ECO-AIRPORT initiatives for reduction of environmental impact on airport in Japan

Civil Aviation Bureau (CAB), Ministry of Land, Infrastructure, Transport and Tourism (MLIT)
Contents

1  Concept of Eco-Airport
2  Eco-Airport measures
3  International cooperation
Background

- Large increase in CO$_2$ emissions from aviation sector is expected due to the rapid development of air transport.
- CO$_2$ emissions also come from airport operations.
- Aviation sector is expected to contribute to the measures against global warming.
- Air pollution, waste, water consumption in airports can have environmental impact from activities related to the airports.

Japan implements “Eco-Airport initiatives” for the reduction of environmental impact from airport
Concepts of Eco-Airport

- Voluntary environmental policies/measures at and around airports
- Improvement of the image of the country (an airport is the gateway to the country)

⇒ **Ecology**

- Reduction of operation costs by saving energy at airports

⇒ **Economy**

**Double ECOs**
Laws and Regulations related to Eco-Airport

Act

‟Airport Act‟
The environmental conservation shall be considered in the establishment and management of an airport.

Notice

‟The basic policy for the establishment and management of an airport‟ (by Minister of MLIT)  
Article 3, Airport Act
The measures to promote the environmental conservation and good environmental creation shall be undertaken for the reduction of the environmental impact from airport operation.

Guideline

‟Eco-Airport Guideline‟
Necessary measures to promote „Eco-Airport initiatives‟

Not passive but voluntary actions are required
CAB formulates “Eco-Airport Guideline” based on the laws and regulations related to not only civil aviation but environment.

**Civil Aviation**
- **Airport Act**
  - The basic policy for the establishment and management of an airport (made by Minister of MLIT)

**Environment**
- **Basic Environment Act**
- **Basic Environment Plan**
- **Environment Assessment**
Basic Philosophy of Eco-Airport Guideline

1. Airport with global environmental perspectives
2. Airport harmonized with the community environment
3. Sustainable airport contributing to the development of Low-carbon society, recycling-based society and symbiotic society

The airport administrator and airport-related business entities shall not only comply with the environmental standards but proactively take various environmental measures, such as energy conservation, the promotion of the 3R’s (reduce, reuse and recycle) and the biodiversity conscious environmental creation.

※ Eco-Airport Guideline has been periodically revised.
Eco-Airport initiatives is mainly implemented at National government airports and corporate airports. It is desirable for the other airports to implement.
Procedure for Eco-Airport

Government

Formulation of “Eco-Airport guidelines”

Each airport

Formulation of “Airport Environmental Plan”

Plan

Do

Act

Check

Implementation of the Plan

Interim Evaluation (The 5th year)

Review of the Plan

Overall Evaluation (The 10th year)
Eco-Airport Council consists of various stakeholders related to airport activities.

**“Eco-Airport Council” members**
- Government
- Airport authority
- Airport building
- Ground handling
- Airlines
- ...

### Workflow
- **Airport Environment Plan** → **Interim Evaluation (The 5th year)** → **Overall Evaluation (The 10th year)** → **Publication**
## Airport environmental plan

- The plan should be developed according to the characteristics of each airport, such as scale, location and climatic conditions.
- Targets should be set for environmental elements, such as air quality, energy saving, noise/vibration, waste reduction and water consumption.
1 Concept of Eco-Airport

2 Eco-Airport measures

3 International cooperation
Image of Eco-Airport measures

Facility development
- Photocatalyst technology
- Effective use of cut grass
- Electric vehicles
- Rainwater utilization system

Recycling plant
- Solar panels
- Greening
- LED lamps

Daily familiar efforts
- Turn off lights when they aren’t used
- Idle reduction
- Water-saving
- Recycling
Promotion of introduction of GPU

One third of construction cost is subsidized when GPU is newly set up at the airport where GPU is not installed.

Promotion of eco-car for GSE vehicles

One third of vehicle price is subsidized when the fuel efficient GSE vehicles are introduced.

- 2007 total 15 vehicles
- 2008 total 1 vehicle

※ METI : Ministry of Economy, Trade and Industry
Introduction of hydrogen energy

- The utilization of hydrogen energy has been considered in order for the visitors to realize the hydrogen society in the Tokyo 2020 Olympic & Paralympic Games.

- Demonstration project for the utilization of hydrogen energy for service and industrial vehicles is scheduled to be performed from 2017 to 2020 at Haneda Airport.

Subsidy from Tokyo Metropolitan Government

- Construction of Hydrogen station 50% (Upper limit 150 mil. yen)
- Management of Hydrogen station 1,000 mil. yen per year (until 2020)
The Cool Project

Using snow for a portion of the terminal building’s air condition

1. Reduce BOD in de-iced snow
2. Reduce energy consumption for air conditioning

- Subsidy from New Energy Promotion Council (Ministry of Economy, Trade and Industry) in 2009
- Business owner: CENTRAL LEASING SYSTEM Co., LTD.
- Subsidy for installation of cool energy utilization facilities
- Amount of subsidy: One-third of expense
BOD Reduction in melting snow

De-icing

Snow cleared from airport surfaces is collected to be piled up mountain-high.

Balancing reservoir

Water for melting snow is stored in the balancing reservoir to reduce BOD.
Contents

1 Concept of Eco-Airport

2 Eco-Airport measures

3 International cooperation
Japan’s International Cooperation in the Airport Sector

Japan's assistance to foreign airports includes a wide variety of items:

- Repair work & Expansion of facilities during operation
- Effective Operation & Maintenance
- Support for introduction of environmental measures
- Airport planning by advanced technology
- Airport development
- Dispatch of experts
- Improvement of existing facilities
- Planning Construction
- Japan's International Cooperation in the Airport Sector
- Preparation of operation
- Human resource development
- Training in Japan
- Operation Maintenance

DUTY & TAX FREE SHOP

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Japanese ODA Loan Projects for the realization of Eco Airport

Egypt
“Borg El Arab International Airport Extension Project”

Philippines
“New Bohol Airport Construction and Sustainable Development”

Papua New Guinea
“Nadzab Airport Redevelopment Project”
Philippines
“New Bohol Airport Construction and Sustainable Development”

Signing Date
March 27, 2013

Executing Agency
Department of Transportation and Communications

Terms and Amount of Loan
Amount (mil yen) : 10,782 (About 96 mil $)
Annual interest rate (%) : Project 0.20
  Consulting Services 0.01
Payment Period (years) : 40
Grace Period (years) : 10
Procurement : Japan tied

Project Status
Under construction

Environmental considerations
● Coral reef conservation by taking measures against muddy water and red soil discharge during construction
● Introduction of energy saving technologies under Eco-Airport initiatives
Papua New Guinea
“Nadzab Airport Redevelopment Project”

**Signing Date**
October 14, 2015

**Executing Agency**
National Airports Corporation

**Terms and Amount of Loan**
Amount (mil yen) : 26,942 (About 240 mil $)
Annual interest rate (%) : Project 0.10
Consulting Services 0.01

Payment Period (years) : 40
Grace Period (years) : 10
Procurement : Japan tied

**Project Status**
Detailed Design

**Environmental considerations**
- LED illumination and energy-saving air conditioning and water systems
- Introduction of energy saving technologies under Eco-Airport initiatives

**Project items**
- Construction of passenger terminal building
- Cargo terminal building
- Rehabilitation of Control Tower
- Expansion of Runway, Apron, taxiway
ASEAN-Japan Cooperation on Eco-Airport

Technical support for promotion of Eco-Airport in ASEAN countries

The needs of technique of airport environment

Provide technical information
- Japan-ASEAN Eco-Airport Project
- JICA seminar
ASEAN-Japan Cooperation on Eco-Airport features

Objectives

Development of critical policies and measures for improvement of operations and environmental quality of airports in the ASEAN region.

Activities

<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
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<tbody>
<tr>
<td>2004</td>
<td>Adoption of an ASEAN-Japan Airport Study Project as one of the AJTP* project</td>
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<tr>
<td>2005-2008</td>
<td>Eco-Airport was selected and implemented as the project theme.</td>
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<td>2008</td>
<td>Endorsement of the ASEAN-Japan Eco-Airport Guidelines</td>
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| 2009-2011 | JICA seminar on Eco-Airports  
- JICA Training Course "Airport Development Planning for Environmental Considerations" - |
| 2012  | JICA follow-up seminar on Eco-Airports (Vietnam) |
| 2013-2014 | Survey on the ASEAN Eco-Airport progress  
- Questionnaire and field survey - |
| 2017  | Eco Airport Training Program by CAB in Japan |

*AJTP : ASEAN-Japan Transport Partnership*
Thank you for your attention!