

ANA, Thinking of People and Earth

Environmental Report

2003



ALL NIPPON AIRWAYS CO ., Ltd
ANA Group

September 2003

ANA Group Corporate Philosophy

Our Commitment

On a foundation of security and reliability, the ANA Group will :

Create attractive surroundings for customers

Continue to be familiar presence

Offer dreams and experiences to people around the world

(Settled in Apr. 2002)

ANA Environmental Policy

ANA's Attitude toward the Environment

Basic Policy

We will pursue :

Protection of the environment

Effective utilization of limited natural resource

Awareness of the public good

Course of Action

1. We will evaluate the impact of our commercial activities on the environment, and persevere in our efforts to protect the environment.
2. We will observe environmental laws and regulations, and furthermore, think and act independently to protect the environment.
3. We will make our best endeavor to minimize the environmental impact arising from operations of the airline industry.
4. We will make every effort to save energy and resources, to recycle articles, and to reduce waste.
5. We will contribute to the communities in which we live and work, through participation in social activities on environmental protection.
6. We will educate employees so that each may pay much more attention to environmental protection.

Environment Committee

This ANA Environmental Policy is declared inside and outside company

(Settled in May. 1998)

Introduction

The ANA Group appreciates your continued patronage.

In the 21st Century Global environmental issues need to be addressed not only at the national and civil society levels, but also at the corporate level. With a growing awareness of these issues, customers, investors, and employees have started selecting companies based on their “environmental management.” In other words, such issues as corporate management’s attitude its incorporation of environmental considerations, as well as the way it deals with societal harmony have become a barometer for measuring the quality of corporate governance.

The ANA Group has long considered environmental issues to be one of the most important aspects of company management, and has actively addressed these issues throughout its history. Today, we have adopted a new environmental action plan called the “ANA Group Ecology Plan” for 2003 to 2007. In this plan, ANA has renewed its determination to address environmental issues with the joint efforts of the group by incorporating customer opinions into our environmental management, and further reducing CO₂ emissions from aircraft operations in order to further realize the ANA Group’s action course of “moving forward with society.”

In the introduction of new aircraft, ANA has put forward a plan to standardize its fleet with the newest and most advanced aircrafts with low noise and high fuel efficiency, and in regards to this, we have recently announced a plan to introduce the new generation of B737NG(New Generations) jets into our small jet fleet. We intend to continue serving our customers through the effective consumption of limited fossil fuel resources.

Through this report, we hope you will understand how the ANA Group addresses global environmental issues. We appreciate your opinions and suggestions on this matter.

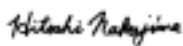
September 2003

All Nippon Airways
Co., Ltd.
President and CEO



Yoji Ohashi



All Nippon Airways
Co., Ltd.
Senior Vice President
Environmental
Committee Chairman

Hitoshi Nakajima

Contents

Foreword	Corporate Philosophy and Environmental Principles of the ANA Group	
Introduction	Message from the President and the Environmental Committee Chairman	1
Outline of ANA, How airline companies are connected to the environment		3
Overview		8
	Corporate philosophy and environment, major environmental activities in fiscal year 2002, ecology plan, environmental management, global warming, air pollution and ozone layer depletion, noise, and social contribution activities for the environment	
Chapter 1	ANA's environmental efforts	11
	Background of efforts and organization, environmental policies and action plan, ISO 14001 environmental certification, environmental compliance, environmental accounting, environmental communication, environmental management ratings, participating associations and organizations	
Chapter 2	Global warming	16
	Background on global warming, domestic measures, ANA's fuel saving policies (Reference) IPCC Special Report, Kyoto Protocol introduction and retirement of aircrafts	
Chapter 3	Air pollution	26
	Connection with air pollution, improvement of aircrafts and air pollution, connection with ozone layer depletion (Reference) ozone layer depletion and the Montreal Protocol	
Chapter 4	Noise	31
	Airport noise, flight noise standards, noise contour, noise mitigation measures, ANA's noise mitigation measures, ground noise (Reference) ICAO chapters 3 and 4 standards	
Chapter 5	Emissions, waste and recycling	38
	Air transport and emissions, ANA's current situation, reducing and recycling, PRTR Law, green purchasing,	
Chapter 6	Social contributions	41
Chapter 7	Topics since April 2003	42
Chapter 8	Environmental conservation activities of group companies	43
	Third Party Review, Opinions from reader questionnaire, Abbreviations, ANA's Env. Data	47
	Post script (Participation in the UNEP International Aviation Environmental Symposium)	

Unless noted otherwise, this environmental report describes the environmental situation of ANA (except some overseas offices) and the following ANA Group companies as of fiscal year 2002 (1 April 2002 – 31 March 2003).

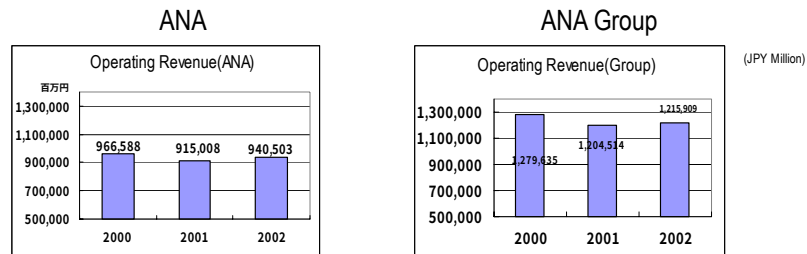
Group companies

Report coverage: F= Full, P=Partial

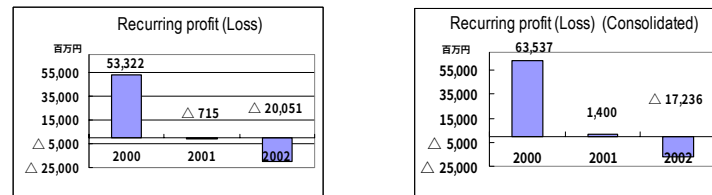
Outline of ANA

Company Name	ALL NIPPON AIRWAYS Co., Ltd.	(Airline Code : ANA, NH)
Foundation	Dec. 1952	
Head Office	Shiodome City Center, 1-5-2, Higashi-Shimbashi, Minato-ku, Tokyo	
President & CEO	Yoji Ohashi	
Paid-in Capital	JPY 86,239million	
No. of Employees	12,772(Non-consolidated) employees	
Operation Revenues	JPY940,503million	
Core Business	Scheduled air transport service	
The ANA Group	No. of subsidiaries : 143, No. of affiliates : 41	

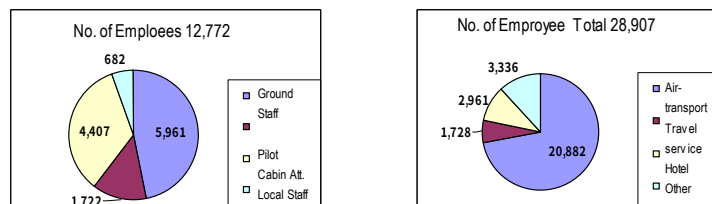
Operating Revenues



Recurring profit



Employees



ANA's principal group companies

Airtransport Air Nippon Co., Ltd.(ANK) Air Japan Co.,Ltd(AJX) Air Nippon Network Co.,Ltd.(Anet) Air Hokkaido Co.,Ltd.(ADK) Nippon Cargo Airlines Co.,Ltd(NCA) (Flight Support) ANA Aircraft Maintenance Co., Ltd ANA Skypal Co.,Ltd International Airport Utility Co.,Ltd. New Tokyo Int'l Airport Service Co.,Ltd. ANA Catering Service Co.,Ltd. ANA Telemart Co., Ltd.	Travel Services ANA Sales & Toures Co.,Ltd. ANA World Tours Co.,Ltd ANA Travel Co.,Ltd ANA Sky Holiday Tours Co.,Ltd	Other Businesses ANA Information Sys. Planning Co.,Ltd. Infini Travel Information, Inc. ANA Logistic Service Co.,Ltd. ANATrading Co.,Ltd. ANAReal Estate Co.,Ltd. Saywa Service Co.,Ltd. Jamco Corporation
	Hotel Operations ANA Hotels Co., Ltd. ANA Hotel Tokyo Co.,Ltd. ANA Hotel Sapporo Co.,Ltd. Okinawa ANA Resort Co.,Ltd.	

City / Airport served by ANA Group (as of Mar.2003)

All Nippon Airways(ANA)

Wakkanai	WKJ	Washington D.C.	IAD
Memambetsu	MMB	New York	JFK
Kushiro	KUH	Los Angeles	LAX
Asahikawa	AKJ	San Francisco	SFO
Sapporo	CTS	London	LHR
(Chitose)		Paris	CDG
Hakodate	HKD	Frankfurt	FRA
Aomori	AOJ	Beijing	PEK
Akita	AXT	Tenjin	TSN
Sendai	SDJ	Dalian	DLC
Shonai	SYO	Shenyang	SHE
Niigata	KIJ	Xiamen	XMN
Narita	NRT	Qingdao	TAO
Tokyo	HND	Shanghai	PVG
(Haneda)		Hong Kong	HKG
Toyama	TOY	Singapore	SIN
Komatsu	KMQ	Bangkok	BKK
Nagoya	NGO	Ho Chi Minh City	SGN
Kansai	KIX		
Osaka	ITM		
(Itami)			
Tottori	TTJ	Taipei	TPE
Yonago	YGJ		
Okayama	OKJ		
Hiroshima	HIJ		
Yanaguchi-ube	UBJ		
Tokushima	TKS		
Takamatsu	TAK		
Kochi	KCZ		
Matsuyama	MYJ		
Fukuoka	FUK		
Saga	HSG		
Nagasaki	NGS		
Kumamoto	KMJ		
Oita	OIT		
Miyazaki	KMI		
Kagoshima	KOJ		
Okinawa	OKA		

Air Nippon(ANK)

Taipei TPE

Air Japan(AJX)

Honolulu HNL
Guam GUM
Seoul ICN

Air Nippon(ANK)

Rishiri	RIS
Monbetsu	MBE
Nakashibetsu	SHB
Sapporo	OKD
(Okadama)	
Odate-Noshiro	ONJ
Fukushima	FKS
(Noto **	NTQ)
Oshima	OIM
Hachijojima	HAC
Iwami	IWJ
Tsushima	TSJ
Fukue	FUJ
Miyakojima	MMY
Ishigakijima	ISG

Air Nippon Network (A-net)

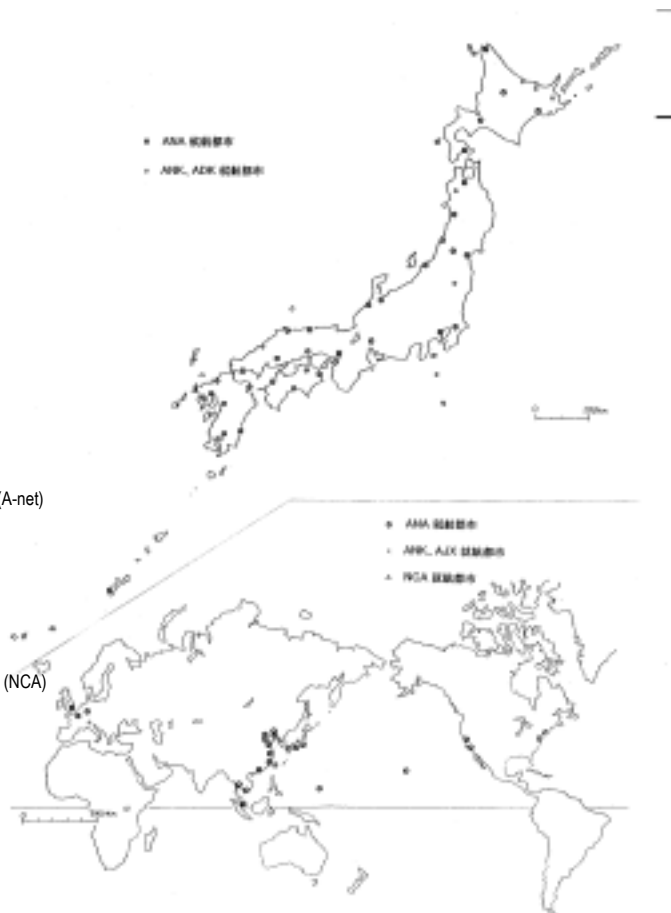
Miyakejima MYE

Air Hokkaido(ADK)

Okushiri OIR

Nippon Cargo Airlines(NCA)

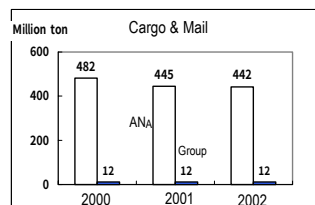
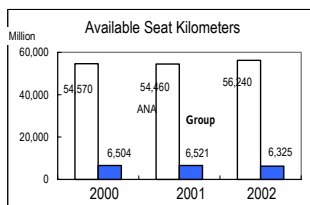
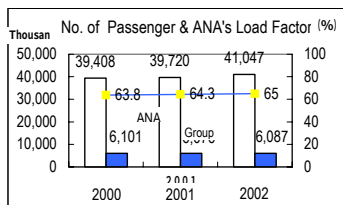
Anchorage	ANC
Chicago	ORD
Indianapolis	IND
Amsterdam	AMS
Milan	MLN
Mnila	MNL
Kuala Lumpur	KUL



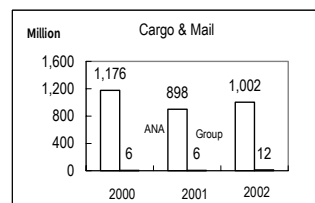
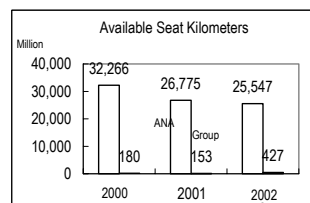
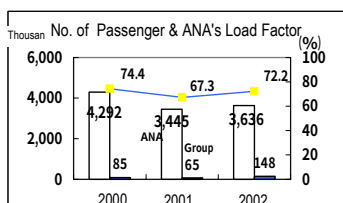
Flight Operation (2002 Fiscal)

	Domestic	International	Total	
No. of Flight ANA	200,642	22,358	223,000	
Total ANA Group	290,464	24,421	314,885	
Flight Length ANA	174,183	99,097	273,280	(1000 km)
Total ANA Group	225,079	102,791	327,870	(1000 km)
Flight Hour ANA	290,722	113,465	404,187	(Hr)
Total ANA Group	386,803	118,248	505,051	(Hr)

Domestic Service



International Service



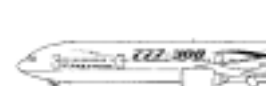
(Except Charter Flight)

Group = Domestic: ANK, ADK, Anet

International: ANK, AJX + Code-Share Flight

ANA fleet

(As of Mar. 2003)

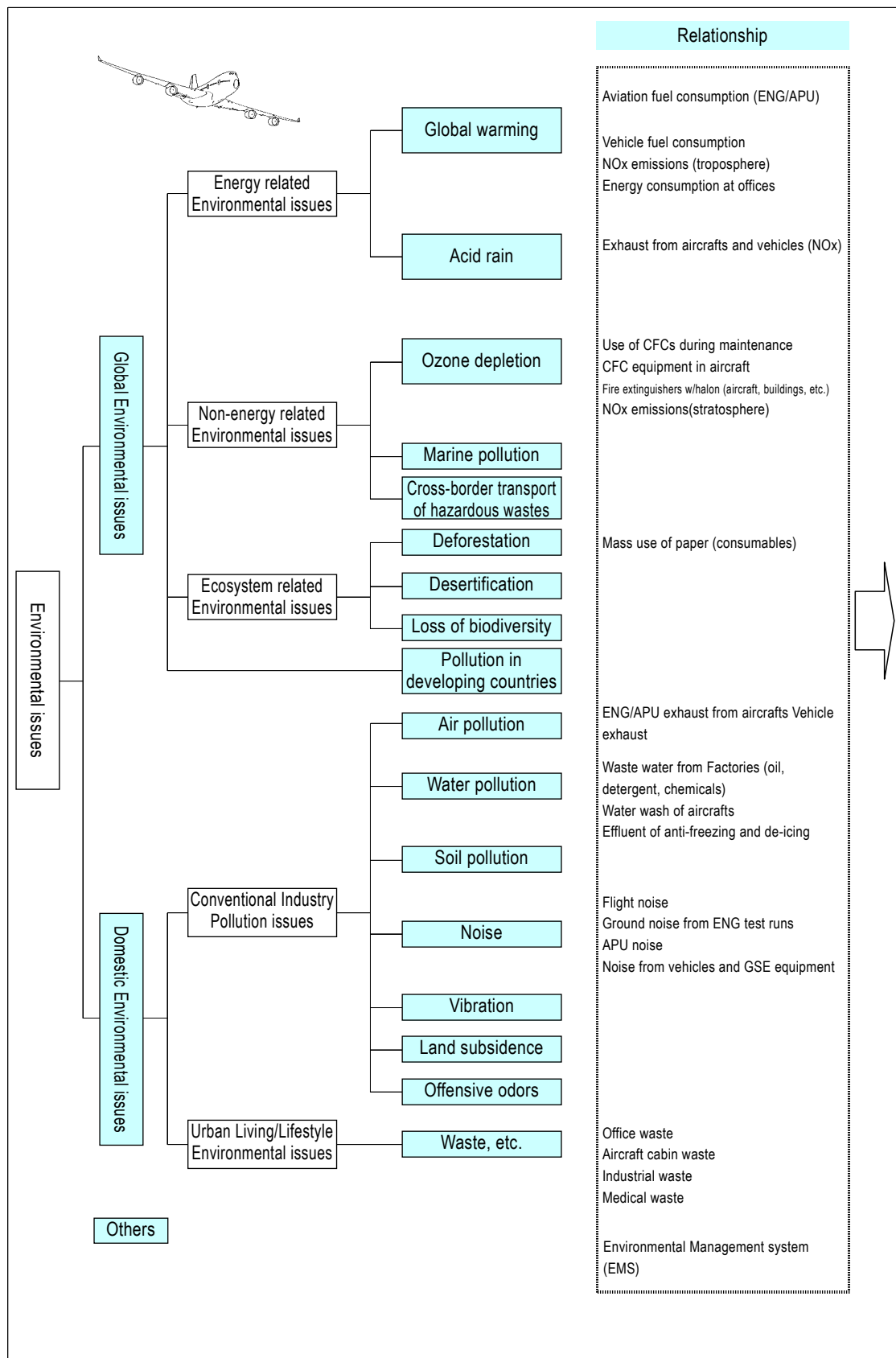
	Aircraft Type No. of seats	No. (Change)	Engin Type	Ave. Age	ICAO Noise Standard conformity to Chapter 3/4 **
	A320 (166)	25 (±0) *Include ANK	CFM 56-5A1	10.0	Ch-3/4
	A321 (195)	7 (±0)	V2530-A5	4.0	Ch-3/4
	B767-200 (234)	9 (-5) * Include ANK	CF 6-70A	17.1	Ch-3/4
	B767-300 (216-288)	49 (+7) * Include Air Japan (AJX) and ANK	CF6-80C2 B-2 /B6/B6F	10.0	Ch-3/4
	B777-200 (234-382)	16 (±0)	PW 4074/4077 /4090	5.4	Ch-3/4
	B777-300 (477-525)	5 (±0)	PW4090	4.8	Ch-3/4
	B747-200B (310~377)	2(±0)	CF6-50E2	16.8	Ch-3
	B747SR (536)	8(-1)	CF6-45A2	21.9	Ch-3
	B747-400 (320-569)	23 (±0)	CF6-80C2B1F	9.3	Ch-3/4
Total		139 (+1)		10.7 (+1.0 : diff. with the previous year)	

Group airlines Fleets

	Aircraft Type (No. of seats)	No. (Change)	Engin Type Operating Airline	Ave. Age	ICAO Noise Standard conformity to Chapter 3/4 **
	DHC-6-200 (19)	2 (±0)	PT 6-27 Air Hokkaido (ADK)	30.9	—
	DHC-8-300 (56)	4 (+2)	PW-123B Air Nippon Network(Anet)	1.3	—
	YS-11 (64)	3 (-3)	Dart Mk543-10K Air Nippon (ANK)	33.1	—
	B737-500 (126-133)	25 (+2)	CFM 56-3C1 Air Nippon (ANK)	6.9	Ch-3/4
	B737-400 (168-170)	2 (±0)	CFM 56-3C1 Air Nippon (ANK)	9.7	Ch-3/4
	B747 F/SRF (Cargo capacity 758m³)	11 (±0)	CF 6-50E2 Nippon Cargo Airlines (NCA)	16.5	Ch-3

** ICAO Chapter 4 - New standard for after 2006 newly type certification (Ref. P.37)

How airlines are related to the environment



Laws and regulations

UN Framework Convention on Climate Change (Kyoto Protocol)
(Law to promote measures to counter global warming)

Federation of Economic Organization's (Keidanren) Voluntary Action Plan for Airlines
(By 2010, target 10% CO₂ emission reduction per available seat kilometer (ASK) from 1990 levels)

Introduction of an "environmental tax" (carbon tax)?

Reinforcement of the "Law Concerning the Rational Use of Energy"

"Air Pollution Control Law"

"Automobile NOx and SPM Law,"* green tax

Ordinances of Tokyo Metropolitan Government and Chiba Prefectural Government for the "Regulation of automobile exhausts and operation"

"Vienna Convention," "Montreal Protocol"

(Law Concerning the Protection of the Ozone Layer)

"Fluorocarbon Recovery and Elimination Law" (Banning the production of CFCs and halons, and production ban on CFC alternatives by 2020)

"Fire Law"

"Basic Law for promoting the formation of a recycling-oriented society"
"Law on Promoting Green Purchasing"

"Washington Convention"

ICAO Aircraft Emission Regulation (Civil Aeronautics Law/Airworthiness Certificate)

"Air Pollution Control Law"

"Water Pollution Control Law"

"Sewage Law"

"Natural Environment Conservation Law"

"Law on Soil Pollution Measures"

ICAO noise regulation*, "Civil Aeronautics Law / Aerialness Certificate"

(Airport Management Regulations, guide for curfew, etc.)

"Environmental standards for aircraft noise"

"Labor Safety and Sanitation Law"

"Noise Control Law," "Vibration Control Law"

"Waste Treatment and Cleaning Law (General, Industrial, Medical)"

"PRTR (Pollutant Release and Transfer Register) Law to control and report on chemicals" "MSDS (Chemical safety data sheet) Law"

"Labor Safety and Sanitation Law"

"Law for Promoting the Formation of Recycle-oriented society," "PCB Treatment Law"

"Law to Promote Recycled Resource Use," "Law for the Recycling of Containers and Packages" and others

Information disclosure, promotional activities and their effects

Public Information, Propaganda Value

Current status and future tasks of ANA

CO₂ emissions from aircrafts 7.18 MM ton (1.96 MM t-C)

Aviation fuel consumption 2.91 MM kl

Per ASK 24.6 g-C (ANA's Target: -12% 23.9 g-C)

APU use reduction (use ground facility)

Class 2 designated energy management facility (6.0 MM KWh, 1500 kl)

Business C, Crew Training C, Aircraft Maintenance C (West), Test Cell
(Aircraft MC (North), Narita MC, Chitose Airport Branch) : power saving

Group companies: Use of low pollution cars: 141 approx. 2000 vehicles -> Increase

Total elimination of CFC use in maintenance works (1994)

Stop using CFC equipment, use of CFC alternatives,
measures to prevent leakage of CFC alternatives, CFC waste treatment

Dumping fuels in emergency landing

Promote recycled paper use, expand green purchasing of office supplies, sort papers for collection, and recycle papers

Provide guidance on the carry-on restriction for import-banned animals and plants

All ANA aircrafts complied with ICAO emission standards

Full use of flight simulators for pilot training and examination

Promote vehicle exhaust gas (NOx, SPM) control measures in airports

Total compliance with the stoppage of vehicle idling

Use low VOC paints, review paint removers

Full waste water treatment facilities, study the reuse of waste water, finished switching from ethylene glycol to low pollution propylene glycol for de-icing

All ANA aircraft fleet complied with ICAO Noise Control Chapter 3

Measures to comply with new ICAO Noise Control Chapter 4

Compliance and study of noise abatement operation procedures

Nighttime T/R restraint, self-restraint of ENG test run

Facilities for test run (NRT, HND, OSA, and KIX)

Change to low noise GSE

Remolding/reuse of aircraft tires

Promote sorting, recovery and recycling

Promote the management of measures to comply with PRTR and MSDS laws

Treat industrial and medical wastes based on the manifest

Eco-Airport Plan (joint with JCAB)

ISO14001 (Narita maint. Center)

ANA Environmental Report, Home Page, Env. Account

Environmental social contributions

___ ANA's future tasks

* Items with some penalty (information disclosure, etc.) imposed

□ Laws and regulations recently implemented or strengthened

Overview

ANA Group's Corporate Philosophy and Environmental Principles

The ANA Group established the following Action Measures to achieve ANA Group's Corporate Philosophy (Adopted in April 2002, refer to the foreword).

ANA Group's Course of Action	
(1)	Maintain top priority on safety
(2)	Be customer oriented
(3)	Continue to society
(4)	Embrace new challenges
(5)	Debate with active interest, decide with confidence, and execute with conviction
(6)	Build a powerful ANA Group by effectively using human resources and focusing on teamwork as a competitive strength

The third principle of ANA Group Action Measures, "continue to move forward with society" means that:

- ANA will always carry on its business in an open and fair manner so that it can contribute to the shareholders and society at large and to the environment.

With this principle in mind, the ANA Group promotes measures that address global environmental problems.

Major environment-related activities of fiscal year 2002

Month	Event	ANA Group activities
April	Start of temporary runway use at Narita Airport.	ANA-Connection starts with code-sharing operation started
May		B777-200ER started Narita-North America flights under ETOPS 207 minutes limit (trans-ocean flight for two-engine aircrafts)
June	Japan ratified Kyoto Protocol. Broad-range flight navigation (RNAV) started.	4 th ANA Group environmental training session held. Environmental compliance program started.
July		Held 1 st ANA Group Environment Forum in Haneda New group company, A-net, started Haneda-Oshima flights using DHC8-300s. B777-300 and B767 planes ordered as the successor equipment of B747SR. Company internal journal featured environmental articles. Green purchasing using company LAN (e-purchasing) started.
August	Johannesburg Summit	
September		2 nd donation of an elementary school in China. Participated in environmental management ratings by the Sustainable Management Forum of Japan. APU-OFF campaign implemented. 8 th ANA Group Environmental Dialogue held. ANA's first fleet of B767F cargo planes started operation.
October	Full implementation of Automobile NOx Law. UNFCCC COP8 Birth of Japan Air Systems (merger between JAL and JAS)	Disclosed environmental accounting (for Narita and other regions) for the first time. Received Letter of Appreciation for 41 years of ANA participation in the Red Feather Charity Campaign for.
November		
December	First public use of fuel cell cars	
January	Enforcement of Automobile Recycling Law	
February	Enforcement of Soil Pollution Measures Law	
March	Start of Osaka Airport large-scale test run facility	29 th Global Environmental Committee (composed of company executives) meeting held. Decision on mid-term action plan for "ANA Group Ecology Plan" Head offices of ANA, ANK and other group companies moved and consolidated in the Shiodome area of Tokyo. Additional disclosure of environmental accounting (for all airport branches, head offices, and headquarters). NCA (Nippon Cargo Airlines) announced renewal plan to use B747-400Fs.

ANA Group Ecology Plan (2003 to 2007)

To put ANA's environmental philosophy into practice, the ANA Group evaluated the results of its 1999 mid-term Action Plan, the "21st Century Action Plan," and established a new "ANA Group Ecology Plan" in March 2003.

Major contents of the Ecology Plan are:

- 1) Promote environmental management within all group companies.
- 2) Elevate CO₂ emission reduction target for aviation fuel consumption (from 10% reduction to 12% reduction), move up the time frame (from 2010 to 2007), and promote measures to counter global warming.
- 3) Set up quantified targets to promote resource recycling.
- 4) Promote social and environmental activities through ANA's "Aozora : Blue Sky" program. ."

Environmental Management

In 1998, ANA established the "All Nippon Airways Environmental Philosophy" (refer to the foreword), and participated in the adoption of the "Star Alliance Environmental Declaration" upon joining the Star Alliance in 1999.

In February 2002, the ANA Group was awarded ISO 14001 certification by UKAS of England for its Narita Maintenance Center, which is the maintenance base for international aviation equipment. ISO 14001 is an international standard for environmental management. Knowledge acquired through these activities has been disseminated throughout the group companies.

Environmental Accounting disclosed in fiscal year 2002 was first introduced in the Narita region, but has since been spreading to all group companies, while expanding the scope of accounting. For this year, the ANA Group has collected and disclosed information on environmental accounting for every ANA office in Japan.

The ANA Group began addressing the issue of Environmental Compliance in fiscal year 2002, and confirmed compliance of ANA and 9 ANA Group companies for the first year.

ANA Group actively participates in environmental management ratings, and all company divisions prepared a joint response for the rating conducted by the Sustainable Management Forum of Japan, which commenced in fiscal year 2002.

Sensing the tide of change, ANA Group finds all these activities useful for improving its environmental management.



(ANA B777-200)

Global Warming

Aircraft flights require the use of fossil fuels (kerosene). The ANA Group has always made efforts to introduce the most advanced aircraft that consume less fuel. As a result, the fuel efficiency of our fleets has improved 10% from that of 10 years ago, and this directly contributes to better control of CO₂ emissions from our flights.

The ANA Group will continue to work for greater emissions control through the most appropriate flight operation practices, while renewing its fleet from conventional B747 and B767-200 to B777, B767-300, and others for the future.

Fuel efficiency improvements from switching to newer aircraft types		
Conventional types	Renewed types	Fuel efficiency
YS11 (64 seats)	→ A329 (166 seats)	36% improvement
B727-200 (178 seats)	→ B767-300 (272 seats)	37% improvement
L1011 (341 seats)	→ B777-200 (272 seats)	27% improvement
B747 SR (528 seats)	→ B747-400D (569 seats)	14% improvement
B747 SR (528 seats)	→ B777-300 (477 seats)	21% improvement
B747-200 (326 seats)	→ B747-400 (337 seats)	14% improvement

(Comparison of fuel consumption per unit seat under ANA's standard operation conditions)

Air Pollution and Ozone Layer Protection

Aircraft exhaust gas includes HC (hydro-carbon), CO (carbon monoxide), NO_x (nitrogen oxides), and soot and smoke. ANA Group's aircrafts are equipped with better engines to reduce these emissions and comply with the jet engine emission standards of ICAO and Japan.

Refrigeration equipment installed in ANA aircrafts was switched from designated CFCs to a CFC alternative by 1999.

Moreover, the ANA Group eliminated the use of designated CFCs and Tri-chloro-ethane in maintenance works by 1994.

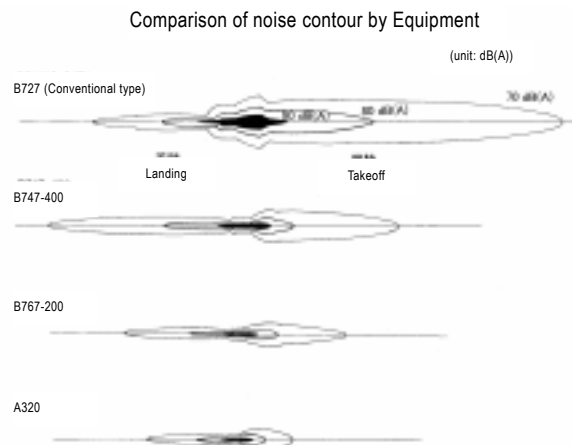
For fire extinguishers carried on aircrafts, halon extinguishers are still used as no alternatives have yet to be developed or approved.



(DHC-6-200 of ADK Air Hokkaido)

Noise

All the equipment ANA operates was in compliance with the ICAO Noise Standard Chapter 3 as early as 1994, which was earlier than many of the world's airlines. Moreover, most of ANA's equipment has already cleared the upcoming Chapter 4 Standard (to be applied to new aircrafts after 2006) that was adopted at the ICAO General Assembly in 2001. With its awareness of airport environs as part of its daily operations, the ANA Group aims to become a truly user-friendly airline.



Emissions/Wastes and Recycling

Our flight-related business activities such as aircraft maintenance inevitably generate various emissions and wastes.

The ANA Group makes efforts to reduce the amount of these emissions and wastes, and to recycle as much as possible as to decrease the need for final waste treatment.

In addition, in fiscal year 2002, the ANA Group started a green purchasing program via an e-purchasing system that connects the entire company.

Social Contribution Activities for the Environment

From fiscal year 2003, ANA and its Group Companies will start a Social Contribution Activities for the Environment program, making the best use of its unique features as an airline company. Under the "Aozora : Blue Sky" program, the ANA Group plans to host an International Environmental Picture Book Contest and to conduct reforestation projects in the areas surrounding each airport in which it operates.



(DHC-8-300 of A-net : Air Nippon Network)