

Sustainability as an Innovation Driver for Project Management

FIG Working Week 2009

Surveyors Key Role in Accelerated Development - Eilat, Israel, 3-8 May 2009

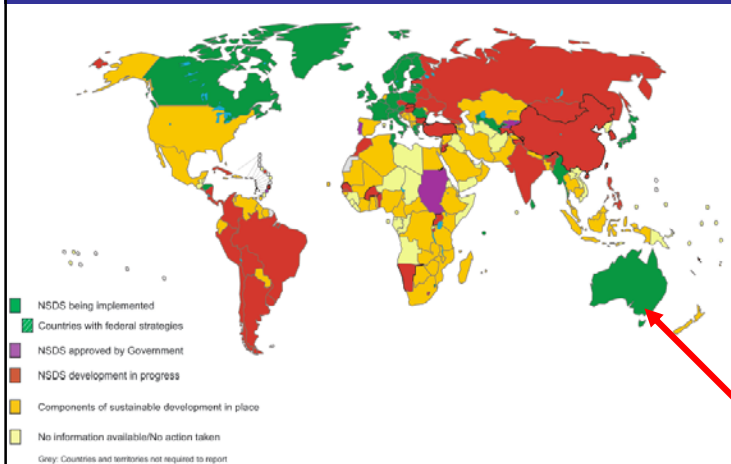
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Chair Working Group 1.3, Commission 1

Where is Victoria?



Source: <http://cultivatedpages.files.wordpress.com/2008/08/upside-down-world-map2.gif>

Where is Victoria?



Here it is!

Innovation – What is it ?

Oxford: Bring in novelties and make changes

Theodore Levitt :
*Creativity is thinking up new things.
Innovation is doing new things.*

New or better ways to do things

New products or services

New technologies to solve existing problems

Existing products & technologies to meet new needs

MAJOR FORCES DRIVING CHANGE

- Globalisation
- Global Financial Crisis
- Climate change
- Social equity /poverty alleviation
- Population structural changes
- Land tenure and policies
- Technological developments
- Sustainable development



The Winds
Of Change

Definition

- **sus·tain·a·ble**
- Capable of being sustained.
- Capable of being continued with minimal long-term effect on the environment:
sustainable agriculture.

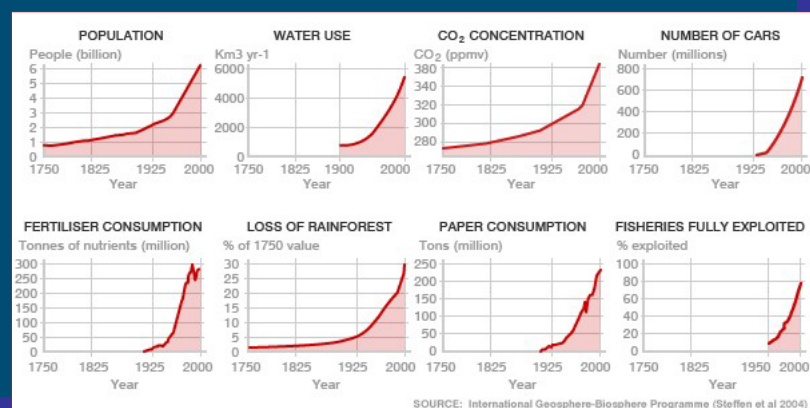
Other influences driving sustainable construction

- PROFESSION

‘Sustainability is now recognised as a key issue which much be addressed in the design, construction and life long maintenance of civil engineering structures. (Long 2007)

- CUSTOMERS
- GOVERNMENT – representing community
- PROFIT

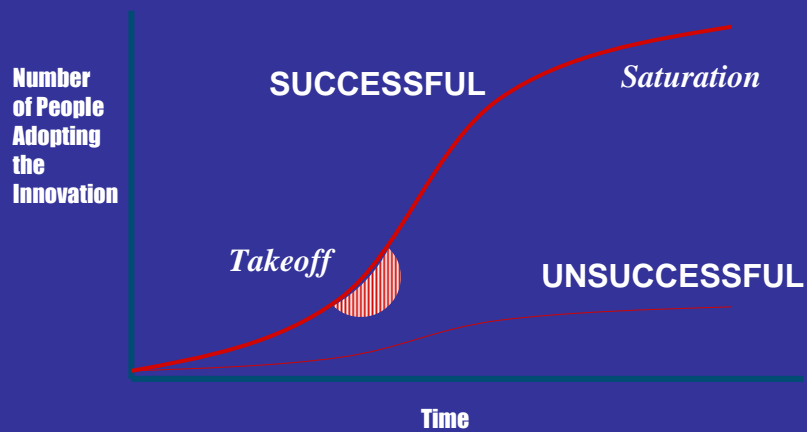
Why Care About “Sustainability”?



Because of growth ... exponentially ... against limits

Global Trend Graphs From: BBC Website, "Planet Under Pressure", 2004

The Innovation Adoption Curve



Source: Adapted from Everett Rogers, "Diffusion of Innovations," 1962, Revised 1995, Free Press

Critical Characteristics of Innovations

- (1) RELATIVE ADVANTAGE
- (2) COMPLEXITY
- (3) OBSERVABILITY
- (4) TRIALABILITY
- (5) COMPATIBILITY

Source: Everett Rogers, "Diffusion of Innovations," 1962, Revised 1995, Free Press

The “Gilman Equation”: A Strategic Change-Planning Tool

$$N - O > CC, \text{ or } \dots$$

Perceived Value of the NEW Idea — Perceived Value of the OLD Way > Perceived COST of the CHANGE

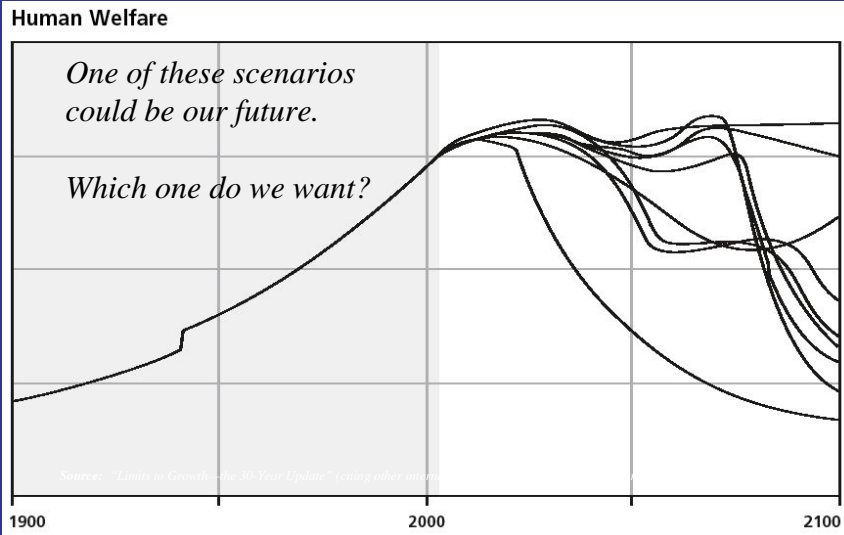
Source: Robert Gilman, cited in AtKisson, Believing Cassandra

Sustainability as a driver for innovation

- *We submit that there is now a critical mass of enabling eco-innovations making integrated approaches to sustainable development economically viable. As reported in Small is Profitable, voted as one of the three best books by the Economist magazine for 2002, ‘These developments form not simply a list of separate items, but a web of developments that all reinforce each other. Their effect is thus both individually important and collectively profound.’*
- **Hargroves and Smith, The Natural Advantage of Nations, 2005**

Possible Futures

A composite rendering of Scenarios from World3 and The Limits to Growth



Case Study – Building - Australian Environmental Rating Systems



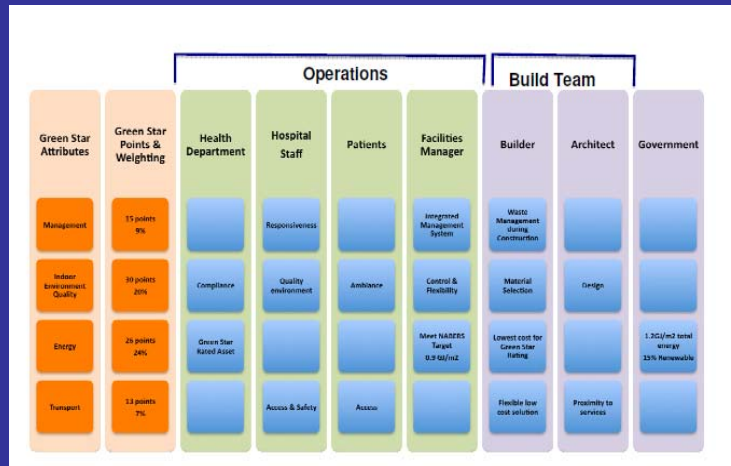
Australian Building Greenhouse Rating Energy

National Australian Built Environment Rating System
Water
Waste
Indoor Environment

Designed –
Attributes not operations

Delivered –
Measures building performance

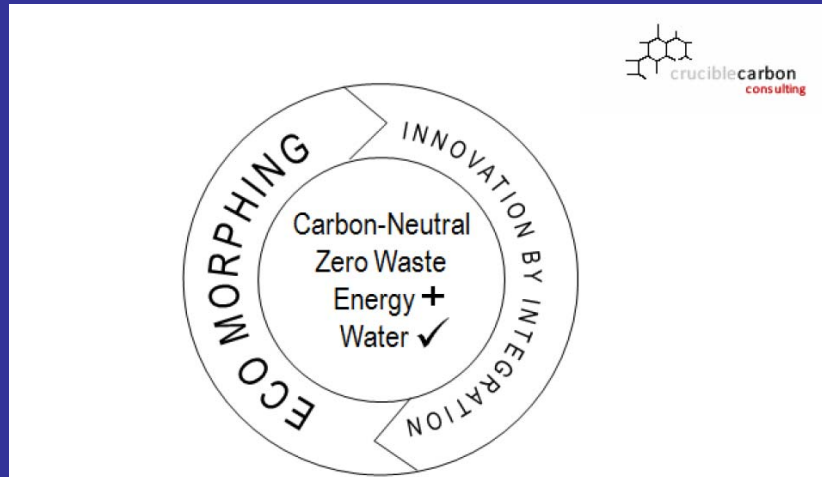
Green Star / stakeholder matrix for a firm specialising in building hospitals



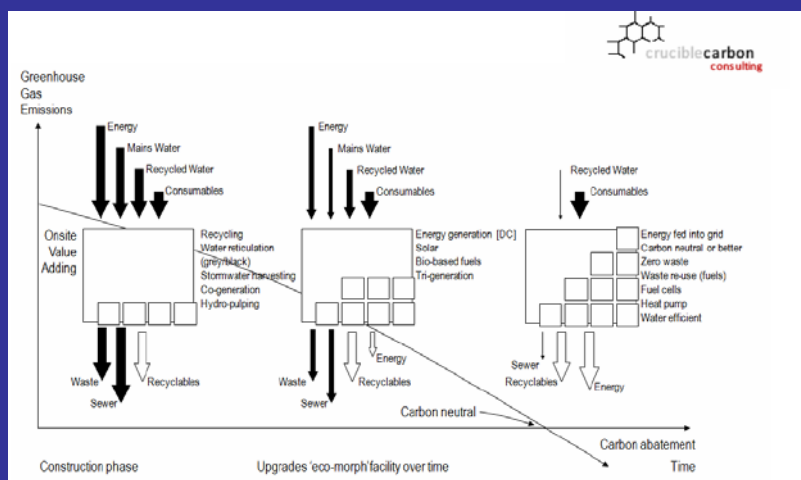
Public Private Partnership Projects – Sustainability Issues

- PPP captures value of delivery over time TODAY
- CAPEX and OPEX tradeoff's are within identified "Whole of Life" cost structure
- Asset performance deteriorates over time
- High utility assets – create continued and increased impact on infrastructure
- Maintenance of sustainability OBJECTIVES needs consideration

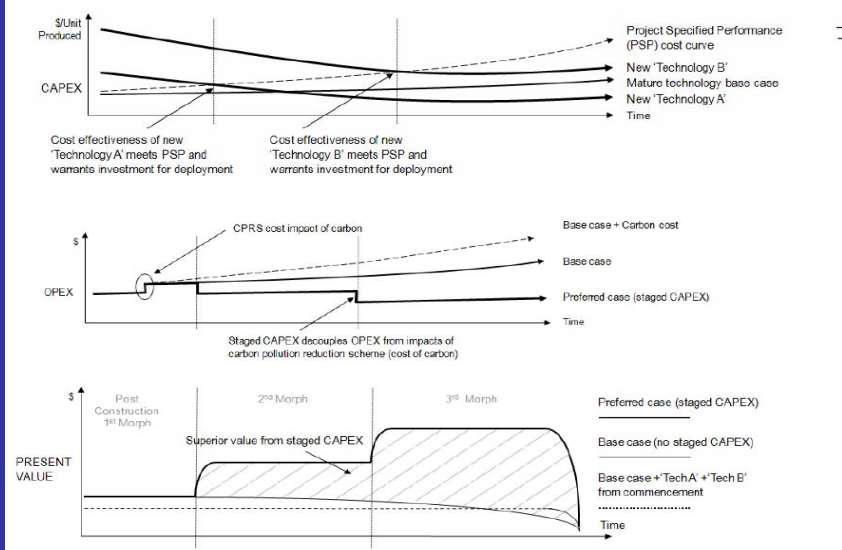
Model to drive construction



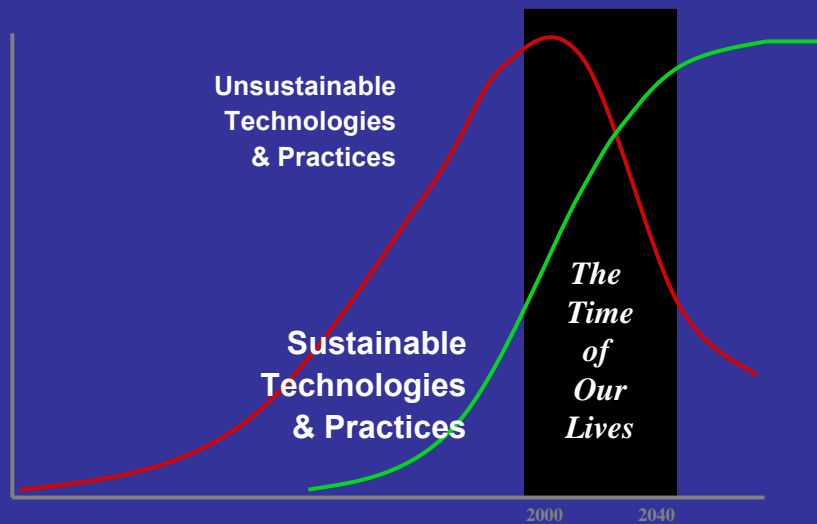
Sustainability over time



Sustainability over time



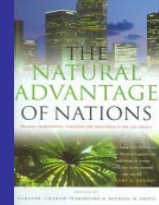
The Hope Graph:



Source: AtKisson

Want more ideas?

- The Natural Advantage of Nations (2005)
- Provides the practical details of building a bright green future providing a critical overview of our progress towards sustainability.
- Provides pragmatic examinations of best-practices in business and government; issue-wrangling essays on profitable green house solutions, greening the built environment and sustainable transportation.
- **The Natural Edge Project (TNEP)** is a Sustainability Think-Tank based in Australia. TNEP operates as a partnership for education, research and policy development on innovation for sustainable development.
- www.naturaledgeproject.net



Disclaimer: The views in this article are my own and are presented for the purpose of academic and professional Research and do not necessarily reflect the policy of views of the Department of Sustainability and Environment;

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