

# Nissan and Global Environmental Issues



The third-generation Sunny, ranked first in the US Environmental Protection Agency's 1973 test for fuel economy



The Bluebird Sylphy, the first vehicle in Japan to receive certification as a SU-LEV in 2003

## Providing Cleaner Vehicles to More Customers

Our mission is to provide safe and comfortable mobility. At the same time, we cannot deny that vehicles have an impact on the environment. Given this, we at Nissan believe that we must steer the vehicle itself in a direction that is in better balance with the environment.

After careful consideration of how to address the environmental impact of automobiles, we chose to make more than 80% of our gasoline passenger vehicles sold in Japan ultra-low emission vehicles (U-LEV).

U-LEV is a low-emission vehicle that by definition has achieved emissions 75% below year 2000 emissions standards for nitrogen oxide (NOx) and hydrocarbon (HC). Achieving the U-LEV standard for 80% of our gasoline passenger vehicles would have almost the same effect regarding NOx and HC reduction as selling 400,000 zero emission vehicles, such as fuel cell vehicles or electric vehicles, every year in Japan.

We believe that Nissan's most effective means of solving environmental issues is through the rapid application of this highly effective technology, to provide more customers with clean energy vehicles at a more affordable price. Our continuous adoption of these types of realistic approaches is a dominant characteristic of Nissan's environmental management.

Finding solutions to present-day global environmental issues is of course important, but also we must look ahead to the future. Nissan is putting effort into the research and development of fuel cell vehicles, electric vehicles, hybrid electric vehicles, and natural gas vehicles.

While we cannot predict what the major trends in mobility will be for the coming generations, we believe that the future will be multifaceted. Therefore, we are determined to make technological advancements while visualizing every possible future scenario.

## Nissan's Environmental Approach - From the Time of Rapid Growth and Onward

Nissan's environmental efforts date back to the company's period of rapid growth. It was during this time, from the 1960s to the 1970s, when pollution problems, the downside of rapid growth, began to come under close scrutiny.

In 1972, Nissan established an environmental management department at our head office and an environmental management division at each plant in order to manage the disposal of substances with an environmental impact.

In 1973, when the oil shocks swept across the globe, energy management and improvements in fuel economy inevitably became topics of concern. We made full use of our technological capabilities to improve the fuel efficiency of our cars and worked to improve the efficiency of our manufacturing systems.

After the 1992 UN Conference on Environment and Development (Rio Summit), we established an Environment Management Committee in 1993 and created a Mid-term Environmental Action Plan. We then established an Energy Conservation Committee and a Waste Reduction Committee, putting increased efforts into finding ways to tackle environmental issues.

In 1994, the United Nations University (Tokyo, Japan) launched the Zero Emissions Research Initiative. Zero emissions is not limited to the recycling and reuse of waste produced through business activities. This concept also captures the idea of infinitely bringing the amount of waste produced closer to zero by creating cycles between corporate sectors. Nissan has since adopted the concept of life cycle assessment (LCA).

In 1997, Japan made a commitment to reduce greenhouse gas emissions by 6% through the Kyoto Protocol adopted at the Third Conference of Parties to the UN Convention on Climate Change (COP3). For Nissan, curbing carbon dioxide (CO<sub>2</sub>) emissions has become a top priority.

Within this history, a big challenge for Nissan came with the implementation of the exhaust emissions regulations that accompanied rapid motorization in the 1970s. Beginning in the US, followed by Japan, demands from society regarding exhaust emissions became increasingly strict.

In view of this major issue, Nissan gathered its technical capabilities and moved forward in developing technology to reduce exhaust emissions. In 1965, five years earlier than the government-mandated deadline, Nissan completed the production of a vehicle with an installed emissions reduction device.

Even more strict emissions regulations were established in the 1970 Muskie Act in the US and in the Japanese version of the Muskie Act, which is a 1976 regulation announced in Japan in 1975. How would Nissan satisfy the regulations criteria without diminishing performance? To meet this challenge, improvements were gradually made to engine and oxidation catalyst technology.

Through the accumulation of technology over the years, Nissan's clean exhaust technology has reached world-class levels. For instance, the 2000 Sentra CA sold in the US was the first gasoline vehicle to receive PZEV\* certification by the California Air Resources Board (CARB).

Especially because social conditions are always changing, we have improved the technological capacities in the production of our vehicles and have continued to pursue voluntary initiatives in seeking the best road to take as an automobile manufacturer, while understanding the influence that our products have on society and the environment.

\* PZEV: Partial Zero Emission Vehicle as established by CARB.



### Three Key Issues

And now, in what is being called the "Environmental Century," we are reflecting upon our efforts to tackle environmental issues. There are many environmental issues that we must deal with as an automobile manufacturer; for instance, reducing vehicle noise or protecting the ozone layer through air-conditioner refrigerant emissions controls. In recognition of this, Nissan has identified three key issues which we regard with particular importance. They are: curbing global warming; protection of the air, water, and soil; and resources recycling.

Our focus is evolving: from better energy management triggered by the oil shocks to the "curbing of global warming" promoted by the ratification of the Kyoto Protocol; from efforts in meeting pollution measures as well as exhaust emissions regulations to the "protection of the air, water, and soil"; and from the concept of zero emissions, issues concerning locations for waste disposal, and the introduction of LCA to "resources recycling."

Starting on page 19 of this report, we attempt to convey Nissan's intentions regarding these three key issues.

### Overcoming Dilemmas in Creating a Society with a Symbiosis of People, Vehicles, and Nature

Nissan is now faced with a new situation.

First of all, society is demanding a shift from conventional environmental management to consolidated environmental management, to include our consolidated subsidiaries. Furthermore, this is not only restricted to related companies, but Nissan must take responsibility for management practices at all points in the supply chain. As Nissan is moving toward global management, we are still coming to grips with the full scope of our responsibilities.

In addition, environmental issues affecting automobile manufacturers are much more diverse today than in the past. One example is the issue of biodiversity. Until now, we have taken ecological factors into consideration in the construction of our plants. However, how are we to handle the destruction of ecology during road construction, or accidents related to our vehicles coming into contact with animals? Nissan has not yet been able to come up with solutions to fully address these problems.

Out of the complex and continually more diverse environmental issues, we must identify those of particular importance to Nissan and then work toward their solution. To do this, Nissan has started two activities. One is a dialogue with our stakeholders. Another is our participation in the World Business Council for Sustainable Development (WBCSD).

For an automobile manufacturer, development of technology to control CO<sub>2</sub> emissions during vehicle use is crucial. At the same time, we believe that it is extremely important for our customers to be conscious about conserving energy when driving. We want to see automobile manufacturers, customers, and society as a whole come together in tackling environmental issues.

Nissan held the first stakeholder dialogue in 2003. Opinion leaders from various fields have given us insight into perspectives that are new to Nissan and have provided us with constructive feedback.

What will be expected of Nissan in the future? In what way will Nissan be expected to contribute to the development of future society? Nissan would like to learn and take in as much information as we can through stakeholder dialogues and apply the knowledge gained to our next challenges.

In addition, Nissan is a participant in the WBCSD Sustainable Mobility Project. Together with other member companies, we have been engaging in discussions regarding the future of mobility. The results of the discussions have been compiled into the report, "Mobility 2030: Meeting the Challenges to Sustainability," which proposes seven targets including the reduction of exhaust emissions and the control of greenhouse gas emissions.

Although sustainable mobility is beyond the scope of a single company, we realize that the role that technology plays is extremely important, and that one company also has a tremendous responsibility.

Nissan's stance on environmental issues is not pessimistic. We are facing unprecedented hardships, but these are also new, valuable opportunities to take on challenges of an unprecedented scale.

As we face global environmental issues, we will act with a sense of volition. We will turn every issue we face into a motivating force for improvement as we aspire for a society with a symbiosis of people, vehicles, and nature.