**Procurement Systems**

**2012 Study Tour Key Topics**

1. Long life pavements
   - Experience, design systems, use, durability & performance
2. High performance asphalt & binders
   - High modulus asphalt (EME, HIMA), modifiers
3. Sustainability
   - RAP/WMA, bitumen substitutes, carbon calculators & energy analysis climate change impacts, societal concerns
4. Health & Safety
   - Construction of road works, health considerations for bitumen and asphalt products
5. Procurement Systems
   - Proprietary products (Avis Technique, HAPAS, etc.), “green” procurement, REACH, responsible sourcing, PPP and contract models

**Topic 5: Procurement Systems**

**Overview of reasons**
- Australia has tried to set up systems like Avis Technique & HAPAS but have been unsuccessful
- The benefits of innovation and declining skills in the road authorities point to its greater use
- Lessons learnt, benefits of the systems used, changes to purchasing to accommodate and implications for road authority expertise is sought.
- Use of the systems to promote innovation and product development in new areas such as CO2 reduction, energy efficiency, noise reduction etc.
- The use of procurement systems from PPP, Alliancing, DBOM, ECO including normal contracts, long & short term contract maintenance systems.
  - What key performance characteristics over time?
  - How to retain the culture of stewardship in the contracting agency?
  - How to retain expertise on the road authority to manage & ensure value-for-money?

**Report contents**

1. Innovation and product certification systems
   - Avis Technique
   - Charte d’Innovation
   - HAPAS
   - ETA
   - NAPAS
   - Holland “Innovation Test Centre”
2. New tools for sustainable procurement
   - asPECT
   - SEVE
   - DuboCalc & CO2 progressionladder
   - Netherlands “Innovation Test Centre”
3. Procurement system options
   - United Kingdom – Highways Agency
   - Netherlands

**Basis of innovation systems**

1. Innovation by industry, client encourages with performance outcome needs
2. Proof of performance on functional tests from bodies formed through mutual cooperation between client & industry
3. Product acceptance covers:
   - Field of application, performance characteristics, practical experience
1. Innovation and product certification systems
   - **Avis Technique**
     - Long history, many products, most copied system
     - Controlled by committee of industry and road agency
     - Accepts product & performance submission (where used)
     - Committee provides “advice” on how to be used, design input, comparison to standard products.
   - **Charte d’Innovation**
     - Client invitation (road map)
     - Contractors propose
       - Description of product, system
       - Description of application method
       - Results of tests and trials
       - The price
       - Reference to works that have been executed with the product

   - **HAPAS**
     - Follows Avis Technique approach
     - Run by British Board of Agreement
     - HITAC technical advisory committee: with wide range of industry, associations, HA and Local Government
     - Has 10 specialist groups covering:
       - High friction surfacing, crack sealing, thin surfacing, modified bitumen for bitumen surfacing, microsurfacing, bridge deck waterproofing, permanent cold key materials, coloured surface treatments, anti-corrosive paints
     - Each specialist group has experts from industry but assessment and evaluation done by BBA staff
     - Process requires over two years including trials
   - **ETA – Award approval**

2. New tools for sustainable procurement
   - **asPECT**
     - asphalt Pavement Embodied Carbon Tool
2. New tools for sustainable procurement

- **DuboCalc & CO2 progressionladder**
  - DuboCalc part 1 of LCA based tool
  - Uses international standards database
  - Eleven environmental effects evaluated
  - Controlled by government & applied on contracts
  - Analysis is project specific
  - Results reported as an Economic Cost Indicator expressed in Euros or tonnes of CO₂e

- **SEVE**
  - Special software to compare environmental improvements
  - Uses LCA including:
    - Consumed energy
    - Carbon dioxide emissions
    - Preservation of natural unrenewable resources
    - RAP consumption
2. New tools for sustainable procurement

Netherlands “Innovation Test Centre”

- Knowledge of market possibilities
- Client’s knowledge is shared
- Mutual acceptance of the validation plan
- Test and demonstration projects
- Performance is known
- Entrepreneur determines price in a competitive market
- Client can make justified decision on tender award

Value of Innovation Test Centre

3. Procurement system options

United Kingdom – Highways Agency

- Use a similar range of contract models to Australia
- Have 13 large PPP contracts running on DBFO
3. Procurement system options

- United Kingdom – Highways Agency
  
  Public Private Partnership – motivation -> DBFO

  - to ensure that the project road is designed, maintained and operated safely and satisfactorily so as to minimise any adverse impact on the environment and maximise benefit to road users;
  - to transfer the appropriate level of risk to the private sector;
  - to promote innovation, not only in technical and operational matters, but also in financial and commercial arrangements;
  - to foster the development of a private sector road-operating industry in the UK; and
  - to minimise the financial contribution required from the public sector.

- Netherlands

  - Four main type of Functional Contracts
    - Performance contracts
    - Engineering and construct (E&C) contracts
    - Design and construct (D&C) contracts
    - Design, build, finance and maintain (DBFM) contracts

  - State retains the “what” is wanted and moves the “how” it is done to the private sector
  - Functional specification & contracts promote innovative solutions
3. Procurement system options - Netherlands

- Engineering & Construct (E&C) contracts

Performance assessment during warranty period

<table>
<thead>
<tr>
<th>Property</th>
<th>Assessment method</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Void content</td>
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Performance assessment after construction

- Transversal slope: geotechnical survey, according to specifications (E&C)
- Longitudinal evenness: visual inspection, ≤ 30mm
- Salt resistance: visual inspection, ≥ 28 days
- Crack depth: visual inspection, ≤ 2m

3. Procurement system options - Netherlands

- Engineering & Construct (E&C) contracts

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3. Procurement system options - Netherlands

- Design and construct (D&C) contracts
  - Similar assessment to (E&C) contracts
  - New designs, reconstruction, widening
  - Attempt to have 7 to 10 year warranty
  - For structures & pavements a design verification substitutes for warranty

- Design, construct, finance & maintain
  - Contractor has full responsibility to deliver
  - 20 to 30 years of performance risk
  - Paid on availability fee, bonus, improvements
AAPA 2012 Study Tour of Europe – Feedback Session
Procurement systems

**Summary**

- Similar complexity of procurement systems
- Decades of experience in product certification systems – promotes cost reductions / innovation
- Greenhouse gas calculators being used to change behaviour and promote sustainability
- Increasing use of functional specification and contract models – outcomes & performance
- Significant DBFM/O projects (PPP) – long term, funding streams differ, most 20 to 30 years

**Recommendations**

1. Promote, and seek methods of establishing, a national system to support innovation in cost reducing road products and systems and their commercialization.
2. Support and motivate for the transfer to functional specifications and contracts.
3. Evaluate the Australian greenhouse gas calculators in comparison to the European tools to assess their value in comparing industry products and systems.

**Topic 5: Procurement Systems**

**Questions**

- **Systems**
  - Are Avis Technique systems – are they working / cost effective?
  - Lessons learnt, still promoting innovation?
  - How are underperforming products addressed?
- **Functional and performance requirements**
  - Are performance based specifications used?
  - What test methods used to measure performance / proprietary?
  - Functional specifications and fitness for purpose assessed over time – how is this done?
  - How are environmental / traffic loading changes included in the assessment?
  - Define what a “warranty” means, for how long, end state?
  - Can proprietary product systems replace performance-based specs?
  - Can “green procurement requirements fit into the system (CO₂, energy)?
Topic 5: Procurement Systems

Questions
- Product sourcing and life cycle assessment
  - Has REACH impacted on the product selection and use in Europe, are their benefits?
  - Are there any “responsible sourcing” influences on product selection?
  - What methodologies and inputs are used to assess WOLC for pavements?
- Contract & procurement models
  - Are PPP widely used to fund and deliver European road projects?
  - Do PPP affect the products chosen and warranties required?
  - What are the dominant contract models for services, construction & proprietary products? Are there case studies showing cost differences?
  - Are non-price criteria used in assessing tender submissions—and how?
  - On contracted maintenance:
    - How is culture of ownership or stewardship for the network retained?
    - How do road authorities retain skills to be an informed client?

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