABORATION**
- ❑ **SUCCESS STORIES**
- ❑ **CHALLENGES**

Overall message:

South Africa has a dynamic and diverse surface transport R&D, and there are Rich opportunities for mutually beneficial South African – EU R&D transport cooperation

FACTS AND FIGURES



Road Transport in South Africa

- **Key country statistics:**
 - **Population: 47 million**
 - **59% Urban**
 - **33% Metropolitan**
 - **41% Rural**
 - **Economic growth: annually sustained more than 5%**
 - **Surface: 1 219 090 km²(Avg. Pop. Density: 39 people/km²)**

 - **Road transport network: 754 600km**
 - **9 600 km surfaced national toll / non-toll roads (1%)**
 - **56 000 km surfaced provincial roads (1%)**
 - **300 000 km gravel provincial roads (43%)**
 - **168 000 km surfaced and un-surfaced urban roads (24%)**
 - **221 000 km unclassified roads (31%)**
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Passenger Transport Facts

- **Work trips mode split:**
 - **Motorised Public Transport: 40%**
 - **Private Transport: 32%**
 - **Walk: 23%**
 - **Other: 5%**

 - **Main Public Transport Modes:**
 - **Heavy rail, Minibus Taxi & Bus**

 - **75% of Households have no car and 80% of over 18 years no driver's license.**

 - **New car sales: Recently averaging 35 000 units/month**

 - **Passenger transport research at heart of transport agenda**
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Other Transport Facts

- Rail network: Close to 22 000km (Mainly narrow gauge 1 067mm) – 20% of freight on rail**
 - Motor vehicle population: Over 7 million in 2006 (65% light passenger)**
 - 10 International Airports: Recently over 200 000 aircraft landings per annum**
 - 7 Established commercial Sea ports: Over 3 million TEUs annually**
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2010 Transport Action Agenda

- **€318 million investment
(to leverage other funds)**
 - **Capital Expenditure**
 - **ITS**
 - **Bus, Taxi and Rail
infrastructure**
 - **Transport Planning**



Transport Governance in South Africa

National

Dept of Transport

National Roads Agency

Cross-Border Road Transport Agency

Dept of Trade and Industry

Dept Public Enterprises

Provincial x 9

Provincial Departments of Transport

Provincial Development Agencies

Local x 284

Municipal Transport Departments

Municipal agencies, companies, utilities
(6 Metropolitan Municipalities)

Road Transport Research Key Stakeholders

- **17 Universities & 6 Universities of Technology**
 - **Public Research Laboratories (Science Councils):**
 - **Council for Scientific and Industrial Research (CSIR)**
 - **South African National Energy Research Institute**
 - **Private sector: Industry, SMEs, NGOs, etc.**
 - **Total R&D spending 0,92% of GDP – €141 million**
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OPPORTUNITIES FOR COLLABORATION



Road Transport R&D Priority Areas

- “Greening of Transport”**
 - Intermodal Transport**
 - Urban Mobility**
 - Safety and Security**
 - Competitiveness of Transport Sector**
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Greening of Transport

□ Notable current R&D Activities

- Air quality monitoring stations network
- Coal to liquid fuel (SASOL)
- Fuels and bio-fuels testing

□ R&D Opportunities

- Large scale public transport fleet recapitalisation
 - South Africa one of the largest platinum producers (fuel cells)
 - Research test sites
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Intermodal Transport

Notable current activities:

- Resuscitation of rail infrastructure for increased long haul freight diversion (from road to rail)
- Integrating demand responsive public transport modes with scheduled modes

R&D Opportunities

- Innovative public contracting regimes
 - Interventions through SME friendly transport business models
 - Spatial restructuring to combat inefficient apartheid planning legacy
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Urban Mobility

Notable current activities

- Location of low-cost housing nearer areas of opportunity
- Investment in new modes of transport:
Drive towards investing in Right of Way
"Category B" (Bus Rapid Transit) in larger
Cities

R&D Opportunities

- Combining the right levels of high access and high mobility
 - Inclusive road architecture
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Safety and Security

Notable Current Activities

- Application of Terra-Hertz radiation to scan passengers for prohibited substances
- Harmonisation of SADC (Southern African Development Community) transport standards

R&D Opportunities

- Safety of non-motorized transport network
 - Security of global container supply chains
 - Design for transport safety in rural areas
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Competitiveness

□ Current Activities

- Self-regulation in heavy vehicle transport
- Accelerated pavement testing – heavy vehicle simulator
- Monitoring of the state of logistics in South Africa
- Vehicle suspension systems research for off-roaders
- Imbedded optical fiber sensors in quality control

□ R&D Opportunities

- Design of tourism-related networks for accessibility
 - Appropriate data management technologies
 - Road construction materials
 - Performance based standards for heavy vehicles
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South Africa – EU S&T Cooperation Agreement

- S&T Cooperation Agreement signed in 1997**
 - S&T key element of new South Africa – EU Strategic Partnership & Trade, Development and Cooperation Agreement**
 - FP4-FP6: more than 200 South African participations across disciplines**
 - South Africa regarded as one of most active “third country” FP partner**
 - FP7 status: International Cooperation Partner Country (i.e. participates with EC funding contribution)**
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Commitment to Cooperation: Support Instruments

- **European South African Science and Technology Advancement Programme (ESASTAP)**

 - **Dedicated National Contact Points for Surface Transport Research and Aeronautics**
 - **Database of 550 South African researchers**

 - **Specific funding instruments**
 - **FP7 Seed Funding Instrument**
 - **FP7 Strategic Co-investment Funding**
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Other Platforms

- ❑ **South Africa – European Union Joint Science and Technology Cooperation Committee (JSTCC)**
 - ❑ **An office for a Senior Science and Technology Representative in Brussels (Mr. Daan du Toit) established to strengthen and promote FP participation in Europe.**
 - ❑ **Potential participation in the European Transport NCP Alliance**
 - ❑ **Marie Curie actions not fully explored. This is critical for South Africa.**
 - ❑ **Strong NCP network in South Africa**
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SUCCESS STORIES



South African involvement in FP6 surface transport projects

- **SIMBA:** Strengthening road transport research cooperation between Europe and emerging international markets (South Africa, China, India and Brazil) in the fields of Intelligent Transport Systems, Road infrastructures and Automotive technical developments
 - **URBAN TRACK:** Aims to develop low life cycle cost, high performance, modular, safe, low noise and vibration rail infrastructure systems that fit into a harmonized European market
 - **BESTUFS – Best Urban Freight Solution:** Network of Researchers focused on finding best solutions to the problems and opportunities of freight distribution in the cities of Europe. South Africa associated member.
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Joint Statement & Action Plan: SA-EU Surface Transport R&D Cooperation

- Signed July 2007**

 - Actions to promote South African FP7 participation:**
 - Reciprocal participation events**
 - Exchange of information**
 - Links with technology platforms, etc.**
 - Strengthened participation in FPs**

 - Targeted areas for cooperation:**
 - Urban traffic information systems**
 - Road safety**
 - Mobility management for large events**
 - Climate change**
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Joint Statement Progress Status

- SA experts invited to act as project proposal evaluators.**
 - SA research community invited to participate in European Transportation conferences – e.g. TRA**
 - SA included in EU FP7 Calls (SICAs)**
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CHALLENGES



Challenges on the SA side

- ❑ **Currently: Limited investment in Transport R&D (grossly lagging behind national R&D target)**
 - ❑ **Low grassroots school enrolment in the sciences and subsequently in higher education**
 - ❑ **Infrastructure delivery backlogs in the Built Environment**
 - ❑ **Concurrently addressing the needs of the “first” and “second” economy. Widening gap between the wealthy and the poor.**
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Collaborative Challenges

- For Framework Programmes: Co-funding of projects difficult for many entities**
 - Intellectual Property arrangements sometimes seen as a thorny issue**
 - Technological gaps between SA and EU should not necessarily translate into technology push. Need to find sustainable solutions.**
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CLOSURE: FURTHER INFORMATION

- South African Department of Science and Technology
 - <http://www.dst.gov.za>

- European South African Science and Technology Advancement Programme
 - <http://www.esastap.org.za>

