

# Environmental Report 2005

Digest



# CEO Statement

Just as achieving a high level of business performance is a necessary part of Nissan's global responsibility, so is the challenge to maintain a strong commitment to our natural environment. A sound business strategy goes hand in hand with a sound environmental policy.

Nissan's global approach to environmental protection focuses on three key issues: managing CO<sub>2</sub> emissions; protecting the air, water and soil; and recycling of resources. Our Global Environment Management Committee works to assure that our corporate environmental strategy is implemented at the highest level in every region and in every area of our operations. We place a priority on rigorous environmental management, and that discipline is evident among Nissan's research, manufacturing and distribution operations around the world.

## Developing Environmental Technologies

At Nissan, we want to develop environmental technologies that will provide real benefits to the customers who choose our vehicles. We recognize that new technology only becomes affordable when its value proposition is widely accepted by customers in the marketplace. And only when a technology is widely accepted will it produce a significant environmental benefit. In fiscal year 2004, Nissan made progress on a number of environmental protection fronts. Where have we made advances?

Progress is evident on today's streets and highways. As of March 2005, 90% of Nissan vehicles in Japan sold were ultra-low emissions vehicles (U-LEV\*1), and our new and more ambitious goal is for 80% of new cars sold in March 2006 to meet Japanese super ultra-low emissions standards (SU-LEV\*2). U-LEVs and SU-LEVs provide an immediate, widespread environmental benefit through cleaner exhaust emissions and increased fuel economy for customers in Japan and in other parts of the world as well.

Nissan is also increasing the number of vehicles fitted with our Continuously Variable Transmissions, or CVTs. By fiscal year 2007, we plan to sell around 1 million CVT-fitted models worldwide — a fourfold increase from the current level. We estimate that selling 1 million CVTs would have the same effect in terms of reducing CO<sub>2</sub> emissions as selling 200,000 hybrid electric vehicles. Nissan continues to invest in gasoline engine improvements, in lightweight vehicle construction and — with the expertise of our Alliance partner, Renault — in diesel technology.

Nissan emphasizes recycling, not just in our operational facilities, but with our vehicles as well. Currently, 90% of a new Nissan vehicle is recyclable. From the earliest phases of

development, we aim to make our vehicles easier to disassemble and recycle. We want to reduce environmental impacts at each stage of a vehicle's life cycle, from development to production, from sales and service through disposal.

In 2006, we will launch a gas-electric hybrid version of one of our best-selling models in one of our largest markets. The Altima hybrid, which will be introduced in the United States, will offer our customers the cleanliness and efficiency of electricity with the convenience and performance of gasoline. Looking into the future, hydrogen-powered fuel cell vehicles are on the horizon as a promising technological solution since their only byproduct emission is water. In fiscal year 2004, Nissan announced the development of its first in-house fuel cell stack and high-pressure hydrogen storage system. Although the potential of this technology is great, it may take several years for it to be available and affordable to customers.

To further strengthen our capabilities as we develop vehicles for the future, we are establishing the Nissan Advanced Technology Center (NATC) at the Nissan Technical Center in Atsugi, Kanagawa Prefecture, our largest global research center. At NATC, we will explore the potential of future technologies and work consistently to make new technologies more affordable, more available and more beneficial for global society.

## Increasing Value for All Stakeholders

Sustainable value is at the heart of our new three-year business plan, NISSAN Value-Up, which began to be implemented in April 2005. As the plan name indicates, our focus is on delivering increased value for all our stakeholders — for customers, shareholders, business partners, employees and society and the environment.

For all our stakeholders, lasting value will be found in Nissan's commitment to meet the environmental challenge. As we contribute to the sustainable development of society and create environmentally friendly products that customers want to buy, we believe we will make the world a better place in which to live and to drive.



Carlos Ghosn  
President and chief executive officer  
Nissan Motor Co., Ltd.



\*1 U-LEV: A vehicle that emits 50% fewer exhaust emissions of nitrogen oxide (NO<sub>x</sub>) and nonmethane hydrocarbon (NMHC) than the level prescribed in the year 2000 Japanese exhaust emissions standards.

\*2 SU-LEV: A vehicle that emits 75% fewer exhaust emissions of nitrogen oxide (NO<sub>x</sub>) and nonmethane hydrocarbon (NMHC) than the level prescribed in the year 2000 Japanese exhaust emissions standards.

# Global Environmental Issues

## Nissan's Environmental Philosophy

Under Nissan's Vision & Mission, we have set the following environmental philosophy and environmental policy toward realizing its "Customer-Focused and Environmental Friendly" guiding principles. Nissan's mission in society is to foster the attainment of sustainable development and the formation of the recycling-based society and economy by pursuing business based on these philosophies.

Nissan's Environmental Philosophy  
**Symbiosis of people, vehicles and nature**

It is our view that the basis of environmental protection lies in the human capacity to show kindness and concern. Along with striving to understand the environment better, all of us at Nissan bring a shared concern for people, society, nature and the Earth to bear on our activities. This commitment and concern are embodied in every Nissan product and throughout all of the company's operations as the driving forces of Nissan's ongoing contributions to the advancement and enrichment of society.

## Three Key Issues

Nissan discusses the three key environmental issues of greatest concern to Nissan, and explains our approach to creating what we call a "Symbiosis of people, vehicles and nature".

- Key Issue I: Managing CO<sub>2</sub> Emissions**
- Key Issue II: Protecting the Air, Water, and Soil**
- Key Issue III: Recycling of Resources**

Nissan strives to conduct business in a way that balances the three aspects of economic activity, environmental consideration and social responsibility in order to create value for all our stakeholders. What stands in the way of making this vision a reality? One question pertinent to all three of the issues mentioned above is, "How can Nissan best leverage its position as a global automaker to contribute to society's need for sustainable mobility?"

The answer may very well lie in advanced technologies used to build eco-friendly vehicles and the ability to equip large number of vehicles with these technologies globally.



		Development	Production	Logistics	Sales and Service	Use	Recycling End of Life Vehicles
Key Issues	Managing CO <sub>2</sub> Emissions	<ul style="list-style-type: none"> <li>· Improving Fuel Economy</li> <li>· Fuel Cell Vehicle (FCV) Development</li> </ul>	<ul style="list-style-type: none"> <li>· Reducing CO<sub>2</sub> Emissions</li> </ul>	<ul style="list-style-type: none"> <li>· Increasing the Loading Ratio</li> <li>· Modal Shift</li> </ul>			
	Protecting the Air, Water, and Soil	<ul style="list-style-type: none"> <li>· Cleaner Exhaust Emissions</li> </ul>	<ul style="list-style-type: none"> <li>· Reducing Substances with Environmental Impact</li> </ul>		<ul style="list-style-type: none"> <li>· Partnership between Nissan and Our Dealers</li> <li>· Nissan Green Shop Activities</li> </ul>	<ul style="list-style-type: none"> <li>· Environmental Communication and Education with Customers</li> </ul>	<ul style="list-style-type: none"> <li>· Appropriate Treatment of ELVs</li> </ul>
	Recycling of Resources	<ul style="list-style-type: none"> <li>· Design for Recycling</li> </ul>	<ul style="list-style-type: none"> <li>· Effective Use of Resources</li> </ul>	<ul style="list-style-type: none"> <li>· Reducing Containers and Packaging Materials</li> </ul>			<ul style="list-style-type: none"> <li>· Recycling Automobile Shredder Residue</li> <li>· Dismantling Research</li> <li>· Sales of Reusable Parts</li> <li>· Materials Recycling</li> </ul>

# Product and Technology Development

## Managing CO<sub>2</sub> Emissions



For Nissan, the reduction of CO<sub>2</sub> from vehicles in use is a serious issue. We actively involve in the development of new technologies to enhance fuel economy, and in technical innovations such as the development of fuel cell vehicles. We take a comprehensive approach to CO<sub>2</sub> reduction by developing highly efficient engines, continuously variable transmissions (CVTs), electric-powered 4WDs ("e-4WDs"), lightweight vehicle bodies as well as more aerodynamic design with low air resistance. Nissan is making in the development of clean energy vehicles, and we will launch the Altima Hybrid in the US market, starting late 2006.



1.5-liter "HR15DE" Engine



Altima Hybrid — prototype

### Expanded CVT Promotion

Simply put, the continuously variable transmission (CVT) is a system that optimizes engine efficiency and performance for all driving conditions by two pulleys connected by a steel belt. This enables a smooth, continuous transmission which not only enhances acceleration, but which also improves fuel economy for better environmental performance.

The 3.5-liter front-wheel-drive adaptable XTRONIC CVT, released in 2002 in the Nissan Murano, were the first of their kind anywhere in the industry. Nissan is the world's only automaker supplying CVT technology to a broad range of passenger vehicles and is expanding global unit sales of CVT-fitted vehicles from 250,000-units to one million units in fiscal year 2007.



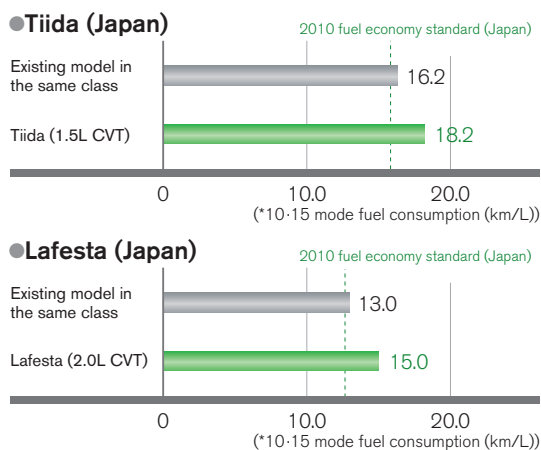
XTRONIC CVT



MURANO with CVT

### Fuel Economy of Major New Models for 2004

Nissan successfully improved the fuel economy of its new 2004 models. Under Nissan's in-house standards for real world fuel economy, these models were found to be about 20% and 37% more efficient compared to existing models in the same class.



Tiida (Japan)



Lafesta (Japan)

### Development of the Fuel Cell Vehicle (FCV)

The greatest feature of the FCV is that its sole emission is water, produced through the generation of electric energy in a chemical reaction of hydrogen and oxygen. With the launch of a five-year joint program with Renault, Nissan started full-scale development of FCV technology in 2001. In March 2004, Nissan delivered the first X-TRAIL FCV to Cosmo Oil Co., Ltd. In February 2005, Nissan announced that it has designed and developed its first in-house fuel cell stack and 70MPa high-pressure hydrogen storage cylinder. The 2005 model of the X-TRAIL FCV, which employs these two technologies, is scheduled for completion by the first quarter of 2006.



2005 model of X-TRAIL FCV

## Cleansing Exhaust Emissions

### The Mission for Cleaner Exhaust Emissions

In order to meet increasingly rigorous emission regulations, Nissan has successfully developed cutting edge emissions-reduction technologies. In 2000, the Nissan Sentra CA, marketed in the US, became the world's first gasoline-powered vehicles to meet the strict exhaust gas emission standards, the PZEV\*<sup>1</sup> certification.

In Beijing, the Nissan Tiida is the first OBD\*<sup>2</sup>-fitted vehicle in the industry with EURO3\*<sup>3</sup> certification. In Europe too, we are making steady progress by having already met the EU emissions standards, EURO4\*<sup>3</sup> (in force as of 1 January 2005).

\*1 PZEV (Partial-Zero-Emissions Vehicle): Certification issued by the California Air Resources Board (CARB) in the state of California (USA)

\*2 OBD: On-Board Diagnostic system (on-vehicle self-diagnosing system designed to indicate problems with the catalyst or other components)

\*3 EURO 3, EURO 4: European Emission Standard Level 3 and Level 4



Micra with EURO4 certification (Europe)

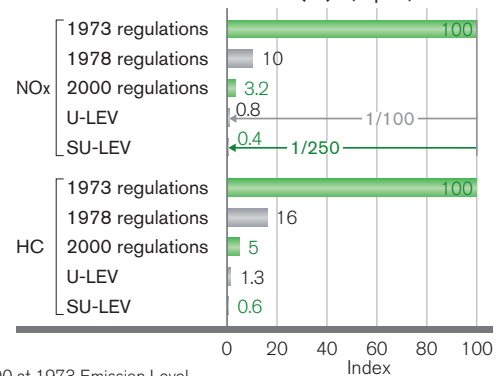


Tiida meeting EURO3 Standards (China)

### Expanding U-LEV and SU-LEV Markets

Nissan announced the goal to achieve U-LEV certification by March 2003 for 80% of its gasoline-powered passenger vehicles sold in Japan. That target was reached in February 2003. Our trial calculations show that if 80% of Nissan gasoline-engine passenger vehicles sold in Japan were switched to SU-LEVs, the resulting reductions in NOx and HC would be equivalent to switching 40% of all Nissan unit sales to electric vehicles. With a view to the future, we plan to increase our efforts still further, and have set a new objective to make 80% of our gasoline vehicles sold in Japan certified as SU-LEVs by March 2006.

#### ● Exhaust Emissions of SU-LEV (%) (Japan)

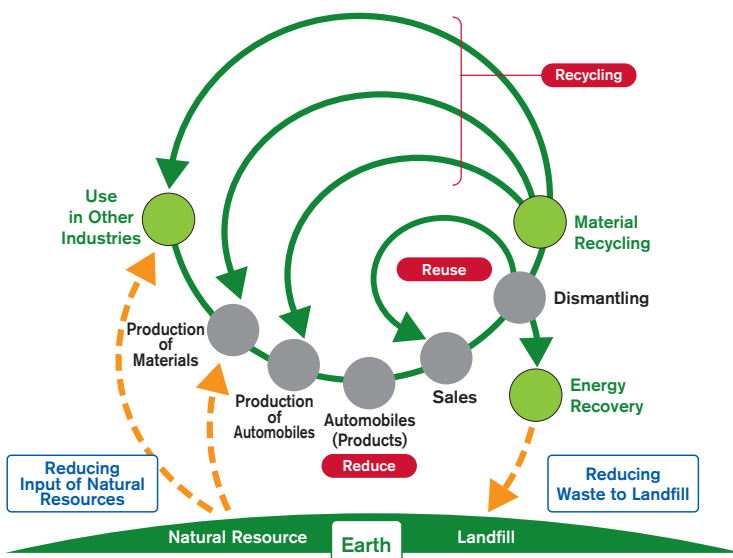


\*Set 100 at 1973 Emission Level

## Design for Recycling

To ensure a systematic approach, we have prepared "Recycling Design Guidelines" based on the concept of the 3Rs (Reduce, Reuse, and Recycle). We strive to minimize the impact on the environment by efficient and innovative use of resources throughout each vehicle's lifecycle, and by reducing waste materials from used vehicles.

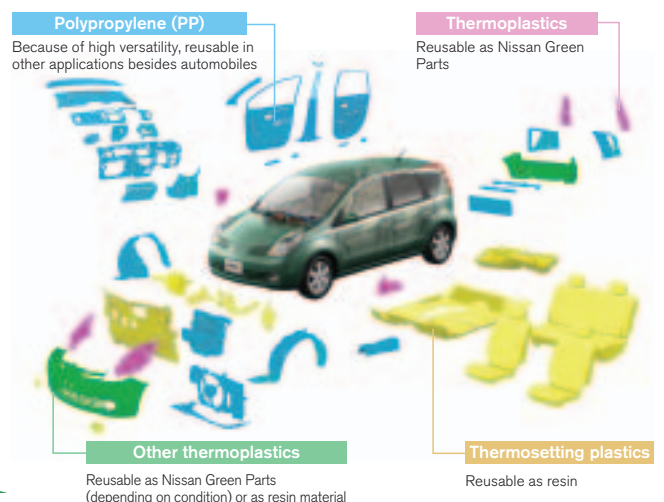
#### ● Effective use of resources through recycling



### For Easier Recycling

We develop products to enable ease of recycling (recoverability rate), ease of dismantling at the end of life stage (dismantling efficiency), material identification markings for plastic parts (plastic parts marking rate), and reduction of environment-impacting substances.

#### ● Major Recyclable Parts on the NOTE



# Production/ Logistics/ Sales and Service

## Environmentally Conscious Craftsmanship

### Effective Use of Resources

Nissan was able to achieve a recycling rate\* of 99.3% in fiscal year 2004 in Japan, meaning that diligent promotion of the 3Rs reduced waste to only 0.7% of all materials used. This is the fourth consecutive year that we have met the "zero direct landfill waste" target since the 2001 launch of the standard. (Landfill for 2004 was below 16,299 tons, 1% of the 1990 amount)

\* Recycling rate: the percentage of the total amount of waste generated that is recycled, with thermal recovery (heat used to create steam for manufacturing) included in the calculation.

### Reducing Substances with Environmental Impact

Our present challenge is to reduce the presence of volatile organic compounds (VOCs). Nissan has worked hard to raise our VOCs collection rates and reduce the volumes emitted outside the plants, in addition to cutting down on overall VOCs use. The paint line at our Tochigi Plant, for example, converted to water-based painting equipment already in fiscal year 2004.



Panel showing progress of waste reduction



Water-based paint line

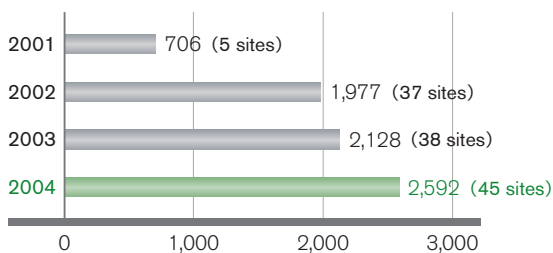


When building eco-friendly vehicles, Nissan focuses on three critical objectives: "reducing of CO<sub>2</sub> emissions", "effective use of resources", and "reducing of substances with environmental impact". To this end, we collaborate closely with our global network of production bases.

### Reducing CO<sub>2</sub> Emissions

The total emissions of CO<sub>2</sub> at Nissan's global production bases during fiscal year 2004 amounted to 2.6 million tons. As the volume of global automobile production increases, it is imperative that CO<sub>2</sub> emissions are lowered. We are currently establishing global KPIs to evaluate environmental performance.

#### ●CO<sub>2</sub> Emission of Major Global Production Sites (1,000t-CO<sub>2</sub>)



### Improving Efficiency in Logistics

The cooperation of parts suppliers and logistics companies is critical in streamlining the overall logistics flow and reducing CO<sub>2</sub> emissions throughout the process. In fiscal year 2000, Nissan became the first Japanese automaker to employ a "roundup" system of collecting required parts. In Japan, Nissan has begun transporting finished cars and parts over longer distances, such as between the Kanto and the Kansai or Kyushu areas, by sea rather than by road. Currently, 51% of these shipments are made by sea.



Modal shift to rail



Modal shift to ferry transport

### Nissan Green Shop Activities

Nissan believes it is crucial for our dealers to be as environmentally responsible as every other link in the chain of our business activities.



Nissan Green Shop Certification Sticker

To support this initiative, starting in April 2000, Nissan introduced an environmental management certification system based on ISO 14001 standards, which we call the Nissan Green Shop. At the end of fiscal year 2004, the certifications of all companies and shops were renewed under this plan.

#### Nissan Green Shop - Three Declarations

- ① We observe all laws, ordinances, and guidelines.
- ② We will minimize the environmental impact of our business activities.
- ③ We will communicate regularly about our environmental efforts to our customers.

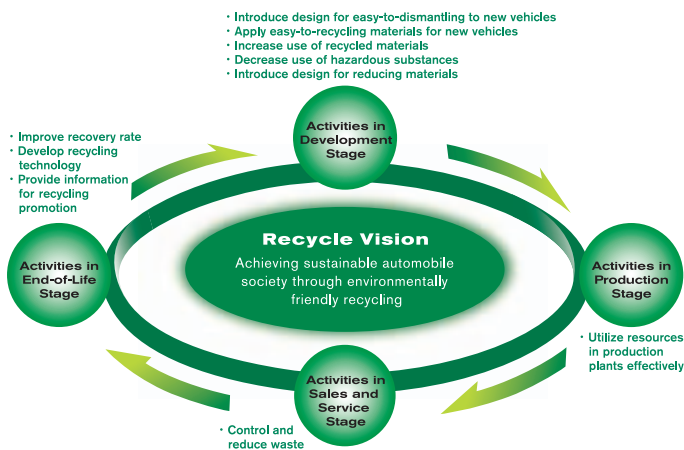


# Recycling End of Life Vehicles (ELVs)

## Our Approaches to Recycling

Over the years, Nissan has conducted a vast amount of research, aiming at making it easy to recycle our products at the end of their service lives. The experience gained through this research has now been linked to activities at the development stage of new vehicles. This process considers steps from the vehicle's design stage to the end of its service life, applying joint and cross-departmental approaches.

### ● Global Nissan Recycling Way



### End-of-Life Stage Approaches

Nissan has been conducting research since 1997 with recyclers to optimize the dismantling of our vehicles. We recently have further advanced our research and development for the reuse of aluminum, wire harnesses, and other valuable materials. We have also pursued research in the recycling of plastics, glasses and other materials to reduce related waste volumes and to improve overall recovery rate.



Evaluation of harness dismantling eas

### Nissan Green Parts

Nissan Green Parts is a unique business model made possible through collaboration with our dealers and dismantlers. Under this system, the recyclers carefully remove the reusable parts from Nissan ELVs. We collect and confirm the quality of these parts, which we then sell as second-hand parts at sales outlets for repairs and replacement.



Reusable parts



ex) door



Rebuilt parts



ex) alternator

## Automobile Recycling Law

Japan's Automobile Recycling Law, which went into effect in January 2005, requires automakers to either recover or recycle ASR(Automobile shredder residue), airbags and chlorofluorocarbons (CFCs)/ hydrofluorocarbons (HFCs). The recycling performance for January-March 2005 is summarized in the figures. The ASR recycling rate for the three-month period was 64.6%, above both the 30% required by law under 2005 standards and the 50% under 2010 standards. This shows Nissan's determination to achieve high recovery rates, above and beyond legal requirements. For the same period, the Nissan airbag recycling rate rose to 95%, outscoring the 85% legal standard by a full 10 points. Finally, we have taken a proactive approach to the optimum processing of CFCs/ HFCs as well for example by reducing the amount of CFCs/ HFCs gas from January to March 2005 by 13,042 kg.

### ● Overview of recycling performance (Jan.-Mar. 2005)

	Volume received	8,247.0 t/40,650 vehicles
	Recycling volume	5,993.0 t
	Recycling rate	64.6% (Legal standard:30% or more)
	Volume received	169.7 kg
	Recycling volume	160.3 kg
	Recycling rate	95.0% (Legal standard: 85% or more)
	Volume received	13,042 kg
	Total deposit received	393,994,110 yen
Total cost for recycling etc		410,294,379 yen

# Corporate Profile

## ● Headquarters

17-1, Ginza 6-chome, Chuo-ku, Tokyo, Japan

## ● Date of Establishment

December 26, 1933

## ● Consolidated Net Sales (FY2004)

8,5763 trillion yen

## ● Number of Employees (As of March 31, 2005)

183,607 (all consolidated companies)

## ● Group Structure / Business Outline

The Nissan Group consists of Nissan Motor Co., Ltd., subsidiaries, affiliates and other associated companies. Its main business includes sales and production of vehicles, forklifts, marine products and related parts. The Nissan Group also provides various services accompanying its main business, such as logistics and sales finance.

## ● Vision

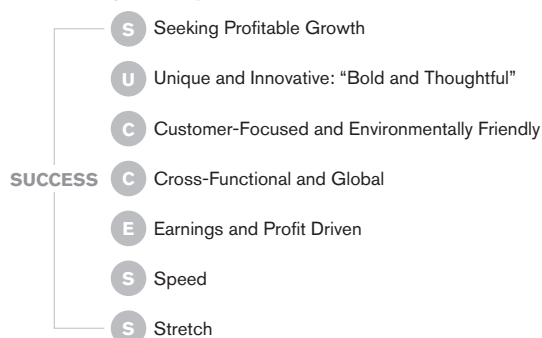
Nissan: Enriching People's Lives

## ● Mission

Nissan provides unique and innovative automotive products and services that deliver superior measurable values to all stakeholders\* in alliance with Renault.

\*Our stakeholders include customers, shareholders, employees, dealers, suppliers as well as the communities where we work and operate.

## ● Guiding Principles



# Environmental Information Disclosure

To guarantee our environmental reports are up-to-date, we produce regular environmental "site reports" for each plant and business site, and "technical notes" that feature short reports about our latest accomplishments in the field of environmental technology. We complement these reports by posting additional updates on our website, along with reader-friendly explanations that help make the reports easy to understand. We will continue to upgrade and expand these information resources to ensure that our disclosure is complete and that our stakeholders' needs for dialogue and transparency are being fully satisfied.



## Website Information

The content of the Environmental Report 2005 is also available in the environmental section of our website, which includes additional technical data about our environmental programs and activities (visit "Environmental Activities" at <http://www.nissan-global.com/EN/ENVIRONMENT/>).

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