

Civil Aviation Department
Environmental Report 2010

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Executive Summary

This Environmental Report reviews our performance in 2010. It is the 12th report in the series.

This report aims to provide information about our work in aircraft noise management and green housekeeping. Performance in 2010 of various green measures was also summarized and shown in different diagrams and figures.

On managing aircraft noise, while we strive to develop a safe and efficient air transport system, we are mindful of the impact of aircraft noise on local communities. In this regard, we continued to develop, review and implement feasible measures in order to minimize the disturbance of aircraft noise on local communities as far as practicable.

For green housekeeping aspect, we practise green measures aiming to promote energy conservation, paper conservation, recycling, green procurement and proper disposal of waste. We also participated in the Carbon Reduction Programme of the Hong Kong International Airport (HKIA) which pledged to reduce the airport-wide carbon emission by 25% per workload unit by 2015 from 2008 levels. We strived to achieve a decrease of 15.7% in paper consumption in CAD offices. We will continue our efforts in reducing the consumption of materials in the years ahead.

We welcome comments and feedback from readers so that we could identify ways for improvements. You can provide your views to us by email to enquiry@cad.gov.hk or by fax on 2326 3654 or by post to 46/F, Queensway Government Offices, 66 Queensway, Hong Kong.

Foreword

CAD is committed to a safe and efficient air transport system in Hong Kong. We also realize the need to minimize the disturbance caused by aircraft operations to the local communities and to implement green measures in our offices to protect our environment.

In aircraft noise management, we follow the “Balanced Approach” recommended by the International Civil Aviation Organization* (ICAO). The goal is to address the local noise problem in the most cost-effective manner by identifying the noise problem at an airport and then analyzing the various measures available to reduce noise using elements such as:

- Reducing noise at source
- Implementing noise abatement operational procedures
- Imposing operating restrictions on aircraft

We have established and implemented a number of aircraft noise mitigating measures as stated in the report and will continue to review, develop and implement any feasible measures in the light of development of international standards and recommended practices in aircraft noise management as well as in the field of environmental protection.

In green housekeeping, we continue to keep a close watch on the consumption of electricity, paper and other materials and aim to reduce their consumption as far as practicable. We also participated in carbon audit and carbon reduction programme to keep track of our efforts in reducing greenhouse gases emission.

Note:

* The International Civil Aviation Organization (ICAO) is a specialized agency of the United Nations. ICAO was established in 1944 to promote the safe and orderly development of international civil aviation. It sets standards and regulations necessary for aviation safety, security, efficiency and regularity, as well as for aviation environmental protection. The organization serves as the forum for cooperation in all fields of civil aviation among its 190 Contracting States.

Chapter 1 Our Green Policy

Recognizing the impacts of aircraft operations and our day-to-day office operations brought to the environment, we accord high priority to care for the environment in our daily business.

The green policy adopted by our department could be classified into 2 areas –

- Aircraft Noise Management
- Green Housekeeping

Aircraft Noise Management

With an effective aircraft noise management system, we implement applicable international standards and recommended practices to minimize the aircraft noise disturbance to local communities through-

- Monitoring new or amended developments ICAO standards and recommended practices on aircraft noise and reviewing any applicable changes for implementation in Hong Kong including requirements on aircraft noise certification and noise mitigating measures
- Developing and implementing aircraft noise mitigating measures
- Monitoring aircraft noise
- Maintaining dialogue with local communities and citizens affected by aircraft noise
- Investigating and handling aircraft noise complaints
- Consulting stakeholders on the feasibility of new noise mitigating measures

Green Housekeeping

Implementing green housekeeping measures via various means in our daily office operations could effectively minimize the consumption of energy, paper and other materials and thus, contribute to a greener environment. Examples of green housekeeping measures include -

- Strengthening management of green housekeeping by
 - Establishing “Environmental Management Committee”
 - Appointing office green managers
- Compliance with environmental regulations as a minimum standard of performance
- Following 4Rs principle of Reduce, Reuse, Recycle and Replace as far as practicable
- Purchasing environmental friendly items
- Encouraging staff participation by placing recycled bins at offices to promote their awareness in recycling



Figure 1: Examples of green measures in office

Implementation of Policy in Aircraft Noise Management

CAD is conscious of the aircraft noise impacts on local communities and has developed and implemented a number of noise mitigating measures with a view to reducing the disturbance caused by aircraft. We keep a close watch on the development of international standards and recommended practices in aircraft noise management. We adopt a “Review-Plan-Implement-Check” Cycle in aircraft noise management. (Figure 2)

CAD keeps on reviewing and assessing the present noise impacts. When planning new noise mitigating measures, CAD will consult different stakeholders including local communities, airlines and airport operators. Noise mitigating measures implemented are subject to regular review.



Figure 2: Review-Plan-Implement-Check Cycle

Implementation of Policy in Green Housekeeping

In view of the necessity in monitoring the environmental friendliness of all CAD operations and working out practical green policies, an “Environmental Management Committee” was established in 1999. The Committee is also responsible to assess the effectiveness of the green measures taken as well as to set the green targets for the year ahead.

Besides, all CAD offices are reminded of the green measures in offices by means of circulation of departmental circular on a quarterly basis.

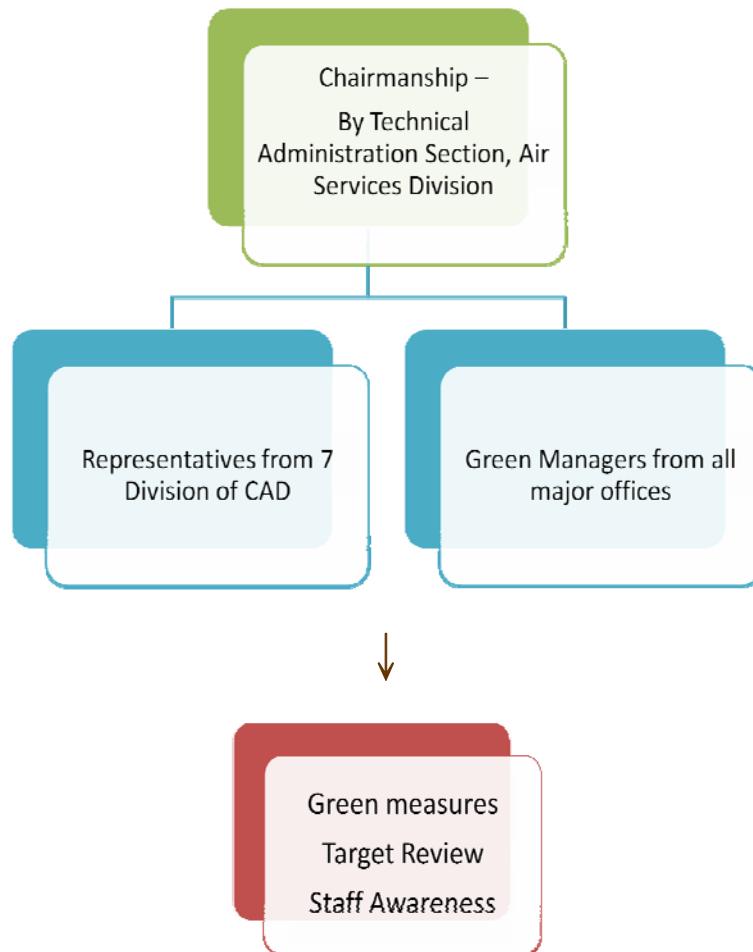


Figure 3: Composition of the Environmental Management Committee

Chapter 2 Aircraft Noise Management

Using Flight Path over Water to Minimise Noise

We try to minimize the aircraft noise disturbance during overnight periods. Under safe weather and flight conditions, arriving and departing aircraft are advised to use the flight paths which are over water for landings at and taking-off from HKIA.

Night Arrivals

Subject to acceptable wind direction and safety consideration, all aircraft arriving between midnight and 7:00 a.m. are required to approach from the southwest over water. (Figure 4)

With this arrangement, populated districts such as Shatin, Tsuen Wan, Kwai Chung, Tsing Yi, Sham Tseng and Tsing Lung Tau are not affected by the noise from arriving aircraft during the overnight period.

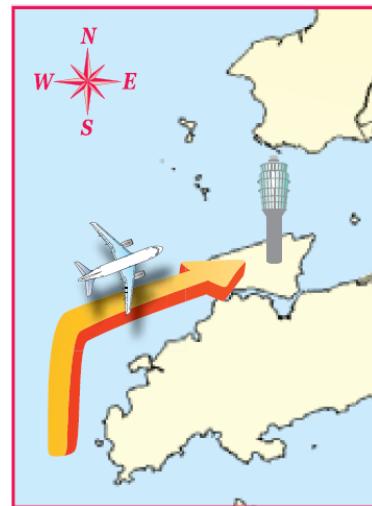


Figure 4

Night Departures

Subject to acceptable wind direction and safety consideration, all aircraft taking off to the northeast between 11:00pm and 7:00am are required to depart via the West Lamma Channel. (Figure 5)

With this arrangement, populated districts such as Kowloon, North Point, Shau Kei Wan and Chai Wan are not affected by noise from departing aircraft during the overnight period.

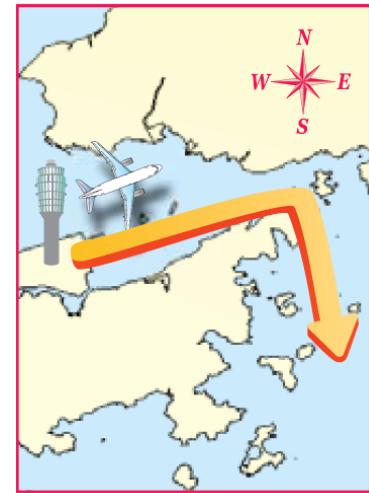


Figure 5

Noise Abatement Procedures

Quieter Arrivals

When weather and flight conditions do not allow night arrivals between midnight and 7:00am to approach from the southwest, arriving aircraft from the northeast direction are encouraged to adopt the Continuous Descent Approach (CDA).

The CDA approach requires the aircraft to fly higher and adopt a lower power and drag configuration during the commencement of the approach, thereby reducing aircraft noise impacts to areas such as Sai Kung, Tseung Kwan O and Ma On Shan.

Quieter Departures

All aircraft departing to the northeast are required to adopt the Noise Abatement Departure Procedures (NADP) stipulated by ICAO so long as safe flight operations permit.

These procedures requires aircraft to initiate noise abatement procedures by means of power reduction upon reaching an altitude of 800 feet or above, thus alleviate aircraft noise impact during take-offs on communities in the vicinity of the airport.

Keeping Noisy Aircraft out of Hong Kong

Since 1 July 2002, we have banned the operations of old and noisy “Chapter 2”* jet aircraft from operating at the Hong Kong International Airport. Only newer and quieter aircraft which meet the noise standard of “Chapter 3” are allowed to land and depart in Hong Kong. The prohibition of “Chapter 2” aircraft helps reduce the overall noise impact to communities in the proximity of flight paths.

Note:

* “Chapter 2” aircraft are those aircraft which only comply with the noise standard stipulated in Chapter 2 of Annex 16, Volume 1, Part II to the Convention on International Civil Aviation.

Noise Monitoring

Aircraft Noise and Flight Tracking Monitoring System

The aircraft noise levels in areas located near the flight paths have been closely monitored with the aid of an Aircraft Noise and Flight Tracking Monitoring System (ANFTMS). This system currently connects to 16 fixed noise monitoring terminals (NMTs) installed in the vicinity of flight paths (Figure 6), which constantly collect real-time noise data. The ANFTMS automatically correlates flight track information from the radar with noise data from NMTs, thereby enabling us to compile accurate statistics on aircraft noise and more effectively investigate any noise complaints.



Figure 6: Location of noise monitoring terminals

Working with Public

Complaint Handling

We listen to the public opinions and handle aircraft noise complaints with detailed investigations. In year 2010, we handled 407 aircraft noise complaints. The monthly complaint statistics remained stable as compared with year 2009, except in the months of June to August*.

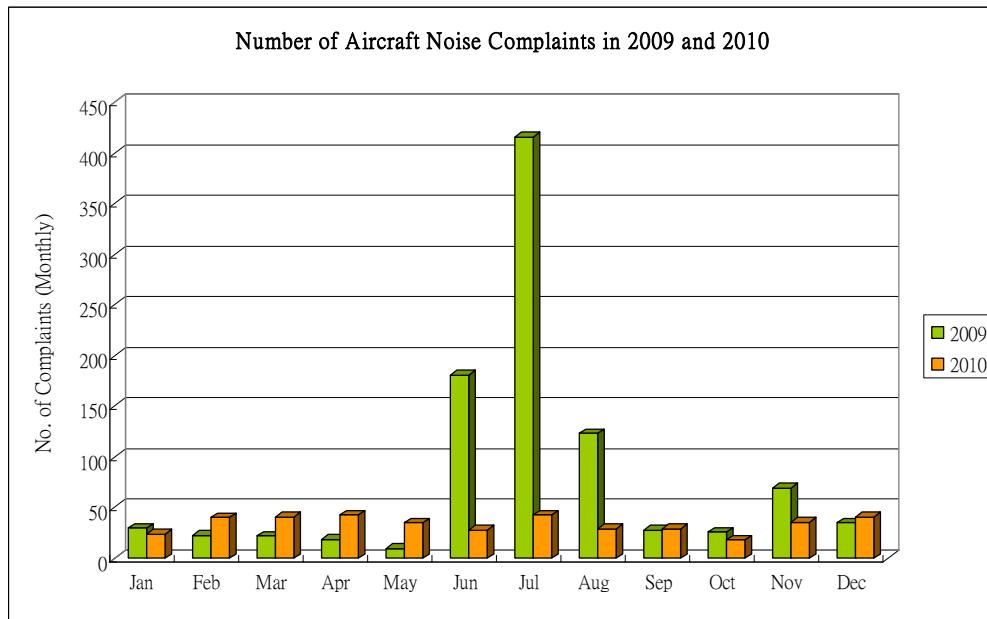


Figure 7 Monthly statistics on aircraft noise complaints

Note: * Between June and August 2009, a residential estate organized a campaign to express their views on aircraft noise issues. This constituted two-third of the complaints received in 2009.

Public and Government Liaison

In 2010, we attended two District Council meetings and met with 2 residential estate owner's committees to discuss aircraft noise issues, as well as to explain the noise mitigating measures we had implemented.

Provision of Noise Data

We regularly analyze the noise data collected by the ANFTMS and upload them onto CAD website to enable public members to access aircraft noise information.

Chapter 3 Shortened routes to reduce CO₂ emissions

Taking advantage of the latest development in satellite navigation technologies, CAD has been actively pursuing air routes rationalization with a view to enhancing the operating efficiency of the Hong Kong air route system, which is conducive to reducing the environmental footprint of aircraft operations in Hong Kong.

CAD has implemented new air routes with effect from 22 October 2009, which shortened travelling distances for arrival aircraft from the west and the north of Hong Kong. Each flight coming to Hong Kong from the Mainland, South East Asia and Europe has been able to save up to about 210 kilometers in flight journey or 14 minutes in flight time. (Figure 8)

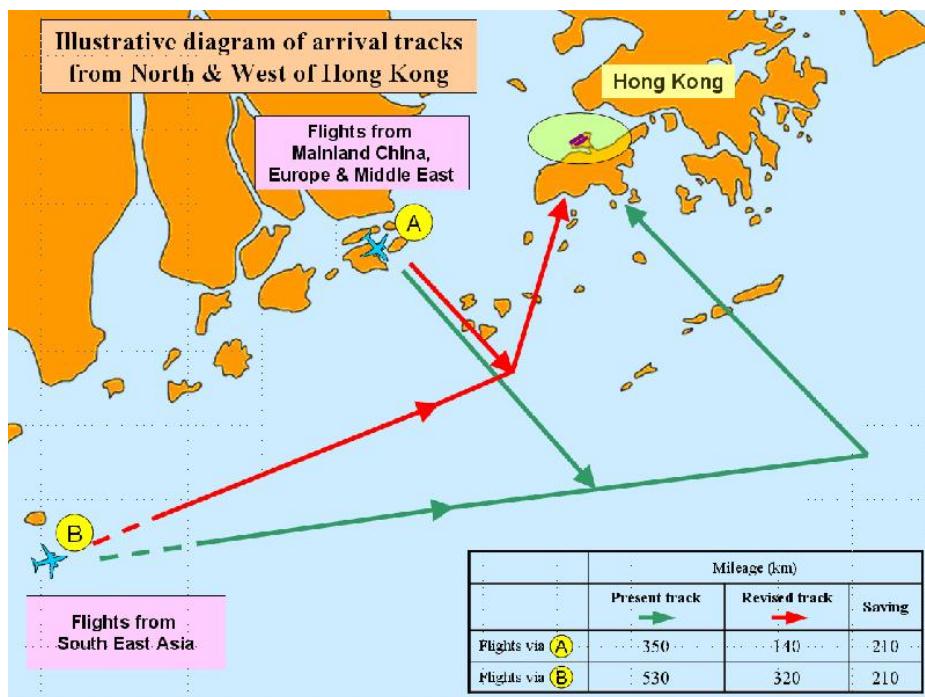


Figure 8: Revised routes for arrival aircraft

Our Performance in 2010

During 2010, more than 57,000 flights benefited from these shortened routes and it is estimated that this reduced carbon dioxide (CO₂) emissions by approximately 350,000 tonnes.

Chapter 4 Green Housekeeping

To practice green housekeeping, we set out different measures which emphasize on energy conservation, paper conservation, recycling, proper disposal of environmentally hazardous waste and promotion of environmental awareness among all staff.

Energy Conservation

Buildings managed by CAD

Minimize the use of energy

Energy-saving building services features are incorporated in buildings and premises management by CAD, that is the Air Traffic Control Complex and Tower (ATCX/TWR) and the Back-up Air Traffic Control Complex (BATCX). Besides, green housekeeping measures are continuously being implemented to minimize the use of energy. Examples include using energy efficient water-cooled air-conditioning system and replacing tungsten filament lights with T5 fluorescent lights.

Carbon Audit

In 2010, CAD supported the carbon audit conducted by the HKIA.

Buildings managed by a Third Party

For non CAD-owned buildings, for example, Queensway Government Offices, we would meet with the managers to discuss the energy saving initiatives if needed. Measures like controlling the temperature of the air-conditioning system and limiting the operation hours of chiller plants are the examples of reducing the use of energy.

Our Performance in 2010

In 2010, 30,221 kilowatt-hours of electricity were consumed by CAD owned-premises on an average day, an increase of 2.2% compared to 2009.

Paper Conservation

We practice paper conservation using the 4R principle:

Reduce

- Minimize the use of papers by communicating by E-mail and posting circular on CAD intranet
- Using double-side photocopiers and printing on both sides of paper
- Minimize photocopies (e.g., not to make personal copies)

Reuse

- Reuse envelops and loose minute jackets
- Install “Green Tray” in laser printer to use blank side of used paper
- Use blank side of used paper for drafting

Replace

- Use recycled paper instead of plain paper

Recycle

- Waste paper is collected for recycle

Our performance in 2010

In 2010, we used 6,200 reams of paper (Figure 9), which was a decrease of 15.7% compared with 2009.

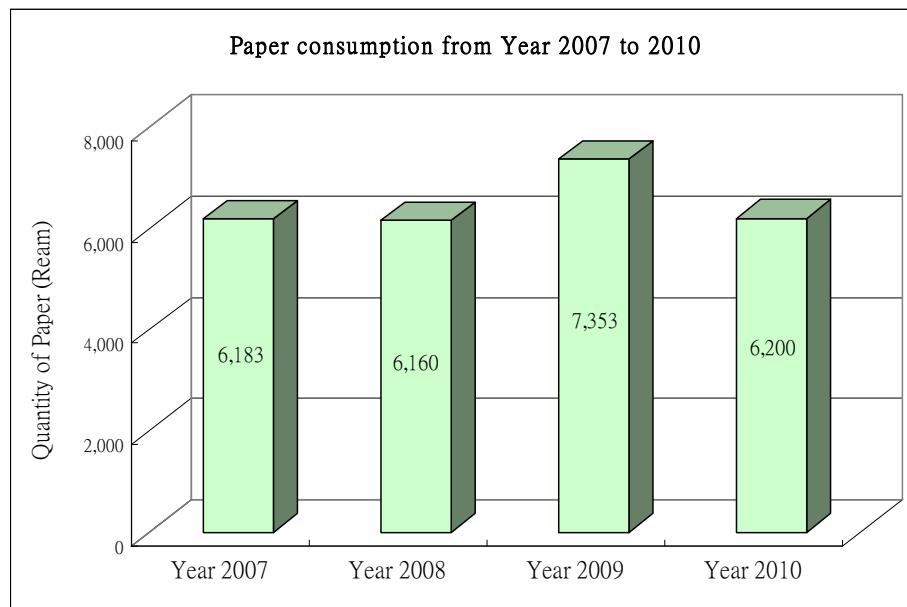


Figure 9: Paper consumption from Year 2007 to 2010

Recycling

We recycle waste paper, used Compact Discs and laser printer cartridges. Recycling bins are available in CAD offices to encourage staff to place such recyclable materials inside. The collected materials are forwarded to our suppliers or other designated parties for recycling periodically. The table below shows the comparison of volume of materials sent for recycling in Year 2009 and 2010.

Our performance in 2010

Waste Paper Collection (kg)	4,236	6,127
Used Compact Disc Collection (g)	9,360	6,815*
Laser Printer Cartridge Recycled (units)	550	697

* Owing to the use of USB storage devices, less compact discs were used to store electronic documents.



Figure 10: Collection points of waste paper for recycling within the office

Green Procurement

We follow the guidelines advised in the Government's green procurement policy and avoid procuring single-use disposable items. We aim at purchasing items that are durable, energy-efficient and recyclable. Examples of green procurement measures implemented in our department include:

- Regularly review of actual need against monthly supply items that have expiry dates
- Procure green products such as refillable ball pens, mechanical pencils and recyclable laser printer cartridges
- Avoid using items that are not environmental friendly, for example, correction fluid and batteries with mercury, etc
- Choose equipment such as air traffic control equipment, fluorescent tubes, photocopiers and printers that have obtained energy label
- Replaced our 6-seater saloon car with a more environmental friendly EURO IV model in March 2010
- Ensure green purchasing through tendering conditions



Figure 11: Environmental friendly model EURO IV 6-seater vehicle



Figure 12: Green Stationery and recyclable laser printer cartridge

Proper Disposal of Waste

Chemical Waste

We operate 13 outstations for provision of air traffic control. In case the mains electricity supply to these outstations is interrupted, it automatically switches to back-up power supplies, for example by standby diesel generators or battery packs. Nevertheless, these alternative power supplies generate chemical wastes which could damage our environment. Therefore, such wastes have to be disposed in a safe and appropriate way.

Our performance in 2010

In 2010, our appointed contractor handled all wastes in accordance with statutory requirements.

Sea Water Effluent

Both ATCX/TWR and BATCX use sea water for their cooling systems. Since the water pollution problem has become more serious in Hong Kong over the years, it became necessary to implement controls on wastewater discharges for the sake of public health and the life of aquatic organisms. Under the Water Pollution Control Ordinance, all sea water discharges are monitored for their flow rate, temperature, pH value and residual chlorine in order to minimize the environmental impacts.

Our performance in 2010

In 2010, the average daily flow rate and temperature of the sea water effluent discharge from ATCX/TWR and BATCX remained well below the prescribed limits. Monthly figures of 2010 are presented in Figures 13-16.

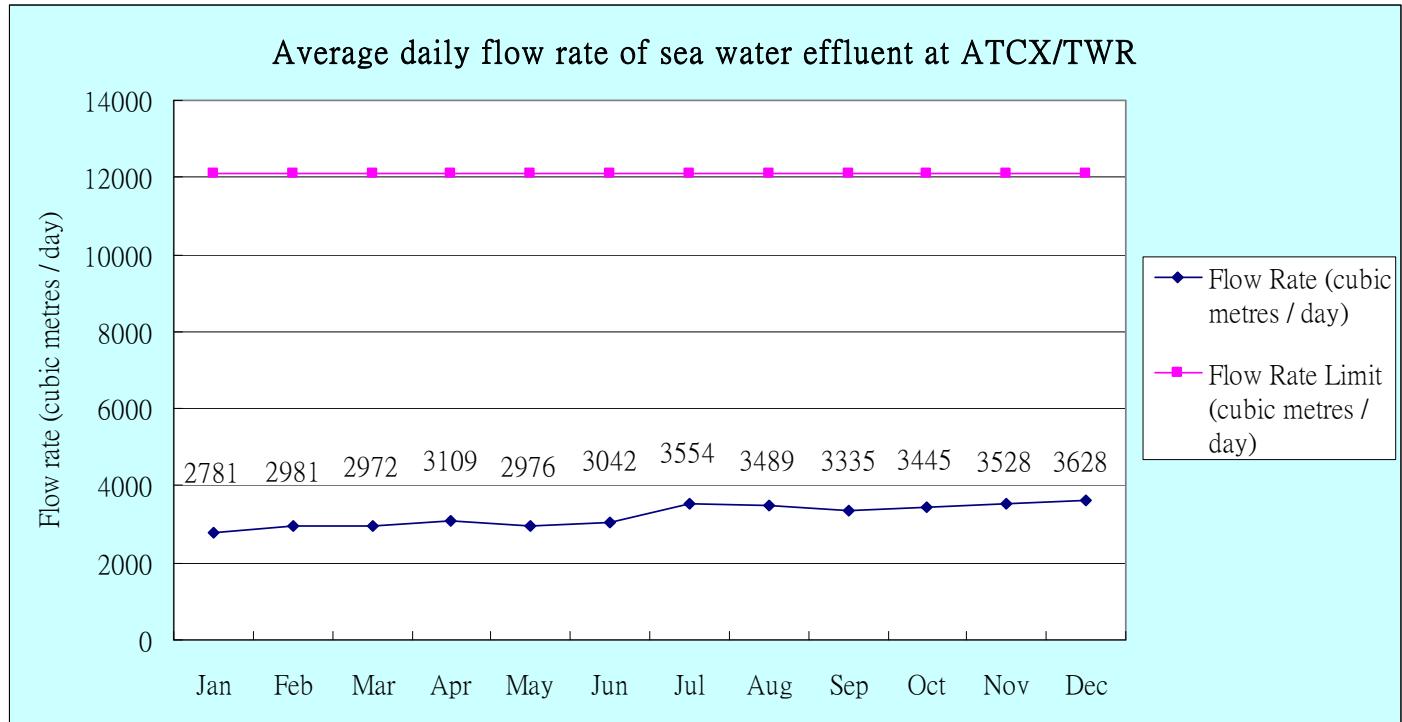
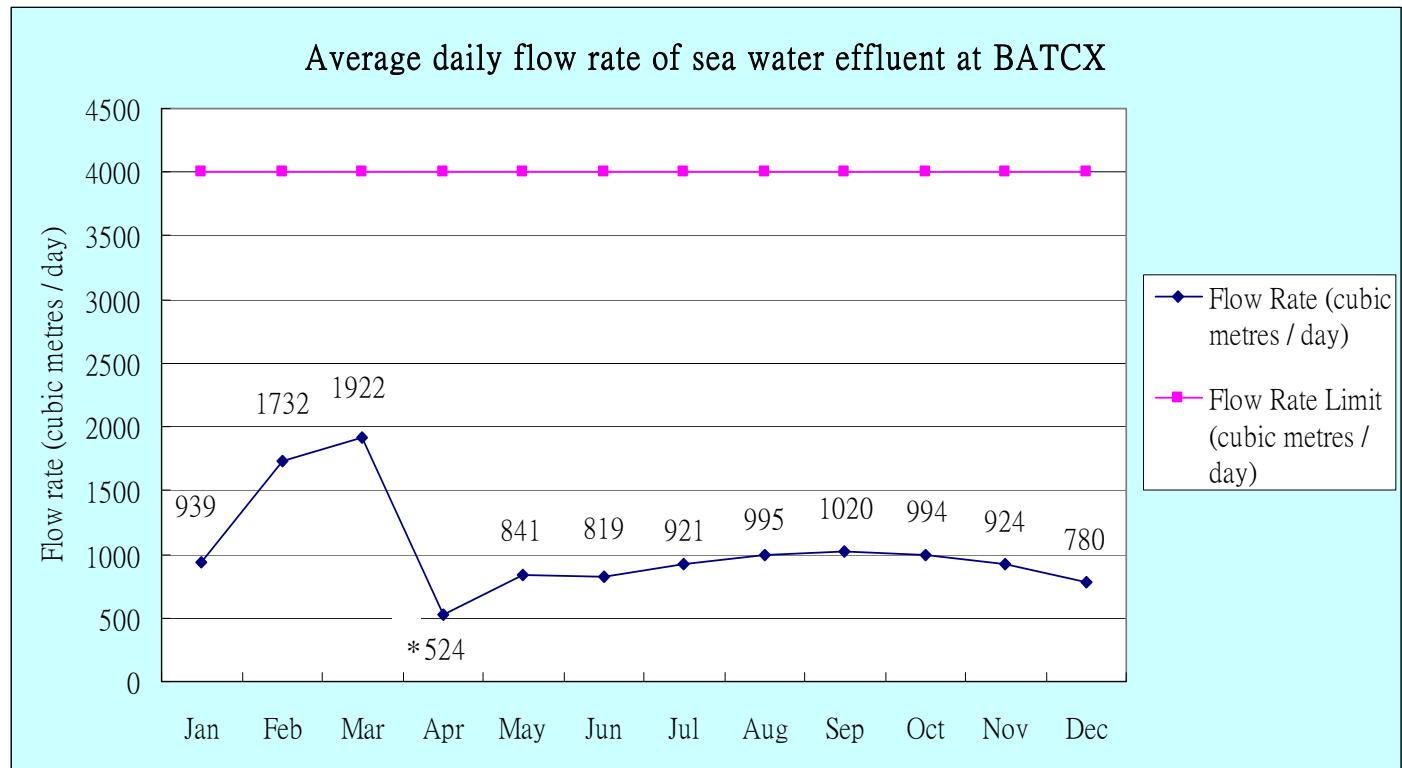


Figure 13: Average daily flow rate of sea water effluent at ATCX/TWR



* The sea water pump was being replaced at BATCX in Apr 2010, only by-pass pipe was used to transfer sea water and thus lowering the flow rate for the month.

Figure 14: Average daily flow rate of sea water effluent at BATCX

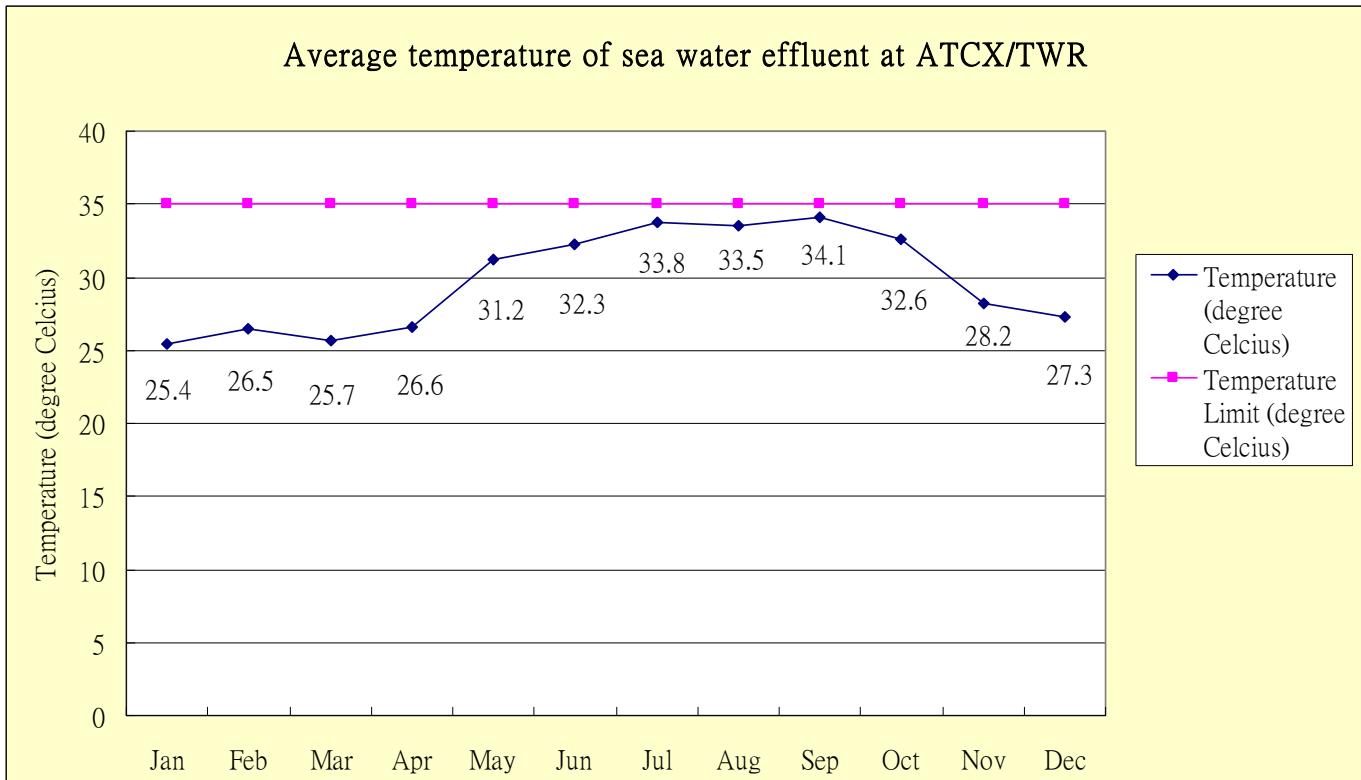


Figure 15: Average temperature of sea water effluent at ATCX/TWR

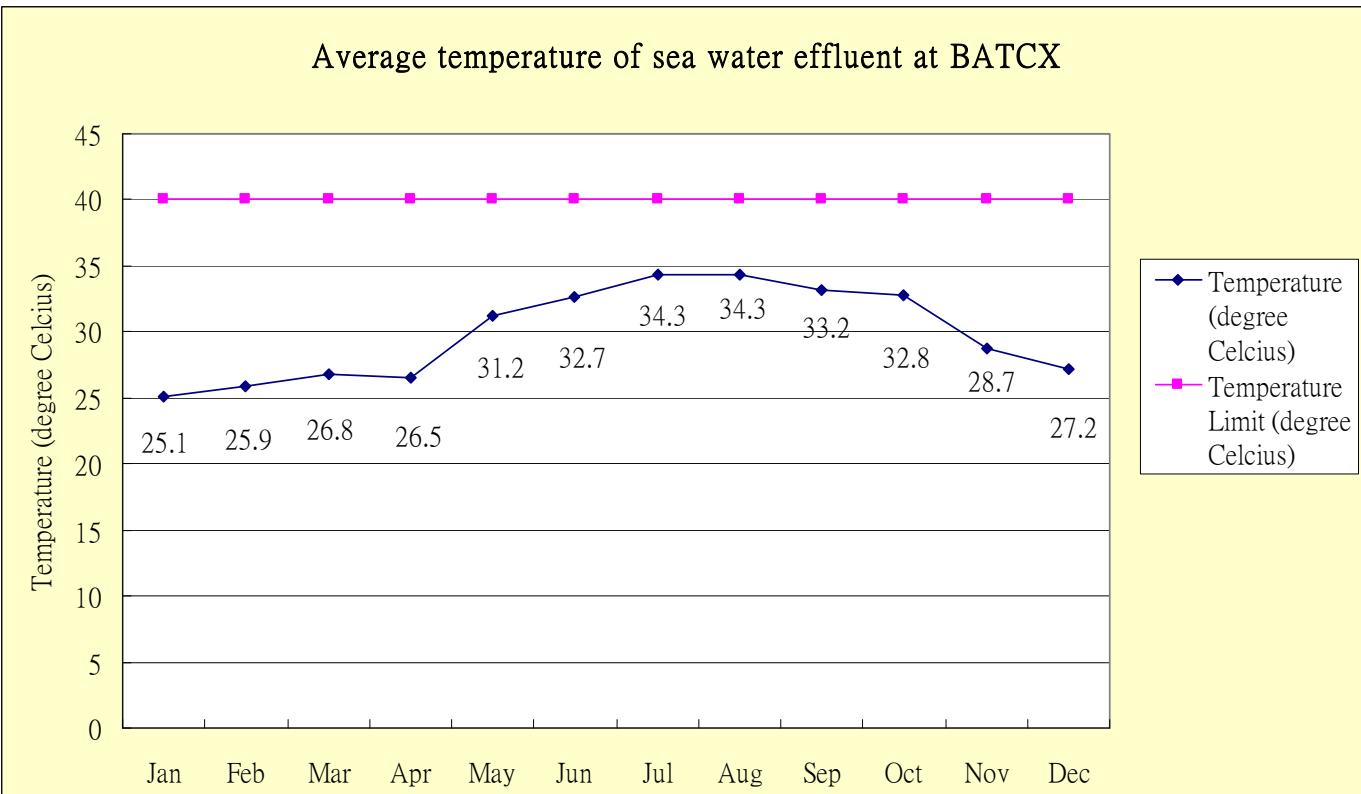


Figure 16: Average temperature of sea water effluent at BATCX

Chapter 5 Performance Summary

Our performance in 2010

- A mass majority of aircraft departing to the northeast flew over water via the West Lamma Channel between 11:00 p.m. and 7:00 a.m.
- All arriving aircraft between midnight and 7:00 a.m. were able to approach from the southwest over water, in the case of acceptable wind direction and safety consideration
- Most of night-time arrival aircraft from the northeast were able to adopt the Continuous Descent Approach procedure
- We encouraged airlines to adopt the Noise Abatement Departure Procedures for departures to the northeast
- Older, noisier ICAO “Chapter 2” aircraft were prohibited from landing and taking-off in Hong Kong
- We maintained dialogue with concerned District Councils, the media, the general public and other concerned parties, and provided aircraft noise information as necessary
- We maintained dedicated webpages enabling easy access to general public on aircraft noise related information
- We pursued air routes rationalization with a view to enhancing the operating efficiency of the Hong Kong air route system, reducing the environmental footprint of aircraft operations in Hong Kong
- We studied the noise impact on Ma Wan by modifying the departure procedures for aircraft departing towards northeast from HKIA
- We participated in the carbon audit and Carbon Reduction Pledge initiated by HKIA
- We reduced paper consumption
- We collected and recycled waste paper, used CDs and laser printer cartridges
- We complied with all environmental regulations regarding the disposal of chemical waste and the discharge of sea water effluent

Verification Statement

The Environmental Management Committee of CAD has independently verified the information and data contained in this Environmental Report 2010, including a review of all source materials used in the report. The Committee hereby confirmed that the data presented are authentic and consistent with the source documents, and that the methodology for the collection, maintenance and analysis of the data is appropriate. As such, I am confident that this report represents an accurate account of CAD's environmental action and performance in 2010.

Matthew IP
Chairman
Environmental Management Committee
Civil Aviation Department

Useful Information

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Aircraft Noise Complaint

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