

Civil Aviation Department Environmental Report 2002



香港民航處

Civil Aviation Department Hong Kong



Table of Contents

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|---|----|
| Table of Contents | 1 |
| Executive Summary..... | 3 |
| Foreword | 5 |
| Chapter 1 - Introduction | 6 |
| About this Report..... | 6 |
| Scope of this Report..... | 6 |
| Chapter 2 - About Civil Aviation Department..... | 7 |
| Key Responsibilities | 7 |
| Organization Chart..... | 8 |
| Staff Establishment | 9 |
| Our Location | 9 |
| Chapter 3 - Environmental Policy..... | 10 |
| We Care | 10 |
| Our Vision | 11 |
| Noise Policy for Civil Aviation Activities | 11 |
| Green Policy for CAD | 11 |
| Implementation of Policy..... | 12 |
| Aircraft Noise Technical Committee for Managing Noise Issues..... | 12 |
| Environmental Management Committee for Housekeeping..... | 13 |
| Chapter 4 - Review of Performance on Noise Policy | 14 |
| Introduction | 14 |
| Noise Mitigating Measures..... | 15 |
| Night Arrival from the Southwest over Water and Night Departure via West Lamma Channel | 15 |
| Targets for 2002 and 2003..... | 16 |
| Quieter Arrival | 16 |
| Targets for 2002 and 2003..... | 17 |
| Quieter Departure | 17 |
| Review of 2002 Target..... | 17 |
| Ban Noisy Aircraft from Operating in Hong Kong..... | 18 |
| Review of 2002 Target..... | 18 |




| | |
|---|----|
| Information to the Public | 19 |
| Maintain Complaint Hotline | 19 |
| Information to Legislative Council and District Council | 19 |
| Publish Noise Data in CAD Website | 19 |
| Targets for 2002 and 2003..... | 19 |
| Noise Monitoring | 20 |
| Targets for 2002 and 2003..... | 20 |
| Chapter 5 - Review of Performance on Green Policy | 21 |
| Energy Conservation | 21 |
| Conserving Electricity by Energy Saving Initiatives..... | 21 |
| <i>Buildings Managed by CAD</i> | 21 |
| <i>CAD Offices Managed by Other Organizations</i> | 22 |
| <i>Targets for 2002 and 2003</i> | 22 |
| Conserving Fuel..... | 24 |
| Purchasing Energy Efficient Equipment | 24 |
| <i>Air Traffic Control Equipment</i> | 24 |
| <i>Other Equipment</i> | 24 |
| Paper Conservation | 25 |
| Targets for 2002 and 2003..... | 25 |
| Recycle | 26 |
| Waste Paper | 26 |
| Laser Printer Cartridges | 26 |
| <i>Targets for 2002 and 2003</i> | 26 |
| Proper Disposal of Environmentally Hazardous Waste | 27 |
| Chemical Waste Disposal..... | 27 |
| <i>Targets for 2002 and 2003</i> | 27 |
| Discharge of Effluent of Sea Water Used for Cooling..... | 27 |
| <i>Targets for 2002 and 2003</i> | 28 |
| Staff Training on Environmental Issues | 29 |
| Chapter 6 - Summary of Targets | 30 |
| Our Performance on Targets in 2002 | 30 |
| Targets on Aircraft Noise..... | 30 |
| Targets on Green Policy | 30 |
| Our Environmental Targets for 2003 | 31 |
| Targets on Aircraft Noise..... | 31 |
| Targets on Green Policy | 31 |
| Verification Statement | 32 |
| Contact Us | 32 |



Executive Summary

Welcome to CAD's Environmental Report 2002.

Airport activities could generate significant aircraft noise pollution to households in the vicinity of airport and flight path. The primary stakeholders on noise issues are affected citizens, airlines and the Hong Kong International Airport while the secondary stakeholders are citizens depending on aviation activities, such as passengers or those employed by the aviation industry, and corporate engaging in business transactions with the aviation industry, such as the shippers or forwarders.



To resolve the conflicting interests among stakeholders, CAD as the civil aviation authority of Hong Kong is obliged to adopt a balanced approach on handling aircraft noise matters such that our community and aviation activities may co-exist in harmony.

Apart from contributing towards Hong Kong's environmental quality by mitigating the effects of aircraft noise, CAD also self-regulates its internal operations in the interest of the eco-system. In this respect, CAD has implemented green measures since the year of 1998 to promote recycling and minimize consumption of natural resources. We also have measures to ensure the chemical wastes and sea water for air conditioning would be disposed of and discharged in accordance with



the environmental regulations.

It is CAD's vision that a proactive standpoint on environmental protection can help aviation business sustain its continuing development while Hong Kong citizens enjoy the benefits delivered by the aviation industry at acceptable social costs.

For such vision to become a reality, an Environmental Management sub-section of CAD has been established to handle aircraft noise complaints, monitor noise at locations in close proximity to flight paths and instigate mitigating measures. Also, an Environmental Management Committee comprising members from different divisions and offices has been formed to oversee the implementation of green measures on CAD's internal operations.

Since 1999, CAD has produced an Environmental Report annually to detail its efforts on environmental protection. Similar to past reports, this report reviews CAD's environmental performance in the year of 2002 and presents its targets to be achieved in the upcoming year.

Looking back on its performance last year, CAD has managed to complete and excel in almost all its environmental targets in the year of 2002, with the exception of the plan to install additional noise monitors in Tung Chung East and Sheung Wan. Such move reflects our support for the Government's drive for introducing flexibility in our resource allocation process in order to reduce recurrent expenditure. However, CAD will constantly review those targets to meet community's needs.

Concerning its environmental targets for 2003, CAD has made no substantial revisions except tightening up on paper and energy consumption in order to incorporate the latest yardsticks given by the Environment, Transport and Works Bureau for all government departments and bureaux to follow.


Feedback or comments on this report can be sent to CAD online or by mail (see address in page 32).



Foreword

Welcome to CAD's Environmental Report 2002.

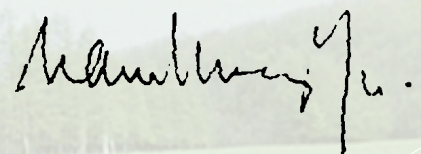
Against the backdrop of a growing air traffic, a society celebrates the wealth and job opportunities created. Invisible yet inevitable, is the aircraft noise. If the noise issue is not addressed, the growth of aviation could be met with opposition from the affected citizens.



On the issue of civil aviation and environment, CAD and the International Civil Aviation Organization (ICAO's) share similar concerns. While the ICAO aims to "achieve maximum compatibility between the safe and orderly development of civil aviation and the quality of environment", we strive to maintain an active role in balancing the needs of all stakeholders on aircraft noise issues. It is our goal to improve the quality of environment for our citizens and guide the business of aviation towards a sustainable development.

In running our day-to-day business, we also recognize that we need green measures to ensure we conduct our business in an environmentally responsible manner. For that, we have established a committee to monitor our operations.

Each year, we produce an Environmental Report to review our environmental performance. In this Environmental Report 2002, our performance in the year of 2002 is reviewed and our targets for 2003 are presented. We hope you enjoy this report and give us your feedback to help our continuing improvement on environmental issues. You can reach us from the internet by sending your comment to us online or by mail.



Director-General of Civil Aviation
Mr. Albert K Y Lam, JP



Chapter 1 Introduction

About this Report

Welcome to the CAD Environmental Report 2002. This is the fourth annual report produced by CAD since 1999. It reports our environmental performance in the year of 2002 and our initiatives in protecting and improving our environment.

Scope of this Report

This report first identifies the two aspects of our environmental efforts : the control of aircraft noise generated by civil aviation activities and in-house activities. It then reviews how we have performed against targets in the 2002 calendar year and what can be expected in the upcoming year.





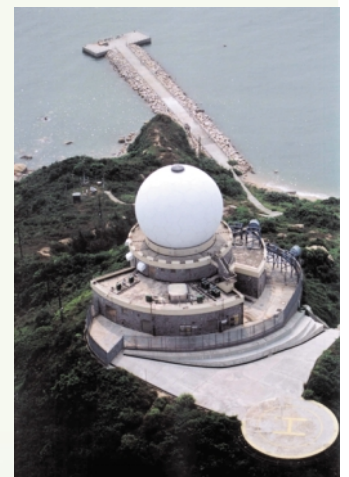
Chapter 2

About Civil Aviation Department

Key Responsibilities

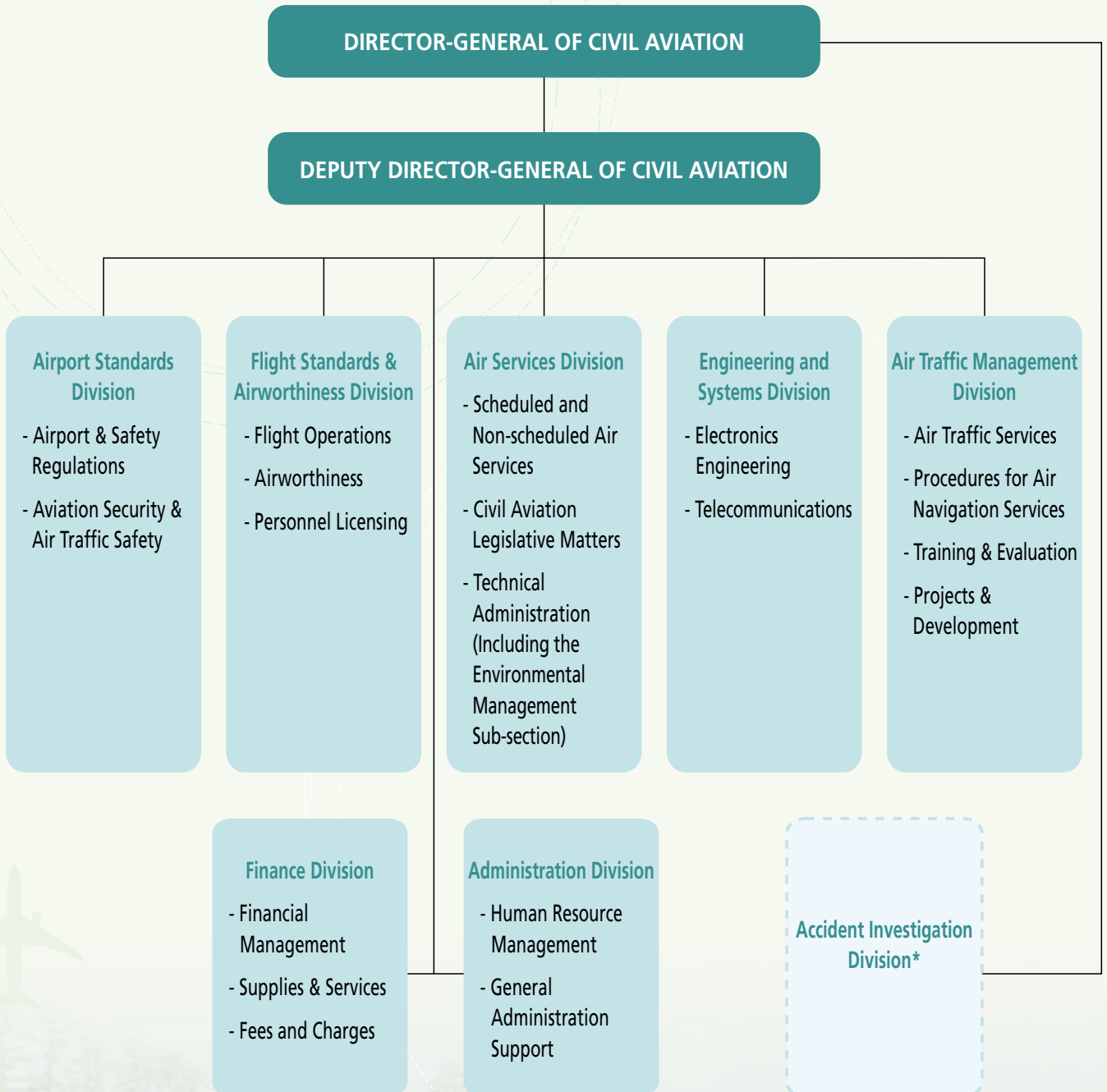
Being the civil aviation authority in Hong Kong, CAD is committed to a safe and efficient air transport system. We strive to accomplish the following missions in a professional manner: -

- 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 operation in the event of aircraft emergencies and accidents
- Setting and enforcing aerodrome safety and aviation security standards
- Ensuring compliance with 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 engineer 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



Organization Chart

Organization Chart as at 31 December, 2002#



Note :

There is no major change in organizational context (e.g. organization size, and activities) since last report.

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

Staff Establishment

CAD had a total of 679 staff and 7 divisions as at 31 December 2002 (Figure 1).

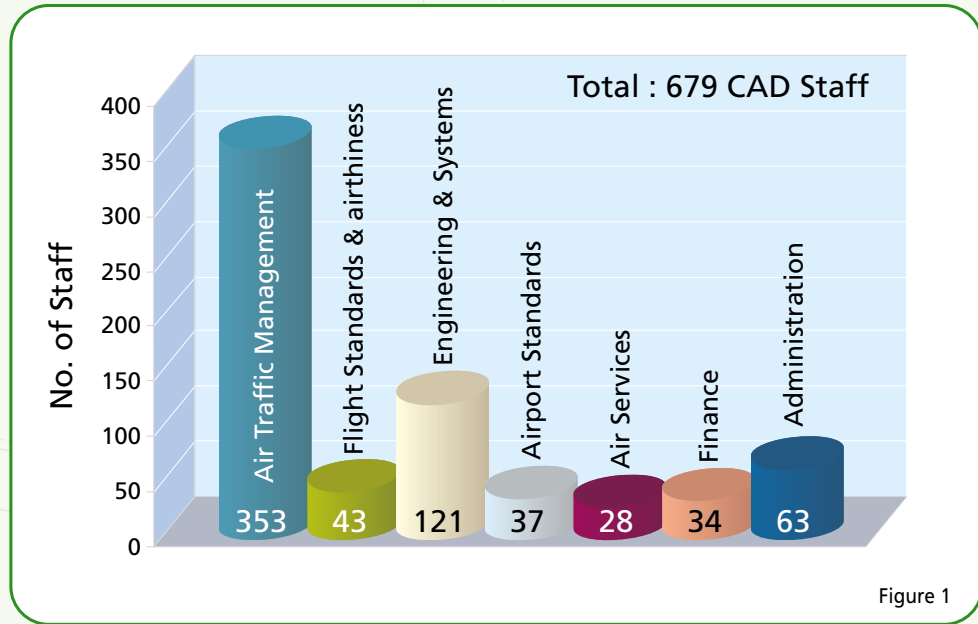


Figure 1

Our Location

CAD had 6 office locations (Figure 2). We also had a number of radar stations, radio navigational aids and communication stations.

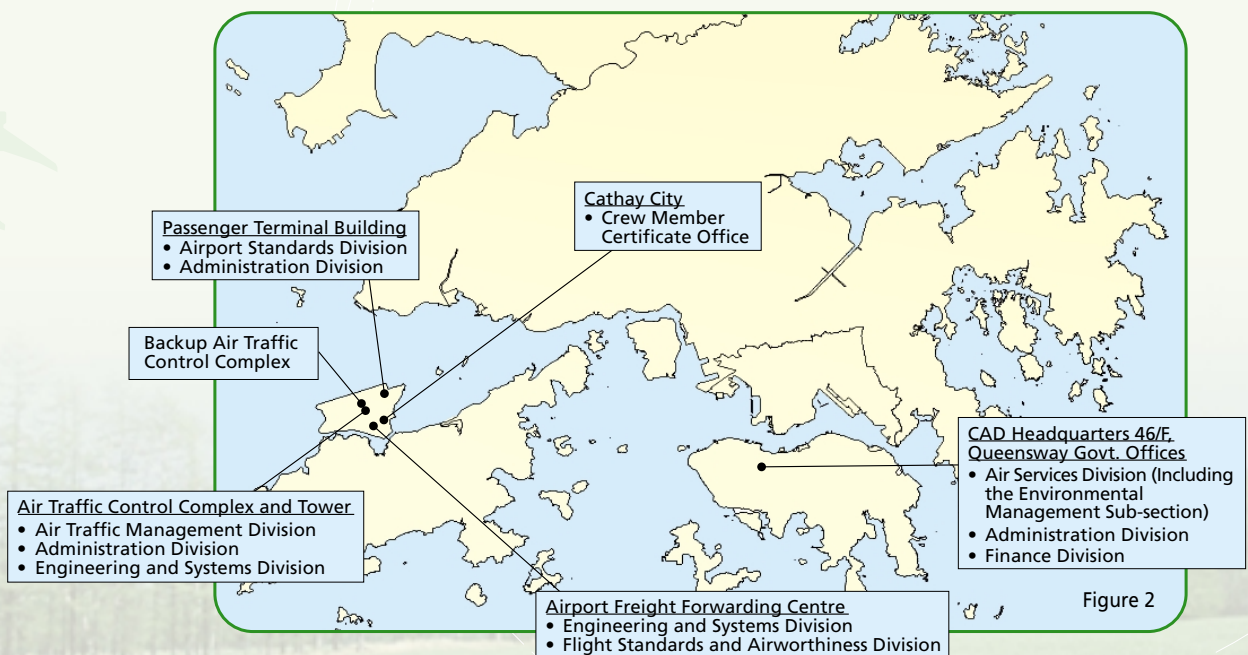


Figure 2



Chapter 3

Environmental Policy

We Care

We care because we want to provide citizens of Hong Kong with a better environment by minimizing aircraft noise exposure to populated area.

The growth of civil aviation has brought prosperity to our economy. For this growth to continue, the aircraft noise must be carefully controlled such that it would not turn into an unbearable nuisance. Otherwise, noise could become a restraining force on aviation's development and our aviation partners' businesses. Once the need for improvement is identified, we would instigate measures to maximize the compatibility between the growth of civil aviation and the quality of the environment.

We care because our Earth's natural resources are limited.

Conducting our daily businesses would consume paper and energy, and generate pollution. Like any other environmentally responsible organizations, we would apply measures to control our activities such that waste and pollution are minimized and that our Earth's natural resources could re-generate to cope with humanity's needs.



Our Vision

While CAD is committed to a safe and efficient air transport system, we also strive to improve the environmental quality for Hong Kong citizens.

To materialize our vision, we will act as stewards for environmental protection at all time.

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

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

Complaints

Stakeholders :
affected households

Consultation

Stakeholders :
airlines & airport

Affected

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





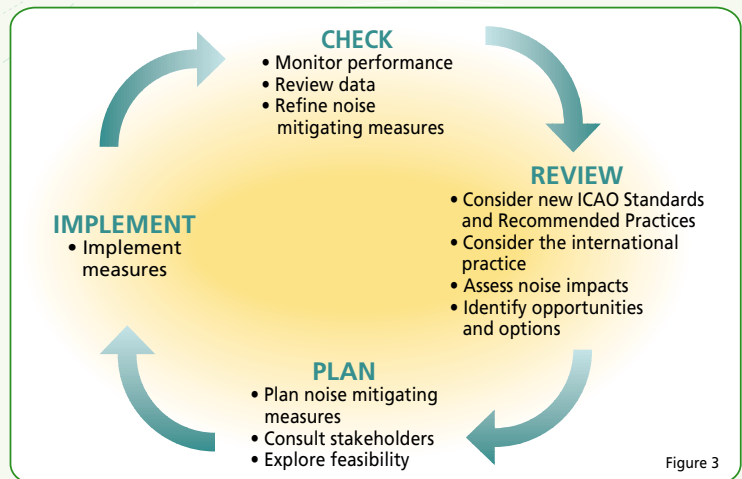
Implementation of Policy

CAD has two committees, which are the **Aircraft Noise Technical Committee** and **Environmental Management Committee**, to formulate and implement environmental measures.

Aircraft Noise Technical Committee for Managing Noise Issues

The Aircraft Noise Technical Committee was formed in 1999. Chaired by the Deputy Director-General of CAD, the Committee comprises members from the Environmental Protection Department and the Airport Authority Hong Kong. Together, we address aircraft noise issues arising from the operations of the Hong Kong International Airport and consider possible measures to minimize the impact of aircraft noise.

To achieve our goal, we adopt a systematic **Review-Plan-Implement-Check Cycle** (Figure 3) in our decision-making process.



Environmental Management Committee



Environmental Management Committee for Housekeeping

CAD established the Environmental Management Committee in 1999 to devise practical measures to implement our green policy (Figure 4).

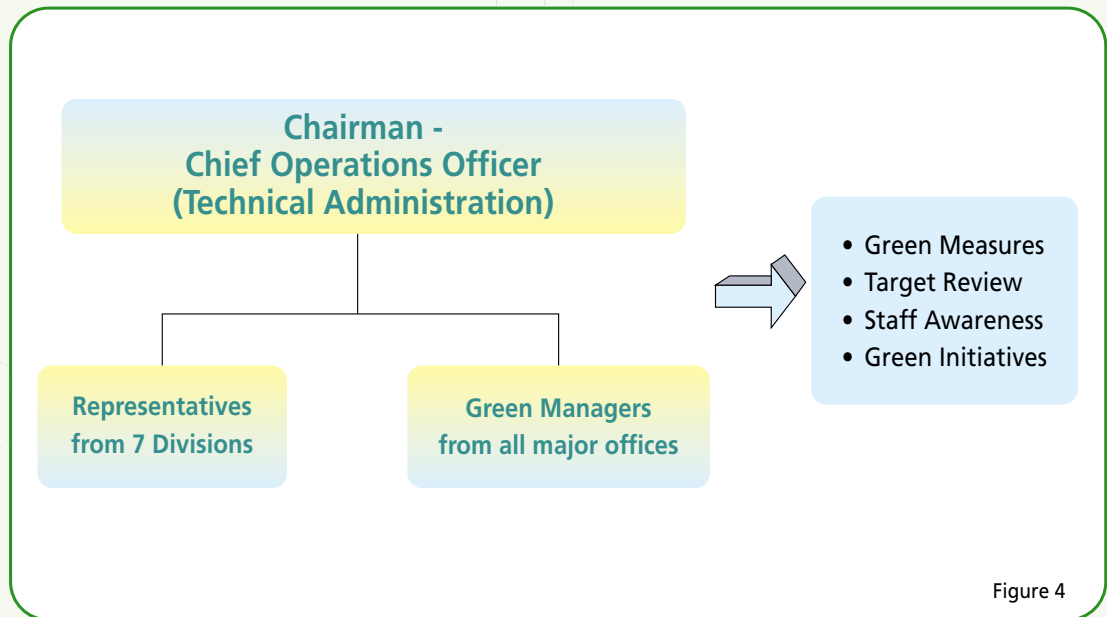


Figure 4

At the end of the year, the Environmental Management Committee would determine CAD's green office targets for the coming year in respect of reducing energy and paper consumptions, preventing pollution and recycling recyclable wastes.

Throughout the year, green managers would continuously monitor their offices to ensure targets could be met by the year-end and make interim reports on their offices' performance to the Committee. If necessary, the Committee could implement corrective actions.

To foster an environment of eco-thinking, CAD would periodically brief our staff about our green measures and arrange seminars and activities.

Chapter 4

Review of Performance on Noise Policy

Introduction

CAD adopts a balanced approach on resolving the conflicts of interests among stakeholders (Figure 5), such that the society may address noise problems in a cost effective manner.

Our other efforts on noise include monitoring aviation technology development with a view to introducing new technology on aircraft noise reduction and disseminating relevant noise data.

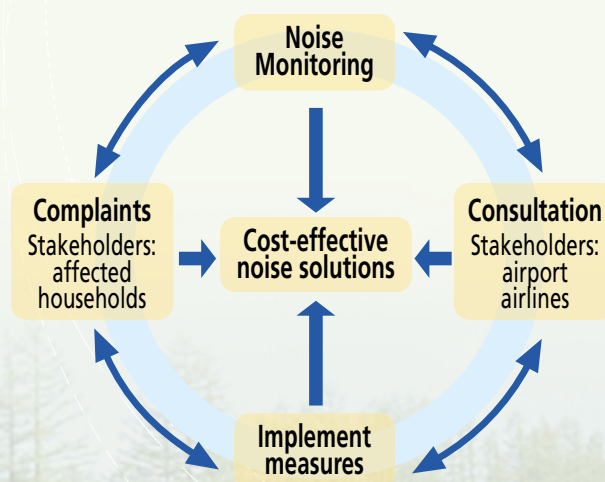


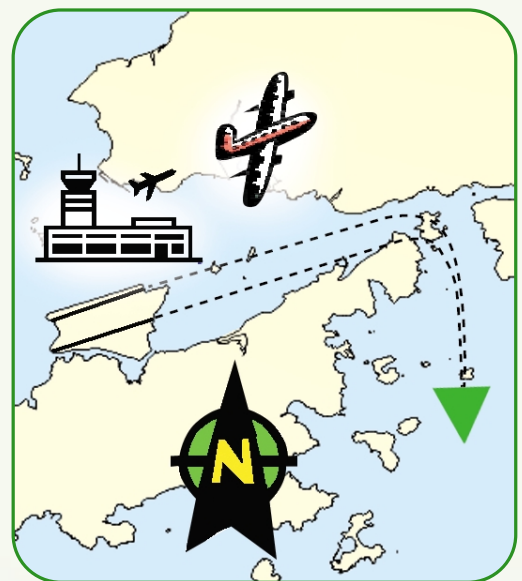
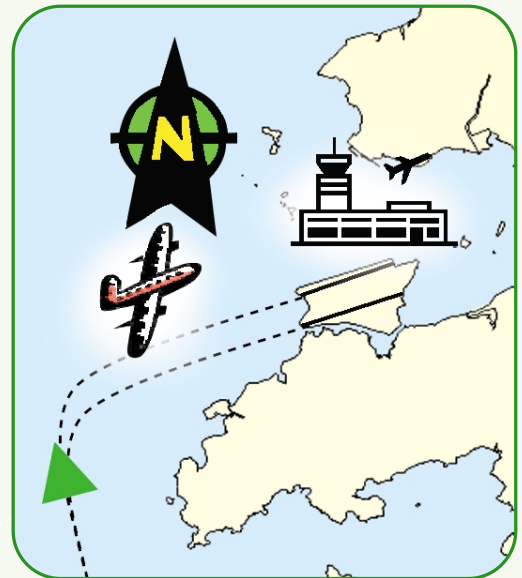
Figure 5

Noise Mitigating Measures

Night Arrival from the Southwest over Water and Night Departure via West Lamma Channel

Given favourable weather and safe flight conditions, aircraft could arrive the Hong Kong International Airport over water from the Southwest and depart over water via the West Lamma Channel during the overnight period.

Our targets were to have 90% of aircraft arriving between midnight and 7:00 a.m. to land from Southwest over water and 95% of aircraft taking off between 11:00 p.m. and 7:00 a.m. to depart via West Lamma Channel. Such arrangement ensured that populated areas like Sha Tin, Tsuen Wan, Kwai Chung, Sham Tseng and Tsing Lung Tau would not be affected by noise from arriving aircraft and districts like Hung Hom, North Point, Shau Kei Wan and Chai Wan would not be affected by the noise from departing aircraft.





Targets for 2002 and 2003

In 2002, we have successfully completed those targets. Our records indicates that 94.7% of night arrivals and 99.6% of night departures were conducted over water (Figures 6 & 7). Such performance has exceeded our targets. In 2003, we would retain this target.

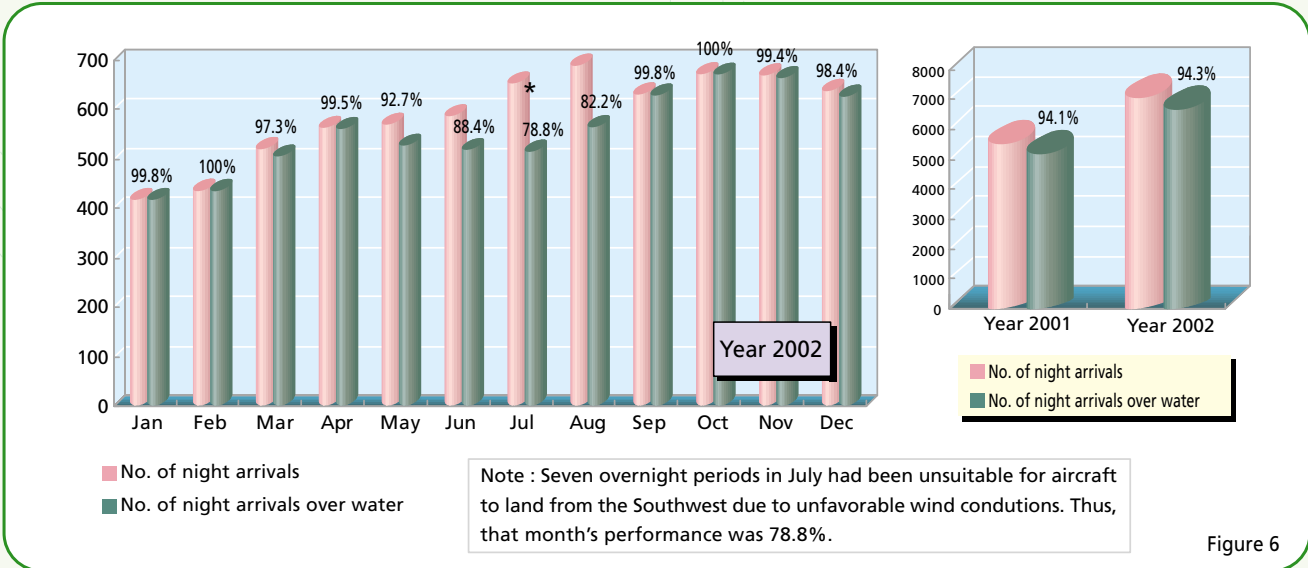


Figure 6

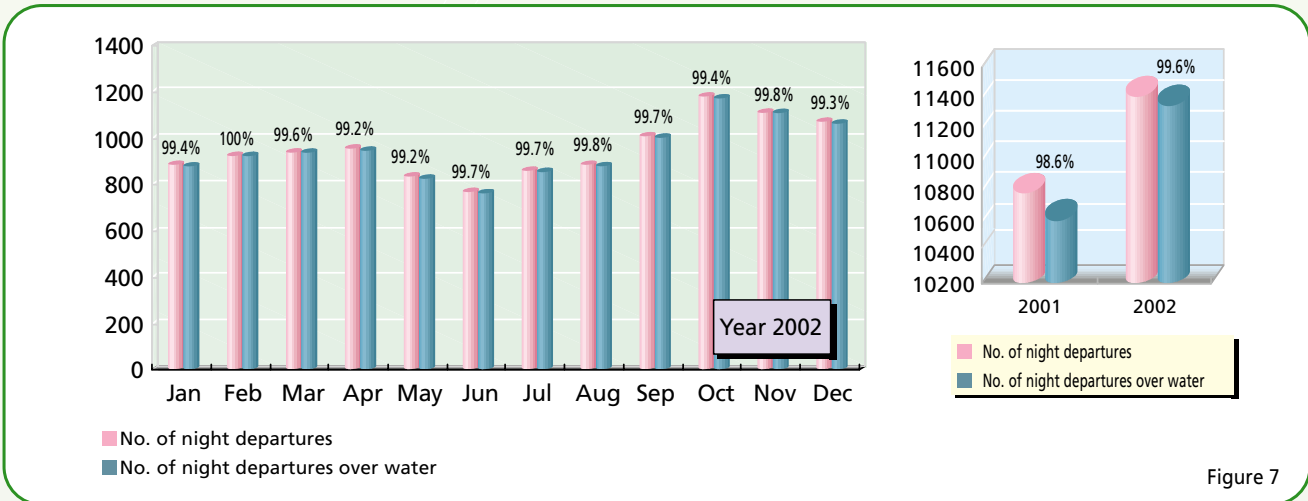


Figure 7

Quieter Arrival

Given favourable weather and flight conditions, from 11:00pm to 7:00am, aircraft approaching from the Northeast could adopt the Continuous Descent Approach (CDA) procedure. The aircraft would fly higher and in a lower power and drag configuration during the commencement of the approach. As a result, those aircraft should be quieter to areas such as Sai Kung, Tseung Kwan O and Ma On Shan.

Targets for 2002 and 2003

In 2002, 72% of aircraft on approach to the Hong Kong International Airport from the Northeast from 11:00pm to 7:00am were able to adopt such procedure. In 2003, we would continue to facilitate airlines to conduct CDA procedure.

Quieter Departure

Aircraft departing to the Northeast should adopt the noise abatement departure procedures (NADP) prescribed by the International Civil Aviation Organization¹ (ICAO) if safe flight operations permit.



Our efforts began in August 1999 when we first implemented ICAO's older version of NADP. In 2001, the ICAO revised those NADP such that aircraft could commence engine power reduction as low as 800 ft during the initial phase of take off, which was lower than the start point in the former procedures. Thus, aircraft conducting new procedures should be quieter.

Review of 2002 Target

We have set our target to implement the new NADP in 2002 and we have achieved this target in March of 2002.

1 ICAO was an United Nation organization established under the Chicago Convention on International Civil Aviation in November of 1944 for developing the principles and techniques of international air navigation and for fostering the planning and development of international air transport. As of 20 June 2002, there were 188 Contracting States to the convention.

Ban Noisy Aircraft from Operating in Hong Kong

To comply with an ICAO requirement, we have banned noisy "Chapter 2" aircraft² from using the Hong Kong International Airport.

We first introduced this measure in October 1999. To comply with an ICAO Assembly Resolution which was to gradually replace older and noisier "Chapter 2" aircraft with newer and quieter "Chapter 3" aircraft³, we have introduced a phase out programme to put a ban on scheduled operations of "Chapter 2" aircraft from 11:00pm to 7:00am. At present, all these aircraft are forbidden from using our airport. Because of such measure, the overall aircraft noise in the vicinity of airport should be reduced.

Review of 2002 Target

We planned to implement this measure in 2002 and we managed to achieve our target on 1 July 2002.



- 2 "Chapter 2" aircraft refer to those aircraft which only meet the standards of noise specified in Volume I, Part II, Chapter 2 of Annex 16 to the Convention on International Civil Aviation.
- 3 "Chapter 3" aircraft refer to those aircraft which meet the standards of noise specified in Volume I, Part II, Chapter 3 of Annex 16 to the Convention on International Civil Aviation.

Information to the Public

Maintain Complaint Hotline

In 2002, we have handled 325 complaints (Figure 8), which is 11.9% less than the 369 complaints in 2001.

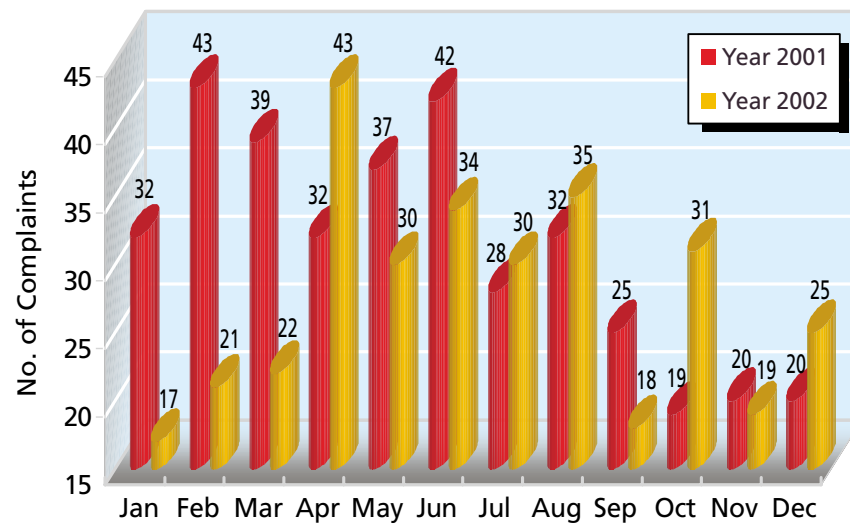
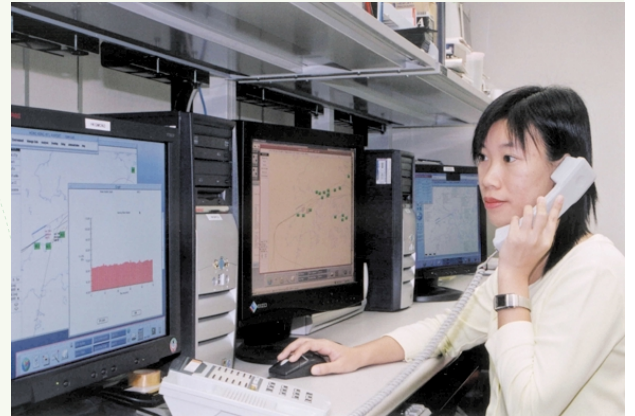


Figure 8

Information to Legislative Council and District Council

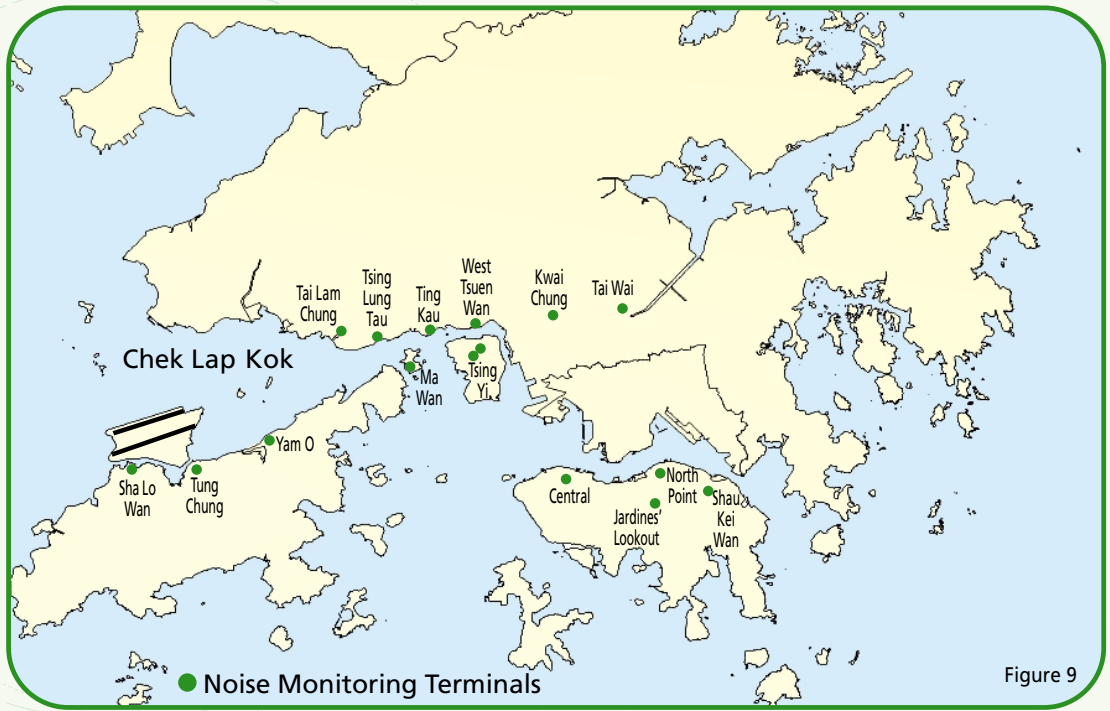
During 2002, we held two meetings with several members of the Legislative Council and the Tsuen Wan District Council about aircraft noise issues. During which, we have explained noise impacts and our implementation of mitigating measures.

Publish Noise Data in CAD Website

To facilitate the public to assess aircraft noise information, we regularly upload noise data on our website.

Targets for 2002 and 2003

In 2003, we would continue to carry those 2002 targets onboard to provide the community with noise information.



Noise Monitoring

CAD has been monitoring noise in the vicinity of the flight paths with the aid of a computer based aircraft noise and flight track monitoring system (ANFTMS). At present, we have installed 16 fixed noise monitors (Figure 9) to collect noise data in real time.

Our ANFTMS would correlate radar information on flight tracks with noise data from noise monitors. That has allowed us to compile statistics on aircraft noise and investigate into aircraft noise complaints.

Targets for 2002 and 2003

We have planned to install one noise monitor each in Tsing Yi, Sheung Wan and Tung Chung East in 2002 to enhance our noise monitoring capabilities. In February of 2002, we managed to install a noise monitor in Tsing Yi.

However, for Sheung Wan and Tung Chung East, due to the Government's drive for reducing recurrent expenditure and the slow occupation rate of new residential buildings in Tung Chung East, we have decided not to install any noise monitor in these areas. We would revisit this target when the need arises.



Chapter 5

Review of Performance on Green Policy

CAD's green policy is energy conservation, paper conservation, recycle, proper disposal of environmentally hazardous waste and provision of awareness training for staff.

Energy Conservation

Conserving Electricity by Energy Saving Initiatives

Buildings Managed by CAD

In buildings and premises managed by CAD, such as the Air Traffic Control Complex (ATCX), Air Traffic Control Tower (ATCT) and Back-up Air Traffic Control Complex (BATCX), we have explored various initiatives to save energy on our air-conditioning and lighting systems.

Energy Saving on Air-conditioning system

- We have installed light reflective shades in the Centralized Fault Reporting Centre at the ATCX and the Precision Runway Monitor and Microwave Equipment Room of the BATCX to lower the room temperature.
- We are exploring with the Electrical and Mechanical Services Department (EMSD) the feasibility and cost-effectiveness to implement the following energy management opportunities (EMOs) to save energy cost on the air-conditioning of ATCX, ATCT and BATCX: -
 - Injecting more outdoor cool air into the buildings during winter period
 - Reducing maintenance time and providing anti-scaling system for water-cooled chiller system
 - Providing control system to switch off fan coil units at non-operational areas
 - Providing thermal storage of chilled water at night time for use during day time



Energy Saving on Lighting System

- We have replaced electrical "Exit" signs at two of our equipment rooms at the South Runway with self-luminous signs that do not require power. As self-luminous signs may give out small amount of radioactive emissions, we will install the signs in unmanned sites only.
- We are exploring with EMSD the feasibility of permanently dismantling the floodlights at the rooftop of the ATCX and switching off half of the floodlights underneath the ATCT.
- We are exploring with EMSD the feasibility and cost-effectiveness of installing occupancy sensors at non-operation areas to automatically switch off lighting systems after those areas have been vacated for 5 minutes.

CAD Offices Managed by Other Organizations

We would regularly convey our concerns about exploring energy saving initiatives to the building managers of other CAD offices. For example, we have given the building management of Queensway Government Offices our full support on the proposed new energy saving initiatives such as controlling indoor temperature at a reasonable level and shortening the operation hours of air conditioning chiller plant by the Government Property Agency.

Targets for 2002 and 2003

After implementing various energy conservation measures, we managed to reduce the average daily electricity consumption in the ATCX in 2002 by 3.4% comparing to the year of 2001 (Figure 10).

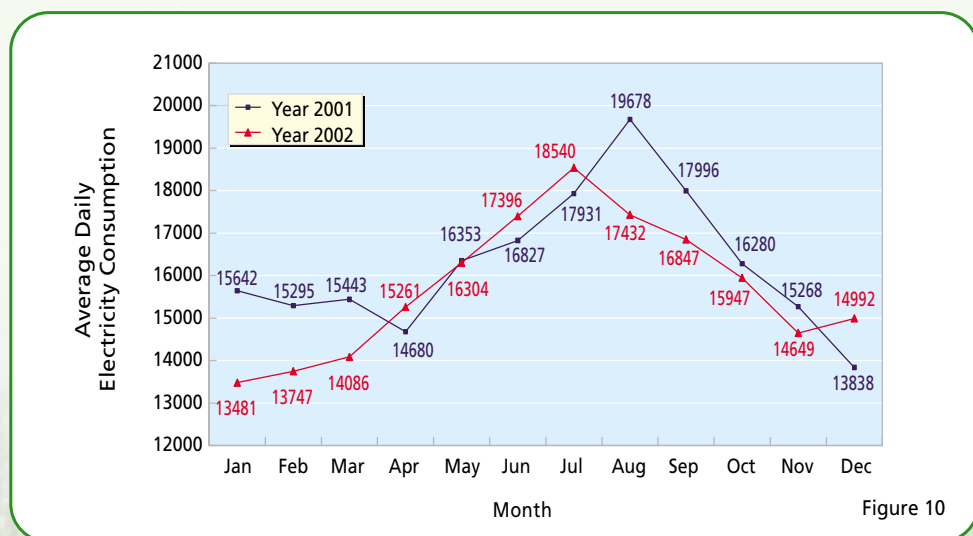
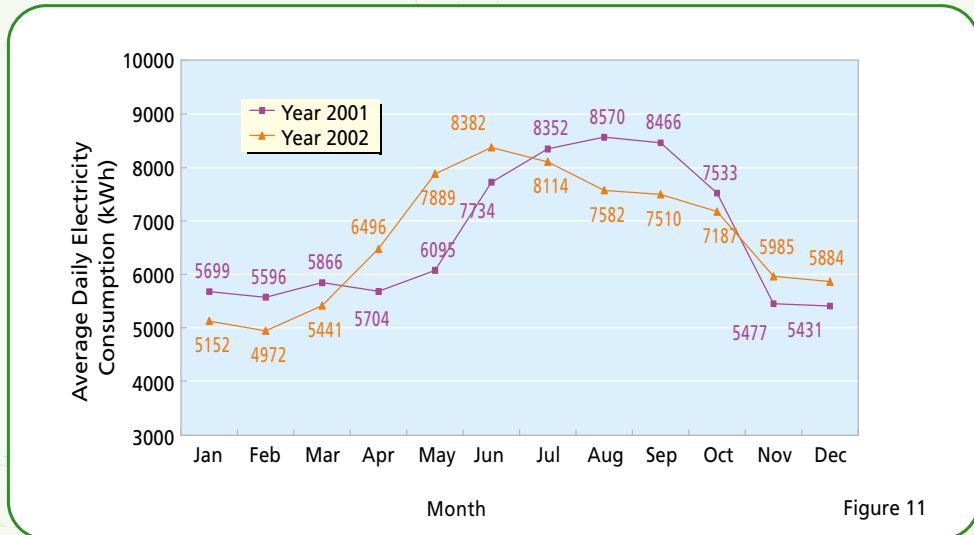


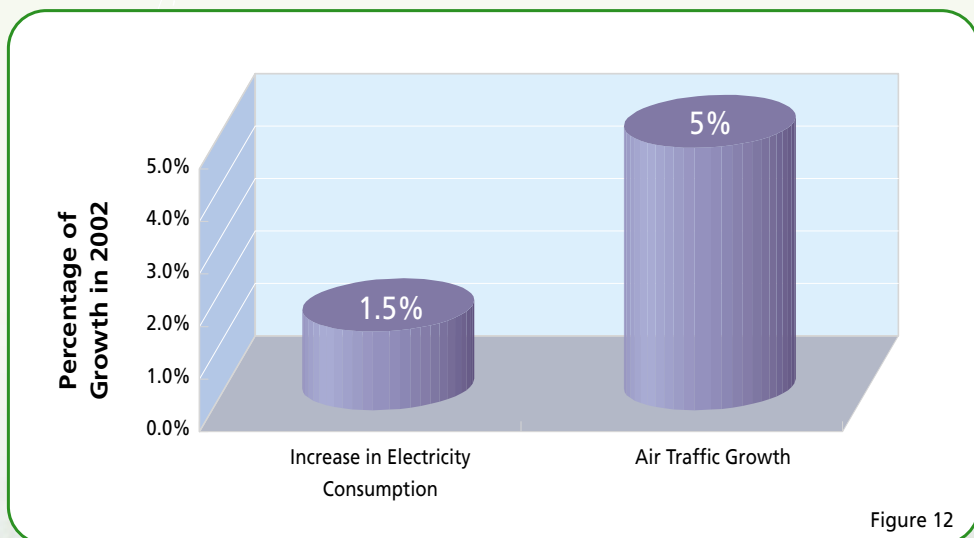
Figure 10



The BATCX, however, recorded a slight increase of 0.1% of the average daily electricity consumption (Figure 11).



Despite our overall 1.5% increase in electricity consumption in all CAD premises in 2002, amounting to 30,891 kilowatt-hours on average daily, we still met our 2002 target which was to maintain electricity consumption at a level below the traffic growth in the Hong Kong International Airport (Figure 12). The traffic has grown by 5% in 2002.



Revised

In the year of 2003, we will follow the guidelines of the Environment, Transport and Works Bureau on reducing the electricity consumption by 1.5% from that of the year of 2002.



Conserving Fuel

Poor driving habit not only increases fuel consumption, it can also cause more pollutants to be emitted. We thus provide information on eco-driving to our drivers to remind them to drive and maintain vehicles properly so as to reduce fuel consumption and pollution.

Purchasing Energy Efficient Equipment

Air Traffic Control Equipment

To support Government's drive for energy saving, we would purchase air traffic control equipment of high standard of energy efficiency to save electricity. Examples are our replacement of 30 cathode-ray-tube monitors with state-of-the-art LCD



monitors for our Aeronautical Information Display System and Flight Data Processing System for air traffic control operations in 2002, and our replacement of the existing Mount Parker Primary Surveillance Radar of 3 MW peak transmit power with a new fully solid-state radar of only 24 kW peak transmit power but with the same radar coverage by the end of 2003.

Other Equipment

We are obliged to observe central guidelines from the Government on green purchasing and taking environmental considerations into account when procuring goods and services. Environmental terms such as high standard of recyclability and energy efficiency have been included in our tender specifications whenever applicable.



Paper Conservation

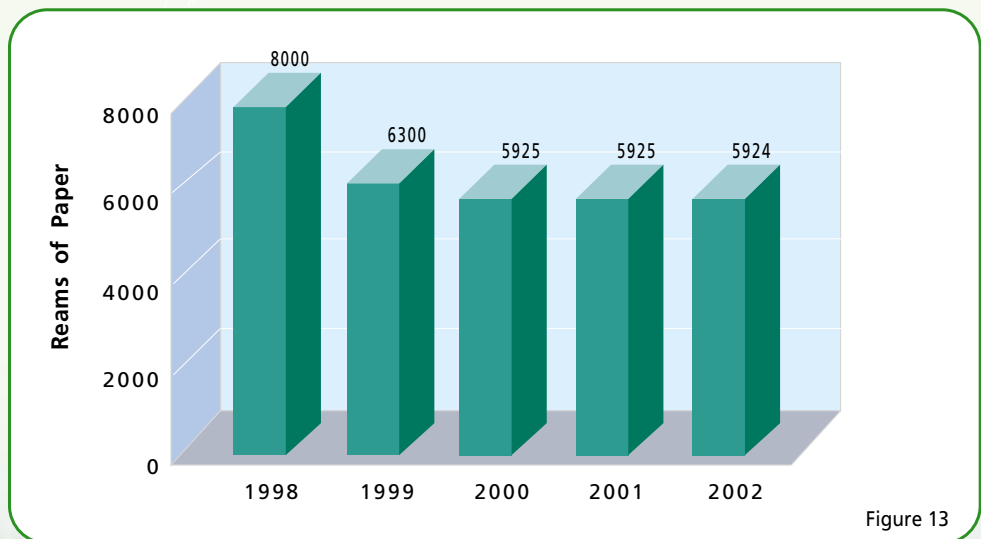
We encourage the use of e-mail for office communication

It is our continuous target to reduce paper consumption by encouraging staff to use e-mail for communications both within and outside the Department. Thus, in 2002, we have enhanced our email systems to make it easier for our staff to use emails. In addition, we have installed a Document Management System to disseminate information such as posting circulars, departmental circulars and telephone lists electronically. As a result, paper circulation within CAD has been reduced.

Targets for 2002 and 2003

In the year of 2002, with continuous efforts of our staff, we were able to achieve our target by maintaining our paper consumption at the low level of 5,924 reams as in 2001.

It must be pointed out that such consumption level represents a significant drop of 26% over four years from 8,000 reams in 1998 to the 2002 level (Figure 13).



Revised

In 2003, we will continue our efforts in promoting electronic communication among staff. In addition, we shall follow the guidelines of the Environment, Transport and Works Bureau on reducing paper consumption by 2.5% from the 2002 figures.



Recycle

We implement waste paper and laser printer cartridge recycling schemes to save the Earth's natural resources.

Waste Paper

Our staff would separately dispose of recyclable waste paper in conveniently located recycling bins. CAD's cleaning contractors then transport those paper to designated locations for recycling (Table 1).

Table 1

| Waste Paper Collection (Kg) | 2002 | | | | | 2001 |
|-----------------------------|-----------|-----------|-----------|-----------|-------|-------|
| | Jan - Mar | Apr - Jun | Jul - Sep | Oct - Dec | Total | Total |
| | 1308 | 2232 | 2190 | 2489 | 8219 | 7534 |

Laser Printer Cartridges

We return used laser printer cartridges to our suppliers for recycling. (Table 2)

Table 2

| | 1998 | 1999 | 2000 | 2001 | 2002 |
|-------------------------|-----------|-----------|-----------|-----------|-----------|
| Laser Printer Cartridge | Purchased | Purchased | Purchased | Purchased | Purchased |
| | 153 units | 150 units | 166 units | 167 units | 167 units |
| | Recycled | Recycled | Recycled | Recycled | Recycled |
| | 33 units | 72 units | 67 units | 77 units | 124 units |

Targets for 2002 and 2003

We have increased our recycling of paper by 9% in the year of 2002 comparing with the quantity being recycled in the preceding year. The recycling of laser printer cartridges in the year of 2002 showed continuing increase of 276% comparing to the number recycled when we first implemented this scheme in 1998. Our target for 2003 is to continue our recycling efforts.



Proper Disposal of Environmentally Hazardous Waste

We comply with the environmental regulations with regard to the disposal of chemical waste and the discharge of sea water for cooling systems.

Chemical Waste Disposal

Stable and reliable air traffic control equipment are installed in our 13 equipment outstations to provide air traffic related services. When the normal city mains supply to these equipment is interrupted, the equipment will automatically switch to operate on alternate power supply including standby diesel generators and sealed-type batteries. These standby generators and batteries however will produce chemical waste such as engine lubrication oil and battery fluid, which are required to be properly disposed of.

Targets for 2002 and 2003

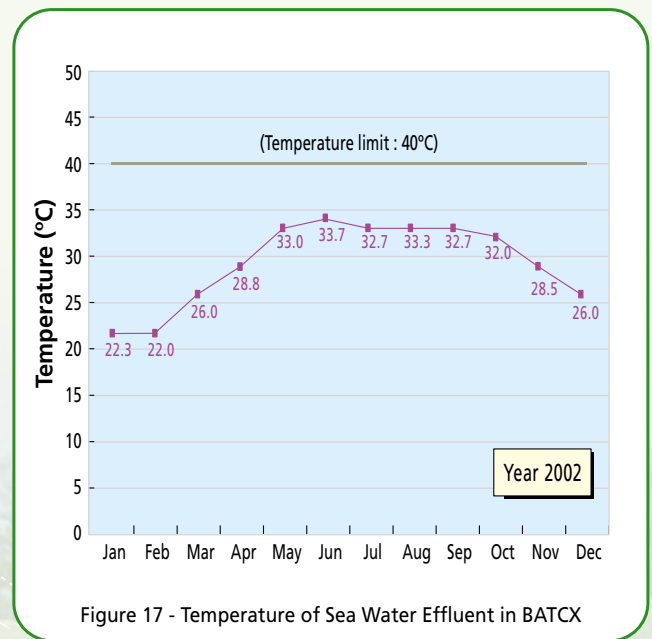
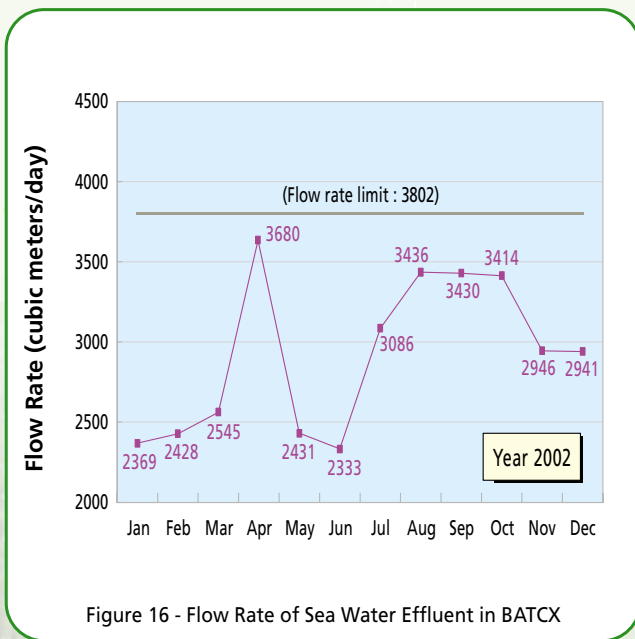
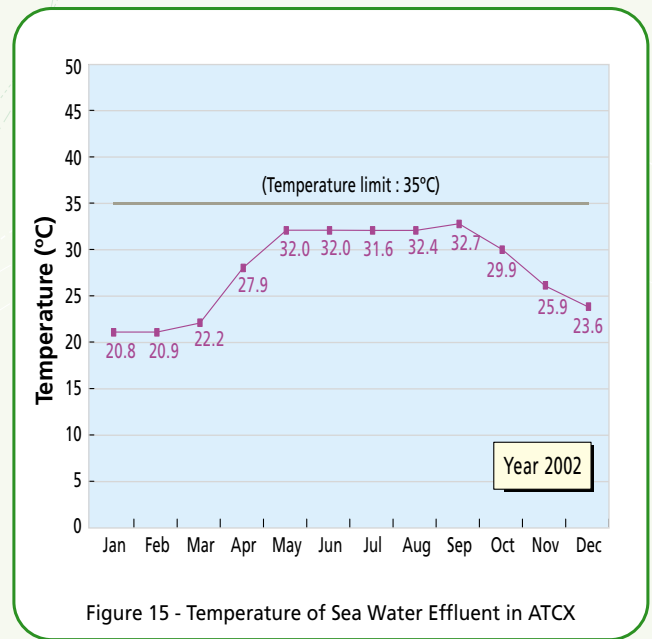
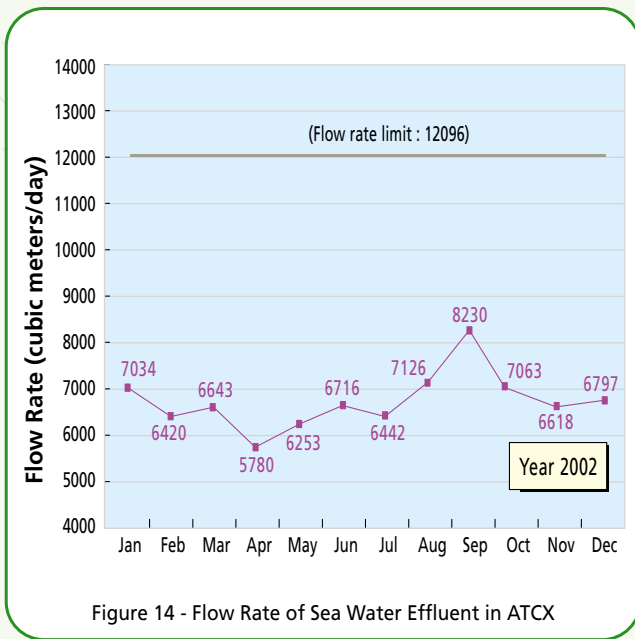
In the year of 2002, our maintenance contractor has handled the waste in accordance with the statutory requirements under the Waste Disposal (Chemical Waste) (General) Regulation of the Waste Disposal Ordinance (Chapter 354 subsidiary legislation C). We will continue to supervise our contractor to ensure proper handling and disposal of chemical waste in the year of 2003.

Discharge of Effluent of Sea Water Used for Cooling

Our ATCX and BATCX use sea water for their cooling systems. We ensure that the sea water effluent is discharged in compliance with the requirements set under the Water Pollution Control Ordinance (Chapter 358).

Targets for 2002 and 2003

As in the year of 2001, our monthly measurement of the flow rate, temperature, pH value and residual chlorine level of the effluent showed that the limits of these four control parameters have not been exceeded in 2002. In 2003, we will continue to monitor all these parameters. (Figures 14 to 17 present the monthly variation of the flow rate and temperature of the sea water discharged.)





Staff Training on Environmental Issues

Throughout 2002, we have regularly organized seminars and uploaded training video to intranet to familiarize our staff with the importance of energy conservation and our green measures. Also, we have displayed publicity materials on energy saving at conspicuous locations to remind them to be environmentally responsible.



Chapter 6

Summary of Targets

Our Performance on Targets in 2002

In 2002, we were able to achieve the following targets:-

Targets on Aircraft Noise

- Facilitate airlines to achieve 90% of arriving aircraft land over water from the Southwest between midnight and 7:00 am (see page 15)
- Facilitate airlines to achieve 95% of departing aircraft take off over water via West Lamma Channel between 11:00 pm and 7:00 am (see page 15)
- Facilitate airlines' adoption of CDA procedure at the Hong Kong International Airport during night period (see page 16)
- Introduce the new ICAO noise abatement departure procedures (see page 17)
- Establish a programme to gradually phase out the operation of older and noisier aircraft at the Hong Kong International Airport (see page 18)
- Maintain contact with concerned District Councils, the media, other concerned parties and the general public (see page 19)
- Maintain an internet web site to facilitate public access to aircraft noise and flight path information (see page 19)
- Install an additional noise monitor in Tsing Yi (see page 20)

Targets on Green Policy

- Maintain the growth in electricity consumption at a level below the growth in air traffic movements (see page 22)
- Purchase equipment of high standard of energy efficiency (see page 24)
- Maintain the paper consumption at the level of 2001 (see page 25)
- Encourage the use of e-mail for office communication (see page 25)
- Continue to implement the waste paper and laser printer cartridge recycling schemes (see page 26)
- Comply with environmental regulations with regard to the discharge of sea water for cooling system and the disposal of chemical waste (see page 27)

Our Environmental Targets for 2003

In 2003, we shall strive towards meeting the following targets:-

Targets on Aircraft Noise

- Facilitate airlines to achieve 90% of arriving aircraft land over water from the Southwest between midnight and 7:00 am (see page 15)
- Facilitate airlines to achieve 95% of departing aircraft take off over water via West Lamma Channel between 11:00 pm and 7:00 am (see page 15)
- Facilitate airlines' adoption of CDA procedure at the Hong Kong International Airport during night period (see page 16)
- Maintain contact with concerned District Councils, the media, other concerned parties and the general public (see page 19)
- Maintain an internet website to facilitate public access to aircraft noise and flight path information (see page 19)

Targets on Green Policy

- Reduce the growth in electricity consumption by 1.5% from the level of 2002 (see page 22).
- Purchase equipment of high standard of energy efficiency (see page 24)
- Reduce the paper consumption by 2.5% from the level of 2002 (see page 25)
- Encourage the use of e-mail for office communication (see page 25)
- Continue to implement the waste paper and laser printer cartridge recycling schemes (see page 26)
- Comply with environmental regulations with regard to the discharge of sea water for cooling system and the disposal of chemical waste (see page 27)



Verification Statement

The Environmental Management Committee of CAD has performed a verification on the information and data of the Environmental Report 2002. Relevant documents on the key information and data from all Divisions of CAD have also been reviewed. The Environmental Management Committee confirms that the data presented in the Environmental Report 2002 are authentic and consistent with the documents, and the methodology for the collection, maintenance and analysis of data is appropriate. The report represents an accurate account of CAD's environmental action and performance in the year of 2002.

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