

Civil Aviation Department Environmental Report 2006



香港民航處

Civil Aviation Department

Hong Kong

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Environmental Report 2006 - Striving for Success

In its role as Hong Kong's civil aviation authority, Civil Aviation Department (CAD) is responsible for managing aircraft noise and ensuring that it will not compromise Hong Kong's environment.

In 2006, we met all but one of our noise-abatement targets. Though this fell short of our goal, performance was still an improvement over 2005, and provides a solid foundation for the future. As this report explains in detail, we continue to work diligently to reduce the impact of aircraft noise.

Our green policy in 2006 included energy conservation, paper conservation, recycling, and the proper disposal of environmentally hazardous waste. During the year, we remained on track with these important initiatives, and achieved encouraging results in all areas. A minor increase in the daily average energy consumption of 0.1% was recorded at CAD's premises, but this was still below the level seen in 2002. Electricity consumption rose by 3.56% at our Backup Air Traffic Control Complex, which will be the focus of enhanced efforts in the year ahead.

If you have any comment on this report, you are welcome to contact CAD via e-mail at enquiry@cad.gov.hk or by mail to the address shown under Contact Us.



Air transport brings us to distant lands to visit family and friends, and carries a wide variety of freight - from cards and gifts to our loved ones, to fresh produce, goods and equipment for our enjoyment. It also creates jobs and supports a wide range of industries related to trade and tourism. In 2006, the number of aircraft landing and taking off at Hong Kong International Airport grew by 6.4% compared to 2005, reaching a total of 280,387.

To ensure that the immense socio-economic benefits of civil aviation are not jeopardized, we remain constantly mindful to limit its environmental impact. To this end, we continue to manage the aircraft noise problem using the "Balanced Approach" developed by the International Civil Aviation Organization (ICAO). The goal is to address the problem in the most cost-effective manner through an exploration of the following:

- reduction of noise at its source
- keeping noise-sensitive receivers away from the airport by appropriate land-use planning and management measures
- noise-abatement operational procedures
- aircraft operating restrictions.

We fully understand the importance of communicating with local communities and concerned District Councils on matters relating to aircraft noise, and we are committed to maintaining dialogue with them. To this end, aircraft noise data and information on the performance of noise-mitigating measures are regularly uploaded to our web page at http://www.cad.gov.hk/english/ac_noise.html.

In our daily operations, we also fully support green measures in saving resources and reducing waste. In particular, we continue to implement measures that reduce electricity consumption at our operational centres and offices.

In this report, we have reviewed our performance in the year 2006 and outlined our targets for 2007. As always, readers are invited to offer their comments and feedback to help us improve further.

Director-General of Civil Aviation
Mr. Norman Lo Shung-man, JP

Chapter 1 Welcome

This is the eighth annual Environmental Report issued by the Civil Aviation Department (CAD). In the following pages, you can learn more about our environmental performance in 2006, both in terms of our management of aircraft noise and our in-house 'green' management.

This report also includes a review of our performance compared to the previous calendar year, as well as our targets for the year ahead.



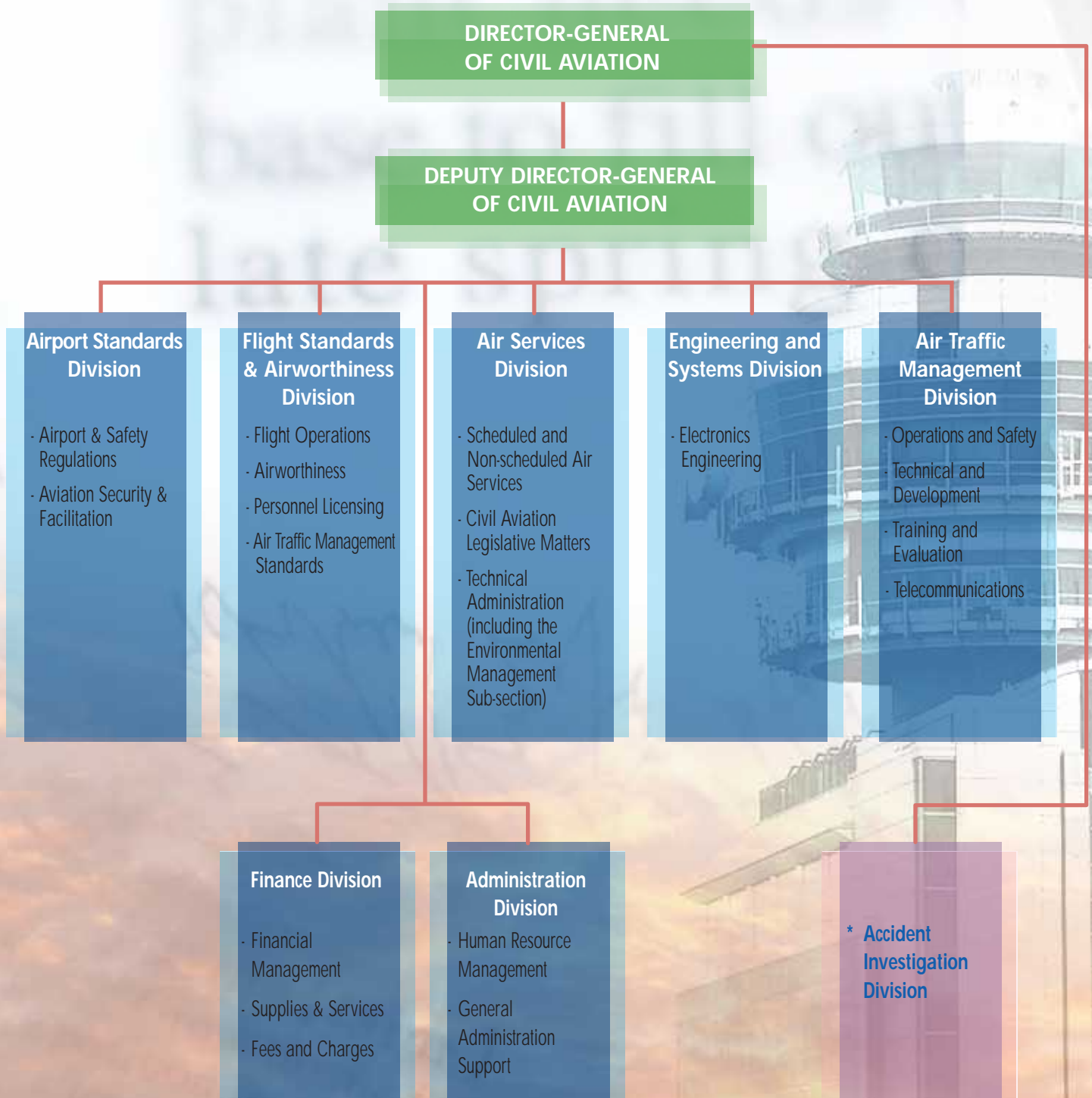
Chapter 2 About the Civil Aviation Department

Being the civil aviation authority in Hong Kong, CAD is committed to a safe and efficient air transport system. We strive to accomplish the following missions in a professional manner :-

- Positioning Hong Kong as a leading centre of aviation
- Maintaining a safe, orderly and expeditious flow of air traffic
- Providing flight information service and alerting service within the Hong Kong Flight Information Region
- Coordinating search and rescue operations in the event of aircraft emergencies and accidents
- Setting and enforcing aerodrome safety and aviation security standards
- Ensuring compliance of established airworthiness and flight operations standards by Hong Kong registered aircraft and locally based airlines
- Ensuring Hong Kong approved aircraft maintenance organisations comply with international standards
- Ensuring Hong Kong licensed flight crew and aircraft maintenance engineers meet international standards
- Monitoring compliance by airlines with bi-lateral Air Services Agreements
- Developing workable measures to minimise the impact of aircraft noise on local communities

Our Organisation

Organization Chart as at 31 December, 2006[#]



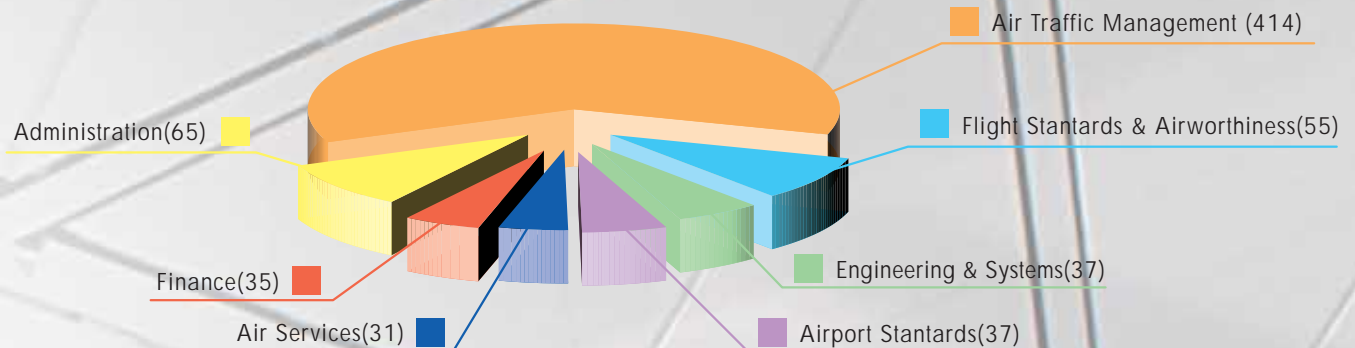
Note :

[#] There is no major change in organizational context since the last report.

* The Accident Investigation Division is mobilised only when required by drawing specially trained staff from other Divisions.

Our Staff

As the following chart shows, in 2006 the CAD employed 674 people in seven divisions, the largest of which was the Air Traffic Management Division (Figure 1).

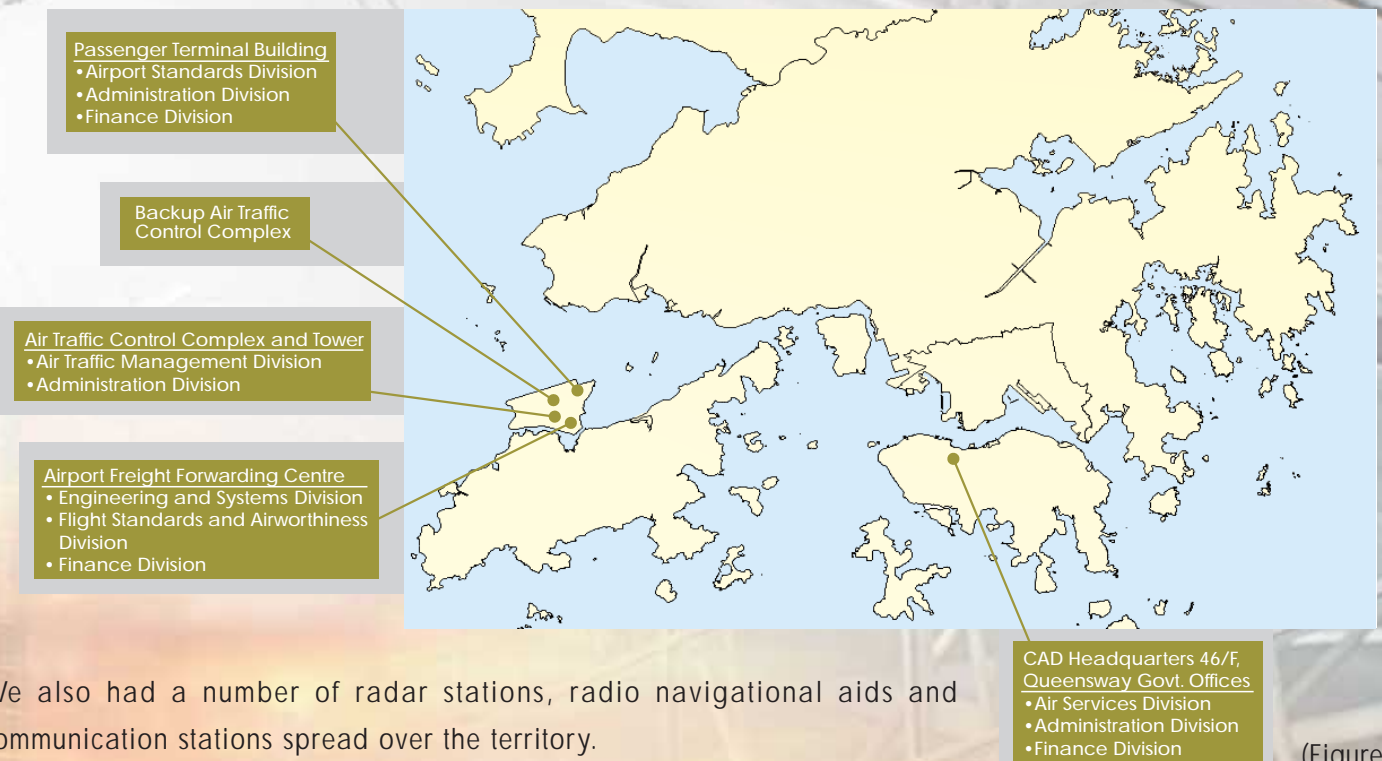


(Figure 1)

Total :674 CAD Staff

Our Facilities

In 2006, we operated five offices to handle our wide-ranging workload (Figure 2).



(Figure 2)

We also had a number of radar stations, radio navigational aids and communication stations spread over the territory.

Chapter 3 Protecting the Environment

Hong Kong is now an acclaimed hub for regional and international air traffic and freight. However, that success also brings challenges. As air traffic increases, there is a pressing need to manage the aircraft noise impacts to ensure that Hong Kong's aviation industry does not erode people's quality of life or limit its own growth.

To conserve the earth's precious resources, the CAD is also committed to environmentally responsible operations.



Our Commitments

We care for the environment in two aspects, namely minimising noise pollution and operating in an environmentally-friendly manner.

Noise Policy for Civil Aviation Activities

- Maintain dialogue with local communities and citizens affected by aircraft noise and handle complaints
- Monitor aircraft noise
- Consult stakeholders on the feasibility of noise mitigating measures
- Develop and implement measures to minimize the impact of aircraft noise on local communities

Complaints

Stakeholders :
affected households

Consultation

Stakeholders :
airlines & airport

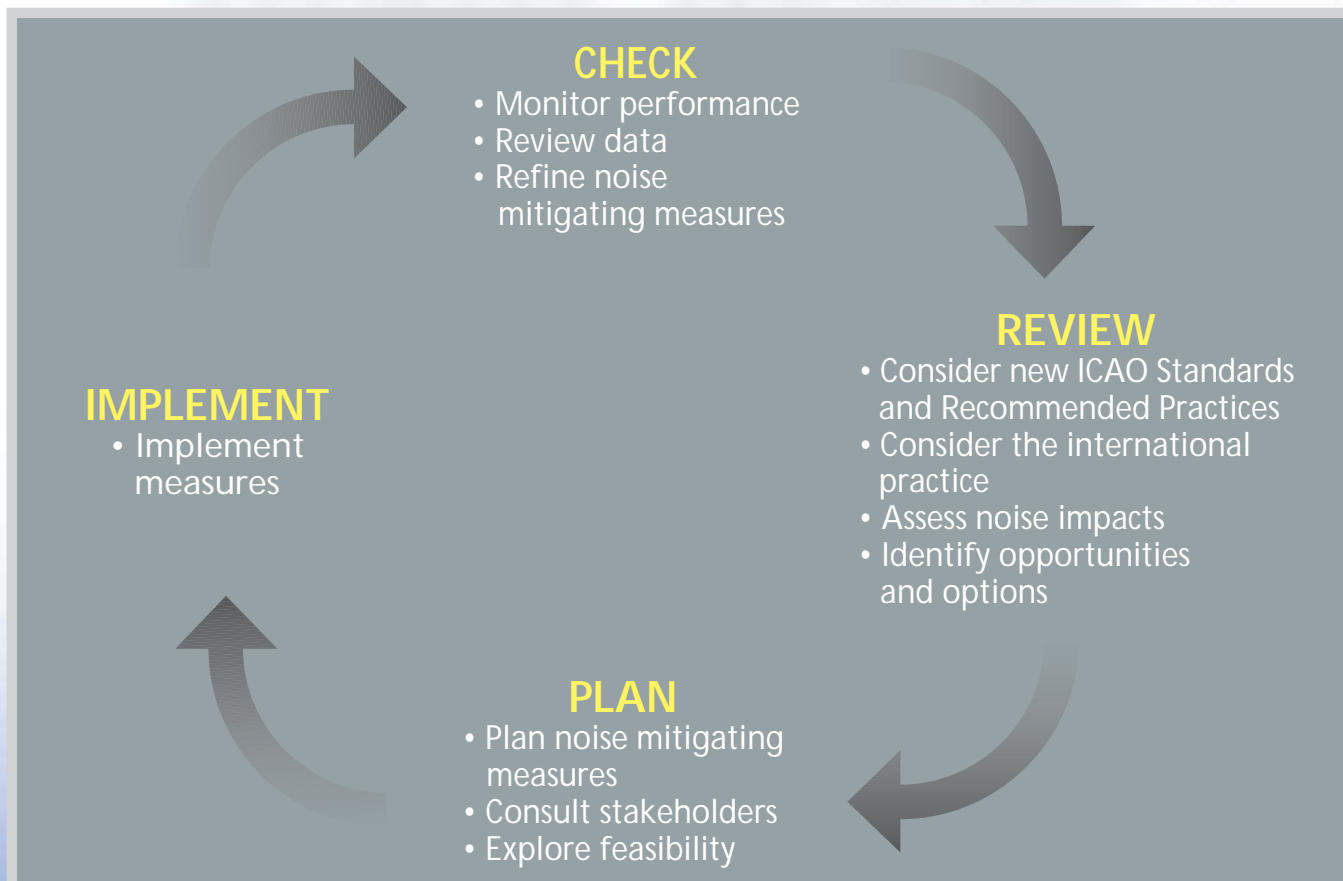
Affected households
Other Stakeholders like
passengers, shippers,
forwarders or employees
of aviation industry.

Green Policy for CAD

- Economize the use of energy and paper
- Apply the principles of sustainable development to our purchase of equipment and tender process, and in the planning and operation of our facilities
- Save, re-use and recycle if possible
- Comply with environmental regulations as a minimum standard of performance
- Promote staff awareness to ensure that environmental actions are included in the balance of all our decision-making

Managing Aircraft Noise

To minimise noise impacts from aircraft, the CAD uses a continual Review-Plan-Implement-Check Cycle, as shown (Figure 3).



(Figure 3)

In the context of managing aircraft noise, stakeholders include local communities, airlines and airport. The CAD consults with all these groups as necessary.

In-house Operations

The environmental friendliness of all CAD operations is monitored by an Environmental Management Committee, which also sets environmental targets for the year ahead, such as reducing electricity consumption and recycling waste(Figure 4).

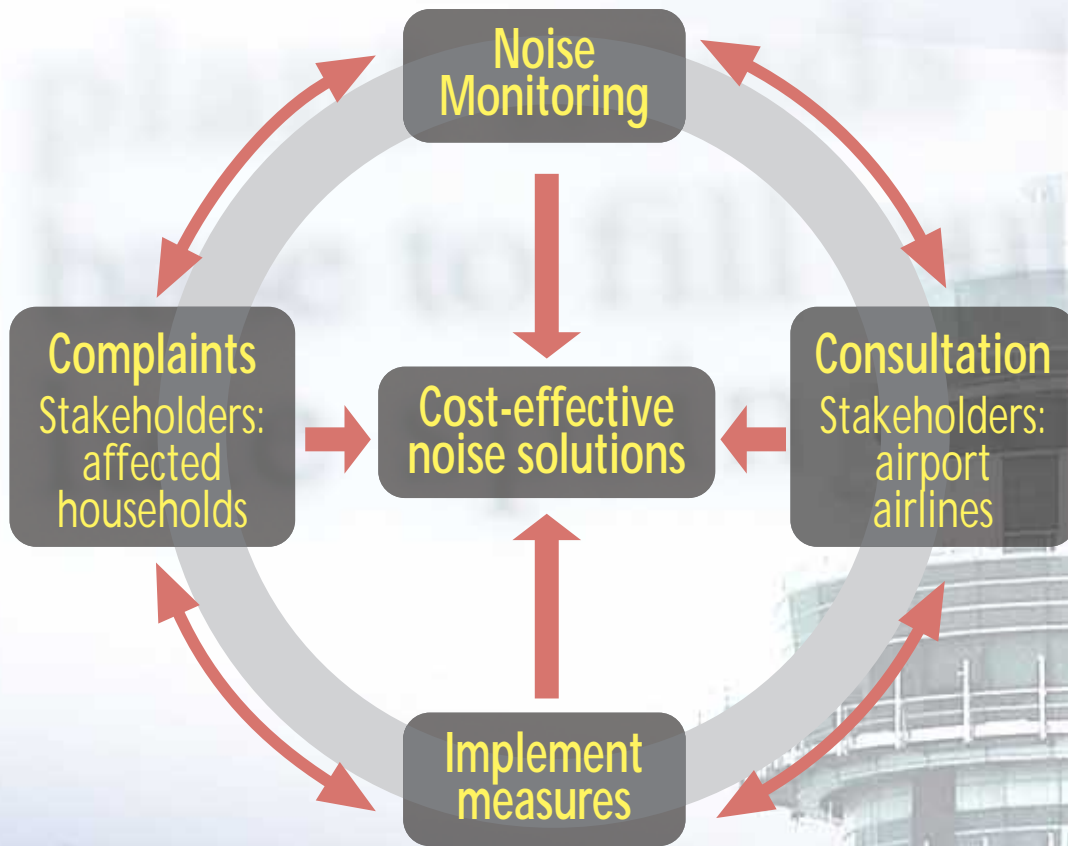
As in previous years, all CAD offices were monitored throughout 2006. To arouse the staff's awareness on environmental friendliness in CAD offices, environmentally responsible operations were further complemented with regular staff briefing on eco-friendly practices.



(Figure 4)

Chapter 4 Managing Aircraft Noise

Minimising noise impacts requires balancing the needs of various stakeholders, including affected households and the aviation industry. This process of liaison is pictured in the diagram below (Figure 5).



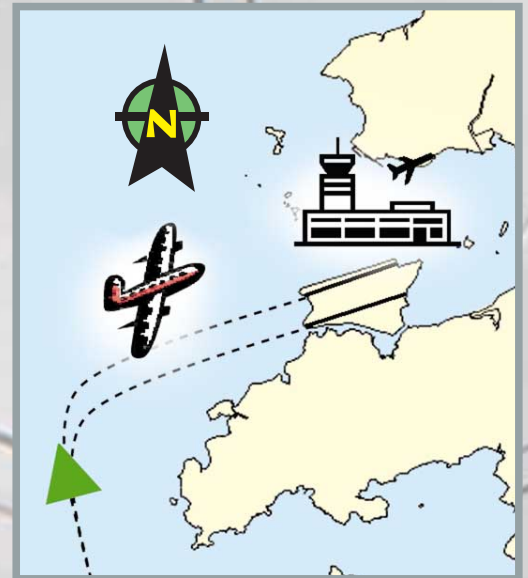
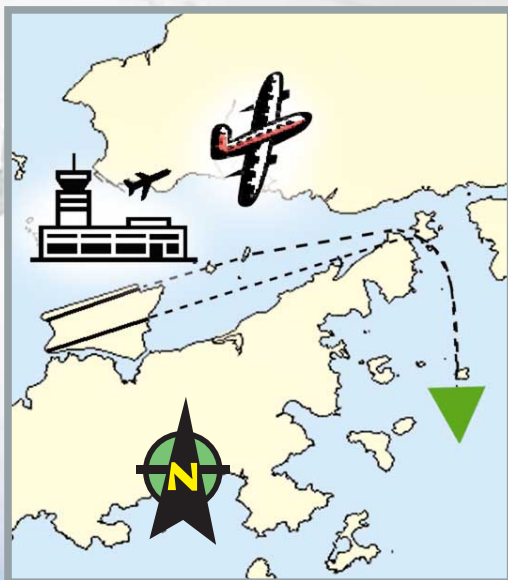
(Figure 5)

As the diagram shows, we also continuously monitor aircraft noise and implement noise-mitigating measures wherever possible, and always strive to achieve cost-effective solutions. In addition, we disseminate relevant noise data and closely monitor the aviation technology developments with a view to introducing new technology on aircraft noise reduction.

Using Flight Paths Over Water to Minimise Noise - Night Arrivals

To keep aircraft noise impacts to populated areas to an absolute minimum in the night-time hours, so long as weather and flight conditions allow, we require arriving aircraft to approach the airport from the southwest, so that they approach over water, and depart via the West Lamma Channel.

In 2006, we targeted for 90% of all aircraft arriving between midnight and 7:00am to use this approach path.

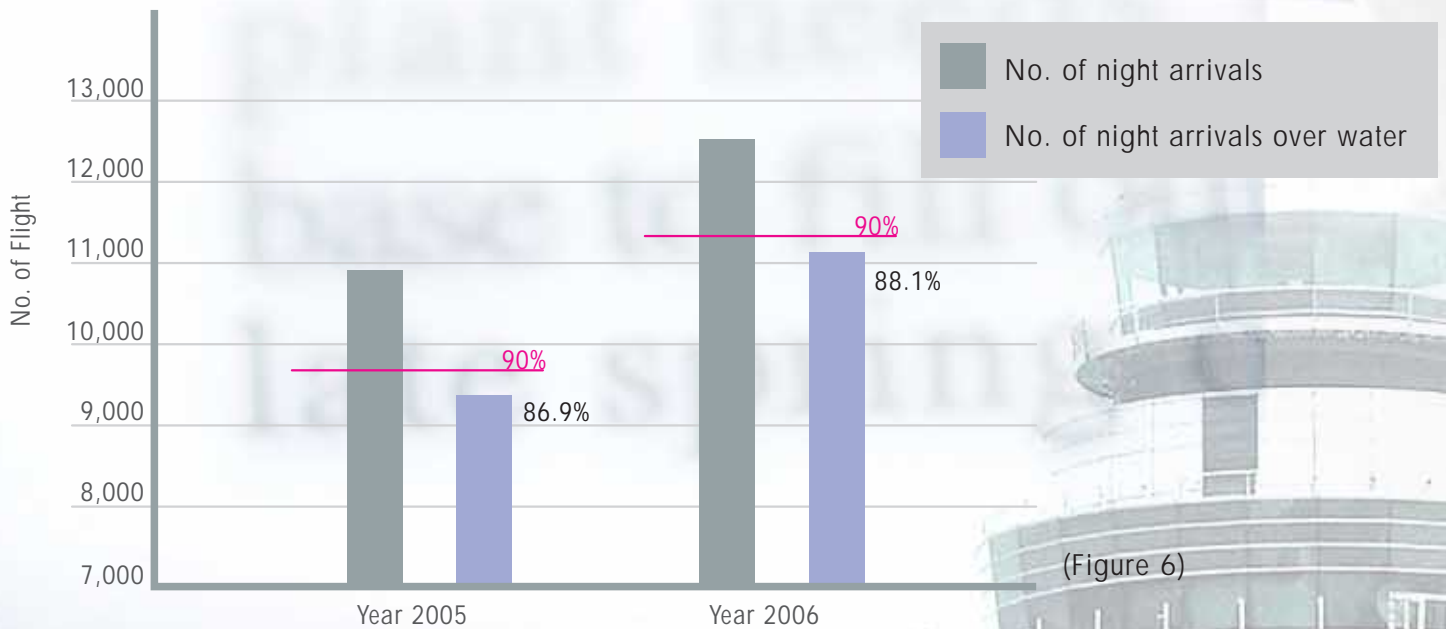


In the same period, we targeted for 95% of all aircraft taking-off between 11:00pm and 7:00am to depart via the West Lamma Channel.

These two arrangements ensure that during the overnight period, populated areas such as Sha Tin, Tsuen Wan, Kwai Chung, Tsing Yi, Sham Tseng and Tsing Lung Tau are not affected by noise from arriving aircraft, while districts like Kowloon, North Point, Shau Kei Wan and Chai Wan are not affected by noise from departing aircraft.

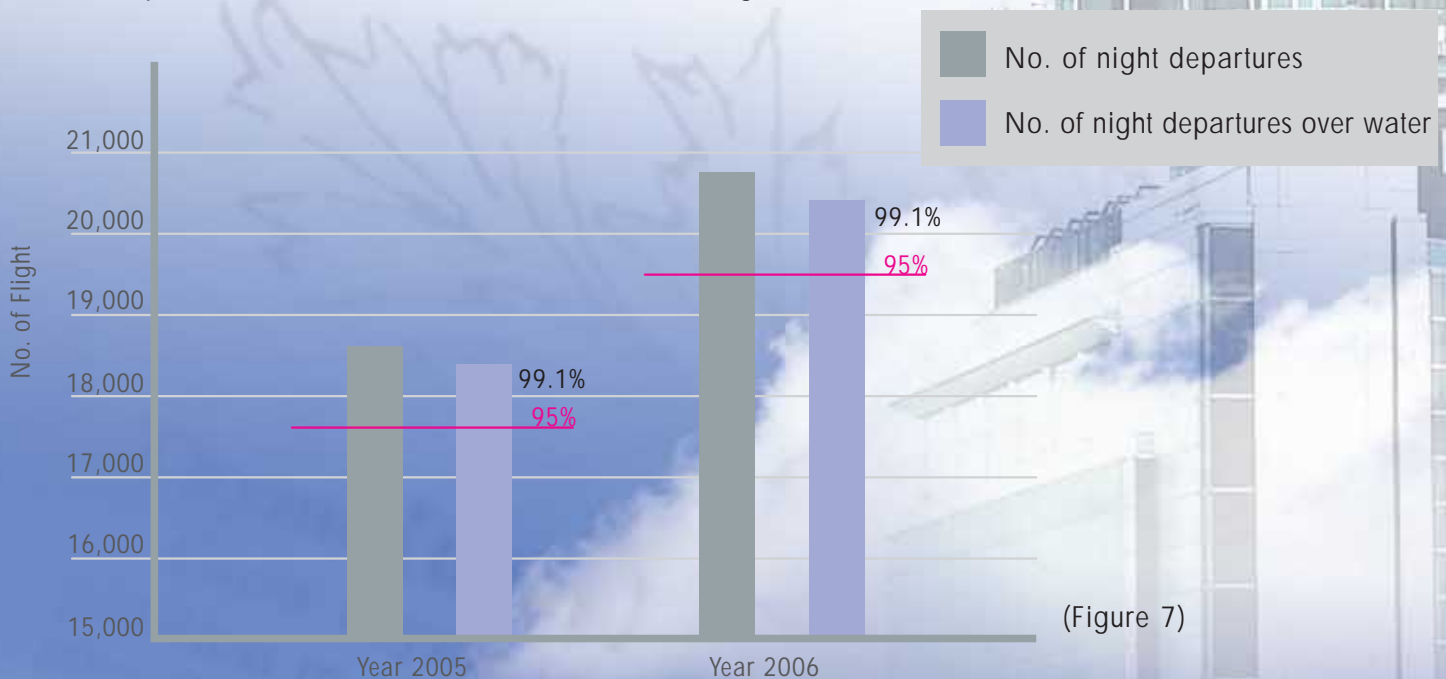
Our Performance in 2006

Statistical data show that in 2006, only 88.1% of all night arrivals were able to land from the southwest. This figure was higher than the 86.9% of 2005 but still fell short of the 90% target (Figure 6).



(Figure 6)

We achieved more success with night departures. In 2006, 99.1% (2005, also 99.1%) of all night departures were via the West Lamma Channel (Figure 7).



(Figure 7)

Target for 2007

In 2007, we will retain the aforementioned 90% and 95% targets respectively for night arrivals and departures over water.

Quieter Arrivals

Even when weather and flight conditions require night arrivals to approach from the northeast, we encourage aircraft to adopt the Continuous Descent Approach (CDA) between the hours of 11:00pm to 7:00am. By this procedure, aircraft would fly higher, and adopt a lower power and drag configuration as they begin their approach, thus minimising night-time aircraft noise impacts in areas such as Sai Kung, Tseung Kwan O and Ma On Shan.

Our Performance in 2006

In 2006, 81.3 % of aircraft approaching from the northeast between 11:00pm and 7:00am attained CDA procedures.

Target for 2007

In 2007, we will continue to encourage the use of the CDA procedure.

Quieter Departures

Whenever it is deemed necessary for aircraft to depart to the northeast, they are required to use Noise Abatement Departure Procedures (NADP) so long as safe flight operations permit.

Prescribed by the International Civil Aviation Organization (ICAO)*, these procedures require aircraft to commence engine power reduction in the initial phase of take-off at heights as low as 800 feet. This reduces the noise impact on affected households in the vicinity of the airport when aircraft are required to depart to the northeast.

Target for 2007

Airlines are to continue to adopt the NADP for departures to the northeast of the airport.

* Note : The International Civil Aviation Organization (ICAO) is a specialised agency of the United Nations. ICAO was created in 1944 to promote the safety and orderly development of international civil aviation throughout the world. 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.

Keeping Noisy Aircraft Out of Hong Kong

Since 1 July 2002, old and noisy "Chapter 2" (#1) aircraft types that create serious noise pollution have been banned from using Hong Kong International Airport.

Only newer and quieter "Chapter 3" (#2) aircraft are allowed to land in Hong Kong.

Target for 2007

To protect residents from unnecessary aircraft noise, the ban on Chapter 2 aircraft will remain in place.

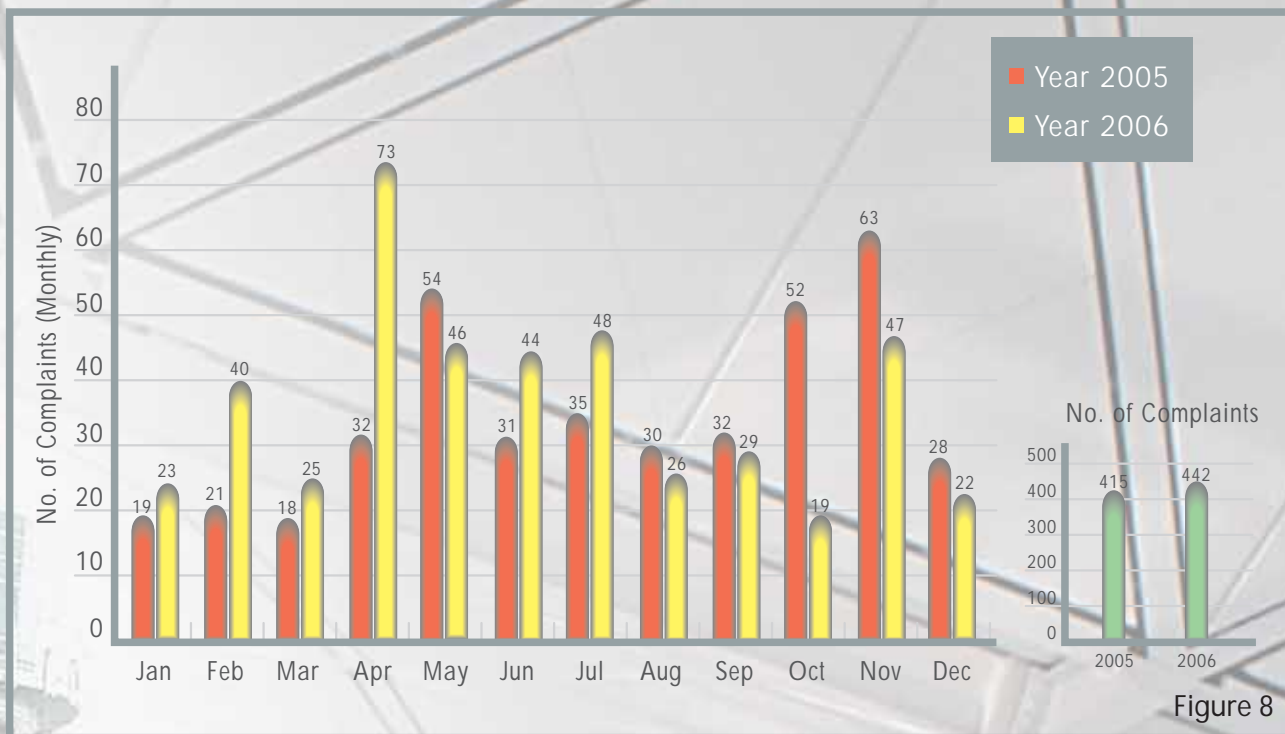
1 Note : "Chapter 2" aircraft are those aircraft which only comply with the noise standard stipulated in Chapter 2 of Annex 16, Volume 1, Part II to the Convention on International Civil Aviation.

2 Note : "Chapter 3" aircraft are those aircraft which comply with the more stringent noise standard stipulated in Chapter 3 of Annex 16, Volume 1, Part II to the Convention on International Civil Aviation.

Working with the Public

Complaint Hotline

In 2006, we received 442 complaints regarding aircraft noise (Figure 8), a 6.5% increase on 2005.



Public and Government Liaison

In 2006, we attended a total of six committee meetings of the Tsuen Wan District Council, the Kwai Tsing District Council, Islands District Council and the Eastern District Council and 2 meetings with local communities. During these meetings, we explained the noise-mitigating measures we had implemented to minimise aircraft noise impacts.

Noise Data

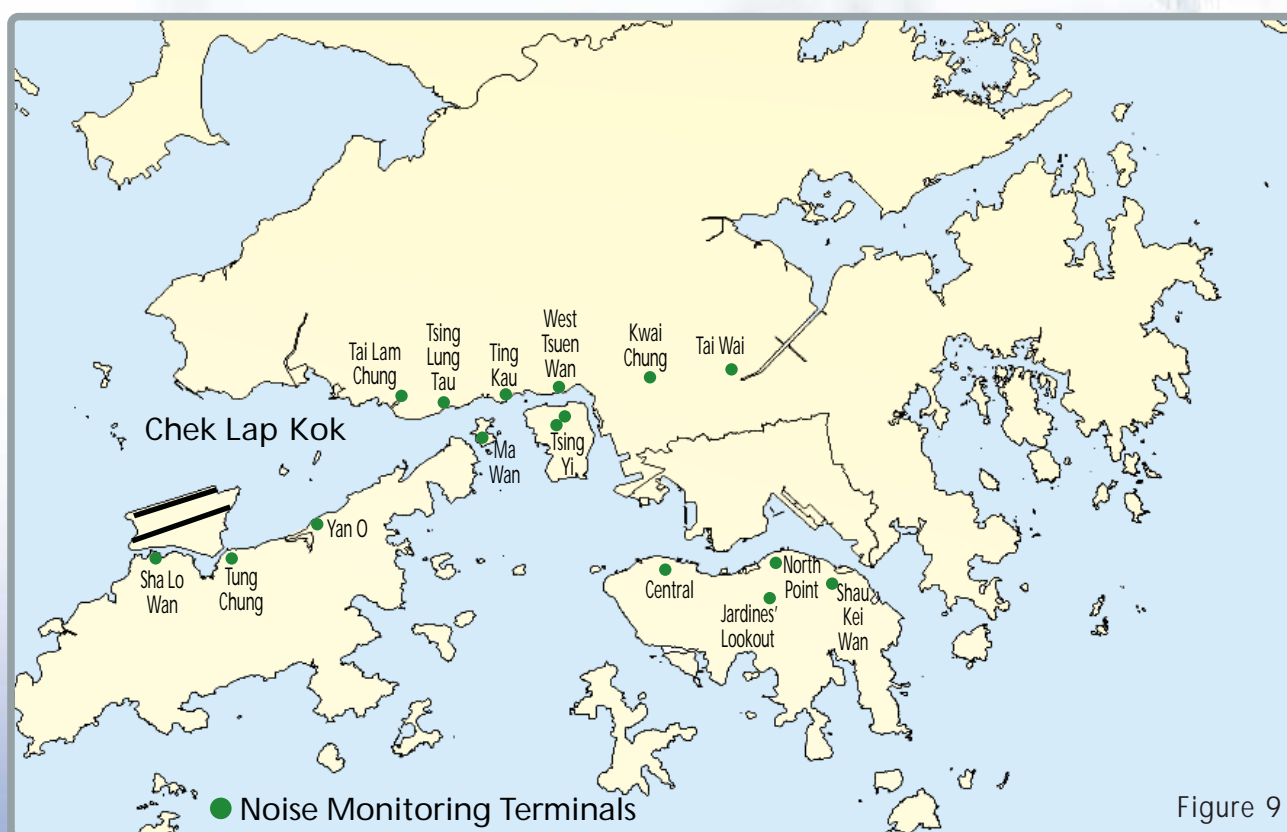
We regularly uploaded new noise data to our website in 2006, enabling all members of the public to access our aircraft noise information.

Target for 2007

In 2007, we will continue serving the community with noise data, and our complaint hotline.

Noise Monitoring

We continued to use a sophisticated computer-based Aircraft Noise and Flight Tracking Monitoring System (ANFTMS) to closely monitor aircraft noise in the vicinity of the flight paths in 2006. This system comprised 16 fixed noise monitors (Figure 9) which continually collect noise data on a real-time basis. All noise data were automatically correlated with the radar information on flight tracks, enabling us to compile accurate statistics on aircraft noise and more effectively investigate any noise complaints.



Improvement Works in 2006

In 2006, we installed surge protection devices for all the 16 noise monitoring terminals to upgrade the lightning protection of our terminals. We also procured 7 monitor equipment units for replacing the aged monitors.

Target for 2007

In 2007, we will replace some aged noise monitoring terminals with units of new model. We will also continue to closely monitor aircraft noise and flight tracks around the clock using the ANFTMS.

Chapter 5 Our Green Performance

To ensure environmentally responsible operations, our green policy in 2006 included energy conservation, paper conservation, recycling, proper disposal of environmentally hazardous waste and provision of environmental awareness briefing for all staff.

Being Green

Energy Conservation

Air-conditioning

Air-conditioning accounts for the majority of the CAD's electricity consumption. In 2006, we followed a number of additional steps to reduce the energy used by air-conditioning systems, including:

- Using Polarised Refrigerant Oil Additives (PROA) to improve efficiency of air conditioning units at some of the outstations
- Thermostatic control of room temperature to avoid over-use of air-conditioning
- Switching off all unnecessary units at the Back-up Air Traffic Control Complex (BATCX)



Lighting systems

Using lights in a responsible manner is one of the quickest and easiest ways to help care for the environment. In 2006, we implemented the following measures:

- Installed energy efficient LED exit signs at the Air Traffic Control Complex and Tower (ATCX/TWR) and BATCX
- Replaced existing T8 fluorescent light tubes with T5 tubes in our offices at ATCX/TWR and Airport Freight Forwarding Centre

These new initiatives were in addition to existing measures from previous years, such as not using the architectural floodlights at BATCX and switching off all unnecessary corridor lights at ATCX/TWR and BATCX.

In 2007, we will implement the following measures to further save energy :

- Replacement of outdoor architectural floodlight underneath ATCX/TWR by energy efficient LED light ;
- Replacement of T8 fluorescent light tubes by energy efficient T5 tubes in the common area, staircases and plant rooms at ATCX.

Elevators

In 2006, we continued to reduce energy consumption by suspending one passenger elevator and one cargo elevator at ATCX during overnight periods.

Results

In 2006, energy consumption at ATCX/TWR fell by 0.12% (Figure 10). This follows a downward trend in recent years.

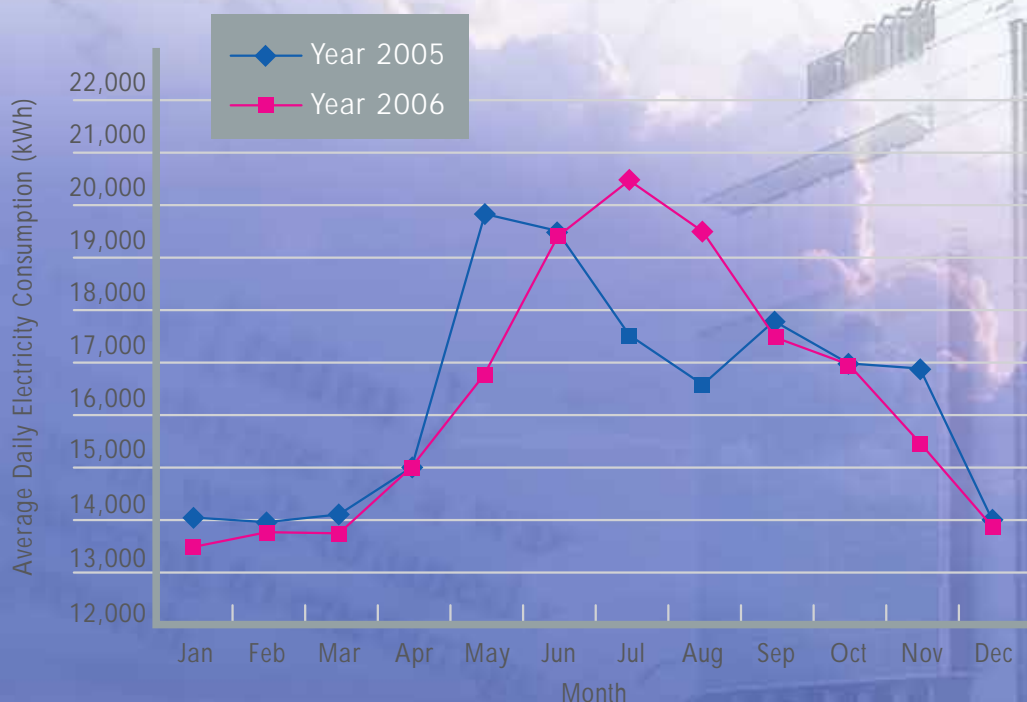


Figure 10

Average daily consumption of electricity at BATCX rose 3.56% in 2006 (Figure 11).

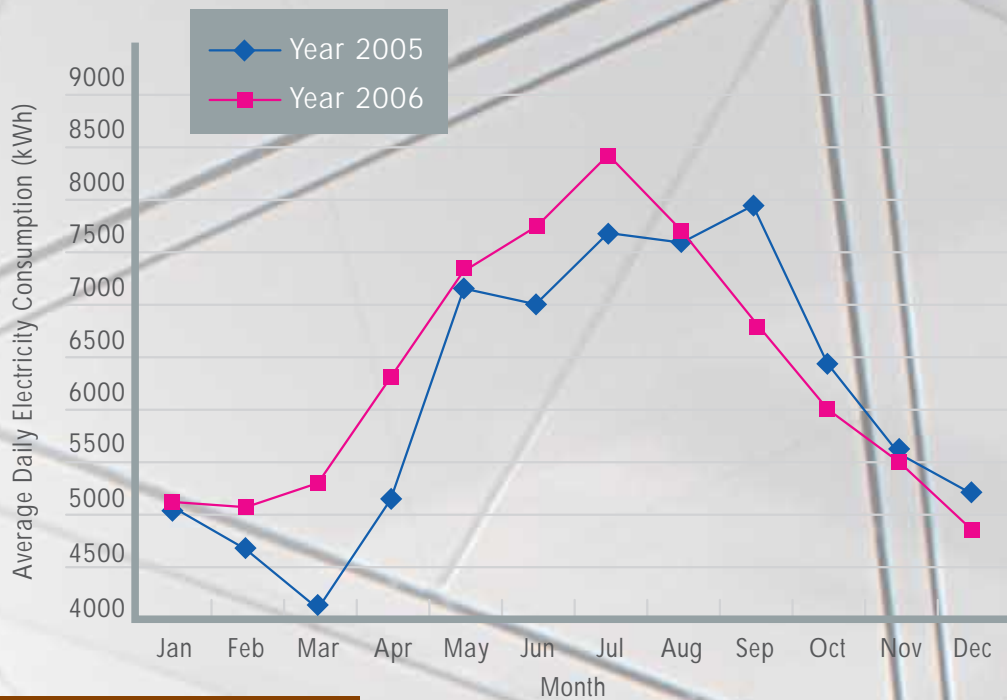


Figure 11

Third-party Property Managers

We regularly discuss energy-saving initiatives with the managers of buildings not owned and operated by CAD. For instance, at Queensway Government Offices, the management authority now strictly controls air-conditioning and operates its chiller plant on shorter hours, which significantly reduce energy wastage.

Our Performance in 2006

In 2006, CAD premises consumed a combined 30,473 kilowatt-hours on an average day. This was a 0.1% increase on 2005, but a 1.4% reduction from that of 2002.

Target for 2007

In 2007, we will continue to adhere to our energy-saving policy.

Driving Green

All CAD drivers receive training on environmentally-responsible driving practices, and all vehicles are regularly maintained to ensure that emissions are within an acceptable range.

Buying Green

Air Traffic Control Equipment

In addition to meeting key safety standards, all new air traffic control equipment that we purchase must also be energy-efficient. For instance, in 2006, about 90% of the Air Traffic Management Systems' standard cathode-ray-tube (CRT) displays were replaced with sophisticated, low-energy LCD displays.

Other Equipment

Environmental considerations are taken into account when procuring goods and services of any description. Wherever feasible, our tender specifications require operations that emphasise recycling and energy-efficiency.

Target for 2007

In new equipment purchases and tenders in 2007, we'll continue to demand the high levels of energy-efficiency and environmentally responsible operations.

Paper Conservation

All staff are encouraged on a continuous basis to reduce their paper consumption wherever possible. In addition to double-sided printing and photocopying, our Document Management System enables many announcements and other important information to be disseminated electronically.

Our Performance in 2006

In 2006, we used 6,152 reams of paper (Figure 12), which was a 4.5% reduction on 2005.

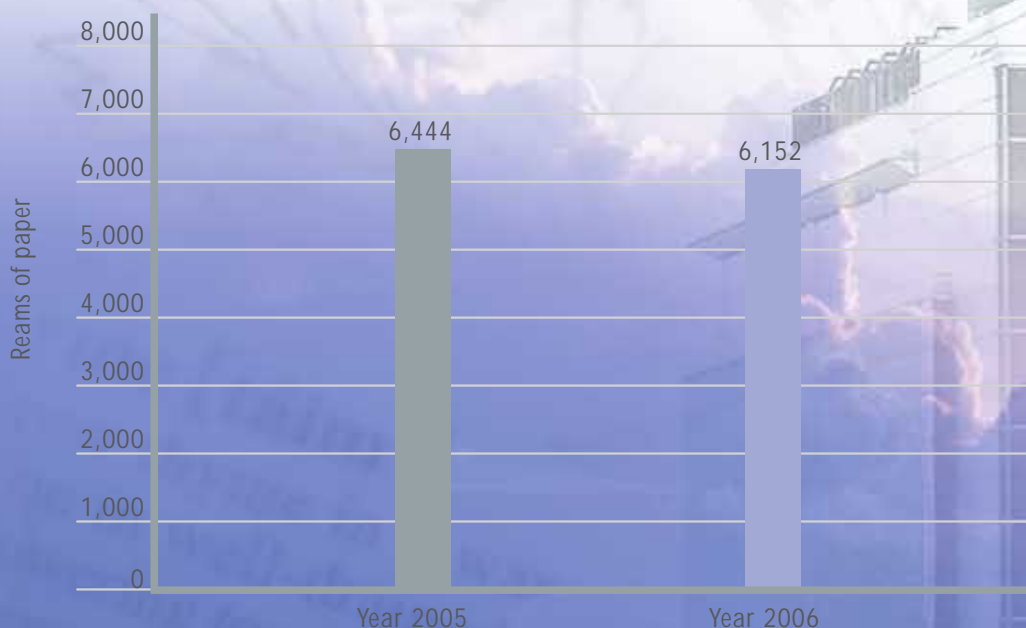


Figure 12

Target for 2007

In 2007, we'll strive to reduce this figure further, using electronic communication wherever possible and emphasising the use of recycled materials in any situations that require printed matter.

Recycling Initiatives

Our recycling programmes target at waste paper, used CDs and laser printer cartridges, all of which are forwarded to our suppliers or other designated parties for recycling. The following charts show the volume of materials sent for recycling in 2006 compared to 2005.

Waste Paper

	2005	2006
Waste Paper Collection (Kg)	5,654	5,700

Used Compact Disc

	2005	2006
Used Compact Disc Collection (g)	10,264	20,731

Laser Printer Cartridges

	2005	2006
Laser Printer Cartridge purchased	142 units	278 units
Laser Printer Cartridge recycled	294 units	362 units

Targets for 2007

In the year ahead, all staff will be reminded to continue recycling waste paper, used CDs and laser printer cartridges. We'll also examine whether there are other areas where recycling initiatives are feasible or appropriate.

Environmentally Hazardous Waste

Chemical Waste

We operate 13 outstations, all of which are essential to safe air traffic control. In the event that the mains electricity supply to these outstations is interrupted, they automatically switch to other power supplies, such as standby diesel generators or battery packs. However, both these alternative power supplies generate chemical waste that must be disposed of in a safe and appropriate way.

In 2006, our appointed contractor handled all wastes in accordance with statutory requirements.

Target for 2007

In 2007, we will monitor our contractor to ensure continued statutory compliance.

Sea Water

Both ATCX/TWR and BATCX use sea water for their cooling systems. To ensure minimum environmental impact from this process, all sea water discharges are monitored for flow rate, temperature, pH value and residual chlorine under standards set by the Water Pollution Control Ordinance.

In 2006, we remained within the prescribed limits. Figures 13-16 show the quality of our discharges from ATCX/TWR and BATCX respectively.

Flow Rate of Sea Water Effluent from ATCX/TWR

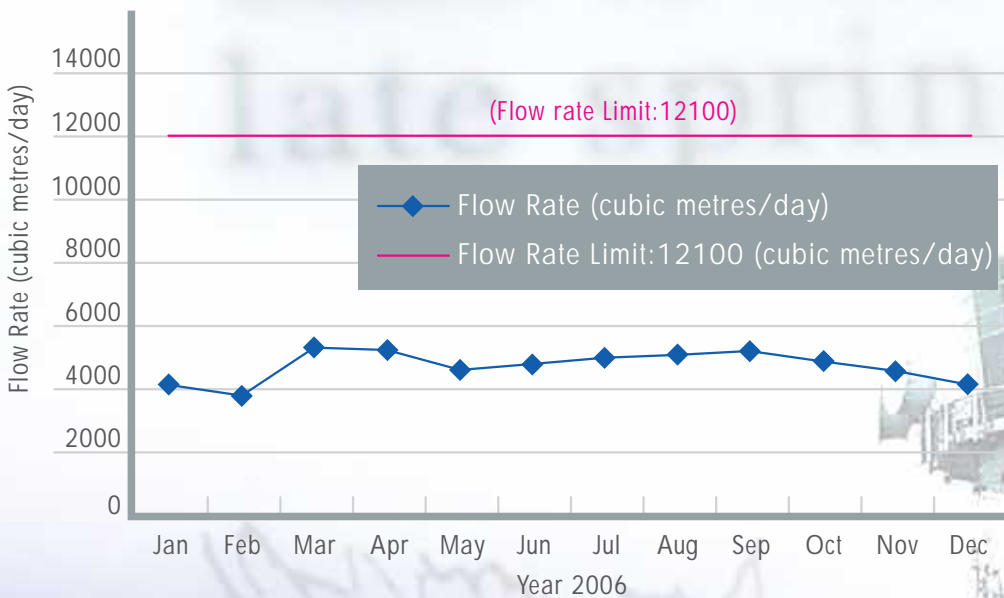


Figure 13

Temperature of Sea Water Effluent from ATCX/TWR

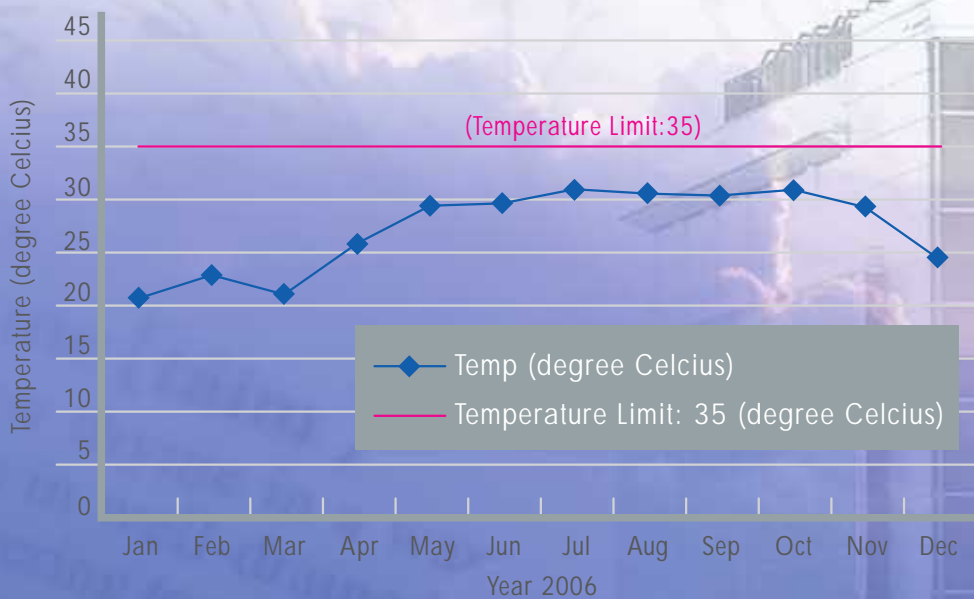


Figure 14

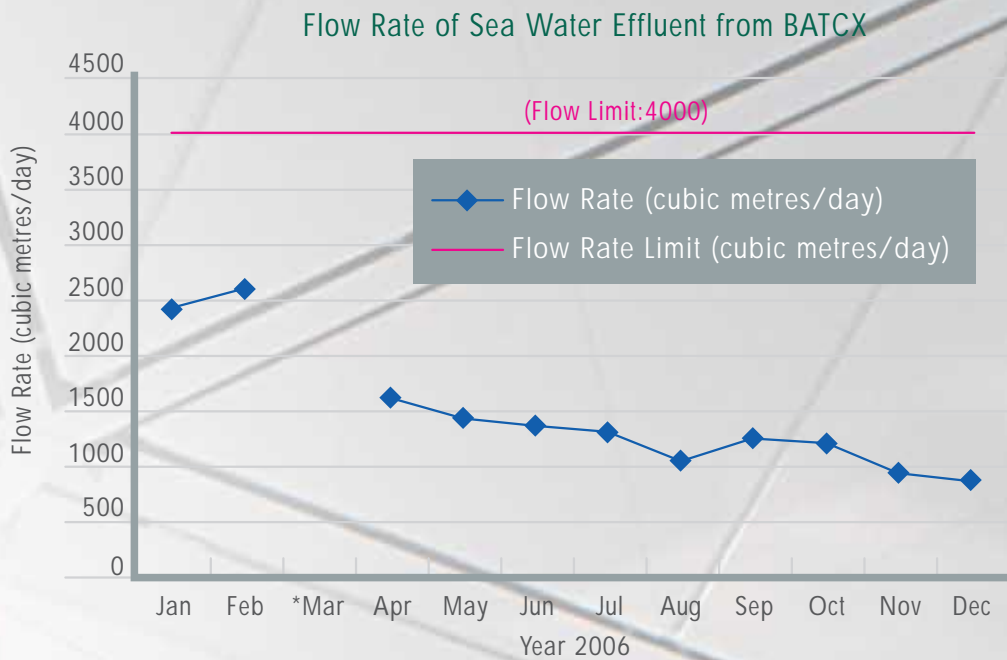


Figure 15

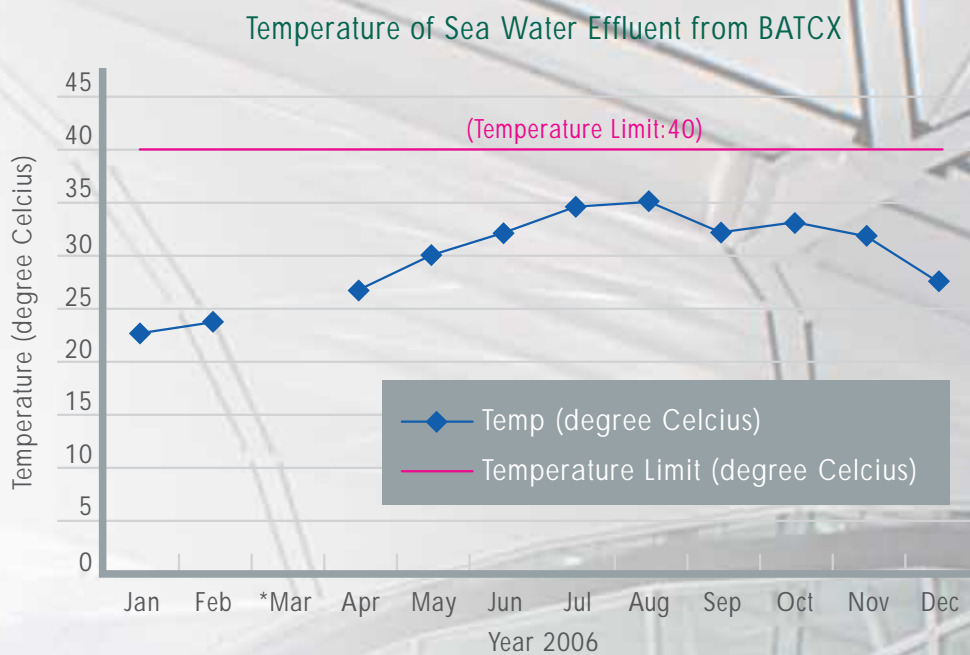


Figure 16

* Note: Air-cooled chiller was used in March 2006.

Target for 2007

In 2007, we'll continue working hard to ensure that these discharges remain within the accepted limits.

Staff Training

In 2006, we worked hard to remind all staff of the importance of environmentally-responsible operations, such as the need to reduce energy consumption and save paper.

In the year ahead, we'll continue to emphasise our green policies and play our part in helping to protect our planet's precious natural resources.

Chapter 6 Performance Summary

In 2006, we achieved the following targets:

- At least 95% of departing aircraft took-off over water via the West Lamma Channel between 11:00pm and 7:00am
- Facilitated airlines to adopt the CDA procedure for night-time approaches from the northeast
- Noise Abatement Departure Procedures were used for departures to the northeast
- Older, noisier 'Chapter 2' aircraft were prohibited from landing and taking-off in Hong Kong
- We maintained contact with concerned District Councils, the media, other concerned parties and the general public, and provided aircraft noise information as necessary
- We maintained a website enabling public access to aircraft noise and flight path information
- All new equipment purchases were scrutinised for energy-efficiency
- E-mail was encouraged for all office communications
- We continued to recycle waste paper, used CDs and laser printer cartridges
- We complied with all environmental regulations regarding the discharge of sea water and the disposal of chemical waste

Our Environmental Targets for 2007

Here's an overview of our goals for the year ahead:

- Have at least 90% of arriving aircraft land over water from the southwest between midnight and 7:00am
- Have at least 95% of departing aircraft take-off over water via the West Lamma Channel between 11:00pm and 7:00am
- Encourage airlines' adoption of the CDA procedure for night-time approaches from the northeast
- Continue to implement Noise Abatement Departure Procedures for departures to the northeast
- Prohibit older, noisier 'Chapter 2' aircraft from landing and taking off in Hong Kong
- Maintain contact with concerned District Councils, the media, other concerned parties and the general public, and provide them with aircraft noise information as necessary
- Enable public access to aircraft noise and flight path information via the Internet
- Reduce electricity consumption
- Purchase energy-efficient equipment
- Reduce paper consumption
- Encourage the use of e-mail for office communications
- Continue recycling waste paper, used CDs and laser printer cartridges
- Comply with environmental regulations regarding the discharge of sea water for cooling systems and the disposal of chemical waste

Verification Statement

CAD's Environmental Management Committee has independently verified the information and data contained in this Environmental Report 2006, including a review of all source materials used in the report. The Committee hereby confirms that the data presented is 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 2006.

Miss Priscilla Lam
Chairman
Environmental Management Committee
Civil Aviation Department

Contact Us

Civil Aviation Department
46/F Queenway Government Offices
66 Queensway, Admiralty, Hong Kong
Tel: 2867 4332
Fax: 2869 0093
Email: enquiry@cad.gov.hk

