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Event Schedule:

Check-In 3:30

Gallery: Interactive Session on Climate Change with WUSTL Students 3:30–6:00

Prospects for Citizen Watershed Modeling and Green Infrastructure Siting in the St. Louis Region 4:00–4:45

Climate Change in the Midwest: Challenges and Responses 5:00–5:45

Talanoa Dialogue on Climate Change 6:00–7:00

Social Ecological Systems for Spatial Design

What is the class about?

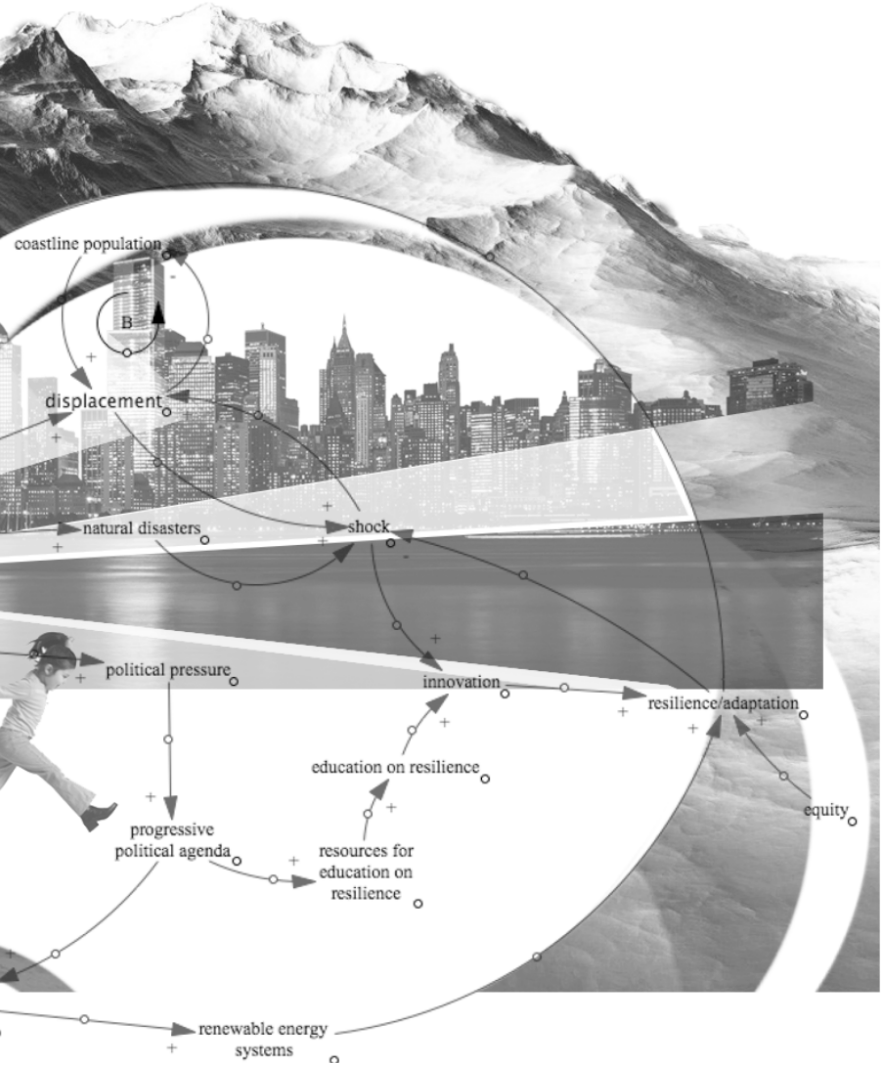
Climate change and the rapid destruction of biodiversity pose existential threats to the functioning of human society in the 21st century.

The goal of this course is to empower spatial designers to implement sustainable relationships with the earth's biosphere and the social systems it supports.

Through readings, designs, and dialogue, we aim to:

- Name the major causes of climate change including primarily contributing sectors and industries.
- Communicate about major climate change impacts.
- Define climate change adaptation and mitigation and the relationship between them.
- Articulate the fundamental strategies for climate change adaptation and mitigation focusing on urban systems and cities.
- Understand, apply, critique, and contribute to theories and methods of Social Ecological Systems and Ecological Economics.
- Critically utilize systems dynamics modeling and ecological economics to propose interventions and programs which target leveraged systemic change.
- Read a variety of literatures on the implications of climate change on social ecological systems.
- Develop and communicate climate change action using a variety of methods and literatures (drawings) focused on climate action

Model created by students in Washington University in St. Louis' summer 2017 "Global Urbanism(s)" Johannesburg studio.


coastline population
B
displacement
natural disasters
shock
political pressure
innovation
resilience/adaptation
education on resilience
equity
progressive
political agenda
resources for
education on
resilience
renewable energy
systems

Climate Change

What is climate change?

The earth's environmental issue—global average temperature is now changing at a faster rate than at least over the past 800,000 years.

Five major countries contributed two-thirds of the world's CO2 emissions: the United States, European Union, China, Russian Federation and Japan.

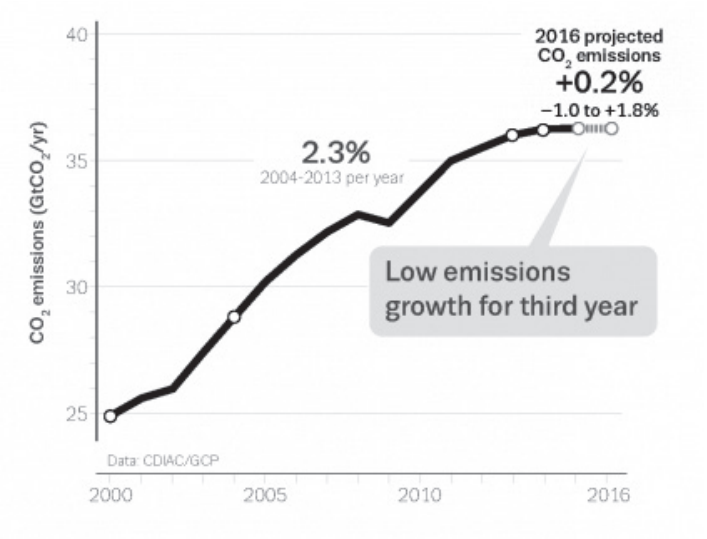
Talanoa Dialogue:

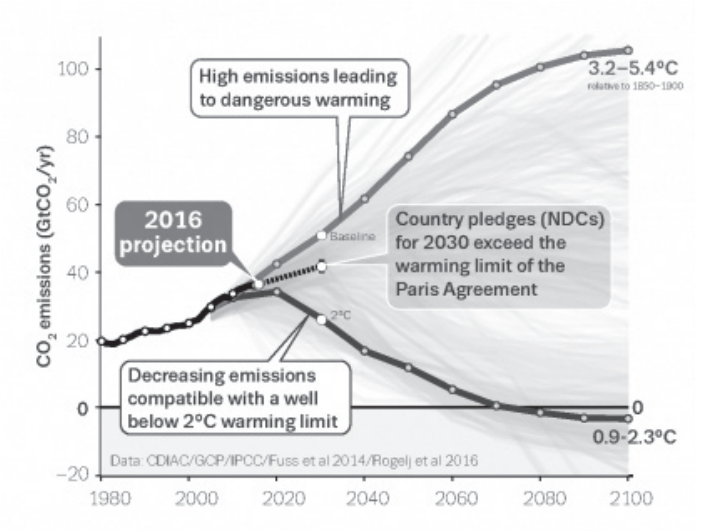
Launched at the 2017 UN COP23 to help communities implement the Paris Agreement by asking these questions:

Where are we?
Where do we want go?
How do we get there?

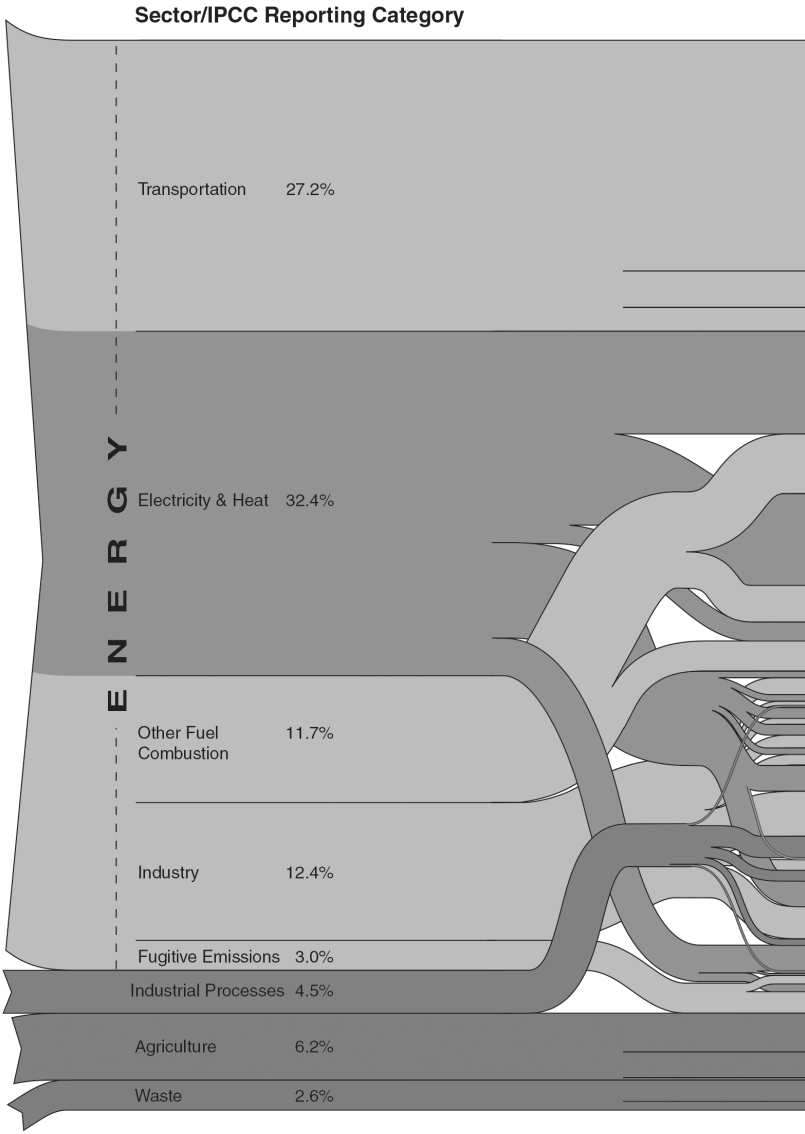
Talanoa is a traditional word used in Fiji and across the Pacific to reflect a process of inclusive, participatory and transparent dialogue. The purpose is to share stories, build empathy and to make wise decisions for the collective good by sharing of ideas, skills, and experience through storytelling.

Graphs of Global CO2 Emissions
(Before and After Paris Agreement)

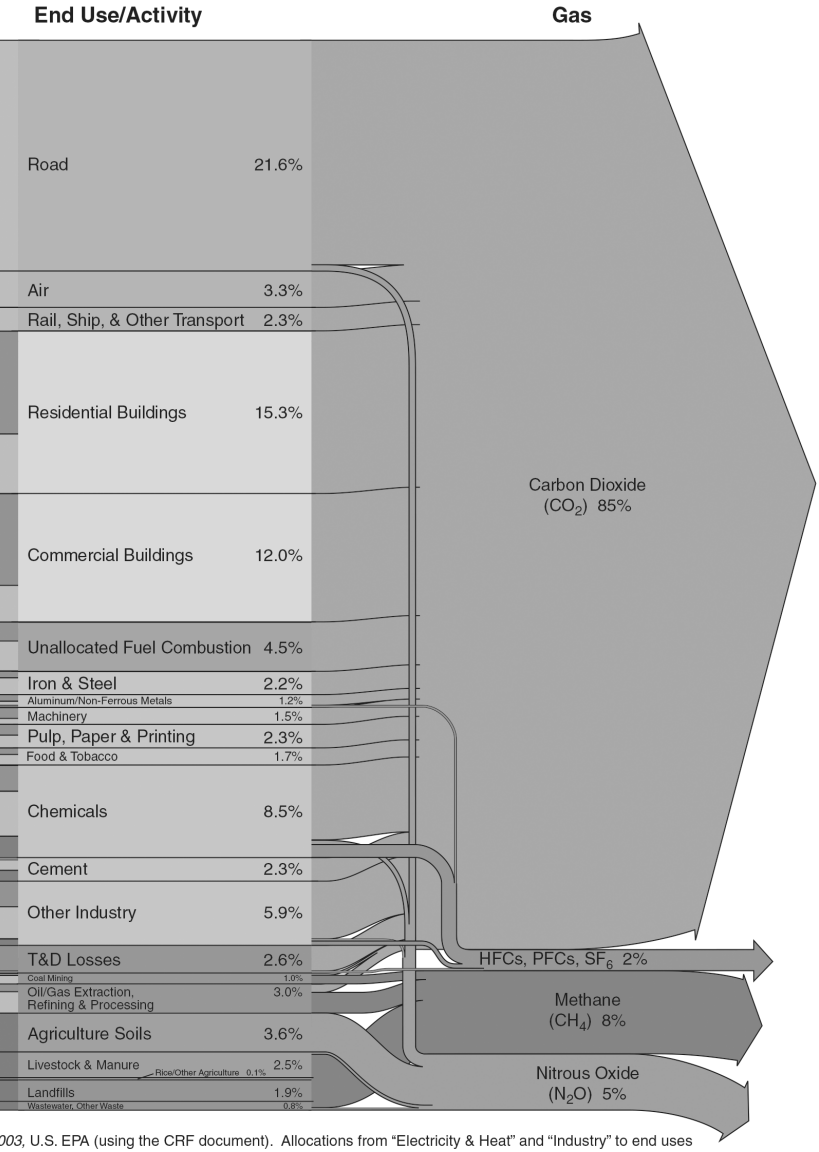




U.S. GHG Emission Flow Chart
Model created by the World Resources Institute



Sources & Notes: Emissions data comes from the *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2*
are WRI estimates based on energy use data from the International Energy Agency (IEA, 2005). All data is for 200
(1996), based on total U.S. emissions of 6,978 $MtCO_2$ equivalent. Emissions from fuels in international bunkers are
Emissions and sinks from land use change and forestry (LUCF), which account for a sink of 821.6 $MtCO_2$ equivalen



003, U.S. EPA (using the CRF document). Allocations from "Electricity & Heat" and "Industry" to end uses
3. All calculations are based on CO_2 equivalents, using 100-year global warming potentials from the IPCC
included under Transportation. Emissions from solvents are included under Industrial Processes.
t, and flows less than 0.1 percent of total emissions are not shown.

Green New Deal

What is the Green New Deal (GND)?

A congressional resolution that lays out a grand, national plan for tackling climate change.

What are the GND's goals?

- reduce greenhouse gas emissions in order to avoid the worst consequences of climate change
- have the US reach net-zero emissions by 2050
- fix societal problems like economic inequality and racial injustice

What is the progress of the bill right now?

The Senate voted and turned down the bill on March 26. Alexandria Ocasio-Cortez is now drafting smaller related bills to propose in the future.

Source:
Klein, N., & Crabapple, M. (2019, April 17). A Message From the Future With Alexandria Ocasio-Cortez. Retrieved April 26, 2019, from The Intercept website: https://theintercept.com/2019/04/17/green-new-deal-short-film-alexandria-ocasio-cortez/

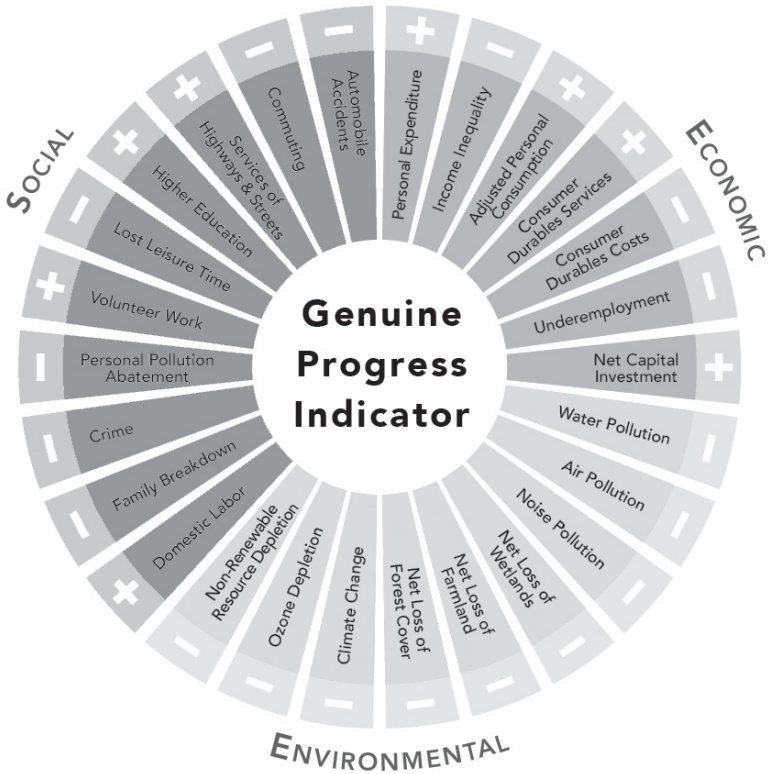
Ecological Economics

What is ecological economics?

A more inclusive, activist approach to economics.

Ecological economics seeks to ground economic thinking inthe dual realities and constraints of our biophysical and moral environments. It seeks not only to explain how the world works, but also to propose mechanisms and institutions for making it work better.

Key view: the economic system is a part or sub-system of a larger global ecosystem that sustains it.


Genuine Progress Indicator
SOCIAL
ECONOMIC
ENVIRONMENTAL
Automobile Accidents
Commuting
Services of Highways & Streets
Higher Education
Lost Leisure Time
Volunteer Work
Personal Pollution Abatement
Crime
Family Breakdown
Domestic Labor
Non-Renewable Resource Depletion
Ozone Depletion
Climate Change
Net Loss of Forest Cover
Net Loss of Farmland
Net Loss of Wetlands
Noise Pollution
Air Pollution
Water Pollution
Net Capital Investment
Underemployment
Consumer Durables Costs
Consumer Durables Services
Adjusted Personal Consumption
Income Inequality
Personal Expenditure

System Dynamics

What is system dynamics (SD)?

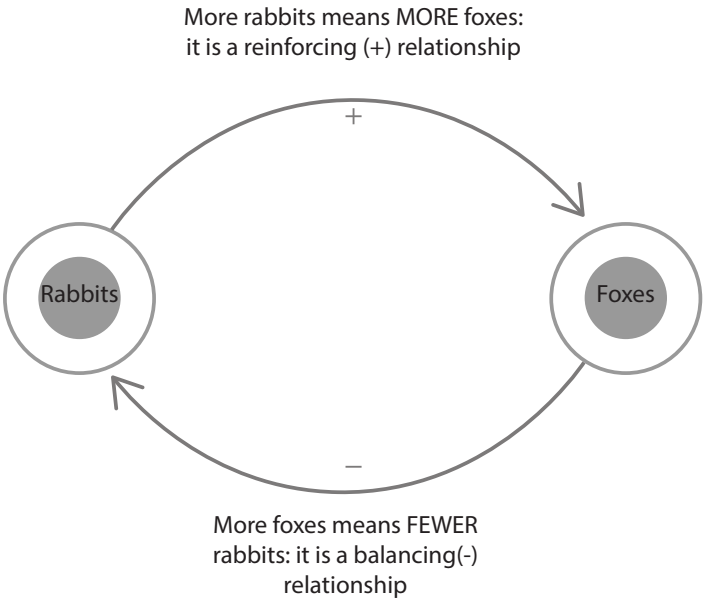
A system is a set of things—people, cells, molecules, or whatever—interconnected in such a way that they produce their own pattern of behavior over time.

System dynamics is a method for understanding, designing, and managing change. It models the relationships between elements in a system and how these relationships influence the behavior of the system over time.

What is community-based system dynamics (CBSD)?

CBSD is a participatory method for involving communities in the process of understanding and changing systems from the endogenous or feedback perspective of system dynamics.

Example of a Dynamic System Model:



Loopy Software and Model developed by Nicky Case https://ncase.me/

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Presented by Social Ecological Systems for Spatial Design, a course examining climate change and biodiversity loss through the lens of social ecological systems and ecological economics.

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Thank you for coming!