

Goal 5 Anticipate Future Environmental Issues

Goal Statement

ORD will evaluate opportunities for and, as appropriate, will conduct research to anticipate and assess future environmental stressors—whether human health or ecological—before their effects adversely impact people or the environment.

What This Goal Means

In 1995, EPA’s SAB published a report, *Beyond the Horizon: Using Foresight to Protect the Environmental Future*. In this report, the Board stated that “by engaging in environmental foresight, the American people can better understand the full range of risks and opportunities—environmental and economic—possible in the future and then better define the actions needed today to reduce the risks and preserve the opportunities.” The panel made several recommendations recognizing the importance of understanding and managing future risk, establishing early warning systems, and calling for an EPA-led national effort to anticipate and respond to environmental change.

Goal 5 is to foresee future environmental stressors and understand or reasonably predict their potential impacts so that EPA can take action to prevent or avoid these impacts rather than just respond to them. Under this Goal, we will undertake a systematic “foresight” effort focused on potential issues 10 to 20 years into the future. In contrast, our current research planning and budgeting processes focus on a time horizon of approximately three to eight years.

The “foresight” approach has two parts in which ORD, working with the broader scientific community, EPA programs, regions, futurists, stakeholders, and the public, will:

- Search for detectable early warning signals and extrapolate them into the future; and

- Identify new issues for which an early warning signal does not currently exist.

By building capacity in this area, we expect to identify and understand potential future risks to human health and the environment, recommend new directions for research and program management decisions, and identify innovative, cost-effective solutions and alternatives through an ongoing futures program.

Our futures effort will be realistic in scope and focused primarily on workshops and information gathering rather than actual lab and field research. The work will focus on carefully selected issues for which the outcome may be highly uncertain but the reward is potentially very large. While our activities will include direct and frequent interaction with experts throughout EPA, we also will draw heavily from the views and thoughts of those from other agencies and organizations. Our outputs will inform the research planning and prioritization process and are expected to shape not only our future research efforts and priorities but also those of EPA’s program and regional offices, other agencies, and organizations concerned with environmental quality.





Why This Goal Is Important for ORD

The benefit of foresight is the promise of increased environmental protection at less cost. As noted by the SAB, greater commitment to futures research will provide the following advantages:

- More time to study an issue and determine the best approach to address it before its full effects are felt;
- The opportunity to avoid or significantly reduce the sickness, injury, or environmental damage associated with an issue; and
- Lower costs and less social disruption by addressing an issue before its effects are large and widespread.

A systematic futures program is highly complementary with Goal 1 in supporting the Agency’s mission and Goal 3 on scientific leadership. New insights on potential stressors will give EPA additional time for research and evaluation to support decision-making. Our futures program will supply new knowledge to shape the national environmental research agenda, maintain the relevancy and focus of our core research, and reinforce our leadership in the scientific community.

Goal 5 Objectives and Actions

5.1 Develop an organizational capability for environmental foresight.

5.1.1 – Establish a futures coordinating group, consisting of representatives from ORD Laboratories, Centers, and Offices and interested program and regional offices, to guide futures activities.

5.1.2 – Designate a senior champion and provide dedicated support staff to coordinate activities, provide continuity, and directly engage appropriate expertise.

5.1.3 – Provide resources to procure expertise in foresight analysis and other disciplines beyond ORD’s traditional areas of science, and from organizations beyond ORD’s traditional stakeholders.

5.1.4 – Benchmark processes and performance metrics from other organizations recognized for their futures analysis.

5.2 Stimulate dialogue both inside and outside EPA on future environmental developments and their significance.

5.2.1 – Convene discussions and workshops with outside experts using the two-part foresight approach to search for early signals and identify new opportunities. These discussions will focus on methodology and tools for doing futures analysis such as processes for data collection, characterization of issues, criteria for promotion of future action or investigation, and communication of the key potential efforts.

5.2.2 – Routinely gather information and input from EPA program and regional offices, the external scientific research community, futurists, and other stakeholders, on their visions and observations of the future relevant to environmental protection.

5.3 Pilot futures analysis for a few key environmental issues.

5.3.1 – Develop and evaluate pilot projects to identify one to three emerging issues of future concern within a one-year time frame to demonstrate the concept and to evaluate effective approaches to this type of analysis.

5.3.2 – Evaluate pilot projects, brief the ORD Science Council on the results, and recommend actions for future activities to the Assistant Administrator for ORD.

Measures of Success

By its very nature, futures analysis resists rigorous, immediate evaluation of its effectiveness. Because the impacts of stressors identified by futures analysis are more distant, judging whether ORD identified the “right” issues will only be known in time—most likely 10 years or more. More immediately, we will measure our performance by our outputs and the impact of these outputs on the research and policy agenda of ORD, EPA, and other organizations concerned with human health protection and environmental quality. Measures of success include the following:

- Resources committed to research or regulatory programs focusing on issues identified through futures analysis;
- Requests for technical assistance on conducting futures analysis from outside organizations; and
- Explicit incorporation of futures analysis in the Agency’s strategic planning process.



- Extent to which issues identified from futures analysis inspire innovative research focusing on cost-effective risk management, new critical knowledge, risk avoidance, and/or better risk communication;
- Extent to which issues identified from futures analysis are an impetus for national research inquiry and debate;
- Extent to which Agency leaders seek advice on future environmental developments and foresight from ORD’s futures coordinating group;
- Extent to which future environmental considerations and developments are used in rulemaking and major Agency initiatives;