

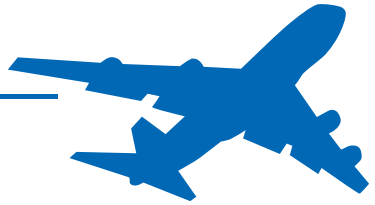


photographed on May 11, 2007

**THE 2nd RUNWAY OPENED  
ON AUGUST 2, 2007!!  
As the First International Airport in Japan  
to meet Global Standards!!**

Kansai International Airport **Environmental Report**  
**ECO**  **Island report.**

Eco-Island Report 2007



Contact:

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2007.\*\*



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# What is the Eco-Island Report?

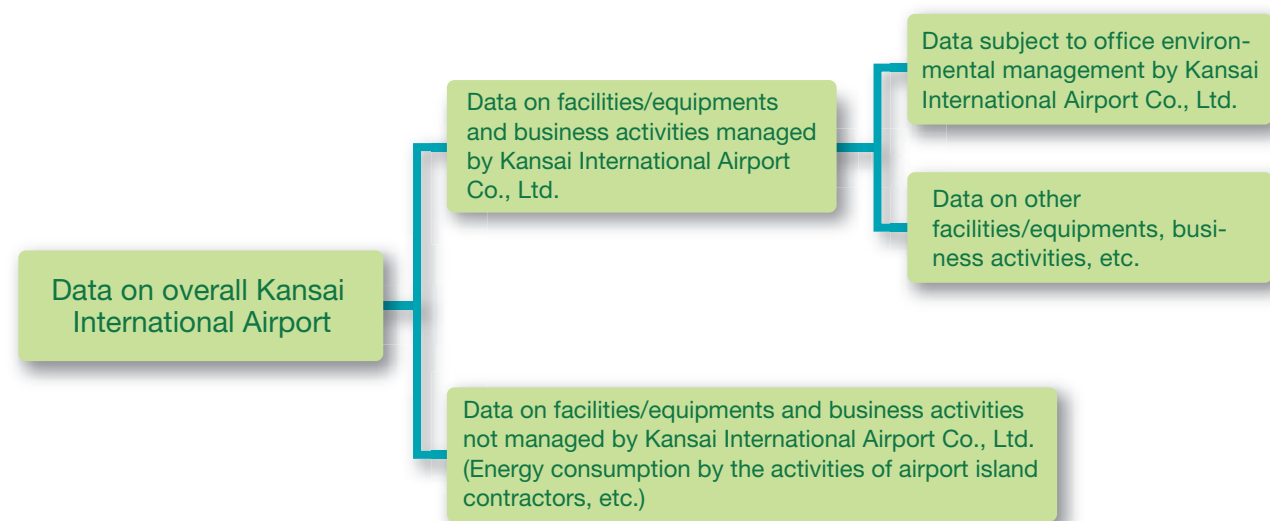
1. The Eco-Island Report 2007 reports on the environmental preservation initiatives carried out at the airport island in fiscal 2006 (starting April 1, 2006, and ending March 31, 2007) in accordance with the Kansai International Airport Environmental Management Plan (Eco-Island Plan) and in reference to the Environmental Reporting Guideline 2003 (issued by the Ministry of Environment in March 2004). Part of the report also includes information about initiatives for FY 2007.
2. The targeting period of the Eco-Island Plan is FY 2007 in which the second runway opens. By the end of FY 2007, we evaluate the achievement of the plan and, on the basis of the result, devise a new plan [(Provisional title) New Kansai International Airport Environmental Management Plan (Eco-Island Plan)].
3. We have received expert opinions on the adequacy of our overall approach to the environment (“Third party comments” in this report) in order to improve this report and enhance the environmental preservation initiatives of our company and Kansai International Airport. In addition, a questionnaire is attached to this report so as to receive opinions and comments from readers.

## <Report scope>

The report focuses on the activities of Kansai International Airport Co., Ltd. and includes all activities performed by airport island users and contractors, coordinated through the Kansai International Airport Airline Operation Council, as well as by 7 other subsidiaries including the Kansai International Airport Land Development Co., Ltd.

## <Data Composition>

Data are arranged in the following composition.



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# Environmental Preservation at Kansai International Airport

## Kansai International Airport's Strategic Perspective for Surrounding Environment

Project of constructing Kansai International Airport was initiated to cope with increasing demand of air transport and to tackle noise pollution that has arisen around the former inland airport. With a theme of "Constructing an airport which could co-exist and co-prosper with the region without causing any pollution" in our mind, the Airport was constructed 5 kilometers off the Senshu District and opened in September 1994. And after 13 years, on August 2, this year (2007), we have seen the opening of the second runway. Thinking that we owe all such achievements entirely to your kind understanding and support, I would like to take this chance to express my deepest appreciation to you.

Having established itself as an international hub airport representing Japan, Kansai International Airport is to be further dynamically developed as both "A Japanese first International Cargo Logistics Hub Airport" and "A gateway Airport of Kansai Region through to Asia and the World".

As I mentioned, the motivation to develop Kansai International Airport itself was originally derived to protect from noise pollution, an airport's basic problem. In addition, we have been actively engaged in preservation measures in order to minimize a bad attention to prevent air and water pollution. Those measures include construction of our own sewage treatment center and incineration center for the first time at a Japanese airport in order to process waste water and garbage within airport site.

In June 2001, we drew up "Kansai International Airport Environment Management Plan" (nicknamed "Eco-Island Plan") as a guideline to comprehensively cope with environmental issues of the whole airport island. Under the plan, we have endeavored to make our airport by tackling thirty targeted goals of environmental indices, including energy-saving as a measure against global warming.

With completion of the second runway, we firmly resolve once again to establish recycling systems and further promote energy-saving in order to reduce impact on the environment by reducing carbon dioxide emissions as a measure against global warming.

Thus as the first leader among the 21st century model airport, we further pledge to co-exist with environment, and your continuous understanding, cooperation and patronage to our environmentally-friendly airport would be greatly appreciated.

August, 2007



**Atsushi MURAYAMA**  
President and Chief Executive Officer  
Kansai International Airport Co., Ltd.

村山 敦

## Kansai International Airport's Measures Taken to Preserve Surrounding Environment

Every year Kansai International Airport officially releases a progress report on conservation measures for the surrounding environment taken under "Kansai International Airport Environmental Management Plan (nicknamed "Eco-Island Plan") drawn up in 2001 as a form of "Eco-Island Report".

Among the cases picked up in the Report were our continuous efforts to create an airport without such public nuisances as aircraft noise, with minimum harmful impact on environment thanks to the introduction of low-pollution cars and energy-saving measures, and one that is nature-friendly airport as shown by our introduction of seaweed beds. We have also endeavored to involve local residents and customers by providing opportunities for learning about the environment and environmental information itself.

Consequently we had the honor of receiving the Minister of Economy, Trade and Industry's Award, at 2006 All Japan Conference of Excellent Cases for Energy-saving. This reward was based on our efforts to develop an "Energy-saving Air-Conditioning Control System" automatically operated together with "Passenger Information System" for the gate lounge area in the Passenger Terminal Building.

Furthermore, in May 2007 we set up a JHFC (Japan Hydrogen & Fuel Cell) Kansai Airport Station within our airport island. We will cooperate with a demonstration project of new energy such as hydrogen and fuel cell, aimed at eventual practical use by monitoring performance of hydrogen-engine cars and fuel cell cycles.

I believe that over the last five years the measures we have taken for the conservation of the environment have steadily produced results. As the current "Eco-Island Plan" is to expire at the end of this fiscal year, we are firmly determined under the next measures to create "an airport which cares for global environment and is convenient to utilize and pleasure to visit".

August, 2007



**Tadakuni HIRANO**  
Executive Vice President  
Kansai International Airport Co., Ltd.  
(Environmental Management Director)

平野 忠邦

# 1. Outline of Kansai International Airport

## Features of Kansai International Airport

- An offshore airport designed to preserve the natural environment
- Japan's first airport to be operational around-the-clock
- Extensive network of international and domestic routes to make transit extremely easy and fast
- Easy access by railway, limousine bus, and high-speed sea-craft
- Sewage Treatment Center and Incineration Plant to treat the airport island's waste

## Kansai International Airport 2nd Phase plan

The Kansai International Airport's 2nd phase construction project involves the development of 2nd airport island, adjacent to the 1st airport island, the construction of 4,000m B runway and related facilities. Facilities to be brought into service on August 2, 2007 are limited to those which are essential for takeoff and landing, such as runway and taxiways.

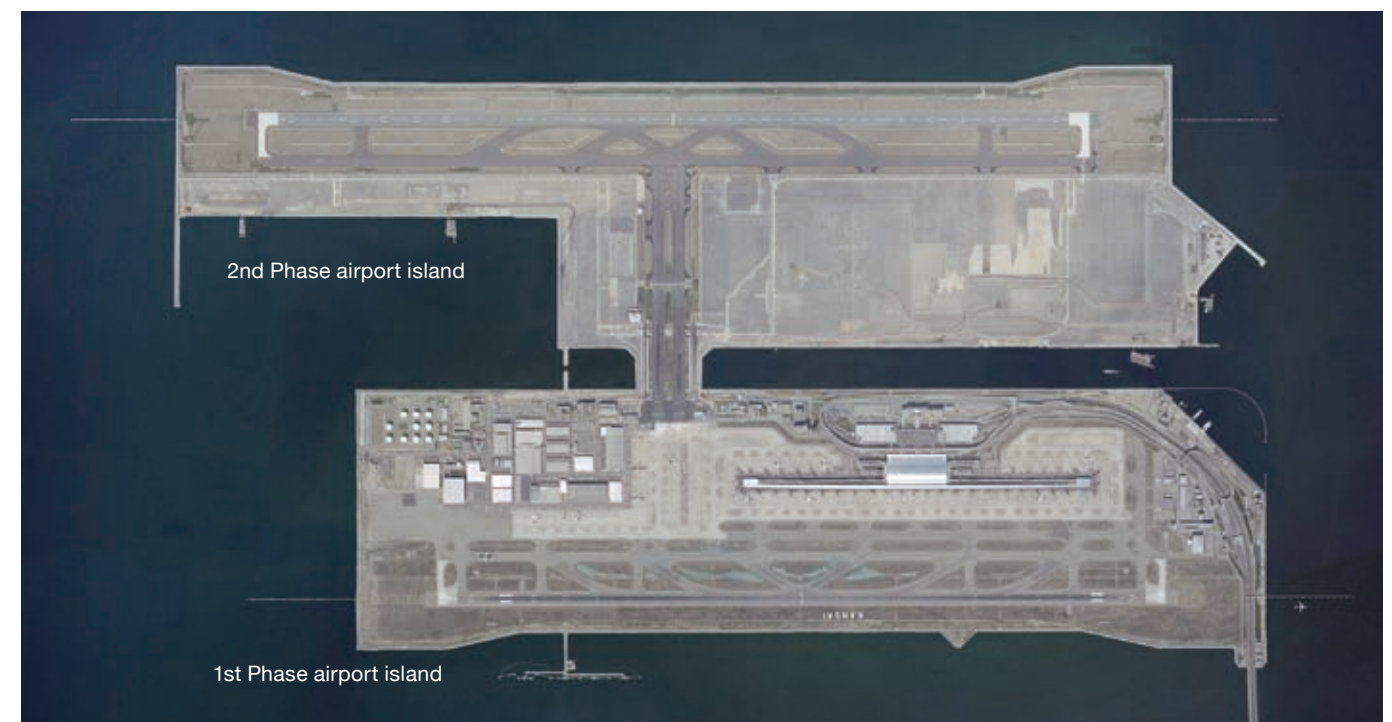
\* Facilities development, such as terminal building, parking spots and cargo handling facilities, will proceed on priority and step-by-step basis in accordance with air transport demand and management status.

## Outline of Kansai International Airport

• Opening date	September 4, 1994
• Location	Southeast Osaka Bay, approx. 5km off the coast of Senshu
• Scale	Area
	1st Airport island: Approx. 510 hectares
	2nd Airport island (planned total area): Approx. 545 hectares
• Runway	Runway
	Runway A (Length 3,500m Width 60m)
	Runway B (Length 4,000m Width 60m) <small>*Open on August 2, 2007</small>
• Airport Access bridge	Combined Bridge for road and railway use : Length 3.75km

## Outline of "Limited opening facilities in Service"

• Facility for takeoff and landing	Runway (Length 4,000m width 60m)
	Taxiways
	Parallel Taxiway : 1, Perpendicular Taxiways: 4, High-speed Exit Taxiways: 6, Connecting Taxiways: 1 (Southside)
• Air Navigation Facilities	ILS*1 Approach Lights, Aviation Weather Service Facilities, Runway and Taxiway Lights, etc.



photographed on April 6, 2007

\*1 ILS  
Instrument landing system. This is the device to send the guiding wave to instruct the approaching plane the approach course to the runway, until the plane landed on the runway safely.

# Status of Airport use

## ■ Status of Airport use

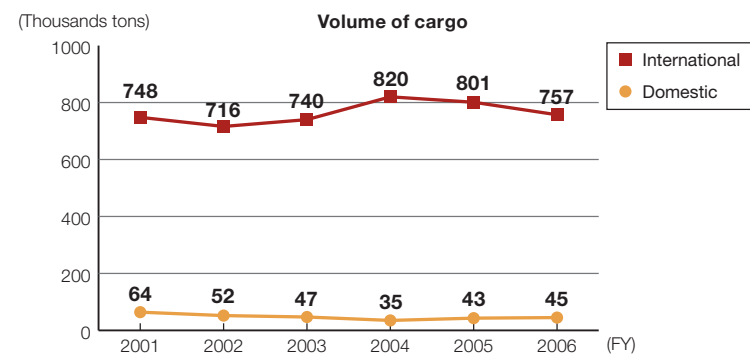
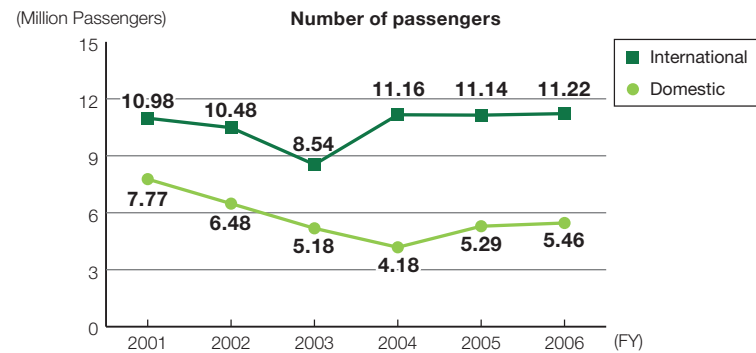
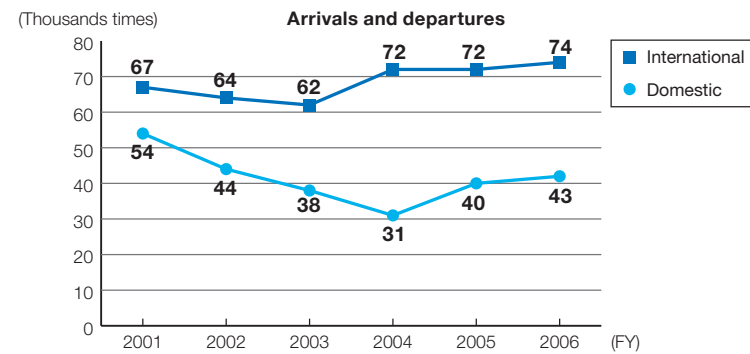
As for international flight, the number of arrivals and departures in FY 2006 marked record-high 73,860 exceeding the past highest 72,251 recorded in FY 2005. As for domestic flights, they surpassed the previous year's level due to the reviewing of the use at Osaka Airport (Itami) and subsequent increase in the number of the flight.

As for the number of international passengers, the number exceeded that of previous fiscal year due to the increased number of flights. The number of the tourists of domestic flights surpassed the previous fiscal year's result 2 years in a row also due to the increased number of flights.

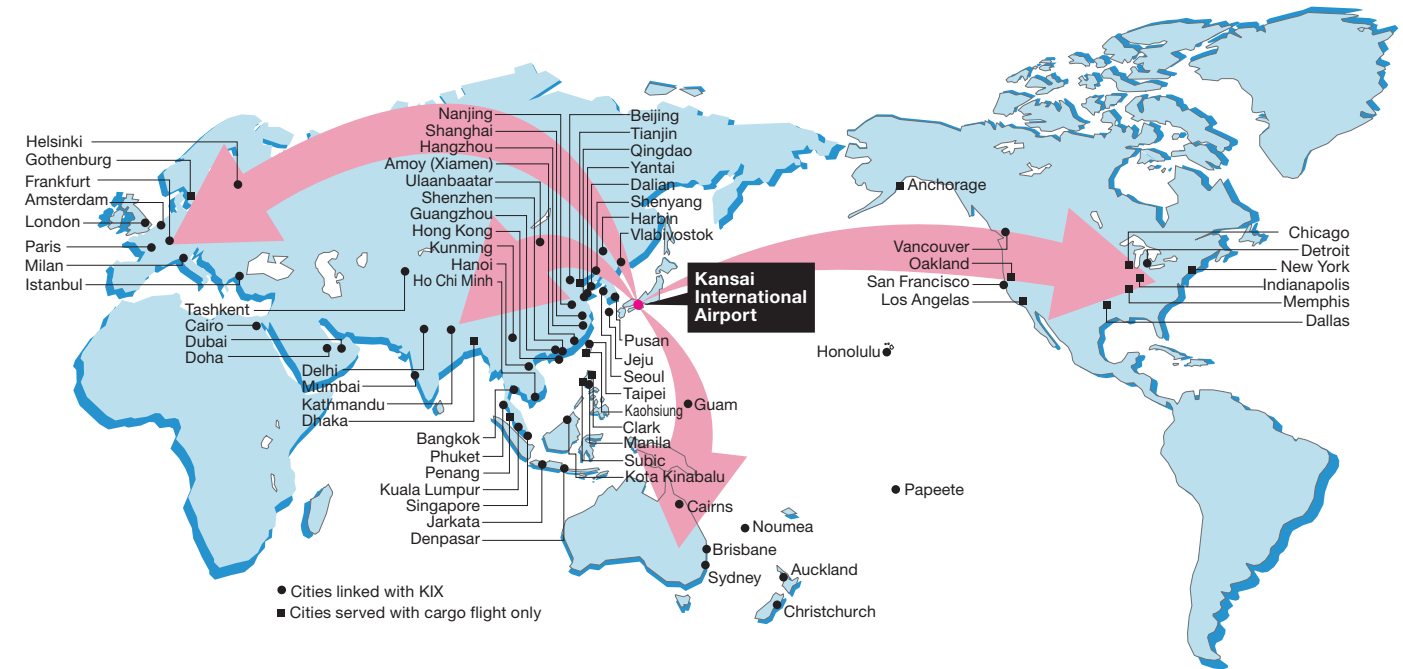
The volume of the cargo in the international flight registered year-on-year losses throughout the previous fiscal year and thus the volume decreased than that of previous fiscal year. As for domestic flights, they grew over the previous fiscal year's level sequentially due to the increased number of flights.

As for the topic in 2006, benefited from largely increased number of international flights especially for the China route, a record-high 726 flights per week at peak time was marked in the winter schedule. Additionally, for 2007 summer schedule, a higher record breaking figure of 776 flights per week was marked.

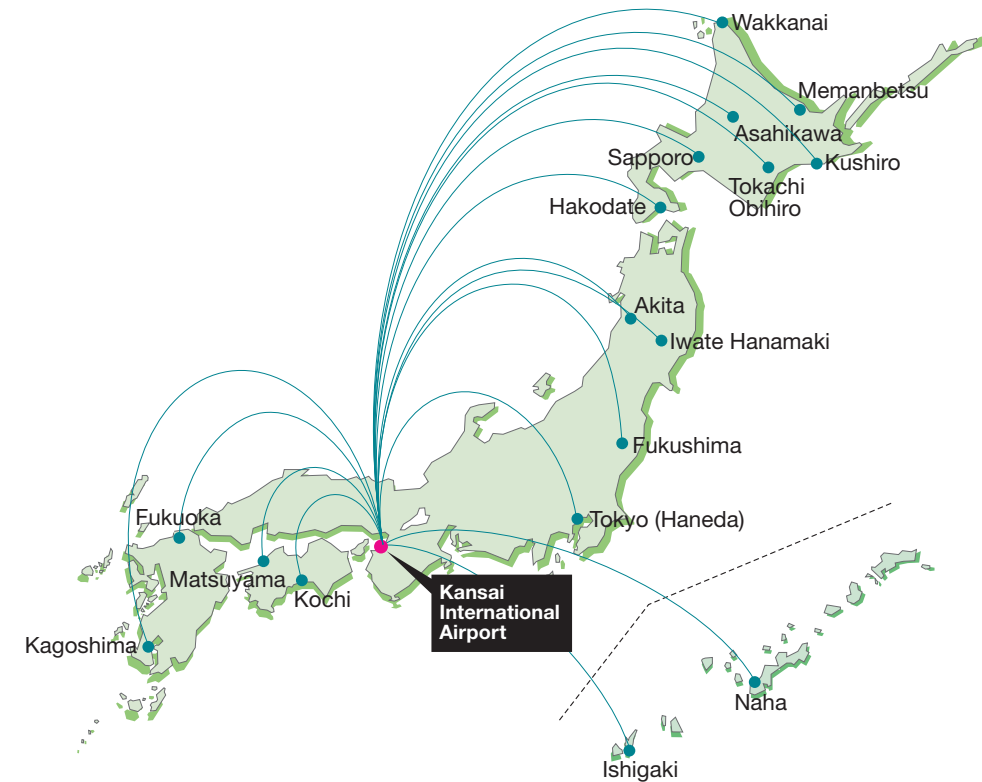
With the opening of the second runway on August 2, 2007, we expect that the aircraft movements, the number of passengers and cargo volume will greatly increase in the near future.



## ■ 71 cities in 31 countries and territories around the world served by Kansai International Airport (2007 Summertime Schedule)



## ■ 17 cities in Japan served by Kansai International Airport (Schedule in June 2007)





# Overview of Airport Island Contractors

## Overview of Airport Island Contractors (As of July 2006)

- The number of contractors: About 320 companies
- Main types of business: Governmental organization; airline, aircraft-related service business; passenger service; food and restaurant business
- The number of employees: About 15,000

Island contractors certified under ISO 14001\*1

- HANKYU EXPRESS INTERNATIONAL CO., LTD.
- West Japan Railway Company
- Sumitomo Metal Logistics Service Co., Ltd.
- DHL Global Forwarding Japan K.K.
- KINKI NIPPON TOURIST CO., LTD.
- Seino Transportation Co., Ltd.
- Nankai Building Service Co., Ltd.
- DAIICHI CO., LTD.
- LAWSON, INC.
- Takenaka Corporation
- TAS EXPRESS CO., LTD.
- KLM Royal Dutch Airlines
- Kansai International Airport Land Development Co., Ltd.

### (1) Air transportation service



Airlines

### (2) Aircraft-related service



Ground service  
In-flight meal  
Aircraft fuel supply

### (3) Passenger service



Travel agency  
Pick-up service for passenger  
Bank  
Railway services  
Bus and other service

### (4) Cargo service



Cargo-related agency (Consolidated service, customs broker, freight agency)

### (5) Other services



News report  
Facilities management  
Environmental sanitation  
Security

### (6) Food and restaurant business



Restaurant

### (7) Retailing business



Shop

### (8) Government & Municipal organizations



Air traffic control  
Emigration and Immigration management  
Customs  
Quarantine/Epidemic prevention  
Marine security  
Meteorological observatory  
Postal service  
Police service  
Fire defense  
Kansai International Airport Co., Ltd

## Overview of Kansai International Airport Co., Ltd. <KIAC>

Head office	1-Senshukuko-kita, Izumisano City
Capital	810.9 billion yen (As of March 31, 2007)
Main business	Construction, operation and maintenance of Kansai International Airport
Project cost	92.4 billion yen (FY 2006) Airport construction costs: 36.1 billion yen Airport management costs: 56.2 billion yen

Operating revenue	105.7 billion yen (FY 2006)
Operating profit	25.7 billion yen (FY 2006)
Established	October 1, 1984
The number of employees	399

\* As for fractional operation, total sum is not worked out.

## Overview of Subsidiaries of Kansai International Airport Co., Ltd.

### (1) Kansai International Airport Land Development Co., Ltd. [KALD]

Capital	500 million yen
Main business	Development and lease of Kansai International Airport land
Established	June 11, 1996
The number of employees	22 (As of Apr 1, 2007)

### (5) KIA Information & Telecommunications Network Co., Ltd. [K-NET]

Capital	1 billion yen
Main business	Telecommunication services in and around the airport
Established	November 8, 1990
The number of employees	47 (As of Apr 1, 2007)

### (2) KIA Facilities Engineering Co., Ltd. [KFE]

Capital	40 million yen
Main business	Maintenance of runways and buildings on the airport island
Established	July 30, 1993
The number of employees	179 (As of Apr 1, 2007)

### (6) KIA Heating & Cooling Supply Co., Ltd. [KHC]

Capital	3.3 billion yen
Main business	Heating and cooling supply
Established	September 27, 1989
The number of employees	16 (As of Apr 1, 2007)

### (3) KIA Fueling Service Co., Ltd. [KAFS]

Capital	100 million yen
Main business	Operation of aircraft fuel supply facilities and aircraft fuel supply on the airport island
Established	July 1, 1992
The number of employees	107 (As of Apr 1, 2007)

### (7) Kansai Airport Agency Co., Ltd. (KAA)

Capital	10 million yen
Main business	Insurance agency business, tour business, information and guidance service for airport users and passengers.
Established	December 11, 1986
The number of employees	122 (As of Apr 1, 2007)

### (4) KIA Security Co., Ltd. [KIAS]

Capital	20 million yen
Main business	Security, fire and disaster prevention on the airport island
Established	July 17, 1991
The number of employees	235 (As of Apr 1, 2007)

## Environment-related information about Contractors

International Express Co., Ltd. <a href="http://www.iecp.com/environment/index.html">http://www.iecp.com/environment/index.html</a>	AGP Corporation <a href="http://www.agpgroup.co.jp/agp/environment.html">http://www.agpgroup.co.jp/agp/environment.html</a>	Kansai International Airport Energy Center, Kansai Electric Power Co., Ltd. <a href="http://www.kepco.co.jp/kankyou/index.html">http://www.kepco.co.jp/kankyou/index.html</a>
Kinki Nippon Tourist Co., Ltd. <a href="http://www.knt.co.jp/kouhou/enviro.html">http://www.knt.co.jp/kouhou/enviro.html</a>	KDDI Corporation <a href="http://www.kddi.com/corporate/kddi/kankyo/index.html">http://www.kddi.com/corporate/kddi/kankyo/index.html</a>	Sugimura Transportation Co., Ltd. <a href="http://www.sugimura-tp.co.jp/info/kankyohozen.html">http://www.sugimura-tp.co.jp/info/kankyohozen.html</a>
The Sumitomo Warehouse Co., Ltd. <a href="http://www.sumitomo-soko.co.jp/aboutus/policy.html">http://www.sumitomo-soko.co.jp/aboutus/policy.html</a>	All Nippon Airways Co., Ltd. <a href="http://www.ana.co.jp/ana-info/ana/csr/index.html">http://www.ana.co.jp/ana-info/ana/csr/index.html</a>	Service Office at Kansai International Airport, Danzas Maruzen <a href="http://www.dhl.co.jp/publish/jp/ja/about/citizenship/environment.high.html">http://www.dhl.co.jp/publish/jp/ja/about/citizenship/environment.high.html</a>
DoCoMo Sentu. Inc. <a href="http://www.docomosentu.co.jp/Web/company/iso.html">http://www.docomosentu.co.jp/Web/company/iso.html</a>	Kansai Kuko Station, Nankai Electric Railway Co., Ltd. <a href="http://www.nankai.co.jp/ir/kankyou/index.html">http://www.nankai.co.jp/ir/kankyou/index.html</a>	Kansai International Airport Station, West Japan Railway Company <a href="http://www.westjr.co.jp/company/activity/erw/index.html">http://www.westjr.co.jp/company/activity/erw/index.html</a>
Japan Asia Airways <a href="http://www.jal.com/ja/environment/">http://www.jal.com/ja/environment/</a>	Japan Airlines International Co., Ltd. <a href="http://www.jal.com/ja/environment/">http://www.jal.com/ja/environment/</a>	McDonald's Japan <a href="http://www.mcdonalds.co.jp/company/eco/eco.html">http://www.mcdonalds.co.jp/company/eco/eco.html</a>
Lawson, Inc. <a href="http://www.lawson.co.jp/company/activity/index.html">http://www.lawson.co.jp/company/activity/index.html</a>	Kansai International Airport Co., Ltd. <a href="http://www.kiac.co.jp/public/env/eco/index.html">http://www.kiac.co.jp/public/env/eco/index.html</a>	Kansai International Airport Land Development Co., Ltd. <a href="http://www.kald.co.jp/kankyo/friendly/japanese/index.html">http://www.kald.co.jp/kankyo/friendly/japanese/index.html</a>

\*1 : ISO14001

An international standard for environmental management system established by the International Organization for Standardization in order to reduce the environmental load which can be caused by the activities of companies and institutions.



## 2. Environmental management and monitoring systems

### ■ KIAC's environmental management system

On January 2001, KIAC established an Environmental Management Committee to discuss various plans and issues related to environmental management. With the President serving as the chairperson of the committee and the Vice President as its vice chairperson, the committee has been deliberating the enactment and review of basic policies and plans related to environmental management. Furthermore, an environmental management director is assigned to guide and monitor the implementation of the various plans in each of the company's divisions. The committee works to achieve continual improvement by examining how efforts to implement the policies established in the Eco-Island Plan are proceeding, subjecting the techniques being pursued as well as the degree to which objectives have been met in an annual assessment and reviewing them as necessary. As part of the company's internal auditing system, Audit Office staff led by a full-time auditor have been working on the environmental monitoring of the 2nd phase airport island construction project and on our environmental preservation initiatives twice a year since December 1999.



### ■ The Airport Island's environmental management system

About 320 business establishments with about 15,000 employees are involved in the operation of Kansai International Airport including KIAC and its seven subsidiaries, governmental organizations, airlines, the aircraft maintenance, passenger service, and food industries. In order that the measures and policies decided in the "Eco-Island plan" can be smoothly pursued, action to spread awareness of the policies and promote cooperation is taken by Kansai International Airport Airline Operation Council\*1 and others. Also, cooperation with the island's contractors will be promoted by a consultative meeting to sit on the Airport's environmental management ((Provisional title) "Eco-Island Council"), which is being planned to be organized around FY 2007. Furthermore, our website designed for use by contractors (called "Environmental Plaza"\*2) provides various types of environmental information and encourages exchange of opinions. See p.6 for a list of such environmental information sources as provided by contractors.

### ■ Environmental monitoring system

With the aim of monitoring environment around Kansai International Airport, KIAC enacted, and is periodically executing, a monitoring plan for aircraft noise, air and water quality and marine organisms in order to identify the effects of airport operation and construction on the surrounding natural environment under the guidance and advice of the Kansai International Airport Environmental Surveillance Organization (consisting of the Osaka prefectural governor and the mayors of 9 cities and 4 towns in Senshu). The results of monitoring are reported to the relevant administrative organizations in the form of monthly and annual reports and are also exhibited at the Kansai International Airport Environmental Center. Survey Results are also released on the websites of the Kansai International Airport Co., Ltd. and Kansai International Airport Land Development Co., Ltd.

- ▶ URL: <http://www.kiac.co.jp/public/env/index.html>  
<http://www.kald.co.jp/kankyo/friendly/japanese/index.html>

\*1 : Kansai International Airport Airline Operation Council

A council to deal with coordination of airport operation, which consists of airlines in service at Kansai International Airport.

\*2 : Environmental Plaza

URL:[http://www.kiac.co.jp/public/env/eco/eco\\_l/index.html](http://www.kiac.co.jp/public/env/eco/eco_l/index.html)

### ■ Primary environmental monitoring initiatives

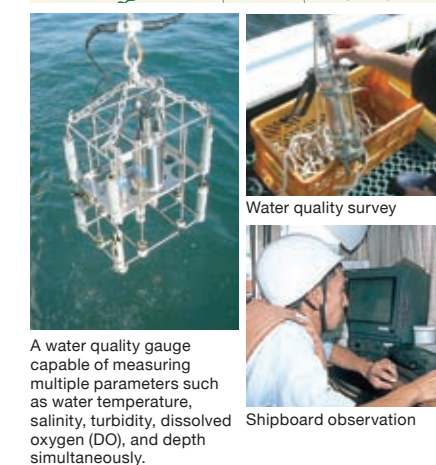
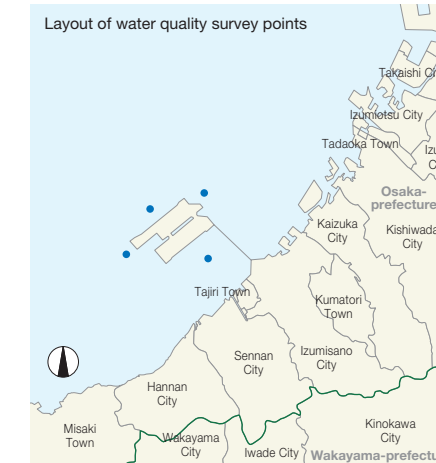
#### Aircraft noise pollution survey

Noise pollution produced by commercial aircraft is monitored at 11 regular observation station and 20 periodic fixed-point observation sites.



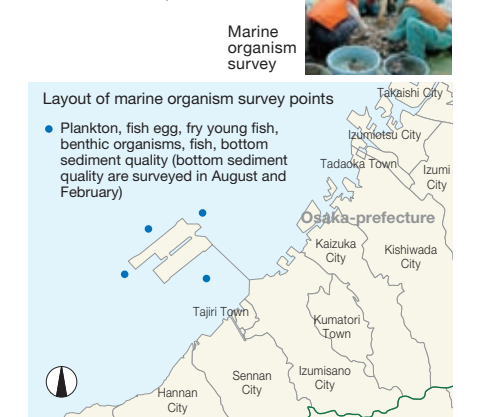
#### Water quality survey

Quarterly survey is conducted to figure out the status of water quality and grasp its variation character at marine areas around the airport island targeting at such items as total nitrogen and total phosphorus which are specified in the (national) environmental standards.



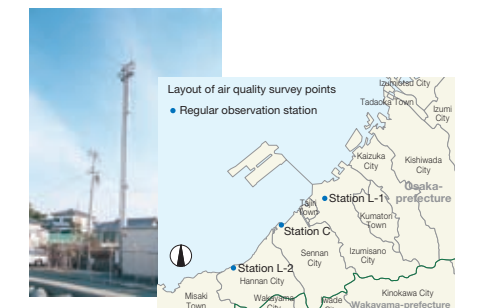
#### Marine organism survey

Quarterly survey of plankton, fish, and rock-dwelling organisms is conducted in the ocean around the airport.



#### Air quality survey

Climatic data (wind direction and velocity) as well as air pollutants (nitrogen oxide, sulfur dioxide, and suspended particulate matter\*3) are continuously measured at the regular observation stations located at three points on the coast opposite the airport.



### ■ Flow of releasing the results of environmental monitoring and other information



\*3 : Suspended particulate matter (SPM)

Particulate matter suspended in the atmosphere of 10µm and below in diameter (1µm= 1/1000 of a millimeter)

\*4 : Kansai International Airport Environmental Center

Location : Observation Hall (Entrance Hall) 2nd floor  
1 Senshukuko-kita, Izumisano

Tel : 072-455-2717

Business hours : 10:00am-6:30pm (open throughout the year)



### 3. Eco-Island Plan

#### Key points and future direction

Kansai International Airport was built 5 kilometers off the coast of Senshu as an offshore airport with the construction principle of “regard for the environment, and prosperours co-existence with the local community”. All efforts were made to ensure environmental preservation during the construction of the airport including detailed assessment of environmental impact and a course of action to seek the local consensus on the new airport plan, setting a precedent for proceeding of large-scale public works in Japan.

Since the opening in 1994, we have been engaged in environmental monitoring related to airport operations while promoting the 2nd phase project for the second runway construction, and the second runway was opened on August 2, 2007. Meanwhile, Japan, as a nation, is reviewing its socioeconomic activities and stepping toward the establishment of recycling-based society. In this regard, we believed it necessary to conduct voluntary environmental management to tackle complicated and diversified environmental issues in the operation of the airport in the 21st century. In line with this, we established the Kansai International Airport Environmental Management Plan (the Eco-Island Plan) in June 2001 for the period through to FY 2007, aiming at the reduction of negative environmental impact which may be caused by the facility (and its operation) and minimize its effect on the environment of Osaka Bay and surrounding areas. In promoting the plan we seek not only to meet environmental standards as part of environmental conservation targets, but also to realize “a human- and environmentally- friendly airport”.

We will take leadership in managing the plan. We act not only as one of the company, but also, as the airport administrator. We grasp and evaluate comprehensively the results of the efforts for the preservation of the environment in the whole airport island to encourage the island's contractors' voluntary initiatives. Those achievements are summarized in the annual Eco-Island Report.

After the project period comes to the end in FY 2007, the year of the opening of the second runway, the current plan is going to be evaluated, and “(Provisional title) New Kansai International Airport Environmental Management Plan (Eco-Island Plan)” with its period until 2012, is scheduled for reviewing.

#### Key objectives of the Eco-Island Plan

##### [1] A pollution-free Airport

The airport shall reduce the impact of aircraft noise so that aircraft operations do not disturb the daily lives of area residents.

##### [2] An Airport with low negative environmental impact

While practicing the conventional measures, new measures focused on the prevention of the source of the problem will be selectively taken. The airport strives to complete recycling circle by practicing an optimum consumption and minimum occurrence of waste through effective use of resources and energy.

##### [3] An Airport that values nature and serves as a meeting place

The airport shall work to create relaxing space and the habitat environment crafted around viable ecosystem by making the most of its unique characteristics of an offshore airport.

##### [4] An airport that coexists with the local communities and its users

In order to have its activity well understood, the airport releases the information on the state of environmental condition: the airport shall promote the dialogue and partnership between the local community by expanding the means of providing information and by deepening exchanges.

### 4. FY 2006 environmental preservation initiative topics

#### Commended “Minister of Economy, Trade and Industry’s Award” at FY 2006 All Japan Conference of Excellent Cases for Energy-saving (P.24)



The energy saving efficiency of the air conditioning control system at the boarding gate waiting area of the terminal building was evaluated, and we were commended “Minister of Economy, Trade and Industry’s Award” at FY 2006 All Japan Conference of Excellent Cases for Energy-saving.

The said system is that the air conditioners operate depending on the lounge occupancy, in which the information is provided by the “Passenger Information system”, which shows airplane departure and arrival.

#### Presentation at “Eco-Products 2006”



Aiming at the diffusion of ecology-related products and transmission and exchange of environmental information, one of the nation's largest comprehensive environmental exhibition Eco-Products 2006 was held at Tokyo Big Sight in December 2006.

Kansai International Airport Co., Ltd. set up the “Airport Booth” in cooperation with the Civil Aviation Bureau (Ministry of Land, Infrastructure and Transport), Narita International Airport Corporation and Central Japan International Airport Co., Ltd. to publicize our approach to environmental preservation. Not only an easy-to-understand explanation of the activities at Kansai International Airport was made by panel and video display, but also a quiz game and other various events were held.

#### Protection and recovery of seashore native vegetation (P.28)



On the land behind seawall of the 2nd phase airport island, about 6,000 square meters of vegetation zone of Hamanadeshiko (*Dianthus japonicus*) and about 1,500 square meters of other wild species were created to foster the native variety as part of a project aiming at the protection and recovery of seashore native vegetation on Osaka Bay.

#### Seaweed bed formation around the 2nd phase airport island (P.27)



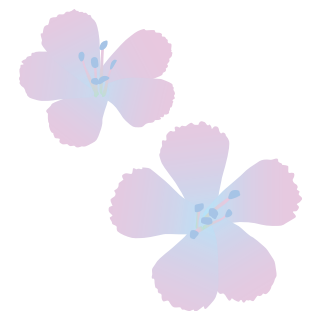
KALD conducted a monitoring to trace the growth of introduced seedling and to verify the bed formation.

## 5. Primary policy objectives and compliance status

Primary policy	Eco-Island Plan FY 2007 objectives		
<b>[1] A pollution-free Airport</b>	<b>(1) Reduction of the impact of aircraft noise</b> <ul style="list-style-type: none"> <li>Review of the runway operation</li> </ul>	Request the organizations concerned for relevant action prior to the inauguration of the facilities constructed in the 2nd phase project.	
	<ul style="list-style-type: none"> <li>Introduction of low-noise aircraft</li> <li>Aggressive enforcement of flight path abidance</li> </ul>	When appropriate, request the airlines for the relevant action through the Ministry of Land, Infrastructure and Transport (MLIT). Investigate the cause of deviation from proper flight path and accordingly request the airlines for relevant action through MLIT.	
	<ul style="list-style-type: none"> <li>Investigation research of low-frequency air vibrations</li> </ul>	Gather data and scientific information.	
	<b>(2) Elimination of radio disturbance</b> <ul style="list-style-type: none"> <li>Implementation of remediation measures</li> </ul>	Take measures for improvement and deal appropriately with the new occurrence of interference.	
	<b>[2] An Airport with low negative environmental impact</b>	<b>(1) Reduction of air pollutant emission</b> <ul style="list-style-type: none"> <li>Introduction of aircraft with lower emission of air</li> <li>Promotion of the utilization of ground power units (GPUs)</li> <li>Thorough implementation of idling stop practice</li> </ul>	Ask MLIT for the relevant action as required. Consider the basic policy of encouraging the use of GPU facility. (FY 2003 objective) Promote awareness by putting up signboards calling for cooperation, etc. (FY 2004 objective) Encourage contractors to provide guidance to their employees. Urge drivers for the compliance on the occasion of giving them the approval of vehicle operation.
		<ul style="list-style-type: none"> <li>Introduction of low-emission vehicles (LEVs)</li> </ul>	Plan for the replacement of the contractors' vehicles with LEVs at renewal time. Urge contractors for the conversion of their fleet to LEVs.
		<ul style="list-style-type: none"> <li>Conversion of airport limousine to that of low-emission</li> <li>Infrastructure development of compressed natural gas (CNG) station.</li> </ul>	Promote the introduction of environmentally-friendly vehicles. Consider the sites as part of the overall airport layout plan.
		<ul style="list-style-type: none"> <li>Promotion of utilization of public transportation</li> </ul>	Urge contractors and airport users for the use of public transportation.
		<ul style="list-style-type: none"> <li>Improvement of tanker fuel</li> <li>Treatment of exhaust gas at Incineration Plant</li> </ul>	Request for the efforts to improve fuel quality. Do our best to reduce atmospheric pollutants conducting thorough combustion control.
		<ul style="list-style-type: none"> <li>Promotion of introduction of emission-controlled construction equipment</li> </ul>	
<b>(2) Reduction of water pollutant emission</b> <ul style="list-style-type: none"> <li>Advanced wastewater treatment and use of reclaimed water</li> </ul>		Maintain consistent treatment levels and encourage the use of reclaimed water.	
<ul style="list-style-type: none"> <li>Improvement of rainwater drainage system</li> </ul>		Attach mud collectors to collection tubs.	
<b>(3) Effective use of resources</b> <ul style="list-style-type: none"> <li>Promotion of the purchase of green (environmentally friendly) products</li> </ul>		Encourage green purchasing and work to realize optimum consumption and minimum waste.	
<ul style="list-style-type: none"> <li>Reduction and recycling of general waste</li> </ul>		Request business institutions to cooperate for the thorough reduction and sorting of the waste. Request airlines further promotion of reduction and sorting of the waste from their aircrafts. Promote the reduction in volume and recycling of food waste applying carbonization and other means.	

Compliance status	
<ul style="list-style-type: none"> <li>An operation method of avoiding as much as possible the increased impact of aircraft noise on land areas is proposed and requested for the compliance with it in the aircraft operation plan in the in-house draft of 8th Airport Development Plan.</li> </ul>	
<ul style="list-style-type: none"> <li>Request was made to Kansai International Airport Airline Operations Council for observation of flight paths.</li> <li>Until now, in case of any deviation from flight paths or heights, we have always informed the concerned local municipalities of the incident after obtaining relevant information from MLIT. In addition we have reported the status of deviation in the Conference concerning flight paths of Kansai International Airport (Osaka area) and/or Awaji District Conference concerning Kansai International Airport (Hyogo area).</li> <li>Quarterly survey of low-frequency air vibrations have been conducted at one site each in Osaka and Wakayama prefectures.</li> </ul>	<b>P.15</b> <b>P.16</b>
<ul style="list-style-type: none"> <li>Countermeasure work against television signal interference was completed in FY 2001. Since the opening of the airport, 12,143 household have undergone the countermeasure work. No new occurrence has been seen thereafter. Hence, no countermeasure works since FY 2002.</li> </ul>	<b>P.16</b>
<ul style="list-style-type: none"> <li>In January 2003, usage restrictions of auxiliary power units (APUs) on commercial aircraft was specified in Aeronautical Information Publication (AIP).</li> <li>While summarizing the use of fixed power facilities, we have requested the airlines for the further use.</li> </ul>	<b>P.17</b> <b>P.17</b>
<ul style="list-style-type: none"> <li>"No Idling" signs and posters were set up in parking lots.</li> <li>Enlightening posters appealing "no idling" prepared by Osaka Prefecture were distributed to Traffic Control Centre and Aviation Sales &amp; Marketing Division to have them displayed in the airport island. Enlightenment through the KIAC website or on the flight board on the occasion of official announcement such as photochemical smog forecast.</li> <li>Messages in scrolling text on flight boards and appeals through the website for contractors were implemented.</li> <li>In training sessions for vehicle operation in the restricted areas the appeal has been made to trainee drivers.</li> </ul>	<b>P.24</b> <b>P.24</b>
<ul style="list-style-type: none"> <li>In December 2002 the "Office Environmental Management Manual" was revised, where the introduction of low-emission vehicles was specified.</li> <li>Aircraft-guiding vehicles were upgraded to ultra-low-emission cars.</li> <li>Introduction of the low-emission cars was publicized in "Eco-Island Report 2006".</li> <li>Appeal was made in the KIAC website for contractors, Contractors Conference and Eco-Island Report.</li> </ul>	<b>P.18</b> <b>P.18</b>
<ul style="list-style-type: none"> <li>We have been studying the introduction of low-emission vehicles since 2000 and urging the relevant entities to employ such vehicles.</li> <li>"Kansai International Airport &amp; Rinku Town" district was designated the model areas of CNG-powered vehicle diffusion promotion, and CNG service station was set up in Rinku Town.</li> <li>A hydrogen filling station was set up in the airport island and experimental operation of the hydrogen-powered vehicles and fuel-cell-powered bicycles started. (May 2007)</li> </ul>	<b>P.18</b>
<ul style="list-style-type: none"> <li>"Voluntary restraint of automobile use and no idling" was called for on the flight board at the official announcement such as forecast of photochemical smog in the area of Sennan, Osaka.</li> <li>Changeover to Crude A tanker fuel was implemented in FY 2000 to start ongoing operation.</li> <li>Thanks to dramatically improved combustion efficiency of the installed shredding machine as proved in the combustion improvement demonstration test for incinerators, emission of air pollutants fell substantially to below the control value, and that to dioxin, to well below standards.</li> <li>The filter cloth for Unit 1's bag filter was renewed to maintain constant efficacy of controlling air pollutants emission.</li> </ul>	<b>P.21</b> <b>P.21</b>
<ul style="list-style-type: none"> <li>Since FY 2003, we have instructed the contractors to promote the introduction of construction equipment with exhaust-emission-controlling mechanism.</li> </ul>	
<ul style="list-style-type: none"> <li>Through the constant operation of the controlling facilities, the quality of final effluent resulted in satisfactory level below the waste water standard. The reclaimed water was used for the cleansing of painted surface in the construction work, as well as for watering of trees. (FY 2006 performance: 36% in volume (A ratio of waste water reused in the total water supply (i.e. tap water and waste water)))</li> <li>Implementation of facilities specially designed to reduce the pollution load discharged from the airport's rainwater drainage system.</li> </ul>	<b>P.22</b> <b>P.22</b>
<ul style="list-style-type: none"> <li>Adoption of the products that conform to the Law on Promoting Green Purchasing such as 100% recycled paper and recycled toner cartridge. Optimum consumption and minimum waste is practiced through reuse of copy paper and files.</li> <li>Batteries were replaced with long-life products, where 11 outdoor cubicle batteries for apron lighting and 4 for lighting of aviation security facilities in two systems each in FY 2004.</li> <li>In printing, recycled toner was used. And 100% recycled paper was mainly used. Paper consumption was reduced through two-side printing or copying on rear surface of used paper.</li> <li>For brochure, 100% recycled paper was used and environmentally-friendly soy ink was used for printing as much as possible.</li> </ul>	<b>P.20</b> <b>P.20</b> <b>P.20</b> <b>P.20</b>
<ul style="list-style-type: none"> <li>The "Regulations Governing the Use of Waste Processing Facilities" was enacted and enforced in October 2002.</li> <li>Leaflet explaining how to segregate and dispose the wastes was prepared and distributed.</li> <li>The problems in disposing waste were sort out and accordingly the sorting-and-disposal was requested to the contractors in July 2003.</li> <li>Sorting at the collection of plastic bottle is being practiced.</li> <li>Sorting-and-disposal of in-flight waste is being practiced by domestic (Japanese) carries.</li> <li>Carbonization of food product waste is being practiced in in-flight meal factories.</li> </ul>	<b>P.19</b> <b>P.19</b> <b>P.19</b> <b>P.20</b> <b>P.20</b>

● New initiative adopted since 2006  
● Initiative continued from FY 2005 or earlier  
○ Past initiative dates back to FY 2005 or earlier



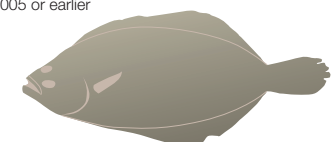


# 5. Primary policy objectives and compliance status

Primary policy	Eco-Island Plan FY 2007 objectives
<b>[2] An Airport with low negative environmental impact</b>	<ul style="list-style-type: none"> <li>Reduction and recycling of Industrial Waste</li> </ul> <p>Request the relevant contractors for reuse of plastic waste of packaging. Encourage the appropriate processing and recycling of industrial wastes as well as measures to control waste.</p>
	<ul style="list-style-type: none"> <li>Effective use of residual product of construction</li> </ul> <p>Effective use of dirt generated in the construction.</p>
	<p>(4) Efficient use of energy</p> <ul style="list-style-type: none"> <li>Promotion of energy saving and introduction of natural energy</li> </ul> <p>Promotion of energy saving.</p>
	<p>(5) Management of CFC's substitute etc.</p> <ul style="list-style-type: none"> <li>Management of equipment that uses CFC etc.</li> </ul> <p>Study the feasibility of the introduction of natural energy. (FY 2003 objective)</p> <p>Create a list of equipment that uses CFC etc., and regularly check the usage.</p>
	<p>(1) Conservation of natural environment</p> <ul style="list-style-type: none"> <li>Creation of seaweed beds on gradual incline of masonry sea wall and associated research</li> </ul> <p>Enlarge area covered by seaweed beds and work for fast seaweed bed formation.</p>
<b>[3] An Airport that values nature and serves as a meeting place</b>	<ul style="list-style-type: none"> <li>Greening of the airport island</li> </ul> <p>Plant trees in the airport island as much as possible./ Study measures to promote the greening of the 2nd phase airport island. (FY 2006 objective)</p>
	<p>(2) Landscape conservation</p> <ul style="list-style-type: none"> <li>Conservation of landscape of the airport island and related measures</li> </ul> <p>Pursue landscape conservation of the 1st phase airport island./ Study the policy in practicing the guidelines for the preservation of landscape in the 2nd phase airport island (FY 2006 objective).</p> <p>Preserve water quality of the internal water./ Establish spaces where airport users can feel an affinity with the waterscape.</p>
	<p>(1) Disclosure of information about the airport</p> <ul style="list-style-type: none"> <li>Maintenance of the processing system of complaints against aircraft noise</li> </ul> <p>Strive to collect information concerning complaints and enrich the processing system of complaints against aircraft noise.</p>
<b>[4] An airport that coexists with the local communities and its users</b>	<ul style="list-style-type: none"> <li>Creation of environmental reports</li> </ul> <p>Create year-on-year environmental reports.</p>
	<p>(2) Dialogue and cooperation with local community</p> <ul style="list-style-type: none"> <li>Diversification of opportunities to provide information about the airport</li> </ul> <p>Work to diversify the media used to disseminate information and actively engage in the exchange between local communities.</p>
	<ul style="list-style-type: none"> <li>Provision of opportunities to learn about the environment</li> </ul> <p>Reception of the visitors at the Kansai International Airport Environmental Center.</p>

Compliance status	
<ul style="list-style-type: none"> <li>Sorting in collecting waste packaging materials used for international freight, as well as its recycling, is being practiced.</li> </ul>	P.20
<ul style="list-style-type: none"> <li>Problems in waste treatment were sorted out facility-by-facility, and sorted disposal and prevention of illegal waste dumping were accordingly requested to the contractors. (July 2003)</li> </ul>	P.19
<ul style="list-style-type: none"> <li>As to the waste packaging materials generated at duty-free shops of KIAC's direct management, their taking back and reuse was requested to the relevant forwarding agents.</li> <li>Ultrasonic cleaning system for air-conditioners was adopted. Cleaning and reuse of the filters damaged in the briny air and medium-performance filters was practiced. Annual purchase of filters has been reduced since FY 1998 as a result of reviewing of the period of replacement and the number of times of reuse. The reuse of filters reduced the waste. From 1998, the exchange cycle is lengthened and reuse times is revised, and the yearly purchased amount of filter is reduced. And for the filter for business garbage, the disposal amount is also reduced by the reuse.</li> </ul>	P.19
<ul style="list-style-type: none"> <li>Dirt generated in the construction projects in and around the airport island has been used for the reclamation of the 2nd phase construction site.</li> </ul>	P.19
<ul style="list-style-type: none"> <li>"Office Environmental Management Manual" was enacted. Its implementation has been checked annually since FY 2001.</li> <li>A council for energy saving was established in FY 2002, where research, analysis and countermeasures as well as planning have been conducted.</li> <li>Lighting control of apron lights has been proceeding since FY 2004 resulting in reduced power consumption.</li> <li>Energy saving was practiced: operation of air-conditioner accordingly to the flight schedule; inverter control of air-conditioning pump; integration of transformer for high-voltage current; adoption of automatic shutoff of lavatory basin.</li> <li>LED lamp was adopted as aeronautical lights in 2nd phase airport island. Further energy saving measure is being considered.</li> <li>Studies for low-cost measures to be continued.</li> </ul>	P.25 P.23
<ul style="list-style-type: none"> <li>Periodic checks of the equipment using CFC were carried out biannually for 13 units of emergency chillers (using R-22, HCFC-22), as well as 68 units of packaged air-conditioners and room air-conditioners (using R-22, HCFC-22) in order to prevent them at any time from causing leakage. When the replacement of coolant system parts is required due to failure or other cause, CFC is collected using refrigerant collector.</li> </ul>	
<ul style="list-style-type: none"> <li>Transplantation of seaweed seed and seedling such as spore bag*1 was tested.</li> <li>Monitoring of the result of various earlier attempts of applying seed and seedling during FY 2001-2004 period was conducted. However, with the consideration of impact of high water temperature in FY 2006 which made the seaweed bed reduced, it turned out that 18ha and 23ha of seaweed beds has been formed along the seawall of the 1st phase and 2nd phase airport islands, respectively.</li> <li>Seedling supply experiment of four kinds of large brown seaweed (<i>Sargassum muticum</i>, <i>Sargassum yamamotoi</i>, <i>Ecklonia cava Kjellman</i> and <i>Undaria pinnatifida</i>) was conducted in the internal water area between 1st phase and the 2nd phase airport islands. Reproduction of new embryo plant was observed.</li> </ul>	P.27 P.27 P.28
<ul style="list-style-type: none"> <li>Development of greening plan for the 2nd phase airport island is being proceeded.</li> <li>Weeding, irrigation, clipping of the trees and fertilization are being practiced.</li> </ul>	P.28
<ul style="list-style-type: none"> <li>Supplementary planting was done for the facility in the passenger terminal called "Canyon**2.</li> <li>A relevant plan was made in order that the greening plan for the 2nd phase airport island and guidelines for the preservation of the 2nd phase island be utilized in the practical proceeding.</li> <li>Experiment was conducted in the internal water area of the 2nd phase airport island using a water preservation system for closed water area called "Umi-sumashi".</li> <li>Effective use of the internal water area was studied to produce agreeable ambience where people can feel an affinity with the waterscape.</li> </ul>	P.28
<ul style="list-style-type: none"> <li>As for the complaints of aircraft noise or flight path and air height, the understanding of the parties concerned was sought explaining the specific circumstances based on the information obtained from Kansai International Airport Office of the Civil Aviation Bureau. Summary of the complaints was reported to the relevant organizations at the "Conference concerning flight paths of Kansai International Airport (Osaka area)" and "Awaji district Conference concerning Kansai International Airport(Hyogo area)".</li> </ul>	P.16
<ul style="list-style-type: none"> <li>"Eco-Island Report 2006" (in Japanese and English) was published and distributed to the concerned organizations and institution in December 2006. It was released to the public on the website of Kansai International Airport.</li> </ul>	P.29
<ul style="list-style-type: none"> <li>A video program titled "Genten(Starting Point)" to publicize the environmental conservation measures taken by Kansai International Airport was produced and distributed to the organizations concerned.</li> <li>Brochures and "Eco-Island Report 2006" were distributed to the Visitor Hall, Environmental Center of Kansai International Airport and Kansai Airport &amp; Airfront Community Plaza for publicity.</li> <li>A pamphlet titled "Approach to Environmental Conservation and Creation" was prepared and given out at the symposium held in commemoration of 30th anniversary of the establishment of the Law Concerning Special Measures for Seto Inland Sea Environmental Conservation.</li> </ul>	P.29 P.29 P.29
<ul style="list-style-type: none"> <li>Kansai International Airport Environmental Center was relocated to the present Observation Hall site in July 2005 to improve its PR function. The Center received 37,781 visitors in FY 2006.</li> <li>A lecture about Eco-Island was held aiming at the inauguration of the Conference on Environmental issues, which will be composed of KIAC and island contractors.</li> </ul>	

- New initiative adopted since 2006
- Initiative continued from FY 2005 or earlier
- Past initiative dates back to FY 2005 or earlier



\*1 : Sporebag  
A bag containing picked pieces of mature seaweed.

\*2 : Canyon  
A spacious atrium with natural trees planted occupying 1st to 4th floors' space of the Passenger Terminal Building, whose lush greenery provides the visitors with amenity and comfort.

## 6. Environmental preservation initiatives

### [1] Creating a pollution-free airport

### Initiative to eliminate pollution caused by the airport

#### Key points and future direction

Kansai International Airport was built 5 kilometers off the coast of Senshu. The location was so decided in order to reduce the effects of aircraft noise. The company will continue to monitor aircraft noise.

#### Steps to reduce the effects of aircraft noise

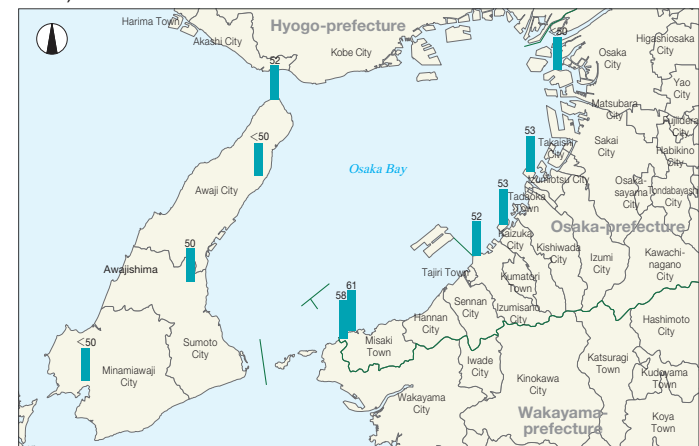
An environmental impact assessment was conducted around the airport, assuming predetermined flight paths and aircraft operation methods in order to reduce the effects of aircraft noise. Results showed that almost all of the range in which noise was estimated to exceed WECPNL\*1 70 remained in the sea zone.

Kansai International Airport continuously monitors and periodically surveys aircraft noise, and release the results. The measurements at all observation stations and survey points in the land area meet the environmental standard (70 or less [unit : WECPNL]).

#### [Steps to reduce the effects of aircraft noise]

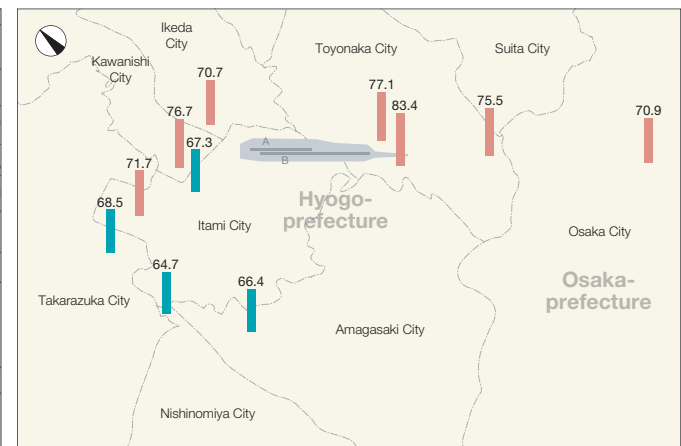
- Countermeasures for sources of noise
  - Transition to low-noise aircraft\*2
- Flight paths and Aircraft operation methods
  - Departing aircrafts should gain altitude over Osaka Bay to a sufficient enough level after takeoff.
  - Flight paths restricting aircraft to airspace over the Akashi Strait and the Kitan Strait have been established for aircraft arriving or departing late at night or in the early morning.
  - A series of "Reduced-noise flight procedures"\*3 has also been adopted for aircraft approaching the airport from the Kitan Strait.
- Our initiatives
  - KIAC continues to monitor the observance of established flight paths and altitudes.
  - Through Kansai International Airport Airline Operation Council, the company has requested member airlines for strict observance of the established flight paths and due attention to noise reduction.

Results of aircraft noise monitoring at Kansai International Airport (FY 2006)



Source: 2006 Annual Report on Aircraft Noise at Osaka International Airport (Osaka Regional Civil Aviation Bureau)

Reference: Results of aircraft noise monitoring at Osaka International Airport (2006)



Remarks WECPNL 70 or less Over WECPNL 70

\*1 : WECPNL (Weighted Equivalent Continuous Perceived Noise Level)  
Generally known as the "noisiness index for aircraft noise". According to the "Environment Quality Standards for Aircraft Noise", a WECPNL of 70 and less applies to areas for residential purposes only, while a WECPNL of 75 or less applies to other areas where normal living conditions need to be preserved.

\*2 : Transition to Low-Noise Aircraft  
Starting in April 2002, Kansai International Airport announced its policy to totally prohibit the service at the airport by aircrafts that do not comply with the Chapter III of "Aircraft Noise Standard" established by ICAO (International Civil Aviation Organization), in an effort to speed up the transition to low-noise aircraft.

#### Steps to solve television signal interference

The airport completed construction designed to alleviate television signal interference caused by aircraft in FY 2001 based on the "Kansai International Airport Co., Ltd. Television Signal Interference Policy Framework". KIAC is committed to act continuously in concert with affected organizations to address quickly any new signal interference problems arising from increase of flights into and out of the airport.

#### Summary of improvement project construction

	Project	Affected households
Before start of airport operations	Improvements of Hokudantarumi television signal relay facility	about 200,000
	Improvements of Nandan television signal relay facility	about 5,000
After start of airport operations	Installation of Awajimihara SHF television signal relay facility	4,732*
	SHF parabolic reception facility (at individual residences)	
	SHF complementary joint reception facility	1,276*
	Joint reception facility	2,300
	Installation of UHF television signal relay station	141*
	Cooperation with cable television companies	3,694*

\* Includes households transferred to municipal cable television systems (5,945)



**Awajimihara SHF Television Signal Relay Station**  
This is the first time that SHF broadcasts\*4 have been used in Japan in order to solve combating television signal interference caused by aircraft.

#### Overview of complaints and inquiries related to aircraft noise and our responses

##### [Aircraft noise]

The result of environment monitoring of aircraft noise (P.8) show that noise levels met the environmental standard at all observation points. The number of complaints and inquiries reached as high as 263 in FY 1998 when new flight paths were adopted, and have since declined.

Most of the complaints and inquiries were along the lines of "the aircraft are very noisy", "the aircraft fly at low altitudes" and "do aircraft observe their flight paths?" Surveys were conducted in concert with the Civil Aviation Bureau, the Ministry of Land, Infrastructure and Transport (MLIT), and the results were released. KIAC will also continue to address complaints and inquiries.

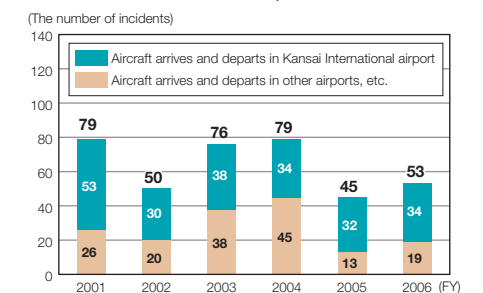
- Contact: Airport Planning And Engineering Department, Environment group  
Kansai International Airport Co., Ltd.  
TEL : 072-455-2177  
Airport Information Center  
Kansai International Airport Co., Ltd.  
TEL : 072-455-2500 (Nighttime and holidays)

##### [Television interference]

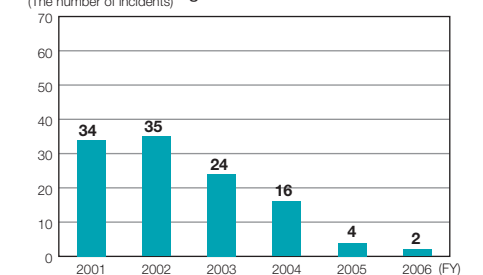
Complaints or inquiries about poor reception have mainly been related to the request for additional measures from the residents in the environs of the areas where countermeasures had already been taken or request for troubleshooting for those measures. KIAC will keep seriously addressing those complaints and inquiries.

- Contact: Airport Planning And Engineering Department, Environment group  
Kansai International Airport Co., Ltd.  
TEL : 072-455-2176

Complaints and inquiries related to aircraft noise pollution



Complaints and inquiries related to signal interference



\*3 : Reduced-noise flight procedures

Flight procedures to reduce aircraft noise. In addition to "Delayed-flap approach method", an operation method in which the lowering of flaps is delayed, a delayed gear-down, in which landing gear deployment is withheld until aircrafts are closer to the runway, is also adopted in the procedure.

\*4 : SHF broadcasts

A type of television signal whose frequencies (3 to 30GHz) are higher than those of VHF (30 to 300MHz) and UHF (300MHz to 3GHz). Due to their high frequency, SHF signals are higher linear and are used to overcome television signal interference problems and in satellite broadcasting.



## [2-1] Creating an airport with low negative environmental impact Part I

## Reduction of air pollutants emission

### Key points and future direction

In an effort to reduce emission levels of air pollutants from parked aircraft, all the airlines that are in service at Kansai International Airport are requested to encourage the use of fixed (ground-based) power facilities\*1. In addition, restrictions on the use of auxiliary power units (APUs), an initiative which might be called an "Aircraft version no-idling campaign", were specified in a January 2003 AIP\*2 (Aeronautical Information Publication). The airport continues to promote the use of fixed power facilities with the cooperation of the AGP Corporation that responsible for the installation and operation of the facilities.

### Encouraging the use of fixed (ground-based) power facilities

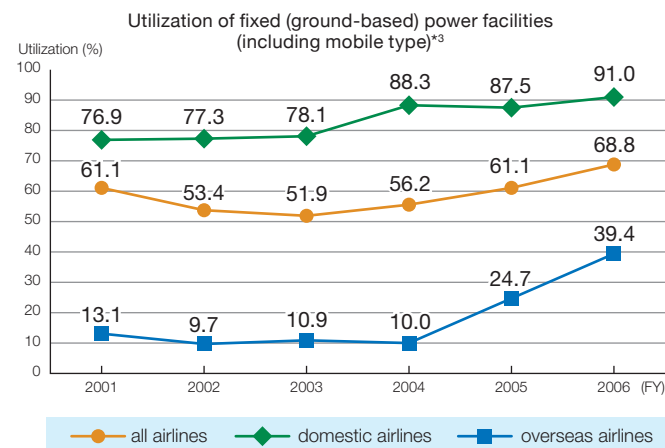
The power required by parked aircraft to run systems such as air conditioning is provided by a small, onboard gas turbine known as an auxiliary power unit (APU).

As part of its effort to minimize the levels of air pollutants emitted from these APUs, the airport developed fixed (ground-based) power facilities (GPU) which can supply electricity and air conditioning in the aircraft parking apron and asked all airlines that are in service at Kansai International Airport to switch the source of power from APUs to these facilities. At the same time the airport made a statement to the same effect in AIP (effective date: January 23, 2003).

Overall rate of use of the fixed power facilities (including mobile type) in FY 2006 is 91% and 39.4% for domestic airlines and overseas airlines respectively, with an average of 68.8% that shown a tendency to increase, and when comparing with the project launched in FY 2001, there was about 8% increase. From now onwards, in cooperation with the AGP Corporation (an operator of the fixed power facilities), the airport is encouraging and requesting the airlines to further use such facilities.



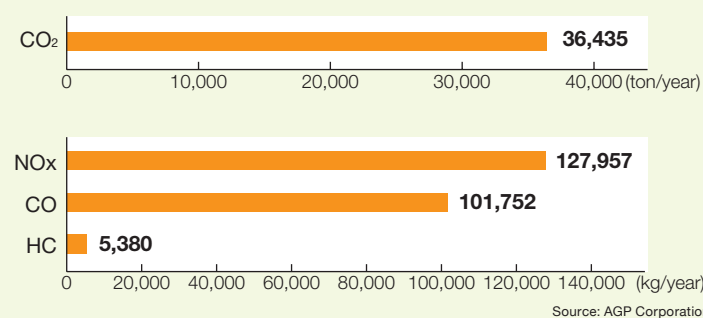
Ground Power Unit



Effect of utilization of fixed power facilities in reducing the emission at Kansai International Airport \*4

The reduced amount for major air pollutants in consequence of the use of fixed power facilities in FY 2006 are as follows:

- carbon dioxide 36,435 tons
- nitrogen oxides 128 tons
- carbon monoxide 102 tons



\*1 : Fixed (ground-based) power facilities

The fixed (ground-based) power facilities (GPU) are designed to supply power to parked aircraft GPU supplies electricity and cooled or heated air. Mobile type is also available. These facilities can save more aircraft fuel consumption than APUs.

\*2 : AIP

AIP, or Aeronautical Information Publications, are printed bulletins that contain information about airport, aviation safety facilities, and aviation traffic management systems necessary for aircraft operation. ICAO member countries are required to disclose information to one another in order to avoid any obstacles to the use of foreign aviation routes. In Japan, AIPs are compiled by the Civil Aviation Bureau, the Ministry of Land, Infrastructure and Transport.

\*3 : Utilization of fixed (ground-based) power facilities (including mobile type)

The ratio of the number of flights that power from GPU to the overall number of flights.

### Introducing low-emission vehicles



Hybrid vehicles



Electric vehicles

The "Office Environmental Management Manual" was revised in December 2002 to more clearly define KIAC's commitment to "replace vehicles, when possible, with low-emission equivalents sequentially as the time comes for fleet vehicles to be replaced".

At the same time, KIAC has been urging contractors for the conversion of their fleets to low-emission vehicles through website and other means.

Among the cars which were authorized to operate inside the restricted area\*5, 561 units were of low-emission including 199 units of electric vehicles.

Low-emission vehicle utilization (as of Mar 31, 2007)

The number of vehicles authorized to operate inside the restricted areas at Kansai International Airport

**1,870**  
units

The number of low-emission vehicles

**561**  
units

breakdown

Electric vehicles.....	199 units
Hybrid vehicles.....	6 units
Emission gas down by 75% from 2005 emission levels.....	30 units
Emission gas down by 50% from 2005 emission levels.....	129 units
Emission gas down by 75% from 2000 emission levels.....	59 units
Emission gas down by 50% from 2000 emission levels.....	54 units
Emission gas down by 25% from 2000 emission levels.....	84 units

In August 2006, Kansai International Airport and Rinku Town was selected as a region for disseminating and promoting the use of CNG (compressed natural gas)-powered vehicles. KIAC will positively continue to promote the spread of CNG-powered vehicles in the future.

In May 2007, we installed hydrogen station within the island. We will cooperate in monitoring hydrogen engine and fuel cell vehicles, as well as experimenting with fuel cell co-generation systems.



Hydrogen-powered engine car



CNG-powered vehicle



Hydrogen service station

### Autonomous management of vehicle use

As a company specified under NOx and PM Law, KIAC has made administrative efforts to reduce the volume of vehicle traffic and annually reported the results to the Osaka Prefectural Governor, based on the "Plan for management of automobile use"\*6 which was established in September 2002 to reduce emission levels of NOx and particulate matters (PMs) emitted from vehicles.

\*4 : Effect of utilization of fixed power facilities in reducing the emission at Kansai International Airport

The reducing effect of fixed power facility represents the difference between the actual emission (in weight) of, say, carbon dioxide resulted from the use of fixed power facilities and the supposed emission (in weight) of carbon dioxide calculated on the assumption that all that equivalent power had been 100% provided by APUs.

\*5 : Restricted area

Runways and other landing areas, taxiways, apron areas, and other areas where entry has been restricted by KIAC, and indication of the restrictions are expressed by signs.

\*6 : Plan for management of automobile use

Under the Law Concerning Special Measures for Total Emission Reduction of Nitrogen Oxides and Particulate Matters (NOx and PM Law), businesses (specific transport businesses) that operate 30 or more vehicles (cars, trucks, buses, special-purpose vehicles) in areas with significant air pollution (38 cities and towns in Osaka Prefecture except Nose Town, Toyono Town, Taishi Town, Kanan Town, Chihayaakasaka Village and Misaki Town) are obligated to arrange a low-emission vehicle introduction plan, a plan for reducing the volume of vehicle traffic, and other measures, and to submit these plans to the Osaka Prefectural Governor.

**Key points and future direction**

We implement appropriate processing of the waste generated in the airport island and pursue its recycling and reduction of waste.

**Reducing and recycling waste products**



General waste collection and treatment

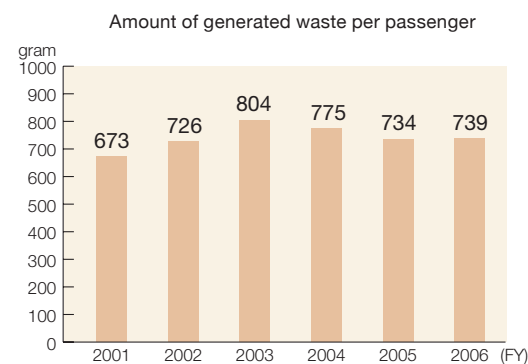
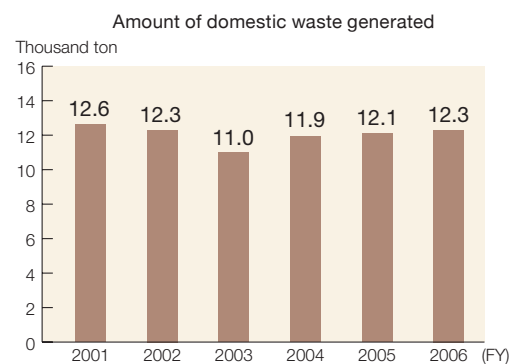
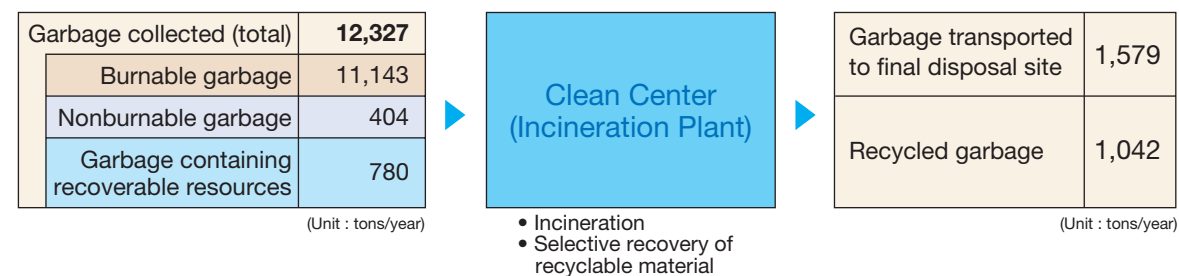
KIAC enacted the "Regulations Governing the Use of Waste Processing Facilities"<sup>\*1</sup> in October 2002 to enhance the reduction and recycling of the garbage (general waste) generated in the airport island. In the regulations the rules of sorting and disposal of the waste were clarified. In July 2003, KIAC requested the contractors for the sorting of waste at disposal and prevention of the illegal dumping.

The waste treated at the Clean Center is separated into the following.

Garbage type	Content
Burnable garbage	Kitchen waste, wooden waste, non-recycled paper, rag, others
Garbage containing recoverable resources	Cans : steel, aluminium empty cans
	Glass Bottles : empty bottles (unbroken)
	PET bottle
	Waste paper : Newspaper (except advertisement paper), magazine
	High-grade waste paper : copying paper, OA paper
	Document paper (no confidential information)
Nonburnable garbage	Corrugated cardboard
	Glass dishes, pottery dishes, empty bins (broken), metal waste
Bulky burnable garbage	Wooden materials, clothes, bags, grass clippings, wooden products

The 2nd phase island reclamation project had accepted dirt generated in the 1st phase construction (about 750,000 m<sup>3</sup> as of June 7, 2006 when the 1st phase construction was completed). The project has also accepted, since FY 2002, the dirt generated in the public projects outside the airport island (about 80,000m<sup>3</sup> had been accepted as of March 2006).

Garbage processed in the airport island in FY 2006



**Initiatives by contractors to reduce waste**

**(Domestic airlines)**

Garbage removed from aircraft at Kansai International Airport accounts for nearly 25% of whole domestic waste. In line with the efforts to reduce the total volume of waste, JAL and ANA are working to sort garbage in the aircraft cabins.

- Aluminium cans are being collected and sorted out by cabin staff in an activity named "Aluminium Can Dream" campaign (JAL).
- Newspaper is also collected and sorted in the cabins.

A large quantity of materials for packing is used for air cargo partly because of the need to be free from leakage. An effort to recycle these materials is made instead of simply disposing them.

**(In-flight meals plant)**

Carbonization of food waste has been practiced since April 2001. From FY 2006, food waste is being dehydrated and burned in the Clean Center.

**Promotion of green purchasing**

Our policy in the procurement process is to select green products<sup>\*2</sup>.

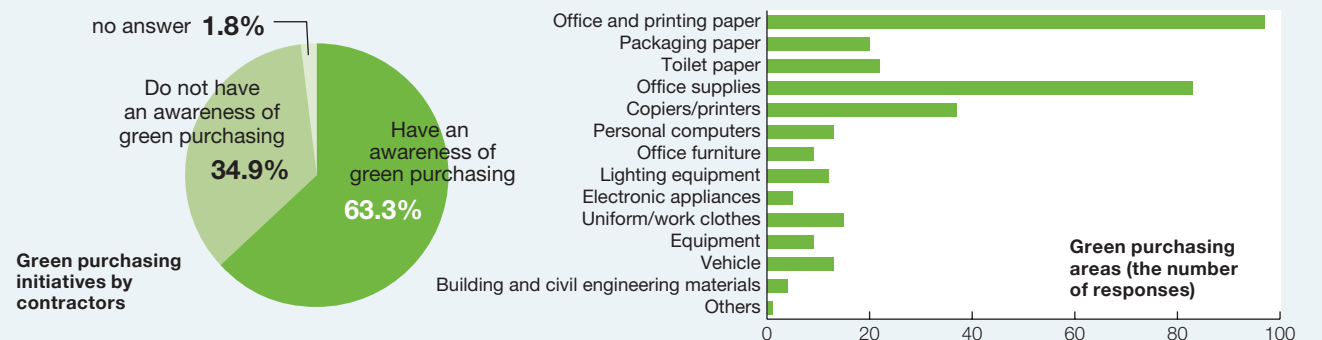
At the replacement of copiers in FY 2002, the copier's compatibility with PC-LAN (for the future use) was considered not to mention its qualification as green product. And the ratio of recycled paper ingredient for the copy paper was standardized to be 100%. Furthermore, the purchase of the green product of office supplies is being promoted.

In addition, batteries were replaced with long-life batteries (double-lived compared with conventional types) and recycled toner is adopted in copying.

**Green purchasing initiatives by contractors**

A survey of island contractors about their green purchasing efforts was conducted in May 2007. Based on the responses to the questionnaires by 166 contractors, following pictures have emerged.

- The ratio of contractors who are "aware of green purchasing" at purchasing products and services over half up to 63%. The product categories most likely to involve green purchasing considerations are "office and printing paper", followed by "general office supplies".



The ratio of the contractors who are aware of green purchasing increased (58% → 63%) when compared with previous year, whereas the ratio stayed at about the same level up to last year (57% → 56% → 58%). We will continue to put efforts to the promote the awareness enhancement and PR in the future.

\*1 : Characteristic of "Regulations Governing the Use of Waste Processing Facilities"

• Garbage is categorized into five types: four types (i.e. "Burnable garbage", "Nonburnable garbage", "Garbage containing recoverable resources" and "Bulky burnable garbage") to be processed at the Clean Center (incineration plant) and one ("Industrial waste products and difficult-to-process waste") the processing of which is delegated to the contractors' self-responsibility.  
 • The regulations assign specific number to each type of garbage so that the sorting/disposal process is managed according to that number.  
 • The regulations standardize the specifications of garbage bins to be deployed at collection sites.

\*2 : Green products

Environmentally-friendly products that reflect the basic philosophy laid out in the Law on Promoting Green Purchase which was established in April 2001. In selecting products, KIAC refers to the "Environmental database for selecting products" run by the Green Purchasing Network (GPN) online at <http://gpn-db.mediapress-net.com/gpn-db/index.hgh>

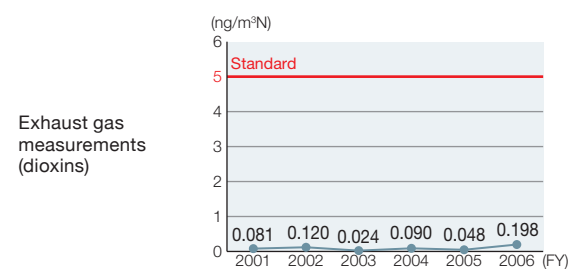


**Key points and future direction**

Efforts to reduce Incineration Plant exhaust gases include the installation of a garbage shredder, which has increased incineration efficiency and helped to ensure air pollutant emission levels that continue to clear applicable standards dramatically. KIAC is committed to continue the level of its outstanding incineration management.

Consistent operation of the Sewage Treatment Center has maintained the excellent water quality of discharged wastewater well within the levels established by relevant wastewater standards. Use of reclaimed water is also helping to reduce the levels of water pollutants discharged into Osaka Bay. KIAC is committed to continue its record of consistent treatment and reclaimed water usage.

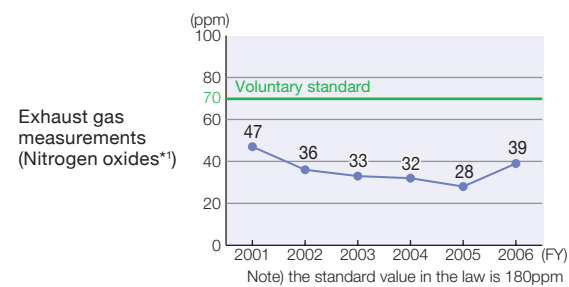
**Incineration Plant exhaust gas treatment**



After domestic wastes generated on the airport island are separated into categories such as burnable garbage and garbage containing recoverable resources, burnable garbage is incinerated at the Incineration Plant. Exhaust gases generated during the incineration process are treated with a filter-type precipitator.

The installation of a garbage shredder has significantly improved the furnace's incineration efficiency and lowered the concentration of air pollutants in exhaust gases to levels dramatically below the exhaust gas standards established by the Air Pollution Control Law. Dioxin levels are also well within established standards.

Heat produced during the incineration process serves as a heat source for the air heaters used to prevent white smoke\*2, and hot water produced by high-temperature water heaters is used as tap water inside the Incineration Center as well as in its heating.



**Overview of wastewater treatment facility**

Fluidized bed incineration equipment is adopted in the Incineration Plant. In terms of flu-gas treatment, particular attention has been paid to adequate emission control and harmonization with ambient surrounding, which are supported by fully equipped facilities such as filter dust separator with function to remove nitrogen oxides by catalysis and humidity-regulator-typed fly ash stabilizing treatment equipment.



Incineration Center

**Exhaust gas flow**

After being cooled from temperature of 800~950°C in a gas cooling chamber, exhaust gases generated in the incinerator enter the reactor via waste heat utilization facilities such as the air heaters used to prevent white smoke. In the reactor, dust is removed through an exhaust gas filter-type precipitator white toxic gases are eliminated. The gases processed are released into the air via an induced draft fan and a stack. The volumes of dust, sulfur oxides, hydrogen chlorides and nitrogen oxides at the stack outlet are limited to rigorous criteria of less than 0.02g/m³N, 20ppm, 30ppm and 70ppm, respectively.



Filter-type precipitator

\*1 : Nitrogen Oxides (NOx)  
Substances generated by combustion of atmospheric nitrogen or nitrogen in the fuel. They cause acid rain and photochemical smog.

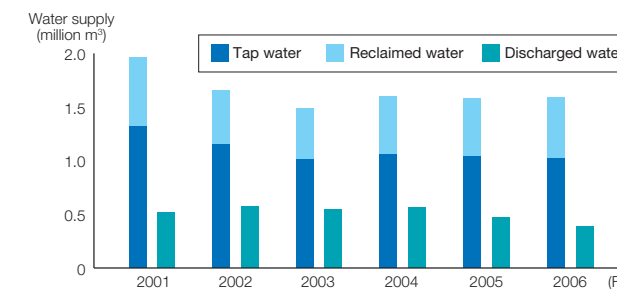
\*2 : Air heater used to prevent white smoke  
Air heater is used to increase dryness of exhaust gas by getting heated air mixed with the exhaust gas so that the white smoke discharged from chimneys does not reduce visibility at the control of the plane or flight control in the cockpit or control room.

**Advanced wastewater treatment**

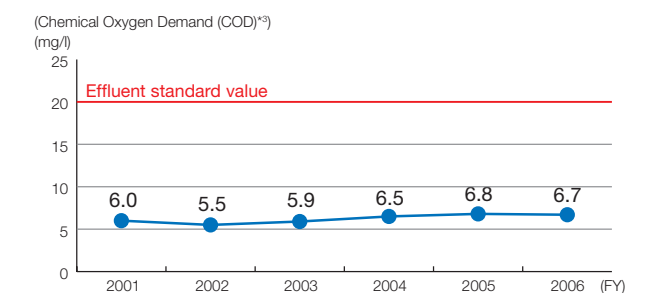
As to the wastewater discharged from island facilities, KIAC is taking measures with the utilization of the water resource and prevention of negative impact on the surrounding environment in mind: wastewater is reclaimed after treatment and reused to reduce the bust size of water to be discharged into Osaka Bay and to eventually curb the pollutorial load. KIAC's water quality control laboratory is equipped with advanced devices and facilities and conducts rigorous control of quality of water starting from tap water to wastewater about to be discharged into Osaka Bay.



Change in annual water supply



Quality of water released from the Sewage Treatment Center (annual average)



**Wastewater treatment facility (Sewage Treatment Center)**

Wastewater from the Passenger Terminal Building and other airport facilities is separated into domestic wastewater and industrial wastewater and treated as such. The former is treated using advanced methods such as activated sludge circulation nitrification/denitrification method, chemical clarification (coagulation/segmentation), rapid sand filtration, etc. Special wastewater undergoes preprocessing by the specific contractor at the original site of discharge, and then forwarded to the Sewage Treatment Center for advanced treatment. Wastewater after being treated by advanced methods is utilized as a resource for use in airport lavatories and watering of plants with the surplus water being discharged into the sea.

Treatment Capacity	Domestic wastewater	10,050m³/day
	Special wastewater	3,300m³/day

2,368m³ and 380m³ of domestic and special wastewater was treated on a daily average basis in FY 2006, respectively.

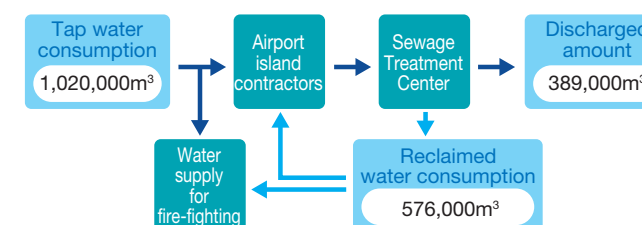


Sewage Treatment Center

**Utilization of reclaimed water at Kansai International Airport**

In the airport island, reclaimed water is used for flush toilets and watering the trees as well as for the cleaning of the painted surfaces of civil engineering constructions and vehicles. 576 thousand m³ of reclaimed water was used in FY 2006.

Amount of annual water consumption and discharge at Kansai International Airport (FY 2006)



**Tap & reclaimed water supply facility**

Equipment outline	Tap water: Water pumps 75kw 4 units, receiving tank, chemical injection equipment etc. Reclaimed water: Pressure supply system (37kw 2 units) 3 sets etc
Supply capacity	Tap water: 13,700m³/day Reclaimed water : 9,000m³/day
Supply pressure	150kpa (both tap and reclaimed water)
Scale of plumbing	Tap water: Piping extension 15.0km (pipe diameter 500~75mm, including pipe for connecting bridge) Reclaimed water: Piping extension 10.3km (pipe diameter 450~75mm)

\*3 : Chemical Oxygen Demand (COD)

A typical indicator of seawater pollution that shows mainly the degree of pollution by organic matter.

[2-4] Creating an airport with low negative environmental impact Part IV

Energy conservation and efforts to reduce negative environmental Impact

Key points and future direction

In July 2006, airport island's Passenger Terminal Building and Aeroplaza were designated as Class 1 specific plant\*1 which is obligated to take energy saving measures as specified in the Law Concerning the Rational Use of Energy (enacted in April 2006). In response to the designation, KIAC's in-house energy conservation committee, which had been studying the way of practicing rational use of energy, has summarized a "medium and long-term plan" in September 2006.

In the coming years, in accordance with the "Office Environmental Management Manual" revised in December 2002, KIAC will promote this plan and work to implement green purchasing and energy conservation in performing its internal activities or to realize paperless offices through the use of electronics, say, e-mail, as well as encouraging the introduction of low-emission vehicles.

Promoting energy conservation

As to the electricity, heating/cooling energy (and gas) consumption at KIAC-managed facilities, KIAC established in-house Energy Conservation Committee in FY 2002 and, through the committee, has been investigating actual condition, analyzing results of survey, taking countermeasures and working out programs toward energy conservation.

In consequence of such organized efforts, energy consumption decreased year by year, and the least consumption amount among the past 6 years is recorded in FY 2006 with 8% decrease when compared with FY 2001, the first year when the project launched.

Our aim is to achieve the goal of the average of 1% decrease per year set by the Energy Conservation Law.

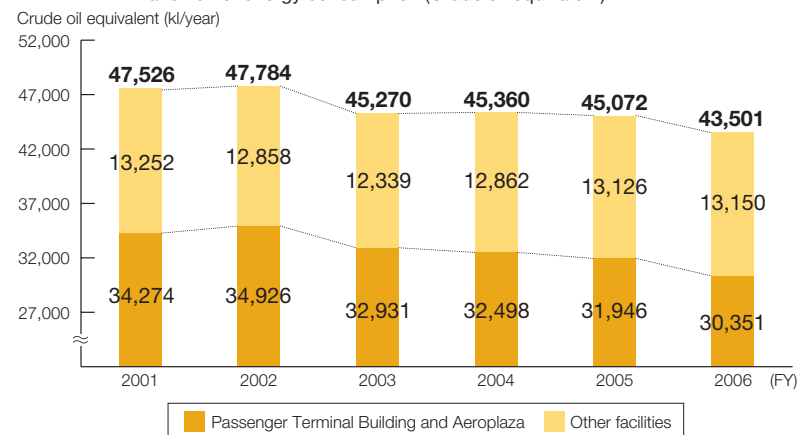
Besides, benefiting from the promotion to use treated water, the amount of tap water consumption shown 25% decrease when comparing with that of FY 2001, the year that this project was launched.

Primary energy consumption at facilities managed by KIAC

	Annual energy consumption					
	Electric energy (MWh)	Cooling energy (GJ)	Heating energy (GJ)	Gas (m³)	Crude oil equivalent (kl)	Tap water (m³)
FY 2001	124,232	295,820	143,489	146,582	47,526	568,275
FY 2002	122,677	295,736	162,450	142,805	47,784	551,249
FY 2003	119,771	261,328	146,154	154,637	45,270	446,067
FY 2004	116,404	289,243	145,967	139,110	45,360	417,804
FY 2005	115,577	274,901	157,773	151,495	45,072	406,514
FY 2006	113,079	261,073	144,850	147,364	43,501	425,216
Year-on-year reduction	97.8%	95.0%	91.8%	97.3%	96.5%	104.6%
Reduction comparing with FY 2001	91.0%	88.3%	100.9%	100.5%	91.5%	74.8%

Note (1): Figures represent KIAC's own consumption figured out deducting the quantity resold to contractors from the total purchase.  
 Note (2): Gas consumption represents that of compound administrative building (Hotel) and waste disposal and treatment facilities only.

Transition of energy consumption (Crude oil equivalent)

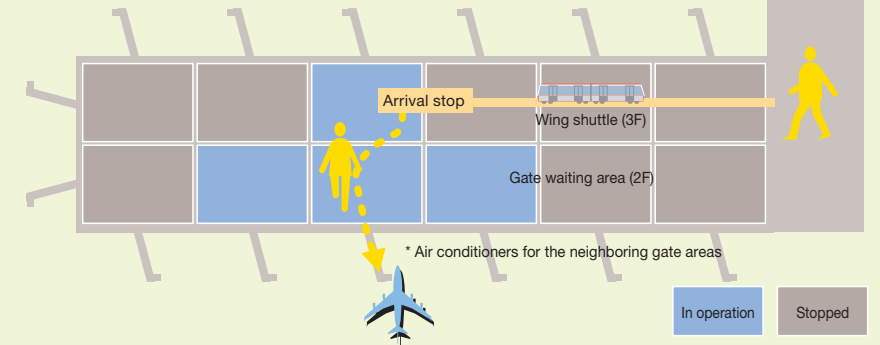


\*1 : Class 1 specific plant under the Energy Conservation Law  
 Plants in all industries that use 3,000KL or more of fuel and 1,200kWh or more of electricity are designated as Class 1 specific plants and are obligated to create and submit an energy conservation plan (medium- and long-term plan) and periodically report results.

Commended "Minister of Economy, Trade and Industry's Award" at FY 2006 All Japan Conference of Excellent Cases for Energy-saving

A passenger information system that shows airplane departures and arrivals is used to control the air conditioning for the boarding gate waiting area, which extends a full 1.7km of the Passenger Terminal Building. This enables more efficient use of air conditioning to the areas that are not in use. This significant energy conservation measure through shortening air conditioner operation time led to the airport receiving the "Minister of Economy, Trade and Industry's Award".

"Efficient use of air conditioning for the Passenger Terminal Building based on a passenger information system"  
 •Details Based on a passenger information system, the prediction of passenger movement is used for the setting of air conditioning operation. For example, because departing customers can freely go through other gate waiting areas, the relevant area's air conditioner as well as those of the neighboring gate areas are set to operate corresponding to the flight departure time.



Mass balance of environmental load at Kansai International Airport (FY 2006)

Based on the operational data of Kansai International Airport, the environment load mass balance of the airport has been worked out.

Input		
Category	Volume	Remarks
Arrival and departures	116,000	
Electricity consumption	(113,079MWh)	*1
Gas consumption	15,424,000m³ (147,000m³)	*1
Aircraft fuel	1,640,804KL (0KL)	
Gasoline, light oil	(60KL)	*2
Tap Water consumption	1,020,000m³ (425m³)	*2



The data of the whole Kansai International Airport. ( ) are the data of KIAC's managed facilities

Output		
Category	Volume	Remarks
NOx emission	(5.8t)	*3
Discharge volume	389,000 m³ (389,000 m³)	*4
COD loads	2.6t (2.6t)	*4
General waste	Generated amount	12,327t (12,327t)
	Final disposal	1,579t (1,579t)
	Recycle amount	1,042t (1,042t)

\*1 Consumption in the facilities subject to energy-saving measures by KIAC  
 \*2 Consumption controlled in compliance with the Office Environmental Management Manual by KIAC (refer to P.25)  
 \*3 Emission from vehicles managed by the Clean Center and KIAC  
 \*4 Discharge from the Sewage Treatment Center  
 \*5 Generation from the Clean Center

Thoroughgoing stopping of vehicle engine idling

As part of the efforts to reduce nitrogen oxides and carbon dioxides emission from vehicles, KIAC is urging the drivers to turn off the engines while parking by installing signs on the Passenger Terminal Building platforms, or at the parking areas for buses and taxis as well as in the cargo areas.

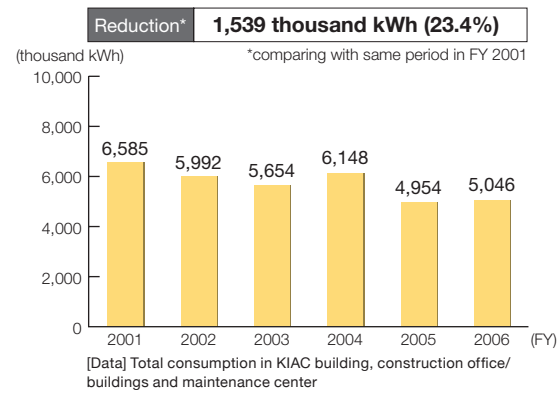
Training sessions for the drivers who are operating in the restricted areas include lessons on the importance of stopping engines whenever possible.



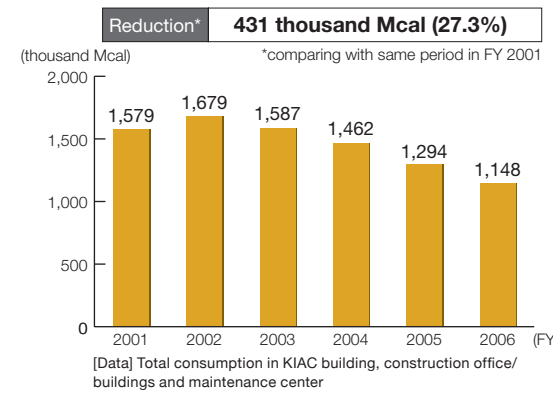
**Promoting office environmental management in Kansai International Airport Co., Ltd.**

As part of initiative to reduce the environmental load in its office work, KIAAC prescribed the "Office Environmental Management Manual", which took effect on April 1, 2001. The guidelines put forth in this document seek to reduce the consumption of electricity, water and heat, while encouraging green purchasing practice. Although consumption of electricity, gasoline and office paper and garbage disposal increased in FY 2004 because of many events held in celebration of the 10th anniversary of the opening of the airport, we could attain the reduction in FY 2005 in many items in part through the integration of the offices. In FY 2006, though there is some increase in the electricity, gasoline and light oil consumption, the usage of other items has been decreased. In addition, when compared with the FY 2001 figure when the project began, consumption for all items has been reduced.

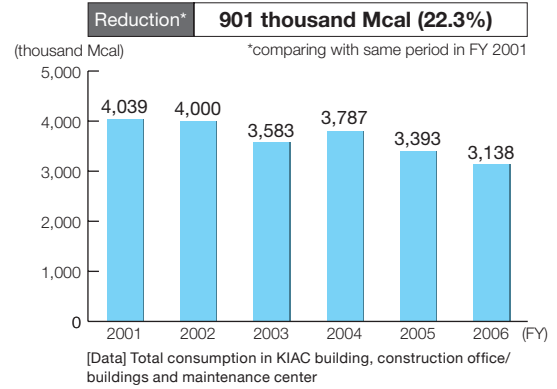
**(1) Reduction in electricity consumption**



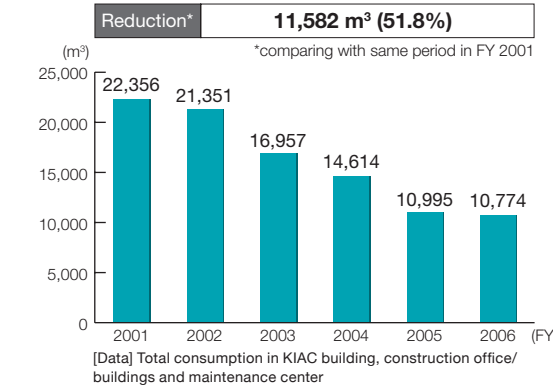
**(2) Reduction in heating energy consumption**



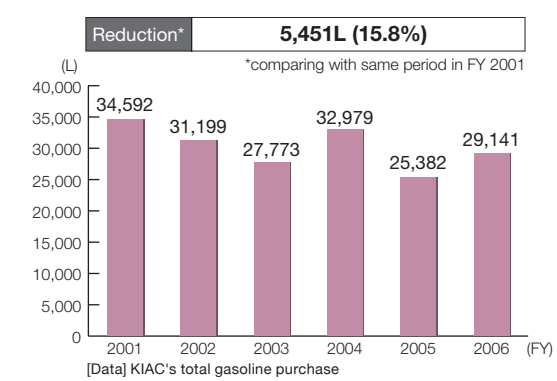
**(3) Reduction in cooling energy consumption**



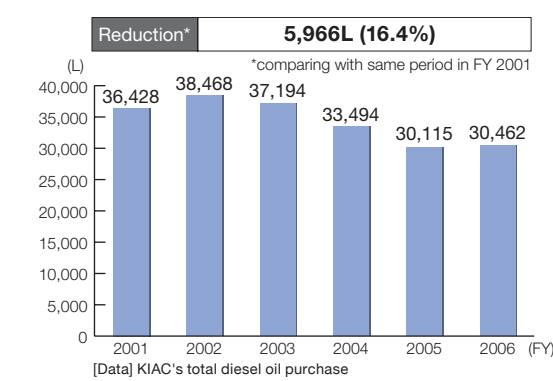
**(4) Reduction in tap water consumption**



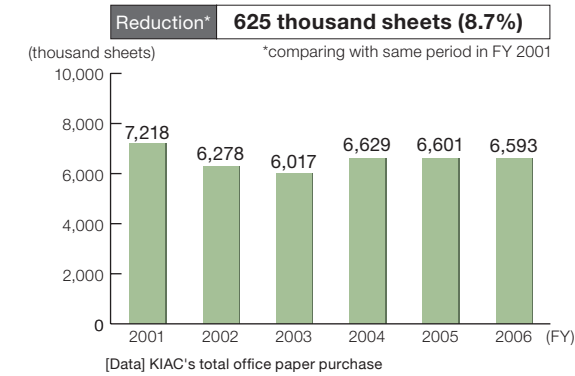
**(5) Reduction in gasoline consumption**



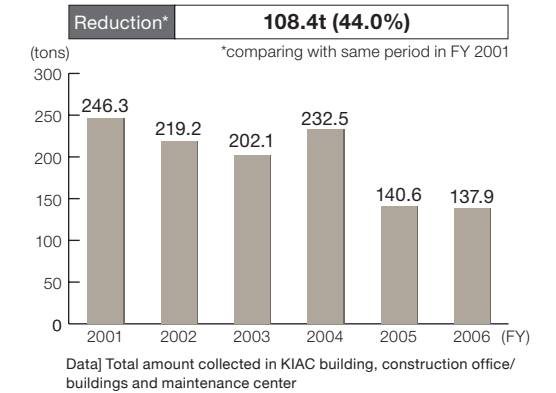
**(6) Reduction in diesel oil consumption**



**(7) Reduction in office paper consumption**



**(8) Reduction in volume of garbage collected**



**Office Environmental Management Manual**

• Objectives

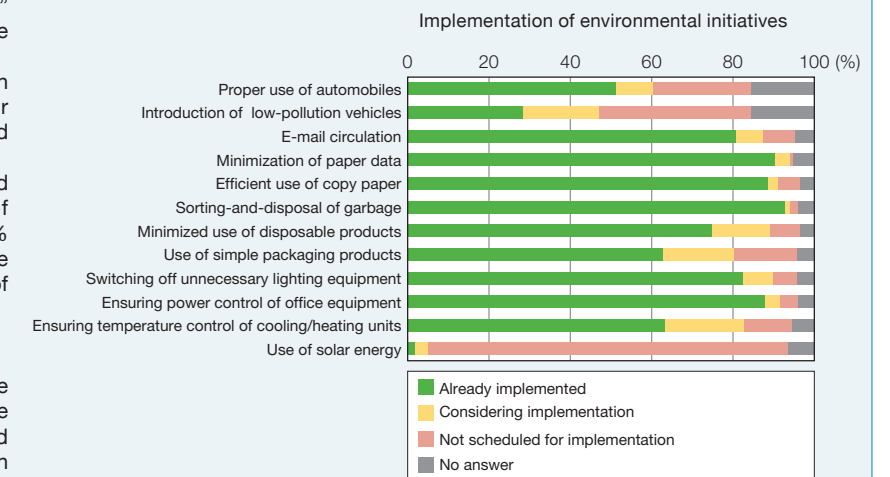
- (1) Reduce energy consumption. (2) Reduce tap water consumption. (3) Reduce heating and cooling energy consumption. (4) Reduce gasoline consumption. (5) Reduce office paper consumption. (6) Reduce garbage and aggressively implement the policy of sorting in collecting garbage. (7) Encourage green purchasing (environmentally-friendly products). (8) Introduce low-emission vehicles.

• Implementation of environmental initiatives by island contractors

A survey of contractors to gauge their efforts in environmental conservation was conducted in May 2007. The responses from 166 contractors to the questionnaires are summarized as follows.

- The ratios of implementation of "minimization of paper data", "efficient use of copy paper" and "sorting and disposal of garbage" are high.
- The ratios of implementation of "introduction of low-emission vehicles" and "use of solar energy" are low as they cost higher compared to other measures do.
- Though there is not a big difference compared to last year, as for the implementation of "minimum use of disposable goods", 10% decrease in last year in comparison with the year before last year, but returned to a level of the year before last year again this year. (78.7% → 66.9% → 74.7%).

Through the committee established with the island contractors, the status is expected to be improved through the promotion of increased awareness of environmental conservation among the contractors.



### [3] Creating an airport that values nature and serves as a meeting place

### Maintaining the natural environment on and around the airport island

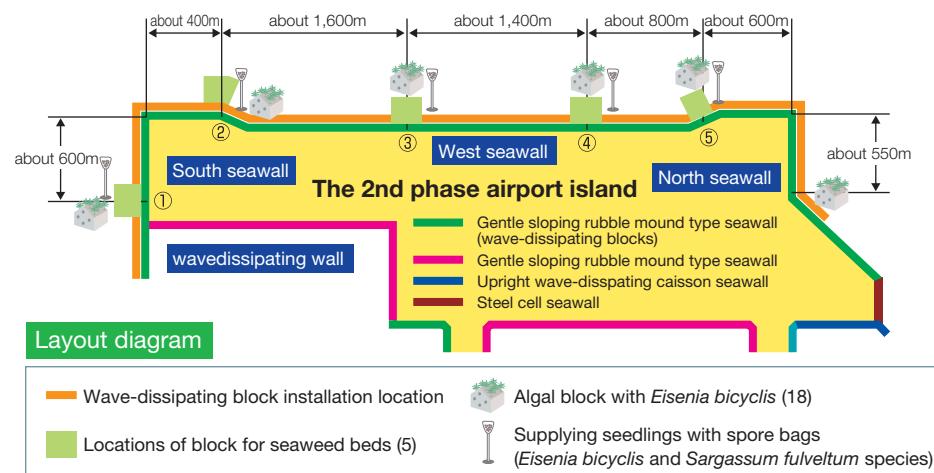
#### Key points and future direction

Seaweed beds were formed at the 1st phase airport island in order to contribute to creation of habitats for marine life in Osaka Bay. Kansai International Airport Land Development Co., Ltd., in addition to positioning wave-dissipating blocks with grooves along the gently sloping rubble mound type seawall that was selected for use in most of the 2nd phase airport island seawall, executed a variety of aggressive and creative means, including seaweed seeding. Though it took 7 years to create the seaweed beds of the 1st phase airport island, a plan has been pursued to create seaweed beds of the 2nd phase airport island in just 3 years.

The airport is also working to preserve water quality at the internal water surface created between the 1st and 2nd phase airport islands and to greenify surrounding areas. Finally, KIAC environmental preservation efforts focusing on the greenification of the 2nd phase airport island include ongoing investigations of planning methods that augment grasses with plants that are natural to the coastline in the area around the airport.

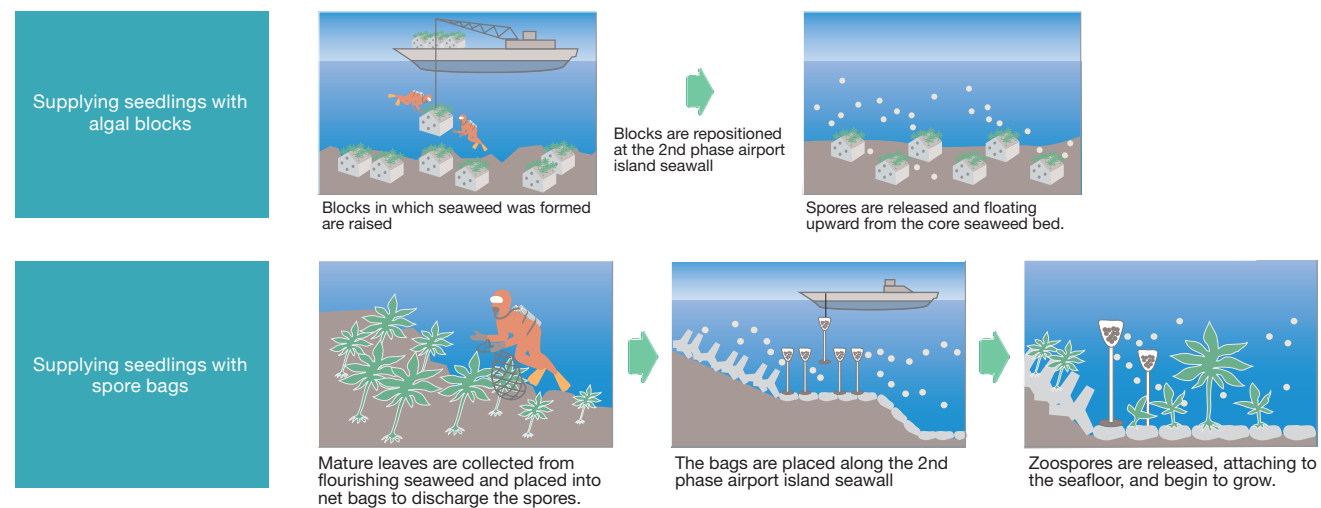
#### Supplying seaweed seedlings

Based on the results of monitoring the 1st phase airport island seawall, a total of 3,200 wave-dissipating blocks with grooves (developed for the construction of the 2nd phase airport island) were placed at five locations along the 2nd phase airport island seawall for use in seaweed formation. Ongoing efforts to foster quick seaweed bed formation (in three years) focus on supplying of seaweed seedlings by a variety of means, including the placement of spore bags with *Sargassum filicinum* and *Eisenia bicyclis*.

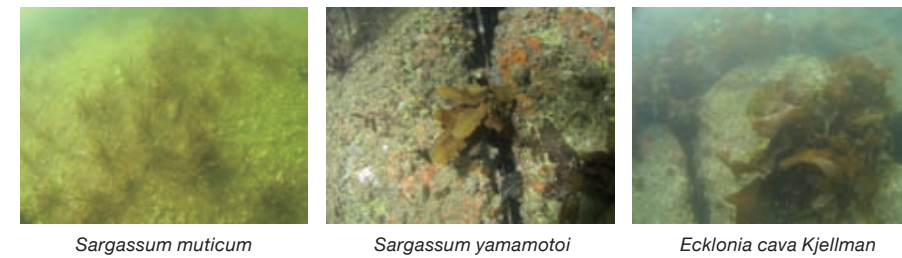


In addition, transfer of 18 algal blocks with significant *Eisenia bicyclis* growth from the 1st phase airport island seawall in March 2002 helped to maintain a consistent supply of seedlings from core seaweed bed.

The seaweed bed formation project brought about the increase in the area of epiphytic seaweed around the 1st and the 2nd airport islands to 41 hectares in FY 2006, or about 9% of such area on whole Osaka Bay (1994 survey data).



#### Experiment of transplanting seaweed



A trial transplanation of four kinds of large brown seaweed (*Sargassum muticum*, *Sargassum Yamamotoi*, *Ecklonia cava Kjellman* and *Undaria pinnatifida*) was conducted in the internal water between the 1st phase and the 2nd phase airport islands. As a result, new embryo plants were observed to have been reproduced. Observation is continued.

#### Environmental consideration for little terns\*1

About 2,400 little terns (endangered species category II : Vulnerable (VU)) were observed to have migrated to the 2nd airport island in FY 2003 when land reclamation was in progress. In order to execute construction work smoothly and continuously and seek as much as possible the coexistence with little terns several measures have been taken in and around the construction sites since FY 2004: in the construction zone where the works proceed during the period from April to August (time for the species to migrate to the island and build a nest), crow mock-ups and recorded calls of crow and glittering tapes were used to keep them elsewhere; outside the construction zone, whitish earth and sand was placed and smoothed and decoys (dummies of little tern) were used to lure them to that site. As a result, about 1,800 little tern were observed in FY 2004. While, in FY 2005 about 390 were observed in late April to mark the largest figure for the period. And in FY 2006 with prevention measures were taken in the construction site, at most 600 little terns were observed in the end of July.



#### Greening of the airport island



To carry out an objective of recovering and protection of seaside plants on the coast of Osaka Bay, breeding areas of Hamanadeshiko (*Dianthus japonicus Thunb.*), Hamabossu (*Lysimachia mauritiana Lam.*), Hamahirugao (*Calystegia soldanella*) and Hamagou (*Vitex rotundifolia*), etc., were created in the southeast part of the 2nd airport island.

KIAC is considering to create in cooperation with the local communities around the airport the habitats of indigenous species in the 2nd airport island using their seeds which will be gathered from the plants growing in the breeding area in the future.



\*1 : Little tern (*Sterna albifrons*)

A migratory bird of sea-gull family. Approximately 30cm in length. It migrates to the Japanese seashore and reclaimed land in spring and leaves in autumn. The species is designated by the Ministry of Environment as "endangered species category II(Vulnerable (VU))", the species which is facing the growing danger of extinction.



**Key points and future direction**


KIAC has not only been active in cooperating in the events held in promotion of exchange with local residents such as "Fish Market" (held by Osaka Prefecture Joint Association of Fishermen's Cooperatives) and tours of the 2nd phase airport island site (held by Kansai International Airport Land Development Co., Ltd. (KALD)), but also positive in creating a lively atmosphere on the airport island through planning and inviting various events aiming to entice people to visit the island. KIAC is also active in communicating with local residents through provision of information to the Kansai Airport & Airfront Community Plaza, a facility built on the coast opposite the airport island to promote PR activities of Kansai International Airport. Meanwhile, KIAC has been dispatching the staff as guest teachers to local schools and organizing airport tours since FY 2002 to introduce the various works being done at the international airport, encouraging local residents to have an affinity for the airport.

Overall environmental information is available at the website of KIAC and KALD on a specific section for releasing environmental information related to the airport. We are committed to continuously provide the information in an easy-to-understand manner.

**Providing information in a variety of ways**

The environmental information related to the Kansai International Airport's project is being disclosed on the specific environmental information page at the websites of KIAC and KALD where the results of environmental monitoring related to the airport operation and 2nd phase construction and other information such as Eco-Island Plan are released. KIAC worked to publicize its stance in environmental conservation by making presentations at Eco-Products exposition or distributing pamphlets introducing environmental-related initiatives in 2nd phase construction project and environmental conservation such as seaweed bed creation. In addition, the company created a video program entitled "Genten (Starting point)" to publicize the environmental conservation initiatives at Kansai International Airport, the copies of which were distributed to the relevant organizations and agencies.

KIAC has also made presentations at the booths on such occasions as the Sakai Nighttime Fish Market (July) for the publicity of airport's various environmental initiatives.

 Environmental information available online	Kansai International Airport Co., Ltd.	<a href="http://www.kiac.co.jp">http://www.kiac.co.jp</a>
	Kansai International Airport Land Development Co., Ltd.	<a href="http://www.kald.co.jp">http://www.kald.co.jp</a>

**Providing places and opportunities for learning about the environment**

**[Partnership with Kansai Airport & Airport Community Plaza, a place for hands-on learning about nature and the environment\*1]**

The Kansai Airport and Airfront Community Plaza was established in Kaizuka City in April 2001 as a place where visitors can have fun of learning about Kansai International Airport as well as the surrounding areas striving to develop along with the airport and about the environment. KIAC regards the plaza as one of the important facilities for the publicity of the airport, and will transmit information through the plaza.



Kansai Airport & Airfront Community Plaza  
3-25-5 Nishiki, Kaizuka City TEL: 072-429-2205

\*1 : "Kansai Airport & Airfront Community Plaza", a place for hands-on learning about nature and the environment  
The plaza is operated by Kansai Airport Research Institute.

**Partnership with local communities**

**[Kansai International Airport CS Improvement Conference]\*2**

In December 2003, KIAC established Kansai Airport CS Improvement Conference (Chairperson: Atsushi Murayama, President of KIAC) consisting of all airlines, tenants and government bodies operating in Kansai International Airport. The conference members are striving toward satisfaction of airport users through the efforts to improve the services by sharing complaints information, to take an instance.

In April 2005, SKYTRAX, a British aviation industry quality research company, which makes comprehensive assessments of airport worldwide, announced the "AIRPORT of the YEAR 2006". Kansai International Airport (KIX) was ranked the 4th worldwide in terms of airport and terminal amenities, adequacy with passenger facilities, service quality and access/transit conference. In addition, in April 2007 Kansai International Airport was also ranked the 1st in Middle East & Asia area (Annual Freight Flow between 0.5M tons ~ 1M tons) in the "2007 Air Cargo Excellence Survey" of a British Air Cargo Magazine "Air Cargo World" (Established in 1942) that evaluates service, facility, customs clearance, security, etc. Encouraged by such a nomination, KIX will aspire for the materialization of a quality airport for the satisfaction of as many users as possible.



**[Kanku Summer Festival and various other events]**

The airport organizes various events aiming to realize a convenient and pleasant-to-visit airport.

Especially in the summer in FY 2006, from July 8 to September 3, "Kanku (Kansai airport) Summer Festa" was held with continuing to discount the toll of the airport access bridge to 500yen on every weekend as same last year, and also with various events subtitled "Create Summer memory with your children in Kansai International Airport".

Including the annual "Dragon Boat Competition", "Stage Event", "Local product Fair", "Street Fair" and new event such as "Japan Coast Guard Patrol Vessel Experience" on Marine day.

Other events such as Christmas event in November and December, and "Kanku Spring Festa" in March, were held. During those period, also event named "KIX Travel Fair", subtitled as "The closest trip in the world", and "Walk on the second runway" were held, and many people came to Kansai International Airport.

In the same way as until now, seeking cooperating of local residents, we will try to draw as many visitors as possible to the airport and make them feel familiar with the airport.

**[“Let’s Create Airport Island”]**

KALD has now established a custom of holding the event "Let's Create Airport Island" throwing open the 2nd phase airport island to general public and have them learn firsthand the grandeur of the 2nd phase construction site through various programs in the event and eventually foster peoples' attention and affection toward this construction project, which is regarded as one of the world's most advanced marine projects. The FY 2006 event took place on August 26, 2006 on the about 519ha land that has so far emerged. The program included "PET bottle rocket launching", "Paper plane workshop", "Drawing jumbo jet on the sand". While, "Cruising around Airport Island" (around the 1st and the 2nd islands) and other events were held on the sea.

Favored by good weather, about 6,000 people joined the event and enjoyed a pleasant time feeling the grand scale of the 2nd airport island.



\*2 : Kansai International Airport CS Improvement Conference  
KIAC established the conference in December 2003 to address the issues of "Thorough practice of the creed "Customer, the foremost priority" and "improvement of customer satisfaction" across the whole airport, in concert with 30 groups and organizations from airlines, tenants and governmental bodies.



## 7. Objectives of FY 2007 initiatives

## Creating a human- and environmentally-friendly airport

### Key points and future direction

KIAC is cognizant of the requirement of society for environmentally-sound management, and committed to create “an environmental-friendly 21st century airport” observing the principle stated at the construction of Kansai International Airport. Based on this stance, the company will pursue the environmental initiatives advocated in “Eco-Island Plan”.

Furthermore, in FY 2007, we evaluate the plan up to now, and examine the “New Kansai International Airport Environmental Management Plan (Provisional title) (Eco-Island Plan)” with its period until FY 2012.

### ■ Aircraft Noise

KIAC continues to monitor aircraft noise and conducts periodical monitoring of aircraft flight paths and altitude. In addition, when local residents make complaints or inquiries related to aircraft noise, the company works to obtain the understanding of residents by providing polite, timely answers to questions and complaints about aircraft noise, in collaboration with the Civil Aviation Bureau, MLIT.



Monitoring of aircraft flight paths and altitudes



Noise monitoring

Contacts:  
 Airport Planning And Engineering Department,  
 Environmental Group  
 Kansai International Airport Co., Ltd.  
 TEL:072-455-2177  
 Airport Information Center  
 Kansai International Airport Co., Ltd.  
 TEL:072-455-2500(Nighttime and holidays)

### ■ Steps to prevent global warming (Reduction of carbon dioxide emission)

KIAC is going to promote measures for prevention of global warming focusing on the Passenger Terminal Building and Aeroplaza, significant consumers of energy, based on the “Medium- and long-term Energy Conservation Plan” established in May 2004 under the “Law Concerning the Rational Use of Energy”. To be more precise, economical use of energy is sought by improving controlling methods of equipment and by other means.

With emission of carbon dioxide being expected to increase significantly due to the prospective increase in taking offs and landings of aircrafts, KIAC is going to study the latest status of energy consumption in terms of carbon dioxide level in FY 2006 to figure out the measures to reduce carbon dioxide emission at Kansai International Airport.

[Reference] Estimated carbon dioxide emission (FY 2006)

- By overall activities of Kansai International Airport ..... 536,000t (FY 2005: 553,000t)
- By facilities, equipment and business activities under the management of KIAC ..... 58,000t (FY 2005: 60,000t)

\* Note: The above estimation is based on carbon dioxide emission from aircrafts, offices and tenants managed by KIAC, the Energy Center, heat supply companies, other contractors and incoming vehicles.

### ■ Initiatives for minimizing negative environmental impact

KIAC surveyed the use of fixed (ground-based) power facilities, an alternative to the APUs, by parked aircrafts. The utilization rate in FY 2006 turned out to be about 70%. Showing a tendency to increase, the company will continue to promote the farther utilization of fixed power facilities through the campaign, while informing the Kansai International Airport Airlines Operation Council (AOC) of survey results and requesting for its cooperation in the promotion.

The company is committed to work in accordance with the “Office Environmental Management Manual” to grasp the proceeding of initiatives and thus control the efforts made in pursuit of the reduction of environmental load, such as the reduction of the company’s energy consumption. Plans are also underway to introduce low-emission vehicles when updating the fleet.

Constant operation of the Sewage Treatment Center located in the 1st phase airport island has maintained the excellent water quality of discharged wastewater well within the levels established by relevant wastewater standards. We are committed to maintain the Center’s satisfactory performance, and also encourage the use of reclaimed water for construction work or for maintenance of the facilities in the 1st phase airport island to eventually reduce the level of pollutants in water to be discharged into Osaka Bay.

Efforts to reduce emission of the air pollutants in the 2nd phase airport island construction project are being continued through the use of high-quality fuels (crude A and diesel) or construction equipment modified to reduce exhaust gas emission. Kansai International Airport Land Development Co., Ltd. will continue its environment-friendly construction practices making use of its environmental management system, which has obtained ISO14001 certification.

We will make efforts to use construction equipment modified to reduce exhaust gas and reduce the air pollutants emission in repairs and maintenance work on the 1st phase airport island.

As to be processing and disposal of the waste generated in the airport island, KIAC has enacted “Regulations Governing the Use of Waste Processing Facilities” and has explained these rules to contractors in order to raise awareness. In FY 2007 KIAC will continue to work toward thorough implementation of sorting at collection and promotion of the reduction and recycling of waste.

Waste such as asphalt generated by island construction projects, will be recycled whenever possible.

Consistent with its emphasis on reducing the consumption level of all energy traceable to fossil fuels to the greatest extent possible, the airport will proceed with the introduction of energy-conserving equipment such as high-efficiency fluorescent lighting. In addition, adoption of natural energy such as solar power and wind power, the viability of low-power-consumption LED illumination for aeronautical lighting and the possibility of adopting natural energies such as solar power and wind power are also being considered.



Sewage Treatment Center



Clean Center (Incineration Plant)

### ■ Diffusion and promotion of the use of low-emission vehicles

In May 2007, a Hydrogen service station has been set up in the airport island. It is planned to collect various data regarding the actual use of the station and, until 2010, it will be enacted to monitor the hydrogen-powered-engine vehicle and battery powered bicycle and demonstrate experiment of fuel-cell cogeneration system.

Additionally, in Kansai International Airport and Rinku Town District, the council is established to promote the initiatives aiming at the introduction of 109 units of CNG (Compressed Natural Gas)-powered vehicles in 3 years from 2006. The exhibition of CNG-powered vehicle was held in August 2006, as one of these promotions.



Hydrogen service station

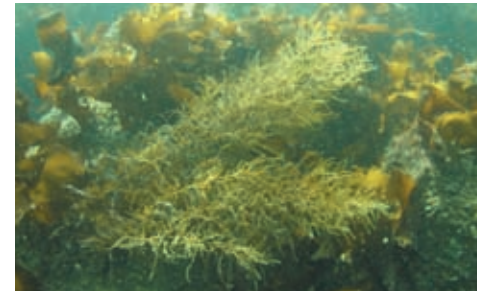


## 8. Third party comments

### ■ Natural Environment

Seaweed bed formation at the seawall around the 2nd phase airport island was proceeded in a positive direction based on the results of monitoring at the seaweed bed in the 1st phase airport island. As a result, the seaweed bed has been established efficiently in three years' time.

Transplantation of seaweed by supplying seaweed seedlings and monitoring of seaweed beds around the airport island will be continued in this fiscal year.



Seaweed bed

### ■ Providing environmental information to public

KIAC is committed to release as much information about the airport as possible to local residents through the airport's own information magazine "KanKuu" and pamphlets about various initiatives, which are distributed at the various facilities in the island or local area. KIAC will support "2nd Phase Construction Visitor Hall", "KIA Environment Center" and "Kansai Airport & Airfront Community Plaza", which are undertaking different roles of their own, by providing various materials and information so that these facilities can be a good place for the visitors to learn about the Kansai International Airport. KIAC has also enhanced the environment-related content on its website. (See p.8 for the system of releasing information about our environmental monitoring initiatives and their results.)



2nd Phase Construction Visitor Hall

### ■ Partnership with local residents

Kansai International Airport holds various events, aiming to become a convenient and amusing airport. In FY 2006 various events were organized in succession to the previous year's events held in commemoration of the 10th anniversary of the airport, and received a pleasant number of visitors to the airport island.

In FY 2007, seeking cooperating of local residents, KIAC will try to draw as many visitors as possible to the airport and make them feel familiar with the airport.



Japan Coast Guard Patrol Vessel Experience

### ■ Partnership with island contractors

We intend to organize in FY 2007 a platform, a meeting to discuss the environmental-related issues (tentatively called "Eco-Island Conference on Environmental issues"), where we can hear from the island contractors and exchange information about the environmental initiatives being implemented at the Kansai International Airport.



Second Runway Walk

### After reading the "Eco-Island Report 2007"



#### 1. Environment preservation as an Airport Company

Most parts of the environmental load in the Airport are caused by the contractors that use the Airport. Therefore, the environmental preservation activities of Airport Company are to urge these contractors changed into environmental preservative ones. In 2001, Kansai International Airport Co., Ltd. launched the "Eco-Island Plan", targeting at the island contractors with various events carried out actively, and it ought to be evaluated highly.

#### 2. The result of "Eco-Island Plan"

The "Eco-Island Plan" is coming to close in FY 2007, and a new Environmental Management Plan is going to be set in FY 2008. The established activities, as we can understand to see the detail of main measure items, have adopted the method that listed up the environmental load of Kansai International Airport comprehensively and achieve the feasible measures steadily. Such a method is considered as appropriate under the situation that wide-range environmental consideration as an airport island is requested and the expected achievement can be seized.

#### 3. Towards the development of a New Environmental Management Plan

From FY 2008, the new Environmental Management Plan will be set, and it should be pushed forward based on these achievements. Therefore, it is necessary to set priorities clearly in the environmental preservation activity in the future. Even if the environmental problem diverges into many branches, the plan and practice that reflected priorities is necessary because the each importance should be different. Furthermore, the quantification of the objective also should be taken into consideration.

#### 4. Further Effort to Environmental Enlightenment

Although both environmental enlightenment and education are being actively done, in that aspect, measures that are reflected with the characteristic of International Airport are expected. International Airport may be just a passage point for many people, but it is also the place where many people gather. The enlightenment activities targeting the travelers should be examined, even if they may be difficult, as the contribution to society is an important theme for an airport company.

Graduate School of Business Administration,  
Kobe University  
Professor, Katsuhiko Kokubu



# 9. Environmental Accounting

## An experimental approach to environmental accounting

With the background of the high cost structure resulting from its being an offshore airport, KIAC has been making, since FY 2002, an experimental approach to environmental accounting in the assessment of the costs and benefits in order to execute the company's environmental preservation policies more effectively and efficiently.

### Accounting method

- Facilities involved: Kansai International Airport Co., Ltd.
- Accounting period: April 1, 2006 to March 31, 2007
- Classification method of items of environmental preservation costs: Items were classified in compliance with the "Environmental Conservation Cost Classification Manual 2005" (Ministry of the Environment) and in consideration of the specific conditions of Kansai International Airport.
- Items of environmental preservation costs:
  - Cost in project area: Land costs related to the Incineration Plant and the Sewage Treatment Center; facilities costs; maintenance costs and facilities costs related to energy-saving/water-saving; maintenance costs, etc.
  - Management costs: Costs for social contributions to the environment; environment survey costs

Accounting of environmental preservation costs Unit: million yen

Accounting category		Cost	
Costs in project area	Pollution prevention	2,728	[2,801]
	Energy conservation	2,115	[2,185]
	Treatment and disposal of domestic waste	1,782	[1,606]
	Water-related savings	49	[47]
	Subtotal	6,674	[6,639]
Management costs	Social contributions to the environment	126	[155]
	Environmental survey	275	[335]
	Subtotal	401	[490]
<b>Total</b>	<b>7,075</b>	<b>[7,129]</b>	

In parentheses are figures for FY 2005

Environmental preservation benefits

	Environmental impact reduction	Monetary equivalents
Sewage Treatment Center	COD : 72.87t	47,000 yen
	[COD : 72.25t]	[46,000 yen]
Incineration Plant	NOx : 44.45t	6,263,000 yen
	[NOx : 46.0t]	[6,479,000 yen]

In parentheses are figures for FY 2005

An instance of the assessment using environmental accounting is as follows. Although the largest among the environmental preservation costs has been that of reclamation costs for the airport island, which was built 5 km off the coast of Senshu to reduce the effects of aircraft noise, it has not been included in the account results cited in this section on the ground that the method of quantitative measurement of aircraft noise has not been established yet. Instead, effect of wastewater/waste (garbage) treatment with known quantitative method of measurement is cited here. The total environmental preservation costs in FY 2006 amounted to 7,075 million yen, down 54 million yen over the previous fiscal year.

Environmental preservation benefits were figured out for the individual items based on the reduced amount of negative environmental load, i.e. "standard value of emission required by the law" minus "emitted/discharged environmental load". COD and NOx values were chosen for the calculation as the items to represent the performances at the Sewage Treatment Center and Clean Center (Incineration Plant), respectively: the former represents the level of negative environmental load of wastewater discharged into Osaka Bay, and the latter, the level of emission of pollutants caused by incineration of wastes (garbage).

In order to integrate and evaluate the effects of environmental preservation based on several environmental indicators, KIAC also tried to convert the effects into monetary equivalents using LIME integration factor\*1.

When calculated using LIME method, the total effect of environmental preservation (originally expressed in amount of substances) was evaluated to be 6.5 million yen.

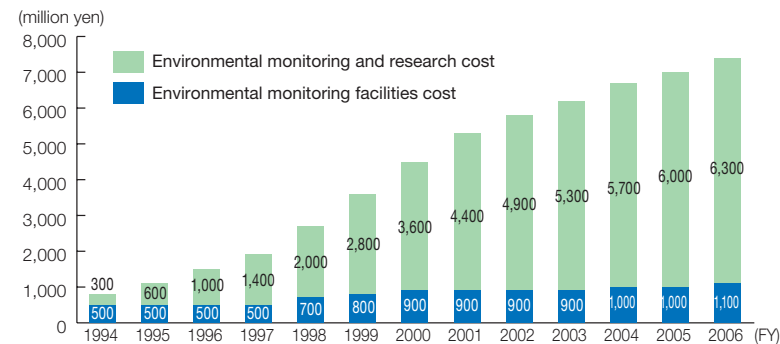
Internal economic benefits were expressed in terms of total amount of savings attained through the implementation of environmental preservation initiatives. The savings turned out to be 574 million yens.

### Saving effect by environmental preservation measures (benefits)

- Saving in water charges of about 115 million yen resulting from the use of reclaimed water (reduced tap water consumption)
- Saving in public sewer charges of about 201 million yen resulting from the proprietary sewage treatment system
- Saved maintenance costs of about 189 million yen that would be required if the same volume of garbage which was treated by KIAC's proprietary incineration system were to be incinerated at a land-based facility
- Saving of about 69 million yen resulting from energy conservation
- Total: 574 million yen**

## Cumulative costs of environmental monitoring and research

Total sum of 7.4 billion yen has been spent on environmental monitoring and research during the period from the opening of airport to FY 2006 on such items as aircraft noise, flight path/ air height, air quality, and water quality/bottom sediment quality/organisms in sea area including the cost of maintenance and renewal of monitoring facilities.



\*1 : LIME integration factor

LIME is an abbreviation for Life cycle impact assessment Method based on Endpoint modeling. The method was developed by the Life Cycle Assessment Research Center of National Institute of Advanced Industrial Science and Technology(AIST), in conjunction with LCA Project (New Energy and Industrial Technology Development Organization (NEDO), Ministry of Economy, Trade and Industry) and the Product Life Cycle Environmental Assessment Technological Development Project conducted for five years from FY 1998 by the Japan Environmental Management Association for Industry.

# Environmental timeline

Year	Month	Event
1968	4	The Ministry of Transport (MOT) began a basic survey.
1971	10	The Minister of Transport referred the question of the "Kansai International Airport's scale and location" to the Council for Civil Aviation.
	11	MOT conducted trial flights to determine noise pollution levels at 3 candidate sites (Senshu, Kobe, and Akashi).
1972	8	The Council for Civil Aviation held a meeting with the local community.
1973	8	MOT conducted surveys at 3 candidate sites to investigate air pollution caused by commercial aircraft.
1974	8	The Council for Civil Aviation reports back its findings concerning "the airport a location off the coast of Senshu is ideal" (the first finding) to MOT.
1975	9	MOT convened a series of local explanatory briefings.
1976	9	MOT announced "Survey Guidelines".
1977	10	Sea-based observation facilities were completed.
1978	2	MOT announced its Noise, Vibration, and Air Pollution Survey Plan and commenced local surveys.
	3	MOT began boring surveys at areas surrounding the candidate sites.
1979	5	MOT conducted live flight surveys.
1981	5	MOT announced the "Troika" proposals.
1983	12	MOT began a ground improvement experiment at the location off the coast of Senshu.
1984	10	KIAC was established.
1985	10	"The Environmental Impact Assessment Preparatory Document" was submitted to the Governor of Osaka Prefecture.
	2	KIX Environmental Surveillance Organization was established.
1986	6	"Environmental Impact Assessment" was submitted to the Governor of Osaka Prefecture.
	12	"Environmental Monitoring Plan" was established, and environmental monitoring began.
1987	1	A public water reclamation permit was obtained for the 1st phase construction project, and 1st phase construction began.
	6	Construction of access bridge linking the airport to the mainland began. KIX Environmental General Center opened.
	8	Silt protection sheets were deployed.
1989	6	The 1st phase airport island seawall was completed.
	1	All 1st phase airport island construction areas were completed.
1994	3	"The Plan for Environmental Monitoring of the Construction and Operation of KIX" was established.
	7	KIX Environmental Center opened.
	9	KIX opened for service (September 4). Measurement of aircraft noise pollution and low-frequency air vibration began.
1995	8	The Council for Civil Aviation announced the "Basic approach to the 7th airport preparatory 5 year plan (intermediate summary)".
1996	6	KALD was established (June 11). The Minister of Transport designated KALD as an official land developer.
1997	6	MOT announced the document "About the comprehensive initiatives relating to flight path problems at KIX".
	12	The Plan for the Implementation of the 2nd Phase Construction Project Environmental Impact Assessment was submitted.
	4	The 2nd Phase Construction Project Environmental Impact Assessment Preparatory Documents was submitted.
1998	10	The 2nd Phase Construction Project Environmental Impact Assessment was submitted.
	12	New flight path were introduced, plans for the environmental monitoring of aircraft noise were reviewed.
	6	Plan for Environmental Monitoring during the 2nd Phase Construction Project was established.
	7	A public water reclamation permit was obtained for the 2nd Phase construction project. (Beginning of the 2nd phase construction project (July 14). Silt protection sheets deployed.
1999	11	KIX Fifth Anniversary International Symposium was held.
	12	KALD received environmental management system (ISO 14001) certification.
	1	KIAC established the Environmental Management Committee.
	4	KIX received the "Monument of the Millennium" award from the American Society of Civil Engineers.
2001	6	KIAC established Environmental Management Plan (the Eco-Island Plan).
	9	Placement of wave-dissipating blocks with grooves began along the 2nd phase airport island's seawall.
	11	The International Symposium 2001 was held. The 2nd phase airport island seawall was completed.
	10	KIAC established Regulations Governing the Use of Waste Processing Facilities.
2002	12	KIAC established Energy Conservation Council.
	12	KIAC published "Eco-Island Report 2002" for the first time.
2003	12	KIAC established the Kansai International Airport CS Improvement Conference.
	7	KIAC conducted Family Fishing Survey (through to September).
2004	9	International Airport Symposium 2004 was held.
	12	KIAC participated in the exhibition of "Eco-Products 2004" for the first time.
2005	7	Kansai International Airport Environmental Center relocated to Kanku Observation Hall.
2006	8	Kansai International Airport & Rinku Town were selected as a region for disseminating and promoting the CNG-powered vehicles.
	1	Kansai International Airport was commended the "Minister of Economy, Trade and Industry's Award" at FY 2006 All Japan Conference of Excellent Cases for Energy-saving for the efficient use of air conditioning for Passenger Terminal Building based on "Passenger information system".
2007	5	JHFC Hydrogen service station was opened in Kansai International Airport.

Integrated factor:

This factor, proposed along with a characterization factor for environmental categories and a damage factor for protection targets, is acclaimed as a Japanese version of evaluation method that correctly identifies the difference between environmental background in Japan and Europe and USA. COD=640 yen/ton, NOx=140,900 yen/ton, CO<sub>2</sub>=1,620 yen/ton etc. The Product Life Cycle Environmental Assessment Technological Development Document. The Japan Environmental Management Association for Industry (March, 2003).

