



SystemSketch

Making Systems Thinking Intuitive Making Decision Pathways Visible

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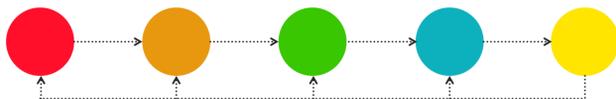
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- Wetlands Habitat
- Vulnerability to Natural Disaster
- Urban Green Space
- Streams & Rivers
- Schools, Parks & Playgrounds
- Prairie Habitat
- Mangroves
- Landfill
- Lakes & Ponds
- Green Infrastructure
- Freshwater Habitat
- Forests
- Agricultural Land
- Wetland Conversion
- Urbanization
- Urban Abandonment
- Sprawl
- Solid Waste Disposal Sites
- Shoreline Armoring
- Shoreline Alteration
- Road Development
- Littering
- Land Development
- Coastal Land Loss

- Perception of safety
- Population Demographics & Distribution
- Open Space
- Community Population Size
- Community Diversity & Distribution
- Commercial/Residential Mix
- Age Demographics & Distribution



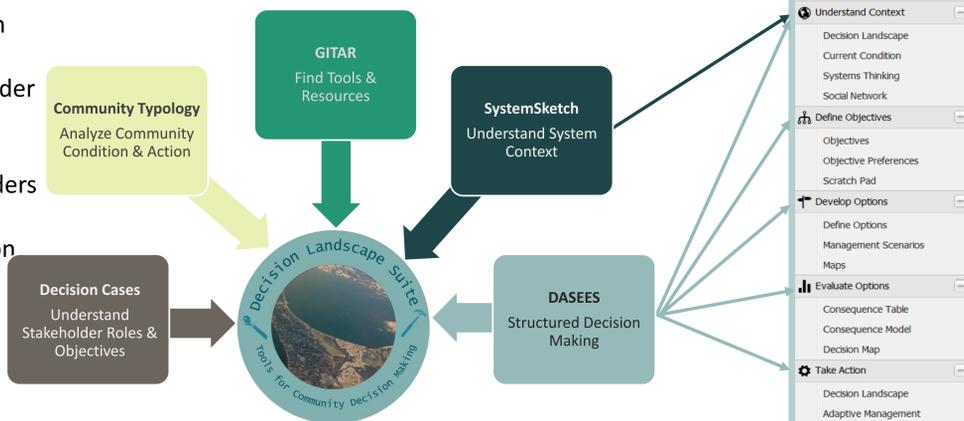
- Urban Habitat
- Schools, Parks & Playgrounds
- Roadway Distribution
- Public Transit Ridership
- Public Space
- Property Values
- Population Density & Density Distribution
- Open Space
- Mobility
- Landfill
- Impervious Surfaces
- Housing Stock
- Historic Sites & Structures
- Green Infrastructure
- Forests
- Cover & Distribution
- Communities
- Commercial/Residential Mix
- Cleanup sites
- Built or Constructed Environment
- Brownfield
- Arctic Habitat
- Agricultural Land
- Aging Structures
- Urbanization
- Urban Abandonment
- Sediment Runoff
- Road Transportation
- Nutrient Runoff
- Non-Point Source Runoff
- Impervious Surface Runoff
- Deforestation & Devegetation
- Contaminant Runoff
- Choice of Community

SystemSketch is a dynamic, graphic visualization tool to help stakeholders better understand system context and access information resources. It is constructed using the Driver-Pressure-State-Impact-Response framework, and functions both as a stand-alone tool and as a component in DASEES (Decision Analysis for Sustainable Environment, Economy, and Society), allowing users to better analyze decision options and tradeoffs.

SystemSketch within Decision Landscape Suite

SystemSketch is part of the **Decision Landscape (DL) Suite**, which contains an array of tools and information products that can be used to understand and support decision making processes in order to increase community sustainability. It aims to use the digital information infrastructure of the twenty-first century to communicate sustainability science and information to stakeholders quickly and intuitively. DL Suite is intended to approach sustainability through integration of knowledge and consideration of the many perspective of diverse stakeholders and decision makers. DL Suite is designed to be

- **Interoperable**
- **Expandable**
- **Open Source**



System Sketch is used for Step 1 in the DASEES tool as well as a stand-alone application

Decision Analysis for Sustainable Environment, Economy, and Society (DASEES) is a tool that guides decision makers through a formal, five-step Structured Decision Making (SDM) process to make very specific decisions affecting community sustainability outcomes. By integrating science and fact-based information with stakeholder-derived values, DASEES can improve communities' deliberative and analytic capacity.

Driver-Pressure-State-Impact-Response (DPSIR) Framework

Drivers are the social, demographic, and economic forces that affect production patterns, consumption, and lifestyles.



Drivers exert **Pressures**, which are human activities that create stress on environmental or human systems.



Pressures affect the **State**, which describes the condition of both environmental and human systems at any given point in time.



Changes in the State **Impact** human well being either directly or through changes in ecosystem services.



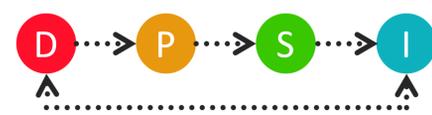
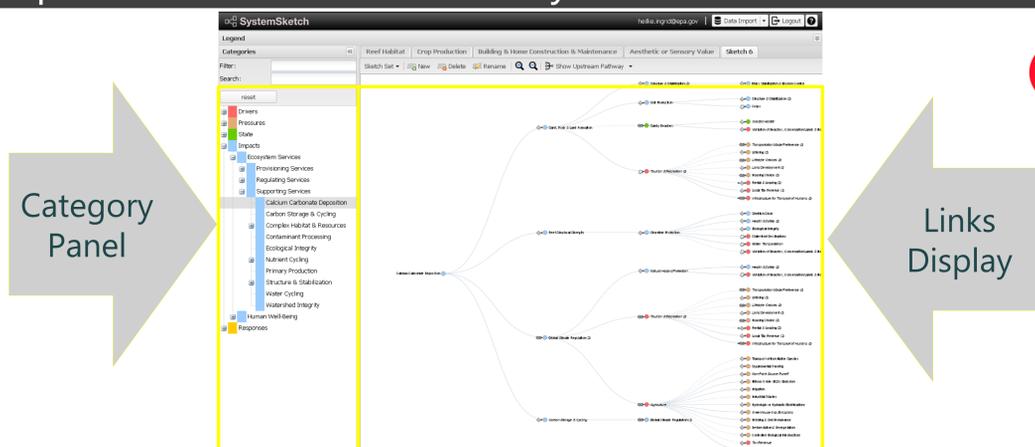
Humans **Respond** to impacts in a variety of manners. Response can be targeted at any area of the system.



Examples of Responses include:
Environmental management
Planning
Public policy & regulation
Education & outreach
Behavioral Change

Representation of Content in SystemSketch User Interface

- Content organized categorically
- Over 800 distinct nodes
- Can be searched or filtered
- Good for browsing or searching content



- Represents causal relationships
- Contains ~7,000 causal linkages
- Is where user defines boundaries (areas of importance) for their decision process

How can SystemSketch be Used to Increase Community Sustainability?

Practice-based Applications

- Understand decision context, including
 - Unintended consequences of management decisions
 - Long-term challenges
 - Alternative perspectives or impacts not previously considered
- Collaborate or build consensus
- Write or update comprehensive plans or management plans
- Decide what/how to measure
- Explore options for management or action
- +++

Research-based Applications

- Construct research design or system model
- Framework for analysis or synchronization of research or decision support tools to maintain a systems perspective, including:
 - Synchronize/crosswalk....
 - Index...
 - Query...
 - Analyze...
- ...Multiple models
- ...Qualitative datasets
- ...Compilations of information
- ...Compilations of resources
- ...+++

SystemSketch is Available for your Community Decision Process or Research Project

SystemSketch is currently available in a beta-test version. Contact heilke.ingrid@epa.gov for a username and password. Please provide a brief description of your intended use so that we can continue to develop SystemSketch and other decision support tools to meet your needs.

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