

The New Jersey Institute for a Sustainable State

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Background and Introduction: New Jersey has been recognized as an environmental leader among the states of the United States since early in the modern era of environmental concern, regulation, and remediation. Within the last decade there has been increased focus on the interrelationships among environmental protection and improvement, economic progress, and people's expectations for quality of life issues. The simple and satisfying answer to the questions about whether these issues are compatible or antagonistic is that, of course, everything is possible and achievable. The challenge has come in determining approaches and strategies to progress toward the desired conditions. New ideas, new partnerships, and compromises of some sort on the part of government, commerce and industry, and in the set of expectations by the people will probably be required in order to reach the levels that seem to be the goal.

For many people throughout the world, the concepts of sustainable development are serving as pathways, or at least as starting points to achieve many of these goals. For New Jersey, an introduction in the mid 1990's to the Netherlands Sustainability approach led to increased interest, planning, and commitment. The plan that has evolved in New Jersey owes much to the experiences in the Netherlands and the valuable assistance of colleagues in that nation. Briefly, the New Jersey experience has included a visit to the Netherlands by a group of state officials and interested private citizens, organization of a Sustainable State Leadership Conference in 1995 by the state government and New Jersey Future, an NGO with leadership in the movement for smarter land use and nationally recognized promotion of sustainable economic, environmental and social progress. A series of public meetings around the state and extensive consultation lead to publication in 1999 of "Living with the Future in Mind" a report and plan for movement toward sustainability for the state that listed 11 goals and 41 indicators of Sustainability for New Jersey.

In May 1999, Governor Christine Whitman issued an Executive Order accepting the goals and indicators and providing that the state government should "pursue, as appropriate, policies that comport with the goals," and to "report. . .every year. . .on

their progress toward Goal attainment.” The first update of “Living with the Future in Mind” appeared in 2000, and a companion document “Governing with the Future in Mind” was issued in January 2002, outlining specific actions that government can take in moving toward a Sustainable New Jersey.

In June 2001, the New Jersey Legislature appropriated funds to initiate the New Jersey Institute for a Sustainable State to be operated under the auspices of two of the state’s universities—Rutgers University and New Jersey Institute of Technology with active participation by New Jersey Future. A Governing Board would be selected and, in order to assure effective linkage with and participation by state government, approximately one-third of the Board membership would be composed of representatives of government agencies with important contributions toward the sustainability movement. The other members would represent commerce and industry in the state, environmental interest groups, the general public, and other entities that by necessity should be involved in the sustainability initiative.

The primary objectives of the New Jersey Institute for a Sustainable State include monitoring progress toward achieving the goals, developing desired endpoints or benchmarks for the indicators, and periodically reviewing the set of goals and indicators to assure that they still reflect the needs and aspirations of the people of the state in defining the conditions of sustainability.

Goals and Indicators: For New Jersey the working definition of a Sustainable State is one that:

- Meets the needs of the present society without compromising the ability of future generations to meet their own needs;
- Has an economy, environment and society that are healthy, just, and efficient;
- Protects State resources for future generations to use and enjoy.

The set of goals and indicators evolved as representative of sustainability in New Jersey include the following:

Goal: Economic Vitality

Indicator 1: Income

Indicator 2: Unemployment

Indicator 3: Productivity

Indicator 4: Poverty

Indicator 5: Gross State Product

Indicator 6: Energy Efficiency

Goal: Equity

Indicator 7: Equal Pay

Indicator 8: Legislator’s Reflection of Population

Indicator 9: Disparities in Infant Mortality

Goal: Strong Community, Culture and Recreation

Indicator 10: Newspaper Circulation

Indicator 11: Crime Rate

Indicator 12: Open Space Available for Public Recreation

Goal: Quality Education

Indicator 13: Graduation Rate

Indicator 14: Student/Teacher Ration

Indicator 15: Standardized Test Scores

Indicator 16: Access to Higher Education

Goal: Good Government

Indicator 17: Knowledge of Government

Indicator 18: Voter Turnout

Goal: Decent Housing

Indicator 19: Rent Affordability

Indicator 20: Home Prices vs. Income

Indicator 21: Housing Choice

Goal: Healthy People

Indicator 22: Life expectancy

Indicator 23: Infectious Diseases

Indicator 24: Asthma

Indicator 25: Workplace Fatalities

Goal: Efficient Transportation and Land Use

Indicator 26: Need for Road and Bridge Repair

Indicator 27: Vehicle Miles Traveled

Indicator 28: Workplace Transportation Options

Indicator 29: Traffic Fatalities

Goal: Natural and Ecological Integrity

Indicator 30: Fresh Water Wetland Losses

Indicator 31: Nesting Water Bird Populations

Indicator 32: River Health/Dissolved Oxygen

Indicator 33: Marine Water Quality

Goal: Protected Natural Resources

Indicator 34: Energy Consumption

Indicator 35: Farmland

Indicator 36: Beach and Bay Closings

Indicator 37: Preserved and Developed Land

Goal: Minimal Pollution and Waste

Indicator 38: Greenhouse Gas Releases

Indicator 39: Drinking Water Quality

Indicator 40: Total Solid Waste Production

Indicator 41: Air Pollution

Opportunities and Needs for Greening Industry: Historically, the set of expectations for green industry have focused on key environmental issues, including the environmental implications of energy use. Source reduction and life cycle environmental issues have become key tools and measures for progress toward green industrial practice in New Jersey. Under the planning and reporting provisions of the New Jersey Pollution Prevention Act the industrial community of the state has made substantial progress in reduction of hazardous waste. It is interesting to note, however, that the indicators do not call out specifically any uniquely industrial or commercial activity. The goal for Minimal Pollution and Waste lumps together impacts of industrial and private citizen activities. This strongly suggests that the public expectation in the development of the goals and indicators was based on a high level of communication and cooperation among all of the stakeholders in the sustainability arena.

In this context, what are the types of actions that New Jersey commerce and industry could be expected to take that would help move the state toward achieving sustainability according to its definition? In many ways, focusing on the more traditional environmental issues may provide some guidance. The four indicators within the goal of minimal pollution and waste help provide a framework. Industry in the state can be seen as potential contributors to these indicators, although they cannot be seen as exclusive contributors.

Greenhouse gas releases in New Jersey have been generally increasing in the last decade as tracked by carbon dioxide equivalents. A substantial majority of the release is related to energy use. Therefore the mutual goal of both industry and the private citizen is to use less energy. Important progress has been made in the state with the voluntary Greenhouse Gas Action plan organized by the New Jersey Department of Environmental Protection, wherein companies and organizations commit to reduction of greenhouse gas emissions. The agreement to participate in the Action Plan encourages identification of activities that are high consumers of energy and to development of plans for reduction in energy use. One of the newer roles for industry in helping to achieve this goal is to introduce new versions of their products that are more energy efficient while performing all of the desired consumer functions.

It also should be clear that this “environmental” indicator is also closely linked with some other indicators—Energy Efficiency, Vehicle Miles Traveled, Workplace Transportation Options, and Energy Consumption. Extension of some of these related parameters, such as workplace transportation options, suggests that location of new industrial locations and new housing options near public transportation routes would be expected to contribute to reduction in greenhouse gas emissions. Such location would also contribute to advancement of the indicators related to protection of farmland and appropriate balances between preserved and developed land. This means that the choices of industry in New Jersey about where to expand or locate new operations can be important contributors to the total greenhouse gas release data for the state. In some cases the contributions from these choices can have a greater impact than can energy use from the manufacturing process alone.

The drinking water quality indicator can easily be seen as directly impacted by industrial activity. However, in New Jersey substantial progress has been made over the years in reduction of discharge of untreated industrial waste into surface waters

and management of industrial waste has reduced the likelihood of contamination of aquifers that supply drinking water. The general reduction in the quantity of waste generated through source reduction and the changes in the mix of industrial activities in New Jersey have also contributed to the improvement. There are, of course, still challenges to be addressed. The transport of air emissions to water bodies presents opportunities for damage to water quality. Continuing seepage or leaching from older contaminated areas can have impact on drinking water quality as can storm water runoff from industrial sites. However, non-industrial activities including runoff from farms, lawn care activities, and household use of consumer products can have important contributions to the degradation of the quality of drinking water.

The direct current role for industry in this area includes continued efforts to eliminate possibilities of contamination directly or indirectly of surface or subsurface waters that may serve as drinking water resources. Among other approaches this includes the minimization of air emissions that may be transported to drinking water sources. New products and processes based on the principles of green chemistry may be a viable approach to reduce these possibilities at the manufacturing stage. In a larger sense, new or reformulated products from some components of the New Jersey industrial community could serve to reduce the possibility of impacting drinking water quality by the non-industrial community through reduction in the use of problematic chemicals or in reduction in the quantity of any chemicals that must be used to accomplish the desired objective. There is also room for development and implementation of new technology for improved treatment capability for drinking water, particularly in the case of new standards for acceptable levels of naturally occurring contaminants. The need for improved capabilities for maintenance and repair of the drinking water infrastructure is also an important issue.

Clearly there are interconnections between this indicator and others—infectious disease, river health/dissolved oxygen, marine water quality, and beach and bay closings. While water contamination issues are often seen as local because dilution usually diminishes the severity of any problem, it is obvious that the various downstream water resources are impacted by materials that are added at particular points and times. Concern about the quality of downstream impacts must be connected to concern about the immediate upstream issues as well.

As briefly discussed before, the Total Solid Waste Indicator, as currently measured is focused on solid waste, not on hazardous waste. Certainly, industry as part of its operations generates solid waste and should be expected to continue activities related to reducing the quantities of solid waste produced. In related activities, industry could play a role in overall reduction of solid waste by continuing to institute changes in packaging, as well as in product design that facilitates recycling.

The quantity of solid waste produced is also interconnected with other indicators—productivity, vehicle miles traveled, preserved and developed land, energy use, greenhouse gas releases, and air pollution. Because dealing with the solid waste generated in New Jersey is a major cost item, the impacts of reducing this indicator are potentially very far reaching.

The air pollution indicator is tracked by following measurements of ground level ozone, particulate matter, and carbon monoxide. In New Jersey, these levels have been decreasing over the last decade. In this category, there are direct contributions from both industrial and individual citizen activities. Substantial impacts derive from motor vehicle operations. Ozone levels can be affected by VOC emissions to the air from industrial processes. Particulates can result from industrial activities. In this indicator, more than most, direct improvement can result from continued attention by the industrial community to reduction in levels of emissions by better control approaches, or more efficiently through source reduction.

This indicator, also, is interconnected with other indicators—asthma, greenhouse gas releases, and total solid waste production. Other less implicit concerns related to public health impacts due to exposure to airborne hazardous materials can also be expected to affect many people's view of a sustainable state.

Conclusion: New Jersey faces many challenges in the move toward becoming a sustainable state. There is a significant role for an industrial community that continues to grow greener—through improved product and process design, through continued attention to energy use and waste production and emission, and through providing periodic opportunities for public education about their efforts and the contributions they make to the overall expectations of the state. All should recognize that sustainability does not result from the efforts of industry alone, yet industry can play an important role in encouraging and providing guidance by example to individual citizens and non-industrial groups.