

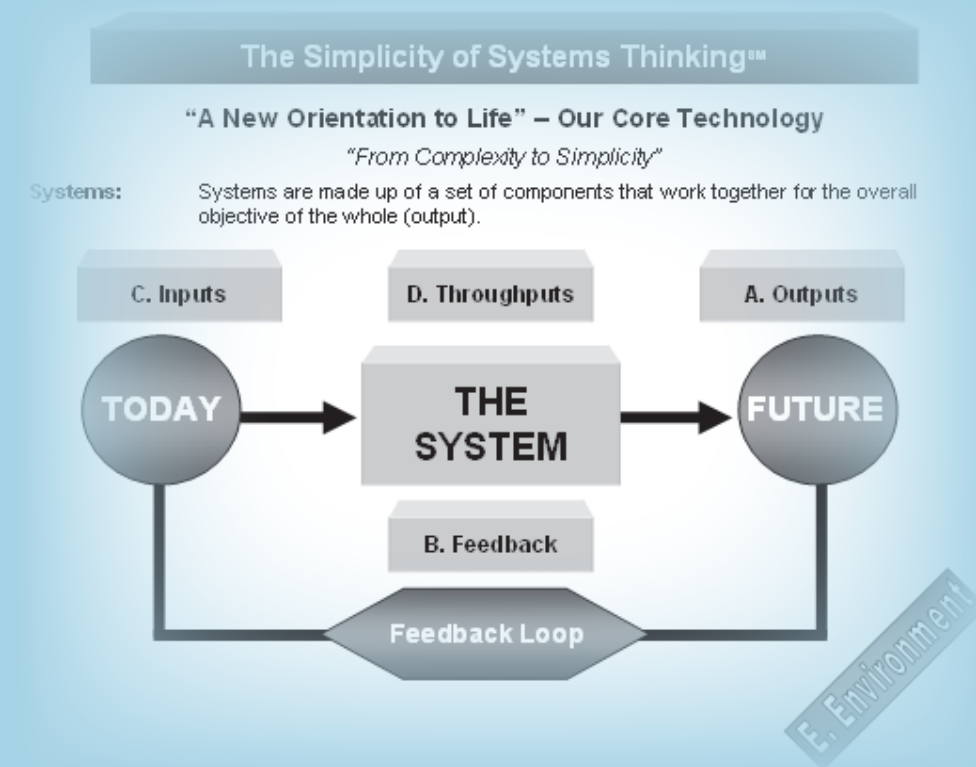
System Integration: The Challenges Defined

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Eco-Balance for the Future

Sustainability looks at a society that is in balance with the earth's ecosystems which could be maintained. Sustainability hasn't been necessary until recent years because the human race showed that they could "significantly alter the individual and combined ecosystems of the Earth." People practice short term sustainability by avoiding things that could harm or injure the ecosystem. The society today plans five to ten years in advance to maintain a healthy society that doesn't damage the earth's ecosystems. What is needed is to look further ahead, generations, to truly manage the ecosystem and to put a stop to the damage already done. There are several programs created to do this exact thing, looking generations ahead, to be sustainable.

One of these is the 2030 challenge to stop global warming. (<http://ww2.whidbey.net/jameslux/sustain.htm>)



CHALLENGES

2030 Challenge to stop global warming

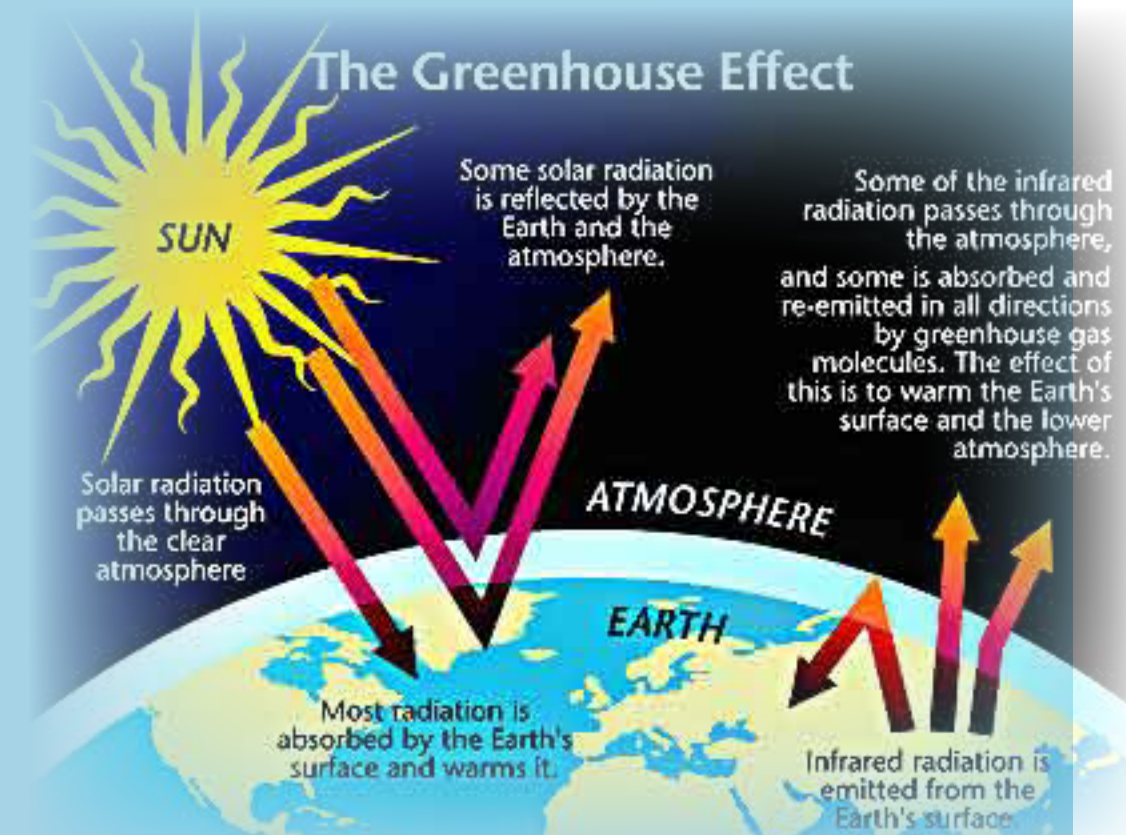
What is known as global warming is currently at 0.7°C above pre-industrial levels. It is said to avoid dangerous climate change we need to keep global warming below 2°C above pre-industrial levels. And at 3°C we could see catastrophic climate change. The point of the 2030 challenge is to stop global warming where it stands, and to do this the carbon emissions from everything we use needs to be cut back significantly. The 2030 Challenge is asking the global architecture and building community to adopt the following targets:

- That all new buildings be designed to meet a fossil fuel, greenhouse gas (GHG) emitting, energy consumption performance standard of 50% of the regional (or country) average for that building type.
 - At a minimum, existing buildings be renovated annually to meet the above requirements (at 50%).
 - That the fossil fuel reduction standard for all new buildings be increased to:
 - 60% in 2010
 - 70% in 2015
 - 80% in 2020
 - 90% in 2025
- Carbon-neutral by 2030 (using no fossil-fuel GHG-emitting energy to operate) (http://www.architecture2030.org/open_letter/index.html)

Ecological literacy in Higher education:

With higher education the 2010 initiative has been created to have zero carbon emissions. According to Architecture 2030 these are the goals for the higher education of the 2010 initiative:

1. Beginning in 2007: "all projects be designed to engage the environment in a way that dramatically reduces or eliminates the need for fossil fuels"
 2. By 2010: Achieve complete ecological literacy in professional design education
 3. By 2010: Achieve a carbon neutral design school campus
 - implement sustainable design strategies
 - generate on-site renewable power
 - purchase renewable energy and/or renewable energy credits
- (<http://www.architecture2030.org/>)



The Cooper-Skinner site would help meet the above challenges through educational and research based programs. The site itself would be managed by a land use program based on sustainability. Projects such as the straw bale house would be used to educate the public about eco-balance and reducing pollution produced by buildings. These projects would also contain a research component. Through careful study of the site's interaction with the suggested programs, greater knowledge would be provided on the best ways to address environmental problems. The site would also be integrated into a feed forward-feed backward system and connect to similar systems throughout the United States. In effect, the Cooper-Skinner site would become a Land Design Institute LandLab Green Technologies Laboratory that would advocate eco-balance education, research and demonstration areas, and display eco-efficient and eco-effective design. The Cooper-Skinner site would be one piece of a larger collaboration of sustainable design.

LAND LAB



In the United States, buildings account for:
 39 % of total energy use
 12 % of the total water consumption
 68 % of total electricity consumption
 38 % of the carbon dioxide emissions



SUSTAINABILITY KNOWLEDGE

BEST PRACTICE

Best Practice is a management idea which states that there is a technique, method, process, activity, incentive, or reward that is more effective at delivering a particular outcome than anything else. The idea is that with proper processes and testing, a project can be created and completed with fewer problems and complications. It is a philosophical approach based around continuous learning and continual improvement.

ZERI

Zero Emissions Research & Initiatives is a global network seeking solutions to world challenges. Their common vision is to view waste as a resource and find solutions using nature's design principles as inspiration. They seek sustainable solutions for society, including unreached communities all the way to corporations.

LEED

The Leadership in Energy and Environmental Design (LEED) Green Building Rating System is nationally accepted benchmarks for the design, construction, and operation of high performance green buildings. LEED gives building owners and operators the tools they need to have an immediate measurable impact on their buildings' performance. LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality.

GREEN BUILDING

Green building (sustainable building) is the practice of increasing the efficiency with which buildings and their sites use and harvest energy, water, and materials, and reducing building impacts on human health and the environment, through better siting, design, construction, maintenance, and removal—the complete building life cycle. This practice can lead to benefits including reduced operating costs by increasing productivity and using less energy and water, improved public and occupant health, and reduced environmental impacts.

SMART GROWTH

Different environmental organizations, government agencies, and interest groups define smart growth in their own ways to achieve their particular missions and goals, but they do agree on these three elements: the importance of resource preservation, transportation choices, and community. The six broad elements of the smart growth agenda are: natural resource preservation, transportation, housing, community development, and planning economic development. Smart growth answers the questions of "how and where should new development be accommodated" by simultaneously achieving healthy communities, economic development and jobs, strong neighborhoods, and transportation choices.

