Country biggest issues:
South Africa

Gerrie van Zyl
Southern Africa: Biggest issues

1. Preventive maintenance
2. Skills shortage - Seals
3. Polymer Modified Seals
What is the issue?
- Insufficient resealing done
- Average life of a seal (8 – 12 years)
  - Reseal requirement = 10% of network/annum
Issue 1: Preventive Maintenance

Road Authority A

- 6500 km surfaced
- Cycle used to be 7 ñ 12 years
- Now: Seal age 76% > 12 years
- No reseal since 2005
Issue 1: Preventive Maintenance

Road Authority B – 6200 km

ROAD AUTHORITY B: Reseal km per year

ROAD AUTHORITY B
Last Seal Age (% of Network per category)

43% older than 15 years
61% older than 10 years
Issue 1: Preventive Maintenance

Road Authority C – 6100 km surfaced

- Seal age (40% older than 10 years)
Issue 1: Preventive Maintenance

What is the impact?
- Continuous deterioration of network
- Increased rehabilitation
Issue 1: Preventive Maintenance

Why is it happening?
- Funding availability?
- Distribution of available funds?
- Not understanding the value of reseals?
- Economic modeling?
- Pavement Management Systems not maintained?
- Engineers' inability to convince?
Issue 2: Preventive Maintenance

What is being done?

Å SANRAL
  • Major study on seal performance

Å SA Government
  • Legislation and drive (Asset management Systems)
Issue 2: Skills shortage

What is the issue?

- Shortage of skilled people
  - Emigration
  - Age gap
  - Low interest in practical application
Issue 2: Skills shortage

What is the impact?

- More seal failures
  - Quality of base construction
Issue 2: Skills shortage

What is the impact?

- More seal failures
  - Selection of inappropriate seal type/ pre-treatment
Issue 2: Skills shortage

What is the impact?
Å More seal failures
ï Design
Issue 2: Skills shortage

What is the impact?

- More seal failures
  - Quality control
  - Over application
  - Poor transverse distribution
  - Poor joint
Issue 2: Skills shortage

What is being done?

Å SANRAL
- Materials Manual (100 pages on Seal QA)

Å SABITA
- Manual updates (e.g. Appropriate surfacings for LVR)

Å ASPHALT ACADEMY
- Courses on Seal design and Construction
Issue 3: Polymer Modified binders

What is the issue?

Å Performance

ï Early sensitivity to cold temperatures and rain
Issue 3: Polymer Modified binders

What is the issue?

Performance
  - Early crack reflection
Issue 3: Polymer Modified binders

Why is it happening?
Binder characteristics?

Typical SBR & SBS Response curves

% Modifier

Softening Point (°C)

40 45 50 55 60 65 70 75 80 85 90

0.0

Typical SBR & SBS Response curves

SBS

SBR
Why is it happening?

Å Poor adhesion

- Too low application rates
- Contact area?
- Precoating?
Issue 2: Polymer Modified binders

What is being done?
Å SBS high polymer content less specified
Å Increase in application rates

Å Need to investigate further
END