

A Project Consigned of the Ministry of Environment in 2002

**Overseas Environmental Measures of  
Japanese Companies  
(Singapore)**

Research Report on Trends in  
Environmental Considerations related to  
Overseas Activities of Japanese Companies  
FY 2002

March 2003

**Global Environmental Forum**

## **Preface**

Japanese companies operating extensively in Southeast Asian countries are expected to address environmental problems earnestly in their overseas business sites as well as at home. Environmental activities of Japanese companies implementing advanced environmental measures in overseas countries have attracted much attention of the world.

Under these circumstances, since fiscal 1996, the Japanese Ministry of the Environment has commissioned the Global Environmental Forum to conduct a research on trends in environmental considerations related to overseas activities of Japanese companies. The primary purpose of this research is to collect information and model examples that may help Japanese companies making their way to the Southeast Asian region in implementing environmental measures. The research was already conducted in the Philippines, Indonesia, Thailand, Malaysia, and Vietnam in each fiscal year of 1996, 1997, 1998, 1999, and 2001, respectively. The results were compiled as a guidebook on environmental measures for each of the countries. These guidebooks were distributed to a wide variety of relevant entities centering on Japanese companies that have business establishments in these countries for the purpose of providing them with environmental information.

This Report, the sixth in the series, presents the results of the research carried out in Singapore in fiscal 2002 on behalf of the Japanese Ministry of the Environment.

The reasons why Singapore was selected as the subject of the research in fiscal 2002 are multiple. One is the fact that the country is positioned third, after Thailand and Malaysia, among Southeast Asian countries in terms of the number of Japanese companies operating there. Further, in a study conducted by the Ministry of the Environment in fiscal 2000 under the title of the Study on Environment-friendly Corporate Activities, the third-largest number of Japanese companies operating in the Southeast Asian region indicated Singapore, only after China and Vietnam, as a country whose environment-related information needs to be collected and systematized more extensively in the future. Other reasons include the fact that particularly effective environmental measures are being implemented in Singapore in comparison to other countries in the region and that many Japanese companies have established regional headquarters there, which play a central role in the field of environmental management in this region.

In the future, it is expected that many Japanese companies continue to pursue active business operations in Singapore and play an important role as an engine for promoting the economic advancement of the country. We hope that the latest environmental information on Singapore compiled in this Report helps Japanese companies already operating there to implement better environmental measures and also serves as a useful reference material for many of those planning to start new business operations there. We further hope this report is helpful in advancing the policy measures against industrial pollution in the country.

We wish to express our sincere appreciation to the Japanese Chamber of Commerce & Industry, Singapore, and the Singapore Representative Office of Kanagawa Prefecture for their close cooperation extended to us. They kindly introduced us to Japanese companies for on-site surveys. We are grateful to personnel of Japanese companies located in Singapore, the Ministry of the Environment of Singapore, the National Environment Agency of Singapore, the Japan External Trade Organization (JETRO) and its Singapore Center, the Singapore Representative Office of the Development Bank of Japan, and various other organizations for their great assistance and guidance extended to our on-site surveys and information gathering despite their busy schedules.

# Contents

- Preface
- Contents
- How to Use this Book

<b>Chapter 1</b>	<b>Overviews of Environmental Issues and Environmental Conservation Measures in Singapore.....</b>	<b>1</b>
Section 1	Singapore and Japanese Companies .....	3
Section 2	Current Environmental Issues in Singapore .....	9
Section 3	Environmental Policies and Legislation in Singapore .....	15
Section 4	Water Pollution Management .....	25
Section 5	Air Pollution Management .....	33
Section 6	Hazardous Industrial Waste Management.....	39
Section 7	Other Industrial Environmental Management.....	47
<b>Chapter 2</b>	<b>Environmental Conservation by Japanese Companies in Singapore : Case Studies of Corporate Practices and Policies .....</b>	<b>53</b>
Section 1	Japanese Companies in Singapore and Environmental Measures .....	55
Section 2	Case Studies of the Regional Integration Function Manifested in the Environmental Field .....	61
Case 1	Organic Support for Singaporean Regional Environmental Committees .....	62
Case 2	Fulfilling a Function in Support of Environmental Measures for Offices Within the Region.....	65
Case 3	Numerical Evaluation of Environmental Measures as a Basis for Competition Between Group Companies .....	68
Section 3	Case Studies of Voluntary Implementation of Advanced Environmental Measures.....	71
Case 4	Above-ground Wastewater Piping, and Double-walled Treatment Tanks.....	72
Case 5	Voluntary Monitoring of Underground Water.....	73
Case 6	A Trading Company Promoting Environmental Measures Among its Suppliers ...	76
Case 7	Obtaining Promises of Environmental Consideration from Suppliers.....	78
Section 4	Case Studies Applying Sophisticated Technology in Reducing Discharge of Pollutants .....	81
Case 8	Sophisticated Treatment of the Factory Wastewater, and its Reuse .....	82

Case 9	Large Scale Plant Investment for a Manufacturing Process with Low Environmental Load .....	85
Case 10	Dealing With a Large Number of Strict Environmental Regulations .....	88
Case 11	Using Sophisticated Treatment Technology to Satisfy Strict Wastewater Standards .....	91
Section 5	Environmental Measures in New Business Development .....	93
Case 12	Evolution of ISO14001 Activities into New Technological Developments .....	94
Case 13	Development of a Non-polluting Cutting Fluid by a Small Business.....	98
Case 14	Winner of the Responsible Care Award in the Environmental Section.....	100
Case 15	Reduction in Truck Emissions Through Joint Collection and Delivery of Freight .....	104
Case 16	ISO14001 Certification Within a Context of Underdeveloped Environmental Management .....	106
<b>Appendices</b>	.....	<b>109</b>
Appendix 1:	Environmental Pollution Control Act (EPCA) Revised Edition 2000 (30th December 2000).....	109
Appendix 2:	Rg 5 Environmental Pollution Control (Trade Effluent) Regulations Revised Edition 2001 (31.1.2001) .....	133
Appendix 3:	Rg 8 Environmental Pollution Control (Air Impurities) Regulations Revised Edition 2002.....	139
Appendix 4:	Rg 11 Environmental Public Health (Toxic Industrial Waste) Regulations Revised Edition 2000 (31.1.2000) .....	143
Appendix 5:	Sources of Environmental Information in Singapore and Japan .....	155

- References
- Acknowledgements

## **How to Use This Book**

This book consists of two chapters and appendices. Chapter 1 describes environmental issues the country now faces, and summarizes environmental laws and regulations in Singapore. Chapter 2 introduces examples where Japanese companies operating in Singapore are taking practical environmental measures. The appendices contain reference materials that help the reader to get a deeper understanding of Chapters 1 and 2. The term, Japanese companies, as used in this book refers to member companies of the Japanese Chamber of Commerce & Industry, Singapore, without regard to equity percentage invested from Japan or any other particular conditions. It should also be noted that since many of the Japanese companies who willingly responded to the on-site survey in this research are in the manufacturing sector, this book focuses on environmental measures seen in the manufacturing sector.

This book is so designed that each chapter, as well as each section under a chapter, is independent of the rest so as to allow the reader to access necessary environmental information according to the current state of the environmental measures being taken by the individual company. It should be noted that the names of the laws, regulations, and organizations cited in the text are tentative translations by the Forum.

More specifically, this book is organized as follows.

Chapter 1 provides the latest information on current environmental issues Singapore now faces and trends in its environmental laws and regulations. This chapter is divided into following seven sections.

Section 1: Singapore and Japanese Companies

Section 2: Current Environmental Issues in Singapore

Section 3: Environmental Policies and Legislation in Singapore

Section 4: Water Pollution Management

Section 5: Air Pollution Management

Section 6: Hazardous Industrial Waste Management

Section 7: Other Industrial Environmental Management

Section 1 introduces the relationship between Japan and Singapore and the history of the business activities by Japanese companies in Singapore, while Section 2 summarizes current environmental issues in Singapore in such areas as water pollution, air pollution, and wastes. The part of Section 3 through Section 7 precisely describes Singapore's environmental policies and legislation, administrative organizations, and information about the country's environmental laws and regulations in various fields. These are the information indispensable when Japanese companies are implementing environmental measures in Singapore.

To be more specific, Section 3 introduces the most important points in Singapore's environmental policies, governmental organizations for environmental administration, legislative systems related to industrial pollution, and environment-related procedures necessary for companies to go through when starting businesses in Singapore.

Sections 4 through 6 describe the structures of the laws and regulations and details of control levels in the three areas of water pollution, air pollution, and industrial waste. At the end of Chapter 1, Section 7 devotes pages to introducing other industrial environmental measures unique to Singapore.

The information given in Chapter 1 mainly represents the results of hearings conducted at the Environmental Protection Division of the National Environment Agency (NEA) under the Singaporean Ministry of the Environment (ENV).

In Chapter 2, Section 1 summarizes the features of the environmental measures implemented by Japanese companies operating in Singapore. It is followed by the introduction of 16 examples of pioneering approaches to environmental measures.

Section 2: Case Studies of the Regional Integration Function Manifested in the Environmental Field (3 examples)

Section 3: Case Studies of Voluntary Implementation of Advanced Environmental Measures (4 examples)

Section 4: Case Studies Applying Sophisticated Technology in Reducing Discharge of Pollutants (4 examples)

Section 5: Environmental Measures in New Business Development (5 examples)

As a wide variety of businesses are going on by Japanese companies in Singapore, examples of environmental measures collected during this survey are wide-ranging. In particular, we focused on Japanese companies that allocate their Singaporean operations as regional headquarters for Southeast Asia, and examples of their approaches are put together in Section 2. Examples of approaches taken by manufacturers, which are not limited to the measures for wastewater, waste gas, and other waste materials, but also include other types of positive approaches, are given in Sections 3 and 4. Examples of innovative approaches of those in non-manufacturing sectors and small-to-medium-scale companies for utilizing environmental measures for business expansion are introduced in Section 5.

Appendices at the end of the book carry the reference materials as follows.

- Appendix 1: Environmental Pollution Control Act (EPCA)  
Revised Edition 2000 (30th December 2000)
- Appendix 2: Rg 5 Environmental Pollution Control (Trade Effluent) Regulations  
Revised Edition 2001 (31.1.2001)
- Appendix 3: Rg 8 Environmental Pollution Control (Air Impurities) Regulations  
Revised Edition 2002
- Appendix 4: Rg 11 Environmental Public Health (Toxic Industrial Waste) Regulations  
Revised Edition 2000 (31.1.2000)
- Appendix 5: Sources of Environmental Information in Singapore and Japan

Appendix 1 carries a Japanese translation of the full text (except Schedule) of the Environmental Pollution Control Act in order to help the reader to get a deeper understanding of the Act. Full-text Japanese translations of two regulations under the Act, namely the Environmental Pollution Control (Trade Effluent) Regulations and the Environmental Pollution control (Air Impurities) Regulations appear in Appendices 2 and 3, respectively. Appendix 4 carries a Japanese translation of the full text of the Environmental Public Health (Toxic Industrial Waste) Regulations under the Environmental Public Health Act (EPHA).

The exchange rate used in this book is 70 Japanese yen per Singaporean dollar prevailing as of January 2003.

In this book, names of government agencies, laws, and regulations frequently appearing in connection with environmental problems in Singapore are expressed by their acronyms as needed.

#### 1 . Government Agencies

ENV: Ministry of the Environment  
NEA: National Environment Agency  
MTI: Ministry of Trade and Industry  
EDB: Economic Development Board  
JTC: Jurong Town Corporation  
SPRING: Standards, Productivity and Innovation Board  
MND: Ministry of National Development  
HDB: Housing & Development Board  
URA: Urban Redevelopment Authority

#### 2 . Laws

EPCA: Environmental Pollution Control Act  
EPHA: Environmental Health Control Act