



RESPONSIBLE
RESEARCH
ENVIRONMENT | SOCIAL | GOVERNANCE

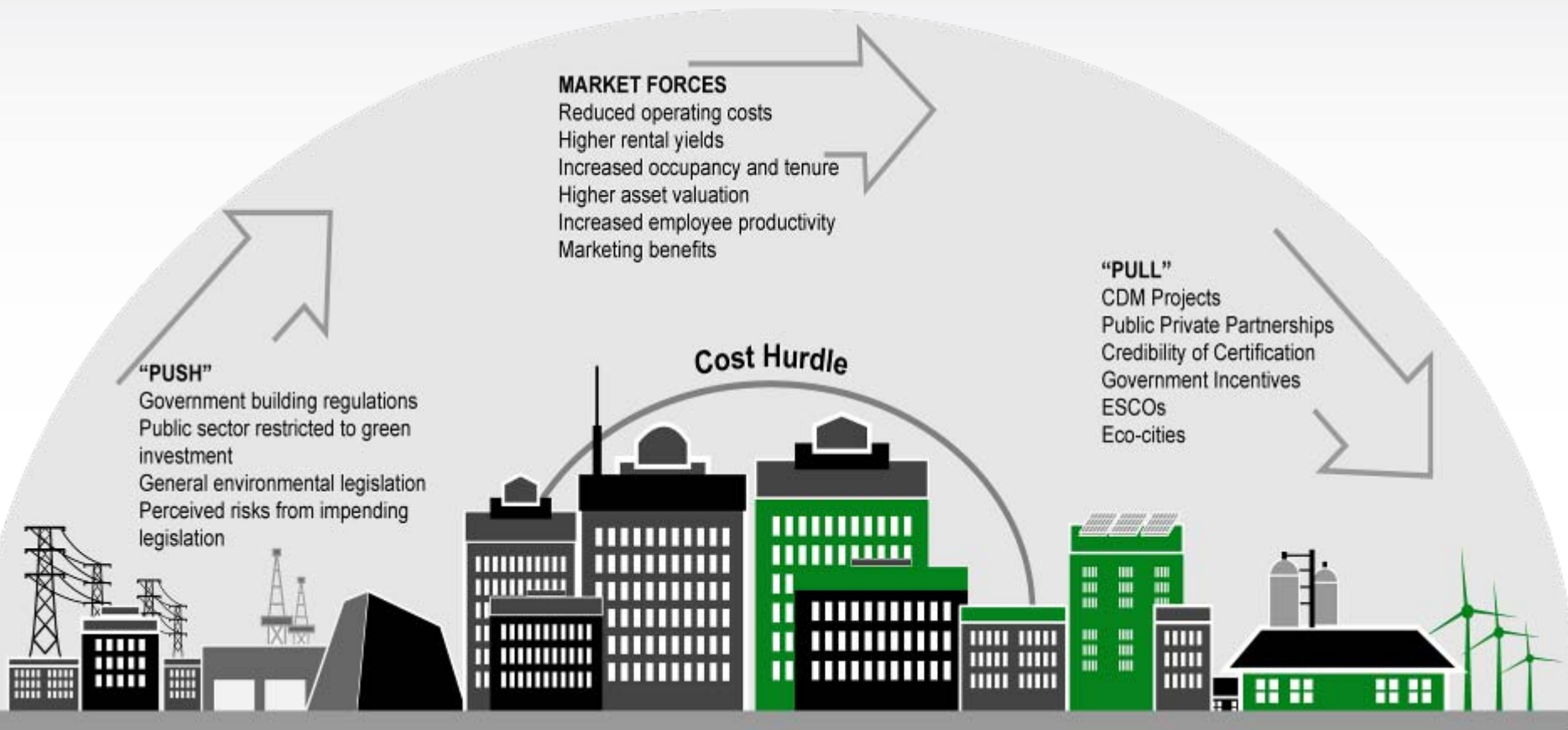
Green Building in Asia

Carbon Disclosure Forum





Green Building in Asia Report





Defining a **GREEN** building is complicated

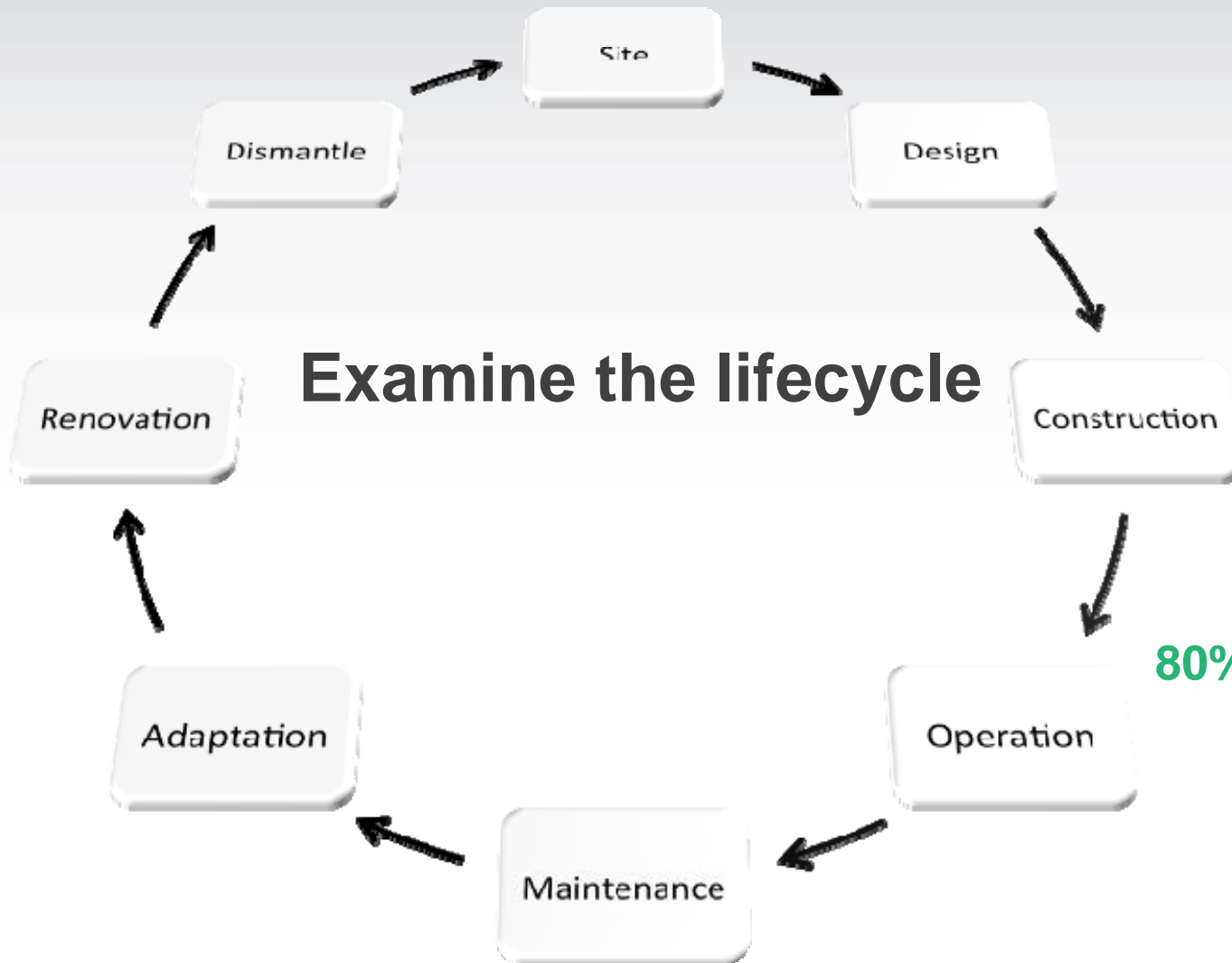
- Certification from outside Asia
 - US LEED
 - UK BREEAM
- Certification developed locally and already established
 - HK BEAM in Hong Kong
 - BCA Green Mark in Singapore
- Certification standards still being developed
 - Green Building Index in Malaysia
 - Greenship in Indonesia
 - 3 Star by MOHURD in China





Green buildings are resource efficient

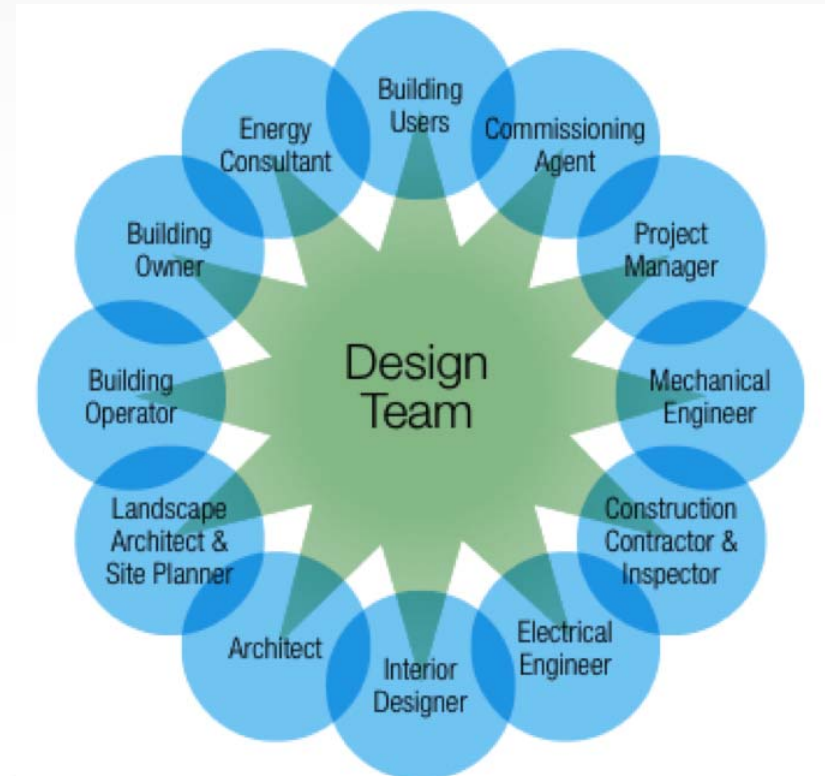
- Site selection
- Water efficiency
- Material & resources utilized
- Indoor environmental quality evaluation
- **Energy efficiency**
 - Energy use monitoring
 - Efficient design and construction
 - Efficient appliances, systems and lighting
 - Use of renewable and clean sources of energy, generated on-site or off-site





Solution integration is key

- Optimize the performance of the building
- Identify synergistic benefits that minimize energy use
 - Building orientation
 - Configuration
 - Fenestration
 - Lighting options
 - Efficient HVAC systems







313@Somerset – Lend Lease

- BCA Green Mark Platinum Award
- Compared to a Singapore code compliant building:
 - 30% reduction in electricity consumption per annum
 - 26% reduction in water consumption per annum

**Ongoing net operating income improvement for the owners
of approximately S\$930,000 per annum, a yield of 12%**



Wider commitment to energy efficiency

- Green leases – engage tenants
- Smart metering
 - Green Building Council of Australia demonstrated that billing users for what they consume can reduce energy bills by 21%
- Operational support to educate tenants
 - 30% of the total energy bill for a building is spent on lighting evaluating LUX levels and energy costs
 - Overcome resistance of relationship between light levels and sales

Market forces drive green building growth

- Reduced operating costs
 - 1.8% increase in costs resulted in operational cost savings of 10 times this figure
- Increased occupancy
 - 8% higher
- Higher rental yield
 - 3% higher per square foot (6% for effective rent)
- Higher sale price
 - 16% premium





Additional benefits being quantified

- Marketing benefits
 - MNCs choosing certified buildings in Asia
- Productivity benefits
 - CH2, 6 Star Green Star Office in Melbourne - productivity has risen by over 10% resulting in annual cost savings of AUS\$2m
- Employee retention
- Sector specific benefits
 - Hospitals – faster recovery
 - Schools – improved learning





Not just new but retrofit

- Globally, building stock is only replaced at a rate of 1-2% p.a.
- 60% of buildings standing in 2050 have already been built

% responders	Completed steps in retrofit
100%	Energy-efficient lighting and/or made more use of natural daylight in their retrofits
92%	Energy-efficient mechanical and electrical systems
79%	Improved occupancy comfort e.g. smart ventilation systems, individual thermal comfort controls
71%	Water-efficient plumbing e.g. low-flush toilets
61%	Upgraded building envelope e.g. installing high-performance windows and insulation



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Retrofit savings

Szencorp Building in South Melbourne 6 Star Green Star reported energy savings of over 70% after two years of operation





Climate change brings focus on building efficiency

- Buildings account for **40% energy use**, **20% water use** and **1/3 of global green house gas emissions**
- McKinsey and Vattenfall agree that building efficiency provides the most cost effective way to meet green house gas reduction targets.





Mitigate climate change risks

Risk	Climate change risk
Physical	Real estate negatively impacted by more frequent and more powerful extreme weather events, or by a changing climate.
Business	Real estate that does not take steps to minimise its carbon footprint will be adversely impacted by a price being put on carbon.
Regulatory	Developers who do not move to undertake sustainable building may be excluded from taking governments or NGOs as tenants or part owners.
Litigation	Companies in the building value chain that have a high level of emissions e.g. Cement manufacturers are now facing the litigation risk for high GHG emissions during the production phase.

Regulatory risk from climate change is real

- **January 2010 - US Securities Exchange Commission** approved guidelines that require companies to include material impacts of climate change laws and regulation in their corporate disclosures.

Business risk is being quantified

- At a low rate of AUS\$8 a tonne, an Australian Green Star certified building with 5 stars can save 4 million kg GHG emissions a year from design efficiency initiatives, worth about AUS\$30,000 in carbon credits.



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Voluntary disclosure is increasing



International
Organization for
Standardization

14000 - Environmental
Management System

26000 – Social Responsibility
Management System

SYSTEMS & PROCESSES



Global
Reporting
Initiative™



WORLD
RESOURCES
INSTITUTE



World Business Council for
Sustainable Development



REPORTING INDICATORS

Reporting options are increasingly sophisticated



Construction and Real Estate Sector Specific (CRESS) indicators being developed



Reporting using G3 can now be GRI checked to increase transparency & accountability



External verification now differentiating those companies that disclose to CDP



Leaders in Green Building in Asia report

- Environmental policy in place with board support
- Management system utilized company wide
- Measuring, disclosing and target setting for emissions & water
- Already leading green building projects
- Engaged in climate change mitigation debate

“Leaders” identified in Green Building in Asia report

