

ENVIRONMENTAL REPORT

2014



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1. Director's Message

I am pleased to present the Environmental Report 2014 of the Hong Kong Observatory (HKO). This report sets out the environmental policy in HKO and provides an overview of our performance and effort in 2014.

In a continuing effort to raise public awareness on the impact of climate change, HKO attaches great importance to environmental conservation and is fully committed to supporting the government's policies on environmental protection and sustainable development. Apart from following the government's green regulations and guidelines, we also strive to foster a green culture and promote an environmentally responsible attitude among staff and stakeholders.

We achieved significant normalized reduction in electricity consumption in 2014 by 12% when compared to the figure in the baseline year of 2007/08. Paper consumption in HKO in 2014/15 decreased by 14% and envelope consumption by nearly 80% when compared with that of 2007/08. The indoor air quality of buildings in our Headquarters was again categorized as "Good Class" under the Indoor Air Quality Certification Scheme for offices and public places in 2014.

Thanks to the dedicated effort of an internal Working Group on Energy and Environment, we continued to maintain momentum in organizing various green activities within HKO to arouse colleagues' awareness on environmental conservation and energy saving. We also continued to exchange climate change knowledge with different community sectors through seminars, school visits and exhibitions, as well as by publishing articles on climate change issues throughout the year.

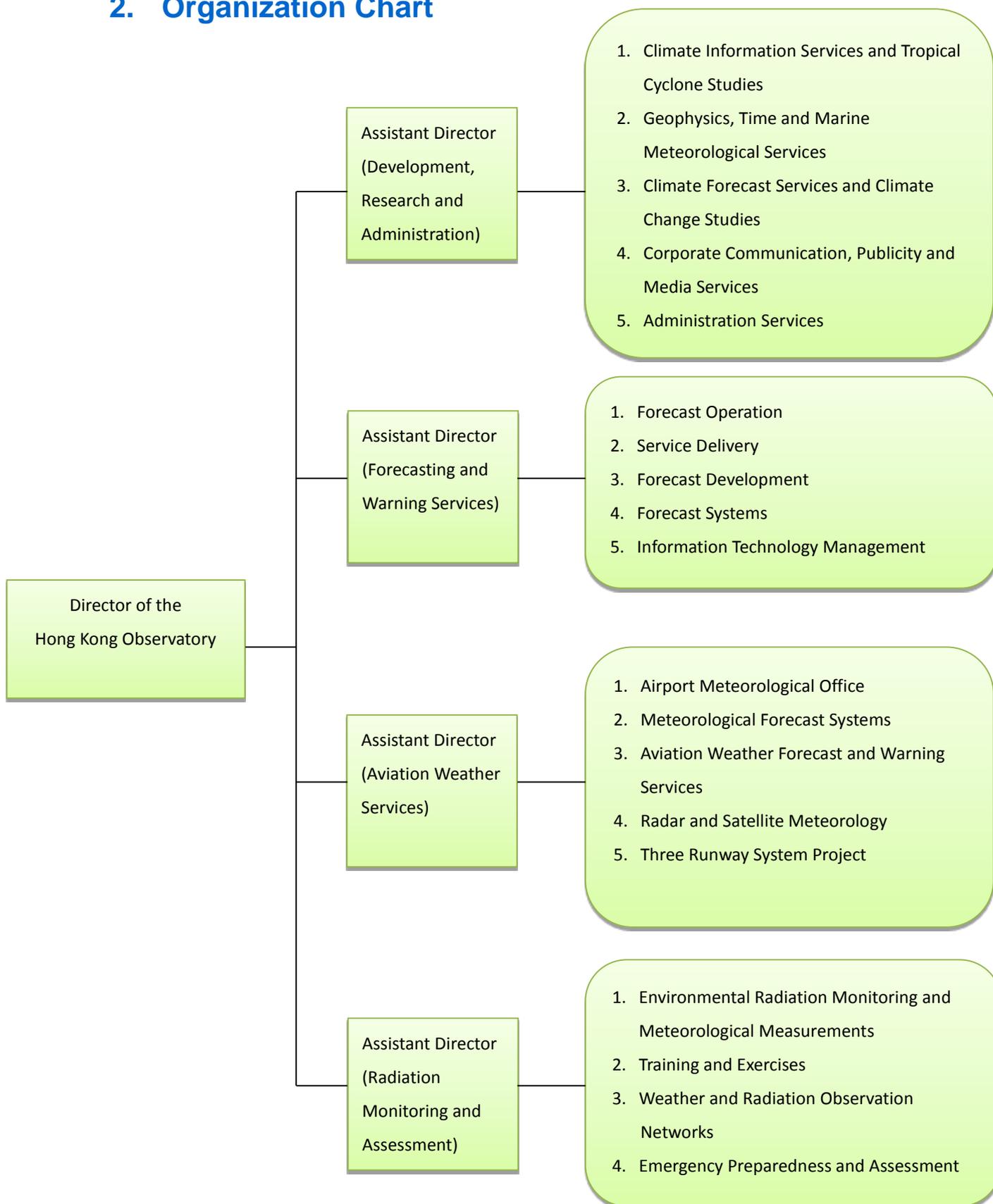
To build a better society is part of HKO's vision and we shall make every endeavour to enhance our environmental performance in the years ahead. Readers are welcome to provide comments and feedback to help us identify ways for further improvements.

C M SHUN

Director of the Hong Kong Observatory



2. Organization Chart





3. Staff Establishment

HKO had an approved establishment of 301 as at 31 December 2014, with details as shown below (Table 1):

Grade	Establishment
Directorate	5
Scientific Officer Grade	55
Experimental Officer Grade	48
Radar Specialist Mechanic Grade	23
Scientific Assistant Grade	95
Common Grades	24
General Grades	51
Total	301

Table 1 : HKO Establishment as at 31 December 2014

4. Financial Provision

The financial provision of HKO in FY2014/15 was \$267.3 million, which was wholly voted for operational expenses in the financial year.

5. Office Location

In 2014, HKO operated 4 offices. Their locations were as follows:

- (a) Hong Kong Observatory Headquarters (HKO HQ) at 134A, Nathan Road, Tsim Sha Tsui;
- (b) Miramar Tower Office at Units 2304-09, 23/F, Miramar Tower at Tsim Sha Tsui;
- (c) King's Park Meteorological Station at Yaumatei; and
- (d) Airport Meteorological Office at Chek Lap Kok.

Apart from the four radar stations at Tai Mo Shan, Tate's Cairn, Siu Ho Wan, and Tai Lam Chung, a new Terminal Doppler Weather Radar Station ("TDWRS") near Brothers Point was commissioned on 7 November 2014 (Figures 1 and 2). Many green features, including a 12m high air permeable Green Screen, were incorporated in the design and construction of the TDWRS, enhancing the greenery of the natural

environment. TDWRS was later awarded the Structural Excellence Award 2015 by the Institution of Structural Engineers. As at 31 December 2014, HKO also operated a total of 90 weather stations including automatic weather stations, rain-gauges, anemometers and tide stations.



Figures 1 & 2: Opening Ceremony of the Terminal Doppler Weather Radar Station at Brothers Point (left) and a panoramic view of the Radar Station (below)



6. Key Responsibilities

The Observatory is responsible for three main programme areas:

(a) Weather Services

To provide weather services to meet the public's demand for short to medium range forecasts and warnings of hazardous weather and to provide forecasts for international aviation and shipping in accordance with the standards of international organizations.

(b) Radiation Monitoring and Assessment

To provide information on local environmental radiation levels and effects and



to advise the Government on countermeasures that may be necessary during nuclear emergencies.

(c) **Time Standard and Geophysical Services**

To maintain the Hong Kong time standard and to provide geophysical, oceanographic, astronomical and climatological information and consultative services to the public and private sectors.

7. Stakeholders

This report is prepared annually to meet the needs of:

- (a) the general public receiving HKO information via the media, telephone, mobile devices or by browsing our website;
- (b) all Government bureaux and departments;
- (c) visitors to HKO; and
- (d) other users of HKO services including those from the aviation, shipping, business, industry, education, engineering, public utility and tourism sectors.

8. Environmental Policy

We adhere to the departmental environmental policy and meet the guidelines issued by the Environmental Protection Department and other government departments, such as EMSD and ArchSD. Moreover, we are committed to the Clean Air Charter, which aims at making sustained improvements to the air quality by introducing clean and energy-efficient measures in daily operation. We strive to improve the environment by:

- (a) conserving the bio-diversity and preserving the natural habitat within HKO HQ and outstations;
- (b) developing a culture of environmental conservation among staff members;
- (c) employing the best practices in green housekeeping;



- (d) complying with the requirements of relevant environmental protection ordinances; and
- (e) promoting public awareness of environmental sustainability issues.

9. Green Management System

We have established the following committee/working group to formulate and implement environmental policy for HKO:

- (a) HKO Working Group on Energy and Environment

The HKO Working Group on Energy and Environment (Figure 3) was established in 2006. The Working Group aims to collect and implement green ideas from staff and promote green awareness among all levels in HKO. It is chaired by the Assistant Director (Development, Research and Administration), with staff from different grades/ranks as members.



Figure 3: Meeting of HKO Working Group on Energy and Environment

- (b) The Buildings, Grounds and Accommodation Committee

The Buildings, Grounds and Accommodation Committee chaired by the Assistant Director (Development, Research and Administration), evaluates the utilization of space and all major civil and building services works carried out on HKO premises and grounds to minimize the impact on the environment. Members include the Departmental Secretary (Green Manager) and four Senior Scientific Officers from the four branches.

10. Environmental Measures Undertaken

We have adopted multi-pronged environmental measures to support and implement the government's green initiatives:

(a) Preservation of bio-diversity

- ✓ Apart from the historical and scientific values of the site, the HKO HQ in Tsim Sha Tsui is also characterized by a lush of greenery (Figures 4 and 5). As can be seen from the aerial photo (Figure 6), the compound is an enclosed oasis surrounded by high-rise buildings on all sides, providing visual amenity to the surrounding neighbourhood.

The Greenery of HKO HQ



Figure 4: Lawn of HKO HQ



Figure 5: Mini-forest of HKO HQ

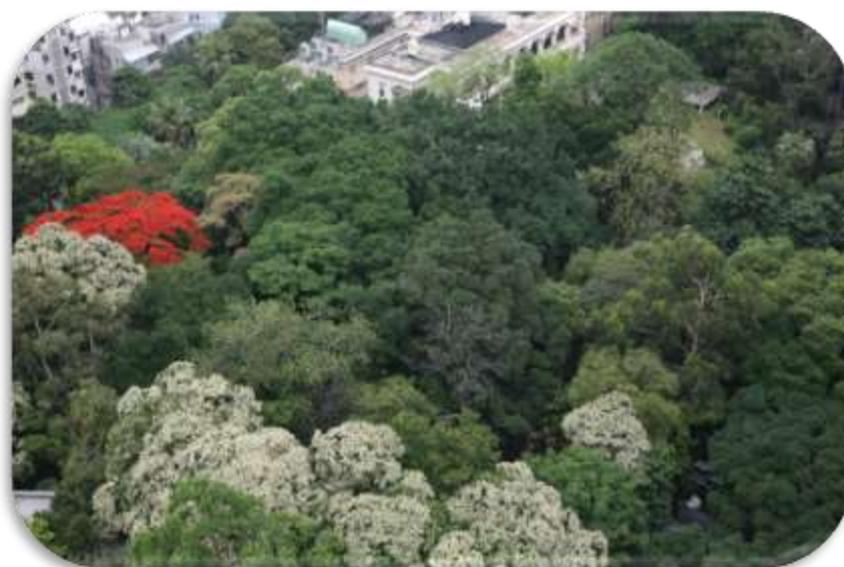


Figure 6: An oasis in the city

The woodland at HKO HQ serves as a natural shelter for local birds (Figure 7). It is known as one of the few remaining semi-natural woodlands in urban Kowloon. Avian species like Spotted Dove, Chinese Bulbul, Crested Bulbul, Magpie Robin, Black-necked Starling and White-eye are inhabitants of our woodland. The woodland is also of paramount importance as a stopover for migrating birds like Flycatchers and Thrushes. Some birds, namely Brown Flycatcher, Blackbird and Grey-backed Thrush, even stay for the whole winter.



Figure 7: Local bird resting at the woodland of HKO

Over 600 trees of different species can be found within the HKO HQ with details as shown below (Table 2):

	English Name	Chinese Name	Scientific Name
1	Lebbek Tree	大葉合歡	<i>Albizia lebbek</i> (L.) Benth
2	Alexandra Palm	假檳榔	<i>Archontophoenix alexandrae</i> (F. Muell.)
3	Hong Kong Orchid Tree	洋紫荊	<i>Bauhinia blakeana</i> Dunn
4	Camel Foot Tree	宮粉羊蹄甲	<i>Bauhinia variegata</i> L.
5	Tall Bottle-brush	串錢柳	<i>Callistemon viminalis</i> G. Don
6	Horsetail Tree	木麻黃	<i>Casuarina equisetifolia</i> L.
7	Batavia Cinnamon	陰香	<i>Cinnamomum burmanni</i> (Nees) Blume
8	Yellow Cow Wood	黃牛木	<i>Cratoxylum cochinchinense</i> (Lour.) Blume
9	Flame Tree	鳳凰木	<i>Delonix regia</i> (Boj. ex Hook.) Raf.
10	Longan	龍眼	<i>Dimocarpus longan</i> Lour.
11	Lemon-scented Gum	檸檬桉	<i>Eucalyptus citriodora</i> Hook. f.
12	Chinese Banyan	細葉榕	<i>Ficus microcarpa</i> L. f.
13	Common Red-stem	青果榕	<i>Ficus variegata</i> var. <i>chlorocarpa</i> (Benth.) King



14	Big-leaved Fig	大葉榕	<i>Ficus virens</i> var. <i>sublanceolata</i> (Miq.) Corner
15	Pond Spice	潺槁	<i>Litsea glutinosa</i>
16	White Champak	白蘭	<i>Michelia alba</i>
17	Chinese Red Pine	馬尾松(山松)	<i>Pinus massoniana</i> Lamb.
18	Frangipani	雞蛋花	<i>Plumeria rubra</i> L.
19	Buddhist Pine , Kusamaki	羅漢松	<i>Podocarpus macrophyllus</i> (Thunb.) D. Don
20	Wood-oil Tree	木油樹	<i>Vernicia montana</i> Lour.

Table 2: Common trees found in HKO HQ

HKO cherishes the bio-diversity of the site and works hard to preserve the natural habitat of the trees and vegetation at HKO HQ. Qualified contractors are commissioned to conduct inspections and maintenance to monitor and upkeep the health conditions of the plants. Tree surveys are conducted from time to time.

(b) Minimization of Paper Consumption

- ✓ Appealing to staff to use recycled paper instead of virgin paper.
- ✓ Adopting duplex printing practices and minimizing photocopying, encouraging staff to re-use envelopes and file jackets whenever possible.
- ✓ Replacing printing of newsletters and circulars by using electronic means and uploading publications on HKO website.
- ✓ Using blank side of used paper for drafting, printing, photocopy and fax documents.
- ✓ Uploading the “Guidelines on Reducing Photocopying Paper Use” into the internal website for staff attention.
- ✓ Establishing a 10% cut in the stock supply of A3 and A4 paper.
- ✓ Encouraging the use of electronic means, such as email and e-Memo, for external and internal communications.
- ✓ Encouraging paperless meetings.

(c) Waste Reduction and Recovery

- ✓ Recycling as the preferred option for disposal, and all disposal proposals to be vetted by Departmental Disposal Committee.
- ✓ Collecting empty toners and inkjet cartridges of computer printers for recycling.
- ✓ Paper wastes, plastic bottles and aluminum cans to be collected separately at source by placing recycle bins at HKO HQ (Figure 8).



Figure 8: Recycle bins at HKOHQ

- ✓ Encouraging staff to use re-usable stationery such as refillable ball pens.
- ✓ Encouraging staff to reuse “red packets” during Lunar Chinese New Year, and participating in the “Recycling Red Packets” event organized by Green Action in 2014.

(d) Energy Conservation

- ✓ Using clean energy, such as solar power or wind power, to support operation of automatic weather stations and radiation monitoring stations (Figure 9).



Figure 9: The automatic weather station at Nei Lak Shan using solar and wind power

- ✓ Using automatic circuit - break timers to switch off unnecessary electrical appliances after office hours.
- ✓ Using energy-saving T5 fluorescent tubes in all HKO premises to reduce energy consumption and mounting motion sensors to reduce energy wastage (Figure 10).



Figure 10: Lighting with motion sensors

- ✓ Segregating hot and cold air flow by setting plastic screens in the high-performance computer room to enhance cooling efficiency of the air-conditioning system.
- ✓ Using auto-sensitized water tap in toilets to reduce water consumption.
- ✓ Minimizing the number of operating lifts after normal office hours.
- ✓ Encouraging staff to use staircase instead of lift for inter-floor traffic.
- ✓ Conducting regular inspection to ensure lights, computers and other electrical appliances in offices, conference rooms and common corridors are switched off during lunch breaks and after office hours.
- ✓ Switching off lights, air conditioners, photocopiers, computers and other electrical appliances when they are not in use.
- ✓ Using solar energy lighting device (Figure 11).



Figure 11: Bollard lamps at HKO HQ using solar power

- ✓ Setting the ambient office temperature to 25.5°C in the summer months and switching off air - conditioning system in winter wherever and whenever appropriate by using electronic control panel.
- ✓ Encouraging staff to dress casually to reduce air-conditioning consumption.
- ✓ Conducting regular checks and maintenance on the air-conditioning systems.
- ✓ Installing solar films in departmental vehicles and security guard room.
- ✓ Supporting the One-hour-long lights out event “Earth Hours 2014” organized by World Wide Fund for Nature and the “Car-Free Day” by Greenpeace.

(e) Air Quality Improvement

- ✓ Joining the IAQ Certification Scheme with “Good” class awarded in 2014.
- ✓ Requesting EMSD to conduct regular indoor air quality checks, and carrying out regular cleaning and repairing for the air-conditioning systems.
- ✓ Maintaining a non-smoking environment in the office premises and prohibiting smoking in the majority of outdoor areas of HKO HQ.

(f) Procurement Management

- ✓ Complying with the government’s regulations and guidelines regarding green procurement.
- ✓ Encouraging suppliers to provide HKO with environmentally friendly products and stipulating green procurement specifications in tender documents, wherever appropriate.
- ✓ Utilizing environmentally friendly products, such as:
 - ✚ Photocopiers and printers capable of double-side printing
 - ✚ Automatic sensor installed in water dispensers
 - ✚ Water-saving type flush cisterns
 - ✚ High efficiency water purifiers
 - ✚ High pressure water gun for car-washing
 - ✚ High efficiency electrical appliances (Figure 12)



Figure 12: Refrigerators at HKO HQ with Grade 1 Energy Label

(g) Promoting Staff Awareness

- ✓ Promoting the principle of “Reduce, Reuse, Recycle and Replace” and encouraging staff to practice this 4-R principle in daily work where applicable.
- ✓ Promulgating resource saving tips regularly via emails, staff notices, circulars and posters.
- ✓ Organizing staff activities, such as Car -free Days and Light -off Days, to enhance environmental awareness.

- ✓ Encouraging staff participation in recycling programme such as the recycling of moon cake boxes and red packets.
- ✓ Operating an internal website “Green Corner” to enhance colleagues’ awareness on energy consumption, with guidance for energy, paper and water conservation posted, as well as tips for energy saving at home and in office.

(h) Education and Outreach Initiatives

I. HKO Open Day:

- ✓ HKO organizes an Open Day for the public every year. Information on climate change and other meteorological knowledge is conveyed to visitors through various displays and exhibits (Figures 13).



Figures 13: HKO Open Day 2014

II. Green and environment-related activities:

- ✓ HKO organizes green and environment related activities for both staff and members of the public. Guided tours are held regularly through which members of the public can visit HKO HQ (Figure 14) and learn more about the century-old historical building, as well as appreciate the ecology of a mini-forest at the heart of the city.



Figure 14: Guided tour of HKO

- ✓ HKO organized a Planting Day on 20 December 2014 (Figure 15). Around 20 HKO colleagues and their family members joined the event and seedlings of lunaso (山杜鵑), Cochin-china excoecaroa (紅背桂) and Chinese Ixora (大葉龍船花) were planted at HKO HQ.



Figure 15: Planting Day photos of HKO

- ✓ HKO continues to collaborate with various green partners, such as World Wide Fund for Nature, Friends of the Earth, Green Sense and The Conservancy Association, the Hong Kong Gardening Society and takes part in their green activities.

- ✓ HKO works with professionals in the building industry to acquire knowledge and experience in improving energy performance so as to make HKO HQ more energy-efficient (Figure 16).



Figure 16: HKO taking part in the Green Building Symposium 2014

III. Activities to promote awareness on environmental caring:

For Internal Staff:

- ✓ On 28 April 2014, HKO colleagues visited the Jockey Club Museum of Climate Change (MoCC) and the green facilities of the Chinese University of Hong Kong (CUHK), an opportunity for staff to appreciate the unique and delicate balance of Nature and the importance of green living for sustainable development (Figure 17).



Figure 17: HKO colleagues visiting MoCC (left) and Solar Energy Garden of CUHK (right)

- ✓ HKO colleagues visited the Ma Wan Solar Tower on 16 January 2015 and learnt about the strong tie between human, nature and the universe (Figure 18).



Figure 18 : HKO colleagues visiting the Ma Wan Solar Tower

For General Public:

- ✓ HKO continues to play an active role in promoting public awareness on climate change and global warming. Talks, school visits (Figure 19), seminars and lectures are organized for students and the public to achieve this goal.



Figure 19: School visit at HKO Exhibition Hall

- ✓ HKO continues to participate in the "Science in the Public Service" lecture series with presentations on a range of weather, climate and environmental topics.
- ✓ HKO publishes a number of articles and produces videos for broadcasting to promote on climate-related topics. Various kinds of education resources are also made readily available at HKO's website with a view to enhancing public knowledge and awareness in respect of climate change issues.

11. Environmental Performance

a) Envelope Consumption



Target 2.5% reduction achieved

The annual cumulative envelope consumption for FY2014/15 was 4175 pieces. The target of reducing envelope consumption by 2.5% was well achieved. Under the concerted effort of all staff, the total envelope consumption in HKO in FY2014/15 was dramatically reduced by 16,411 pcs or 79.7% when compared with the figure in the base year FY2007/08 (Figure 20).

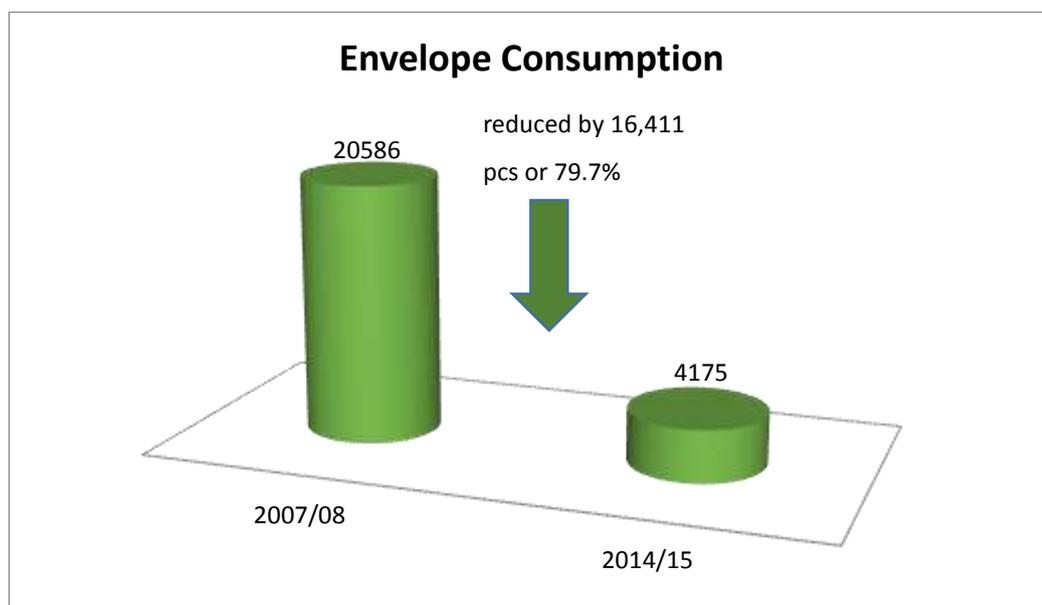


Figure 20: Envelope consumption in FY2007/08 and FY2014/15

b) Paper Consumption



Target 2.5% reduction achieved

The annual cumulative paper consumption for FY2014/15 was 1476 reams. As a result of the various measures adopted, the target of reducing paper consumption by 2.5% was also achieved. The paper consumption in HKO in FY2014/15 was reduced by 249 reams or 14% as compared with the baseline figure in FY2007/08 (Figure 21).

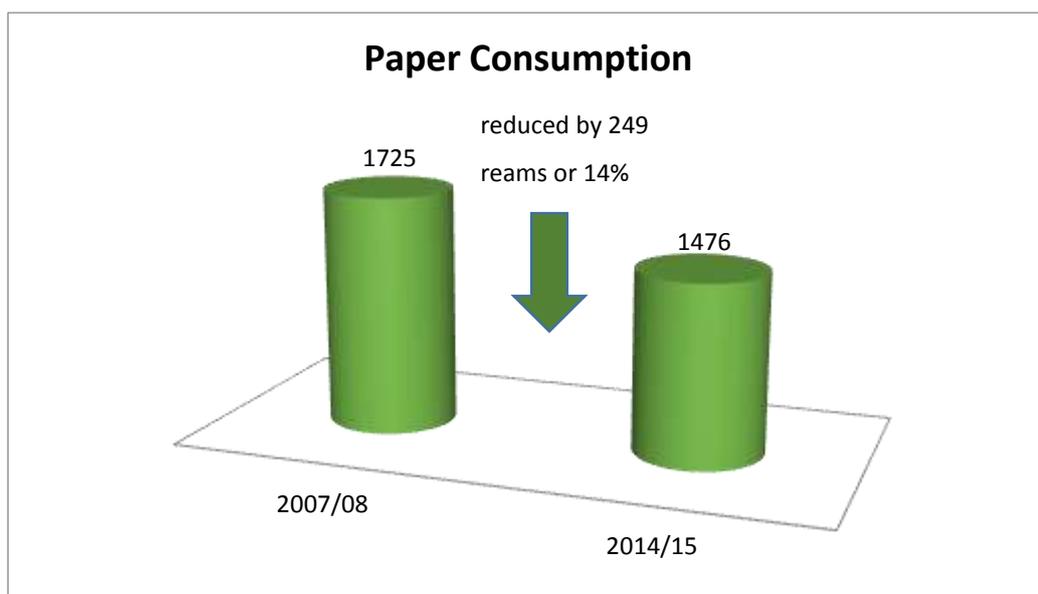


Figure 21: Paper consumption in FY2007/08 and FY2014/15

c) Electricity Consumption



Target 5% reduction achieved after normalized against activity changes

HKO attaches great importance to the reduction in electricity consumption and various departmental measures are implemented to conserve energy. The annual cumulative electricity consumption for FY2014/15 after normalized against activity changes in the intervening years was 3,661,905 units, reduced by 12.47% as compared to FY2007/08 (Figure 22).

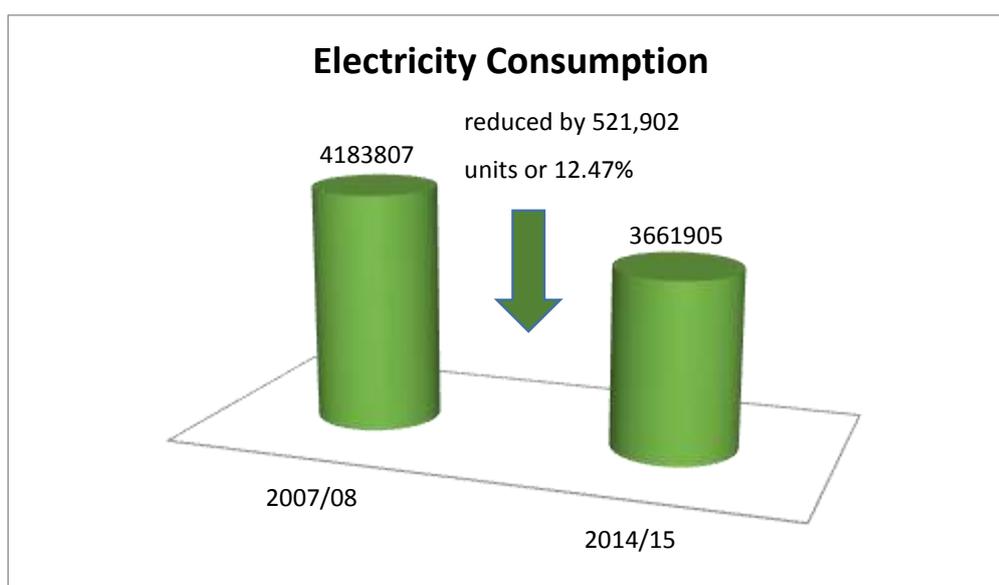


Figure 22: Electricity consumption in FY2007/08 and FY2014/15 normalized with respect to changes in activities



12. Targets for Fiscal Year 2015/16

HKO aims to achieve the following targets in FY2015/16:

- 2.5% reduction in envelope consumption compared to FY2007/08
- 2.5% reduction in paper consumption compared to FY2007/08
- To continue to reduce annual electricity consumption with a target to achieve 5% saving by FY 2019/20 when compared with FY 2013/14¹
- To implement measures for conservation of bio-diversity

13. Verification Statement

I have verified the information and data of the Environmental Report 2014. I confirm that the data presented in the Environmental Report 2014 are authentic and the methodology for the collection and analysis of data is appropriate. The report represents an accurate account of HKO's environmental actions and performance in the year of 2014.

Jerry Siu
Green Manager
Hong Kong Observatory

¹ The Chief Executive has announced in his 2015 Policy Address the new target of 5% saving in the total electricity consumption of government buildings from FY 2015/16 to FY 2019/20 under comparable operating conditions, using FY 2013/14 as the baseline.



14. Information and Suggestions

This report is available on our homepage at the following link :

http://www.weather.gov.hk/environmental/Environmental_Report_E.pdf and at our Resource Centre at the following address:

Units 2304-2309, 23rd floor, Miramar Tower,
132 Nathan Road, Tsim Sha Tsui, Kowloon
Tel. : 2926 8250

If you wish to obtain further information or raise any suggestions about this report, please contact our Green Manager at telephone 2926 8207 or email to dsec@hko.gov.hk.

15. Feedback Form

Please complete this form and send it back to the Green Manager, Hong Kong Observatory, 134A, Nathan Road, Tsim Sha Tsui, Kowloon, Hong Kong, or fax it to 2311 9448, or by email to dsec@hko.gov.hk.

1. Do you find the Report informative? Yes No

2. Do you find the content of the Report easy to understand? Yes No

3. What other green issues you would like HKO to include in the Report?

4. Which aspects of the Report need to be improved?

5. What is your overall view of the Report?

Name:

Telephone:

Email: