



The Economic Benefits of Sustainable Design

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Econ02505 Environmental
Economics Spring 2016

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Purpose of This Presentation

- The Goal of this Presentation is:
- 1 To define and identify what Sustainable Design is and entails
- 2 To gain a better understanding of the Economic factors/benefits that result from the utilization and implementation of Sustainable design
- 3 To explain how various industries and cities have used Sustainable Design and Development to enhance their respective infrastructures and respective populations.

What is Sustainable Design?

- Sustainable Design or Sustainable Development is the process and implementation of designing physical objects, the built environment, and services to comply with the principles of social, economic, and ecological sustainability.
- Sustainable Architecture is a type of architecture that is designed, created and practiced respectfully with consideration of the external environment.



The Three Pillars of Sustainable Design/Development

- 1 Economic growth,
- 2 Environmental stewardship
- 3 Social Inclusion



Polydome pilot

Polydome is a revolutionary model for sustainable agriculture. It doesn't rely on any ecologically harmful practices or fossil fuels, while being as productive as the most advanced agriculture systems out there.



Economic Benefits of Sustainable Design

- Sustainable Design/Development/Architecture has the critical advantage of being less harmful to the environment. As a result the buildings are healthier and benefit health using natural materials and low impact environmental energy resources. For Example Sustainable architecture has economic benefits because the price is often cheaper or less cost heavy in construction and materials than conventional. Sustainable design also recognizes that growth must be both inclusive and environmentally sound to reduce poverty and build shared prosperity for today's population and to continue to meet the needs of future generations.

Brooklyn Navy Yard

- The Brooklyn Navy Yard has successfully transitioned from one of the most foremost naval shipbuilding facilities to a national leader for sustainable urban industrial parks. At the Yard we saw and learned about the various green initiatives, including adaptive reuse of historic structures and materials, alternative energy projects, and green infrastructure projects for managing storm water runoff, and the sustainable practices in manufacturing employed by some of the. One such Building was Building 92, which we visited.



Building 92

- The main attraction at the Yard that complements my argument is the LEED Platinum-certified BLDG 92. BLDG 92 is a multipurpose building that has been renovated and developed into a highly sustainable functioning showcase that features like a green roof and a museum, displaying the yards history. Building 92 is a premier example of Sustainable development.



Economic Benefits of Sustainable Design

- **Example:** The Wayne L. Morse U.S. Courthouse in Eugene, Oregon was awarded the U.S. LEED Gold certification for its use of environmental enhancements and energy efficiency. Reduced irrigation through native, drought-tolerant plants combined with waterless urinals and low-flow toilets, and showerheads reduce water use by more than 40 percent, compared with a conventional facility. The building materials have a high recycled content, are regionally available, need minimal maintenance, and have low chemical emissions. This particular building has reduced energy and utility cost by over 40%. This is a primary Example of how Sustainable design has contributed to the Natural environment, while at the same time benefitting the local economy.



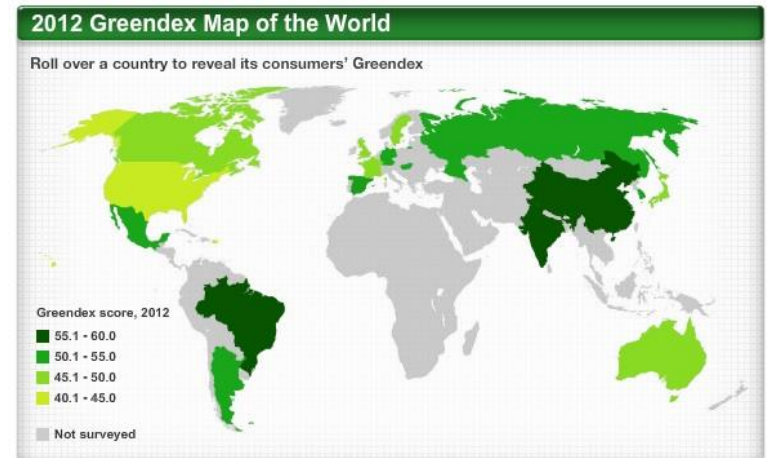
Economic Benefits of Sustainable Design

- The K2 Apartments are the most environmentally sustainable public housing development in Australia. The apartment complex uses only renewable energy and has a life span up to 200 years. Its is made partially of recycled timber and employs rainwater harvesting, grey water re-use, solar water heating and photovoltaic panels. According to the Victorian State Government's Office of Housing, its K2 apartments use 55 percent less electricity, 46 percent less gas, and 53 percent less water than conventional apartments. Exposed concrete ceilings and masonry walls help to provide stable temperatures and reduce heating needs, and expenses that that of a conventional Public housing complex.
- Double glazed windows retain heat and the limited window areas on the south, east and west reduce potential heat loss. Well insulated and sealed construction also keeps heat losses to a minimum. Individual windows ensure fresh air can be introduced in cost effective manner.



Recognition of Sustainable Practices

- Countries and industries are recognizing the value of their natural resources, and are realizing how much they can save through energy, money and supply chain efficiency.



Recognition of Sustainable Practices

- Cities and industries are embracing Sustainable design to improve on energy consumption and low-carbon growth and public transportation.
- **Example:** Alstom a French multinational company operating in the worldwide rail transport markets and active in the fields of passenger transportation have incorporated Sustainable Development and design practices to improve Global in structure.

ALSTOM

<http://www.alstom.com/about-us/sustainability/our-technologies-and-solutions/design-process/>



Sustainable Cities

- Harkening back to the three pillars of sustainable development previously discussed— economic growth, environmental stewardship, and social inclusion, Various cities around the world have implemented various Sustainable practices to accomplish reaching these goals.



Vancouver B.C.

- A Primary example is in Vancouver BC. Vancouver's Green Development has grown exponentially in less than a decade, including seven subsectors ranging from Local food to Green building design and construction to lean technology, alternative energy and green building products



Vancouver

- Vancouver's Green Development has grown exponentially in less than a decade, including seven subsectors ranging from Local food to Green building design and construction to lean technology, alternative energy and green building products. Local food is the largest subsector of Vancouver's green development and design. For example, currently Vancouver's greatly expanded network of local farmers' markets and Urban Farms now provide a \$15 million benefit to the local economy, a significant jump over sales in 1994, the first year of operation, when markets earned \$40,000 over 11 weeks.

Sole Foods Street Farm Vancouver

https://www.youtube.com/watch?v=i0_PNVegIC4



Sole Foods Street Farm Vancouver

- Vancouver's Sole Food Urban Farm initiative includes a network of farms throughout the city that are providing meaningful employment to 25 individuals who are dealing with drug addiction and mental illness. The farms are supplying fresh food to city residents, and presenting a successful credible model of high quality innovative agriculture within the urban context. With healthier Food choices Vancouver's residents don't have to purchase processed food, which can be usually costly, in our current economy .



- Vancouver is not the only City maximizing sustainable Designs to benefit its people and Economy. Various cities around the world including San Francisco and NYC have made tremendous effort in implementing sustainable practices, and are at various stages of development to accomplish this.

San Francisco's New Sustainable Civic Center



Conclusion

- Sustainable design and development has a tremendous long lasting impact on people, as well as the natural environment. Through integrated design and innovative use of sustainable materials and equipment, the first cost of a sustainable building Development and design can be the same as, or lower than, that of a traditional building. This leads to the conclusion that Truly sustainable design is much more than an obscure trend employed by industries and regions, but rather a tool used to shape the future, a future that benefits people and most importantly the environment.



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