R&D Investment in Green Building Initiatives in Western Australia

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Presentation Structure

1. Background to Australia’s SBEnrc
2. R&D Investment and Impact Project
   - Green building initiatives in WA case
3. Future collaborations …
To be a world-class research and knowledge broker in sustainable infrastructure and building design, construction and management
Growth of Collaborative Research through Australia’s SBEnrc

QUT/CSIRO Construction Research Alliance

CRC Construction Innovation
BUILDING OUR FUTURE

Sustainable Built Environment
National Research Centre

1996
2001
2009
2010
2012
2015
Program 1 - Greening the Built Environment

Program 2 – People, Processes and Procurement

Program 3 - Productivity through Innovation

» A nation-wide collaborative research centre
» Industry, government and research partners
» Applied research and industry outreach across three integrated themes
SBEnrc Core Partners

QUT

John Holland

Swinburne

Queensland Government
Department of Transport and Main Roads

Queensland Government
Department of Public Works

Queensland Government
Infrastructure and Planning

Transport Roads & Maritime Services

NSW Government

Parsons Brinckerhoff

Curtin University
Collaborating Partners
Collaborating Partners
Research Program 1: Greening the Built Environment

Research Program 1 will deliver improved environmental performance by the built environment through enhanced ecological efficiencies, including carbon emission reductions and climate change adaptation...

- Read more...

Projects
- Design and Performance Assessment of Commercial Green Buildings
- The Future of Roads: The Role of Road Building in Reducing Environmental Pressures and Both Mitigating and Adapting to Climate Change
- Harnessing the Potential of Biophilic Urbanism in Australian Cities
- Sustainable Infrastructure Procurement

Research Program 2: Developing Innovation and Safety Cultures

Research Program 2 will deliver improved social outcomes for built environment workers and the Australian community through increased uptake of sustainable practices and minimising...

- Read more...

Projects
- Safety Impacts of Alcohol and Other Drugs in Construction
- Offsite Fabrication and Links to Product and Process Innovation
- Leveraging R&D for the Australian Built Environment

Research Program 3: Driving Productivity Through Procurement

Research Program 3 will deliver economic, environmental and social benefits to the built environment industry through reductions in risks and costs and improved productivity...

- Read more...

Projects
- Collaborative Object Libraries
- Supporting the Facility Lifecycle
- Supporting Infrastructure Management: by Combining Sensors and Asset Information Models

Prior Research Program: CRC for Construction Innovation

Our Research
Publications and information on research undertaken by the CRC for Construction Innovation is available at:
www.construction-innovation.info

www.sbenrc.com.au
R&D Investment and Impact Project
Background and Significance

• Australia’s R&D spend 2% of GDP
  – Denmark and US 2.5%
  – Finland and Sweden > 3% (DIISR 2010:3)

• Australian Government target
  – 25% increased business engagement in innovation in the next 10 years
  – responses to climate change; improving workplace innovation capabilities; business innovation

• Built environment productivity growth is poor
Project Phases

1. Audit R&D investment since 1990

2. *Case studies of past investment*

3. Develop strategic roadmap for future R&D

4. Develop policy guidelines to maximise the value of R&D investments
3 Case Studies

Examining mechanisms and impact of research and innovation in organisations

1. Digital Modelling (Qld)
2. Construction Worker Safety (Qld)
3. Green Building (WA)
Data Gathering

- Departmental reports
- Meetings
- Literature review
- Interviews

### Interviewees

<table>
<thead>
<tr>
<th>Role</th>
<th>Count</th>
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<tbody>
<tr>
<td>Executive (internal)</td>
<td>1</td>
</tr>
<tr>
<td>Champion (internal)</td>
<td>-</td>
</tr>
<tr>
<td>Project Leader (internal)</td>
<td>1</td>
</tr>
<tr>
<td>Implementer (internal)</td>
<td>1</td>
</tr>
<tr>
<td>Allied Agency (internal)</td>
<td>2</td>
</tr>
<tr>
<td>Supplier (external)</td>
<td>1</td>
</tr>
<tr>
<td>Contractor (external)</td>
<td>1</td>
</tr>
<tr>
<td>Consultant (external)</td>
<td>3</td>
</tr>
<tr>
<td>Industry Rep. (external)</td>
<td>1*</td>
</tr>
<tr>
<td>Researcher</td>
<td>2</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>13</strong></td>
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* *Previously employed by WAG*
### Key drivers

<table>
<thead>
<tr>
<th>Key drivers</th>
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<tbody>
<tr>
<td>The right thing to do; awareness; political and social pressure</td>
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<tr>
<td>State government initiatives, policies and regulations</td>
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<tr>
<td>Commonwealth government initiatives, policies and regulations</td>
</tr>
<tr>
<td>Rating schemes</td>
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<tr>
<td>Industry</td>
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<tr>
<td>Cost savings and economic benefits</td>
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<tr>
<td>Reducing water and energy consumption</td>
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### Successes

<table>
<thead>
<tr>
<th>Sustainability outcomes embedded in budgets and projects</th>
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<tbody>
<tr>
<td>Consultants on board</td>
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<tr>
<td>Better educated industry and market</td>
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<tr>
<td>Better understanding/awareness of environmental issues</td>
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<tr>
<td>Better guidelines, tools, monitoring and reporting</td>
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<tr>
<td>Reduced resource consumption and associated costs</td>
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<tr>
<td>Improvement in best practice</td>
</tr>
<tr>
<td>Barriers</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
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<tr>
<td>Better budget setting and business case writing required</td>
</tr>
<tr>
<td>Cost issues and perceptions</td>
</tr>
<tr>
<td>Whole of government leadership and mandate</td>
</tr>
<tr>
<td>Funding – lack of and split between agencies</td>
</tr>
<tr>
<td>Legislation and regulations – outdated, lack of incentives and clarity</td>
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<tr>
<td>Industry - resistance to change and capacity</td>
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<tr>
<td>Adapting research to practicalities</td>
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<tr>
<td>Accounting and monitoring</td>
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<tr>
<td>Loss of key people</td>
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<tr>
<td>Lack of foresight</td>
</tr>
<tr>
<td>Lack of awareness/knowledge – esp. in clients and customers</td>
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<tr>
<td>Management issues</td>
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<tr>
<td>Trade based industry</td>
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Green Buildings Pathway

On-going environmental awareness from mid-80’s

- Creation of Sustainable Policy Unit within Western Australian Government 2002
  - State Sustainability Strategy 2003
    - With input from 42 agencies
    - Office Accommodation Policy 2004
      - Living Neighbourhoods 2007
        - Sustainable non-residential Bldgs Policy 2008
          - Primary School Brief 2012

Build and maintain external partnerships
- Green Star & NABERs targets established 2004
- Participation in Commonwealth government initiatives
Key Outcomes + Messages …

• External innovation linkages are essential
  – GBCA, other state and local authorities, research institutions, supply chain

• Timely and practical research a priority
  – Sustained effort across whole-of-government
  – Cost and market advantages – new metrics

• Range of innovation pathways
  – Product and process development and embedding outcomes in policies and guidelines
WBC13
WORLD BUILDING CONGRESS 2013
5-9 May 2013, Brisbane