A Perspective on Environmental Goals & How Science & Technology Can Help Achieve Them

By Frank Altmayer, CEF

A recent request for comments from industry was received from the National Research Council, Washington, DC. The Council was about to present a National Science and Technology Forum, and wanted answers to a number of provocative questions. Here is how Frank Altmayer, CEF, AESF's technical director, answered them.

Q. *What can science and technology contribute to meeting current national environmental goals?*

A. Because current national environmental goals are to reduce discharge of toxics, marginally toxic materials and non-toxics to the environment to maximum levels achievable by available technology, it is incumbent upon science and technology to establish sound bases for what really is achievable by the technology, when applied to matrices encountered in industry, as opposed to matrices encountered in the laboratory.

There is also a need to establish protocols and sound scientific bases for transferring environmental standards from one emission source to another. At this time, it appears that regulations are cross-transferred based on little or no protocol.

Science and technology also need a better definition for what is and is not a waste that is dangerous to the environment.

Q. *What do you believe should be the nation's environmental goals for the future?*

A. The nation's environmental goals for the future should be to export the existing environmental program to nations that sell products to the U.S. It does little good to clean one closet when the rest of the house is filthy.

Q. *How can science and technology contribute to meeting these future goals?*

A. Science and technology can contribute to this future goal by providing lower-cost options for countries with industries that cannot tolerate the current costs of compliance imposed on U.S. industry.

Q. *Rank what you consider to be the top five environmental goals for the U.S.*

A.
1. Export the existing environmental program to nations that export products to the U.S.
2. Export the existing environmental program to the remaining nations on this planet.
3. A healthy terrestrial ecosystem.
4. Restoration of contaminated sites.
5. Clean air.

Note: The first two goals were not on the pre-printed list of choices. Others on the list were:

- Climate change risk reduction.
- Stratospheric ozone layer restoration.
- Clean waters.
- Safe indoor environments.
- Safe drinking water.
- Safe food.
- Safe workplaces.
- Preventing spills and accidents.
- Preventing wastes and toxic products.
- Safe waste management.

Q. *What are the barriers to achieving your top five goals?*

A.
1. Too many other countries are unwilling to incorporate (and/or incapable of incorporating) sound environmental practices, because they do not want them to have an impact on their ability to compete in a global market. They do not have the financial resources, and do not have the force of their governments behind the goal.
2. A large portion of the world's population does not believe in population control.
3. Technology has not provided low-cost methods of pollution prevention, waste reduction, and product stewardship.
4. Science has not adequately educated the population in methods of pollution prevention, waste reduction, and product stewardship.
5. Governments have typically ignored the role of the general population in the generation of waste and damage to the ecosystem of the world.

Q. *What would indicate that those goals were achieved?*

A. (a) Uniform regulation of industries throughout the world.

(b) Reduction of planet population to 50 percent of the population today.

(c) Cleanup of all identified Superfund sites.

(d) Improvement of air purity to pre-industrial revolution levels.

Q. *Please comment on the following environmental goals for the U.S. that are now being developed by the Presidential Commission on Sustainable Development:*

Human Health & Equity

We envision an American society where healthy and economically secure people sustain—and are sustained by—a healthy environment. Every person breathes clean air,

drinks clean water, eats safe food, and lives, works, and plays in clean, pleasant and safe surroundings.

Comment:
The vision of American society living under ideal environmental conditions, along with economic prosperity, is an idealistic view that is impossible to attain, because overseas competition is allowed to exploit a population living in filthy conditions, at slave-labor wages. Such unfair global competition can only lower America's standard of living.

Americans must realize that their economic prosperity is totally tied to the economic prosperity of American industry, and that industry must be allowed to compete on an equitable basis, within and outside the U.S.

Further, it is unrealistic to envision a society living in "safe, pleasant surroundings" when our society allows it to be dangerous to walk the streets surrounding your own home at night.

Ecosystems

To ensure health of ecosystems and natural processes, including protection of biological diversity and the quality of water, air, and soil. The health of ecosystems must be accomplished through efforts to restore damaged ecosystems, and through management of the use and enjoyment of ecosystems.

Comment:
Ecosystems are inherently capable of restoring themselves, if left alone and not damaged beyond maximum tolerance. An example is the reforestation of the Mt. St. Helens area after the volcanic eruption. We have also experienced damage to the ecosystem caused by ill-advised attempts by man to modify them. An example is the extensive berming of the Mississippi River by the U.S. Army Corps of Engineers.

The governments on this planet ignore the fact that the earth's ecosystems cannot tolerate the population currently using them. No amount of "management" by man is capable of restoring the damage caused by billions of people focused on destruction of the earth's ecosystems.

Environmental Quality

To attain a safe and clean environment by making pollution prevention, waste reduction, and product stewardship standard practices.

Comment:
A safe and clean environment is the result of a combination of pollution prevention, waste reduction, product stewardship, and:

- Pollution control;
- Adequate accounting for **risk** in environmental mandates;
- Economic and technological assistance to industries for pollution prevention, waste reduction.

Efficient Production and Resource Utilization

This goal would achieve a constant and significant improvement in the efficiency of materials used in, and the production of, all stages of resource development—extraction, production, manufacturing, and end-use (and make pollution prevention, waste reduction, and product stewardship standard practices), with corresponding reductions in resource use to sustainable levels in environmental risks.

Comment:
Improvement in the efficiency of materials used and produced at all stages of resource development must be balanced by economics, and the environmental risks involved.

Maximum utilization of resources is a self-policing condition. If a competitor uses raw materials more efficiently, he will be able to eliminate competition. Science and technology need only to provide the means to reduce pollution, reduce waste, or substitute a less polluting process, and then disseminate the information to industry. A better mousetrap is always adopted, if it works and costs less.

Q. *What information regarding the ability of science and technology to aid in meeting the nation's environmental goals do you wish you had, that is not now available?*

A. Science and technology have not provided accurate and useful risk data on materials discharged into the environment. As a result, even the smallest risk of a material causing cancer, or other health deterioration, is cause for regulation and control. o

About the Author

AESF Technical Director Frank Altmayer, CEF, is president of Scientific Control Laboratories, Inc., 3158 South Kolin Ave., Chicago, IL 60623, a firm that specializes in analytical testing, designing plating plants and consulting on electroplating problems, wastewater treatment and disposal of hazardous waste. He has served as an AESF instructor for more than 20 years, and is currently chairman of AESF's Government Relations Committee and Technical Education Board. Altmayer holds a BS in chemical engineering and an MS in metallurgy from the Illinois Institute of Technology.