

IHIE Policy Statement on Sustainability June 2009

Environmental sustainability

The Earth's resources are finite, and require careful management. Pressures on the environment include:

- Population growth
- Deterioration in land and soil
- Pollution of water
- Changing atmosphere (particularly in relation to greenhouse gases)
- Reduction in bio-diversity
- Sea level and temperature change

Key considerations include:

- Material use (including resource depletion)
- Depletion of fossil fuel reserves
- Water use (including resource depletion)
- Emissions to air and water
- Embodied energy and energy in use
- Waste disposal

Highway and transport engineers have an important role to play in “ensuring that we meet the needs of the present without compromising the ability of future generations to meet their own needs”

Sustainable construction

Construction has an impact on sustainability throughout its life cycle. Sustainable construction can be a major force in redressing the environmental balance. The construction industry's contribution to sustainability can be described as:

- *Manufactured Capital* – capital stock, construction and capital formation, longevity of built wealth

- *Human Capital* – labour force, training and skills, productivity, health and safety
- *Natural and Social Environment* – materials balance, energy balance, pollution, benefits of the built environment, sustainable communities
- *Technological Progress* – improved productivity; research and innovation, design and whole-life costing.

Sustainability for engineers

Engineers are implementing the changes needed for sustainability, in particular:

- Design for safe construction and use
- Reusing and recycling materials
- Reduction of resources through intelligent design
- Selection of materials for low environmental impact
- Efficiency of material usage
- Design for long life and future flexibility
- Design for efficient maintenance
- Sustainable Urban Drainage Systems (SUDS)
- Transport planning and sustainable developments
- Promotion and facilitation of walking, cycling and public transport options
- Engaging society and communities.

Being dedicated to process, engineers have an advantage over other professions. Their work moves logically from concept-through scheme design to construction and commissioning. For cost control, the impact on design is considered stage by stage and the same is possible for consideration of environmental impacts.



Engineering Council Guidance: <http://www.engc.org.uk/sustainability/>

The Council sets out six principles to guide engineers in achieving sustainable development through engineering:

- Contribute to building a sustainable society, present and future
- Apply professional and responsible judgement and take a leadership role
- Do more than just comply with legislation and codes
- Use resources efficiently and effectively
- Seek multiple views to solve sustainability challenges
- Manage risk to minimise adverse impact on people and the environment

RESOURCES for Highways and Transport

Carbon critical world – information for the built environment

www.cic.org.uk/activities/Co2.shtml

Recycling, sustainable materials and Site Waste management plans

www.warp.org.uk

<http://www.defra.gov.uk/enviro/fcd/policy/surfacewaterdrainage.htm>

www.ciria.com/suds/ and www.ciria.com/cwr

Sustainable choice of materials for highway works (TRL Report 2008)

www.ihie.org.uk/gateway/highway-maintenance/guidance/

Public space and climate change (CABE)

www.cabe.org.uk/default.aspx?contentitemid=2537

<http://www.sustainablecities.org.uk/>

Sustainable Development Commission

www.sd-commission.org.uk/pages/sustainable-development-and-local-decision-making-case-studies.html

Climate change and Sustainable Transport (2008)

Focuses on policy aspects of managing demand; changing behaviour; accessibility and social equality; technology and safety; and administration and finance.

www.iht.org/en/events/index.cfm/moving-people-changing-expectations

SUSTAINABILITY REFERENCES

Engineering for Sustainable Development: guiding principles

Royal Academy of Engineering (2005)

www.raeng.org.uk/news/publications/list/default.htm?TypeID=2&Item=15

Government and Constructing Excellence

Links and some tools

www.cic.org.uk/activities/sustainlinks.shtml

Joint Board of Moderators Degree Guidelines <http://www.jbm.org.uk/downloads.aspx>