Head 168 — HONG KONG OBSERVATORY

Controlling officer: the Director of the Hong Kong Observatory will account for expenditure under this Head.

Estimate 2008–09 ..... **$203.4m**

Establishment ceiling 2008–09 (notional annual mid-point salary value) representing an estimated 282 non-directorate posts as at 31 March 2008 and as at 31 March 2009 ..... **$108.5m**

In addition, there will be an estimated five directorate posts as at 31 March 2008 and as at 31 March 2009.

Controlling Officer's Report

Programmes

Programme (1) Weather Services	This programme contributes to Policy Area 7: Public Safety (Secretary for Commerce and Economic Development).
Programme (2) Radiation Monitoring and Assessment	This programme contributes to Policy Area 9: Internal Security (Secretary for Security).
Programme (3) Time Standard and Geophysical Services	This programme contributes to Policy Area 7: Public Safety (Secretary for Commerce and Economic Development).

Detail

Programme (1): Weather Services

	2006–07 (Actual)	2007–08 (Original)	2007–08 (Revised)	**2008–09 (Estimate)**
Financial provision ($m)	162.1	163.1	166.7 (+2.2%)	**170.1** (+2.0%) (or +4.3% on 2007–08 Original)

Aim

2 The aim is to provide weather forecasts and issue warnings to the public, special users, the shipping community, aircraft and aviation groups in order to reduce loss of life and damage to property, and minimise disruption to economic and social activities during hazardous weather.

Brief Description

3 The Hong Kong Observatory's Central Forecasting Office and Airport Meteorological Office are responsible for the preparation and issue of weather information, forecasts and various warnings on hazardous weather to the public, shipping community and aviation groups. The Hong Kong Observatory also promotes public awareness of, and community preparedness for, natural disasters. This work involves:

- operating a network of mostly automated weather stations;
- carrying out real-time exchange of data with meteorological centres in the world;
- receiving meteorological satellite imageries and operating weather radar systems;
- analysing meteorological data and computing the future weather by numerical modelling;
- disseminating weather information by a diversity of means;
- issuing warnings on hazardous weather such as tropical cyclones, storm surges, rainstorms, landslips, flooding, thunderstorms, windshear, fire danger and extreme hot and cold conditions; and
- conducting public talks, interviews and training courses as well as producing publicity material on hazardous weather phenomena.

4 In 2007, the Hong Kong Observatory fulfilled its performance pledge of issuing at least one bulletin every hour of the day, disseminating the bulletins within ten minutes after each hour, and maintaining, on average, a forecast accuracy score of 85 per cent or more. The Observatory's website was enhanced with specific webpages dedicated to the needs of schools, hiking and mountaineering. Other enhancements included GIS-enabled lightning location information, additional visibility readings in Hong Kong Waters, minimum grass temperature at Ta Kwu Ling, weather photos at Central, and other satellite related products. Special weather services were provided to support the Good Luck Beijing - HKSAR 10th Anniversary Cup Equestrian Event in Hong Kong. A comprehensive review of the tropical cyclone signal

system was completed and new measures were introduced. A book "Basic Meteorological Knowledge" was published to promote public understanding of weather systems that affect Hong Kong. Under the "One District One Station" initiative, automatic weather stations were established for the Eastern and Central & Western districts and additional temperature readings were made available through the mass media and the Internet. The "Hong Kong Community Weather Information Network" was inaugurated in collaboration with the Hong Kong Polytechnic University and the Hong Kong Joint-school Meteorological Association to promote weather awareness in Hong Kong. An additional lightning location station was set up at Huidong, Guangdong, expanding the coverage of lightning information to the east of Hong Kong. A new satellite reception system was installed to receive images from the Japanese geostationary meteorological satellite Multi-functional Transport Satellite. The Observatory maintained a close surveillance of the weather at and around the Hong Kong International Airport (HKIA) and provided aircraft with the weather information needed for operations. New products to meet emerging user requirements were added to the Observatory's web-based aviation weather information system. In consultation with the Airport Authority Hong Kong, an enhanced thunderstorm and lightning alerting system was developed for the HKIA.

5 The key performance measures in respect of weather services are:

Targets

	Target	2006 (Actual)	2007 (Actual)	**2008 (Plan)**
forecasts perceived as accurate by the public (%)	78	78	77	**78**
accurate public forecasts as verified by objective means (%)	85	90	91	**89**
accurate forecasts as assessed by ship captains (%)	95	97	97	**96**
accurate forecasts as assessed by airline operators (%)	95	98	99	**98**

Indicators

	2006 (Actual)	2007 (Actual)	**2008 (Estimate)**
calls answered by Dial-a-Weather system	22 000 000	22 000 000	**23 000 000**
telephone enquiries answered manually	64 000	48 000ϕ	**55 000**
visits to Observatory's website	918 000 000	1 071 000 000#	**1 200 000 000**
companies and organisations subscribing to special weather and warning services	75	90@	**95**
total revenue from above subscribers ($m)	1.3	1.3∇	**1.4**
media interviews and public lectures/talks on weather	1 400	1 300	**1 200**
meteorological documents for flights departing Hong Kong	142 000	148 000	**154 000**
visits to aviation weather information system	12 000 000	15 200 000^	**17 000 000**

ϕ The decline in 2007 was attributable partly to the higher utilisation of the Observatory's website as a source of information and partly to fewer tropical cyclones affecting Hong Kong in 2007.

\# We have continued to enrich and upgrade the content of the website. That has resulted in an increase in the number of visits to the web site.

@ The increase in 2007 was mainly due to the introduction of new products on lightning location and gust information to the special weather and warning services which attracted more subscriptions.

∇ There has been no significant increase in total revenue despite the increase in the number of subscribers in 2007 because of lower average charge per subscriber as a result of moving towards a more cost-effective mode of delivery based on the Internet.

^ The increase in 2007 was mainly due to an increase of users' interest in extended area satellite and radar pictures as a result of product promotion exercises conducted by the Observatory.

Matters Requiring Special Attention in 2008–09

6 During 2008–09, the Department will:

- continue to enrich the contents of the Observatory's website in response to the evolving needs of the public and further develop the delivery of weather services through the Internet;
- install a High Performance Computing System for implementing a suite of high resolution mesoscale models for weather prediction;
- continue to promote public awareness of, and preparedness for, natural disasters through various outreach activities and continuous development of educational resources;
- provide weather services in connection with the Beijing 2008 Olympic Games;

- continue to enhance the aviation weather service through the use of technology to meet user needs; and
- implement an enhanced thunderstorm and lightning alerting system for the HKIA.

Programme (2): Radiation Monitoring and Assessment

	2006–07 (Actual)	2007–08 (Original)	2007–08 (Revised)	**2008–09 (Estimate)**
Financial provision ($m)	21.6	23.0	23.6 (+2.6%)	**23.1** (–2.1%) (or +0.4% on 2007–08 Original)

Aim

7 The aim is to provide information on environmental radiation levels in Hong Kong and advise government departments on the protective action that may be necessary during nuclear emergencies.

Brief Description

8 The Hong Kong Observatory monitors ambient radiation levels in Hong Kong and conducts radiological measurements on air, soil, water and food samples. In the event of a nuclear emergency, the Observatory will notify and advise government departments on the possible consequences in Hong Kong and recommend protective action. The Observatory organises training and exercises on radiation monitoring for other government departments involved in the Hong Kong contingency plan for nuclear emergencies. The work involves:

- operating a network of radiation monitoring stations, an aerial monitoring system, a radiological survey vehicle, a radiation laboratory and an emergency radiation data management system;
- keeping abreast of the latest development on the methodology for nuclear accident consequence assessment; and
- planning and participating in exercises and drills in response to nuclear emergencies.

9 In 2007, all radiation monitoring and assessment work in this programme was carried out satisfactorily. All equipment was maintained in a state of readiness. Inter-comparison between Hong Kong and Guangdong on radiological measurements continued. Training on radiation monitoring and assessment, as well as radiological protection, was conducted for relevant government departments and organisations involved in the contingency plan for nuclear emergencies.

10 The key performance measures in respect of radiation monitoring and assessment are:

Target

	Target	2006 (Actual)	2007 (Actual)	**2008 (Plan)**
data availability of radiation monitoring network (%)	99.0	99.2	99.8	**99.0**

Indicators

	2006 (Actual)	2007 (Actual)	**2008 (Estimate)**
exercises and drills^	20	14^	**20**
visits to Observatory's webpage on radiation	709 000	807 000	**850 000**

^ A total of 17 exercises and drills were planned for 2007. Three of them had to be postponed to 2008 owing to operational constraints.

Matters Requiring Special Attention in 2008–09

11 During 2008–09, the Department will continue to:

- implement the agreed arrangements between Hong Kong and Guangdong on radiation monitoring and assessment;
- conduct drills and exercises on emergency response in conjunction with other government departments as well as the relevant Guangdong counterparts; and
- organise training on radiation monitoring and assessment.

Programme (3): Time Standard and Geophysical Services

	2006–07 (Actual)	2007–08 (Original)	2007–08 (Revised)	**2008–09 (Estimate)**
Financial provision ($m)	8.8	9.1	9.4 (+3.3%)	**10.2** (+8.5%) (or +12.1% on 2007–08 Original)

Aim

12 The aim is to maintain the Hong Kong time standard and to provide geophysical, oceanographical, astronomical and climatological information to the public.

Brief Description

13 The Hong Kong Observatory maintains the Hong Kong time standard and provides time signals for the public. It prepares, collates and provides geophysical, oceanographical and climatological information required for planning, engineering design and environmental impact assessments. It monitors earthquakes and sea level and issues related information to the public, including tsunami alerts. It also keeps abreast of research and development on international issues such as global climate change and advises the public and government departments on likely implications. This work involves:

- maintaining a caesium beam clock as the Hong Kong time standard and providing time signals for radio broadcasts, automatic telephone answering service and synchronisation of clocks via Internet;
- operating seismological, tide and water level monitoring networks and conducting data analyses;
- compiling climatological and other related data;
- conducting studies related to climate change in Hong Kong, and
- providing updates on the effects of El Nino and other longer term atmospheric phenomena on Hong Kong.

14 In 2007, the objectives and targets of this programme were generally met. The Observatory developed a tsunami prediction system based on results of a numerical tsunami model. An educational package on climate change was produced and distributed to the schools. Research work on the projections of future climate change in Hong Kong based on the latest data of the Intergovernmental Panel on Climate Change was carried out.

15 The key performance measures in respect of time standard and geophysical services are:

Targets

	Target	2006 (Actual)	2007 (Actual)	**2008 (Plan)**
time standard accuracy (microseconds per day)	0.1	0.1	0.1	**0.1**
geophysical, meteorological and oceanographical data capture rate (%)	95	99	99	**99**

Indicators

	2006 (Actual)	2007 (Actual)	**2008 (Estimate)**
visits to the Observatory's internet time service	395 000 000	453 000 000	**520 000 000**
requests for geophysical, climatological and oceanographical information and advice	1 750	1 046Ω	**1 100**

Ω A high number of requests was registered in 2006 as a result of two locally felt earthquakes in September and December 2006. In 2007, the situation reverted back to the normal trend.

Matters Requiring Special Attention in 2008–09

16 During 2008–09, the Department will:

- continue to provide information and data to users efficiently and through user-friendly means;
- continue to monitor and study climate change in Hong Kong;

- acquire a replacement caesium-beam clock;
- continue to keep abreast of earthquake risk assessment in the region; and
- acquire a broadband seismograph to improve the capability of determining the focal mechanism of local and regional earthquakes for tsunami forecasting.

ANALYSIS OF FINANCIAL PROVISION

Programme	2006–07 (Actual) ($m)	2007–08 (Original) ($m)	2007–08 (Revised) ($m)	**2008–09 (Estimate) ($m)**
(1) Weather Services	162.1	163.1	166.7	**170.1**
(2) Radiation Monitoring and Assessment	21.6	23.0	23.6	**23.1**
(3) Time Standard and Geophysical Services	8.8	9.1	9.4	**10.2**
	192.5	195.2	199.7 (+2.3%)	**203.4 (+1.9%)**
				(or +4.2% on 2007–08 Original)

Analysis of Financial and Staffing Provision

Programme (1)

Provision for 2008–09 is $3.4 million (2.0%) higher than the revised estimate for 2007–08. This is mainly due to filling of vacancies and increased maintenance expenditure for various meteorological equipment, partly offset by the reduced requirement for capital expenditure.

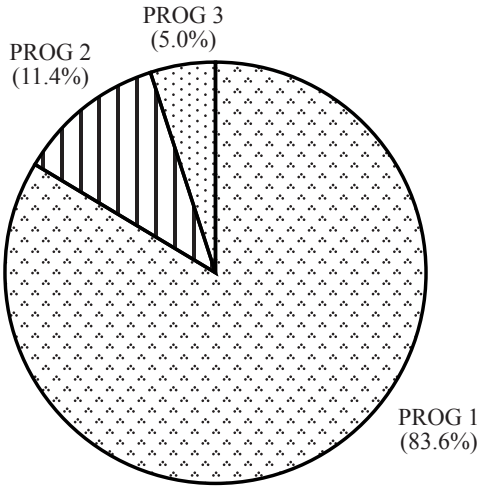
Programme (2)

Provision for 2008–09 is $0.5 million (2.1%) lower than the revised estimate for 2007–08. This is mainly due to reduction in capital expenditure.

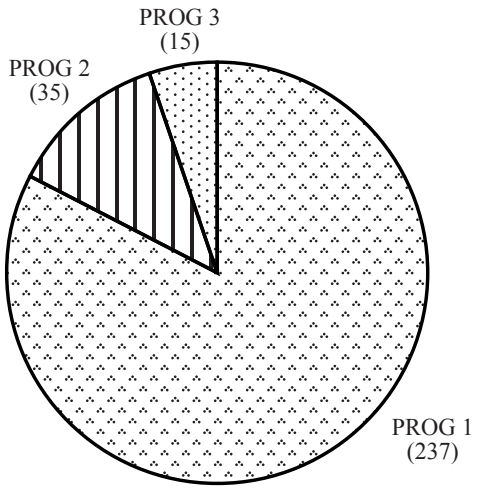
Programme (3)

Provision for 2008–09 is $0.8 million (8.5%) higher than the revised estimate for 2007–08. This is mainly due to increased requirement for capital expenditure.

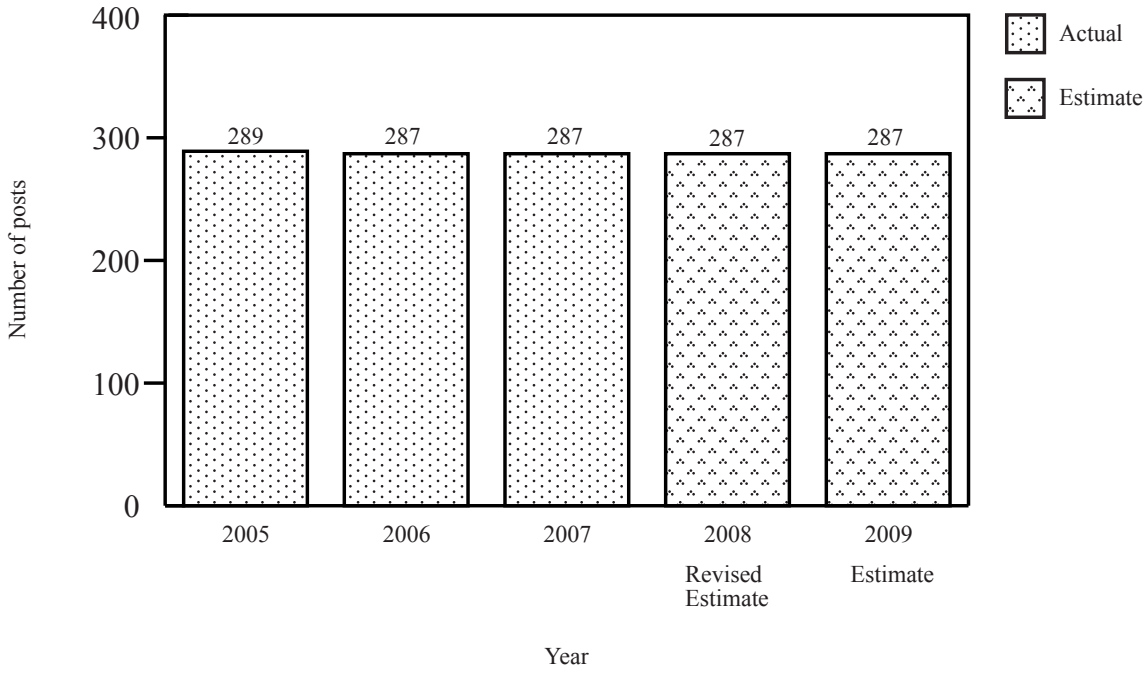
Allocation of provision to programmes (2008-09)



Staff by programme (as at 31 March 2009)



Changes in the size of the establishment (as at 31 March)



Sub-head (Code)		Actual expenditure 2006–07	Approved estimate 2007–08	Revised estimate 2007–08	**Estimate 2008–09**
		$'000	$'000	$'000	**$'000**
	Operating Account				
	Recurrent				
000	Operational expenses	188,093	193,004	197,046	**202,194**
	Total, Recurrent	188,093	193,004	197,046	**202,194**
	Total, Operating Account	188,093	193,004	197,046	**202,194**
	Capital Account				
	Plant, Equipment and Works				
661	Minor plant, vehicles and equipment (block vote)	4,359	2,200	2,640	**1,222**
	Total, Plant, Equipment and Works	4,359	2,200	2,640	**1,222**
	Total, Capital Account	4,359	2,200	2,640	**1,222**
	Total Expenditure	192,452	195,204	199,686	**203,416**

Details of Expenditure by Subhead

The estimate of the amount required in 2008–09 for the salaries and expenses of the Hong Kong Observatory is $203,416,000. This represents an increase of $3,730,000 over the revised estimate for 2007–08 and of $10,964,000 over actual expenditure in 2006–07.

Operating Account

Recurrent

2 Provision of $202,194,000 under *Subhead 000 Operational expenses* is for the salaries, allowances and other operating expenses of the Hong Kong Observatory.

3 The establishment as at 31 March 2008 will be 287 permanent posts. No change in establishment is expected in 2008–09. Subject to certain conditions, the controlling officer may under delegated power create or delete non-directorate posts during 2008–09, but the notional annual mid-point salary value of all such posts must not exceed $108,504,000.

4 An analysis of the financial provision under *Subhead 000 Operational expenses* is as follows:

	2006–07 (Actual) ($'000)	2007–08 (Original) ($'000)	2007–08 (Revised) ($'000)	**2008–09 (Estimate) ($'000)**
Personal Emoluments				
- Salaries	123,767	127,410	130,512	**133,367**
- Allowances	1,163	1,275	1,905	**1,444**
- Job-related allowances	80	131	131	**137**
Personnel Related Expenses				
- Mandatory Provident Fund contribution	117	120	120	**120**
- Civil Service Provident Fund contribution	19	196	196	**394**
Departmental Expenses				
- Technical Services Agreement	1,180	—	—	**—**
- General departmental expenses	61,688	63,788	64,098	**66,648**
Other Charges				
- World Meteorological Organization	79	84	84	**84**
	188,093	193,004	197,046	**202,194**

Capital Account

Plant, Equipment and Works

5 Provision of $1,222,000 under *Subhead 661 Minor plant, vehicles and equipment (block vote)* represents a decrease of $1,418,000 (53.7%) against the revised estimate for 2007–08. This is mainly due to the reduced requirement for new or replacement equipment.