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science in ACTION

INNOVATIVE RESEARCH FOR A SUSTAINABLE FUTURE





SUSTAINABLE AND HEALTHY COMMUNITIES RESEARCH

Background

Community sustainability is often defined by the desire to meet today's needs without compromising the quality of life for future generations. However, as communities are faced with real difficulty meeting "today's needs," making progress on sustainability often requires helping them find strategies that improve conditions in both the short and long term. The challenge is to help them identify the right mix of policies and investments that protect our shared environment, while improving public health, supporting economic recovery, making the most efficient use of public dollars, and enhancing quality of life for a broad range of residents.

Providing science to answer the questions that help communities make progress is at the heart of EPA's Sustainable and Health Communities (SHC) research program.

Whether a community is growing or losing population, using a systems-approach, that is considering the total resource impacts and outcomes (TRIO) of any decision, can help move communities to a more sustainable future, especially when resources to support change are limited. EPA's Sustainable and Healthy Communities research aims to help community leaders make decisions that meet their needs in a way that preserves the environment and enhances human health and well-being. Researchers are engaging community leaders, non-governmental organizations and other stakeholders to better understand the challenges they face and to provide them with effective approaches to improving their communities.

Through the use of innovative, user-friendly methods and tools, EPA is supporting community leaders to make decisions that better protect human health and well-being while preserving ecosystems and the vital services they provide, such as clean air and water, food and fiber production, etc.

Research Focus Areas

Sustainable and Healthy Communities research is focused on four themes:

1. *Data and tools to support sustainable communities*

This research will provide communities with data, methods, and computer applications that can inform decision making and track progress made towards meeting community goals and improving sustainability.

Web-based decision support tools will allow local managers and stakeholders to visualize and analyze the consequences of policy decisions. Flexible, interactive tools and comprehensive environmental and socio-economic data will enhance the ability to weigh the full suite of decision trade-offs , by considering the interactions between ecosystem services, human health and well being, and the costs and benefits of management policies.

To measure the effects of decisions, EPA scientists will help communities identify and develop indicators to evaluate the status of the environment, diagnose problems, and track the performance of various approaches.

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For example:

- (QYLLRAtlas will display and allow interactive analysis of spatial data on environmental conditions, human health statistics, and socio-economic factors for communities across the country. More detailed data for urban areas can be used to identify local issues and evaluate potential solutions.

2. *Forecasting and assessing ecological and community health*

Ecosystems provide goods and services that are vital to communities, such as water filtration, temperature moderation, flood regulation, food and fiber production, or recreational use of green space. Knowing the benefits and value of these ecosystem services can help communities factor in the implications of lost services and the costs of replacing crucial functions that support viable economies and human health and well-being. Complementary research will generate human exposure factors and public health information to screen for cumulative risk to chemical contaminants along with guidance on how communities might improve public health outcomes. This information will enable decisions that improve public health, including that of children and other vulnerable groups, while fostering equity and environmental justice.

For example:

- SHC is creating a standardized classification system for ecosystem goods and service metrics to enable comparison across different places and different circumstances. This will allow improved assessment of impacts and mitigation (e.g. trading).
- SHC will develop age-specific exposure factors and health metrics for assessing children's risks. SHC will also create web-based community-focused tools that bring exposure and health data together for analysis to allow screening and proactive decision-making.

3. *Near-term approaches for sustainable solutions*

SHC will conduct highly focused research in important areas such as contaminated sites, nitrogen management, and waste and materials management. This research will help communities develop sustainable solutions to environmental problems and prevent pollution of air, land and water by enabling decisions that avoid unintended and undesirable consequences.

For example:

- SHC will examine how contaminants in sediments accumulate and travel through the food chain, especially for fish that will be consumed. This information will help determine the best management options for contaminated sediments.

4. *Integrated solutions for sustainable outcomes*

Research will focus on addressing problems that are widespread across communities in the U.S. by emphasizing improvements in land-use management practices, buildings and infrastructure, transportation systems and waste and materials management. These comprehensive approaches are geared towards helping communities overcome barriers to sustainability in an integrated way.

For example:

SHC will use reports on the state of the science and practice for four important community decision areas as the foundation for a method to comprehensively evaluate costs and benefits of local actions on nature's functions and human health and well-being. This information will provide communities with an awareness of how their actions can have adverse impacts or ripple effect benefits, and support better decisions.

To test these approaches and tools, EPA is collaborating with the community of Durham, North Carolina to help support community leaders with decision making that can better meet their goals. This collaboration will help EPA assess and adapt its research to assist a variety of communities.

Web site:
http://www.epa.gov/research/ecoscience/
http://www.epa.gov/research/healthscience/
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