For discussion **EC(1999-2000)36**
on 19 January 2000

ITEM FOR ESTABLISHMENT SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 168 - HONG KONG OBSERVATORY
Subhead 001 Salaries

Members are invited to recommend to Finance Committee the creation of the following permanent post in the Hong Kong Observatory, with effect from 1 April 2000 -

1 Assistant Director of the Hong Kong Observatory (D2) ($116,650 - $123,850)

PROBLEM

The Hong Kong Observatory (HKO) will have great difficulty maintaining its present high standard of aviation meteorological and weather forecasting services when its supernumerary post of Assistant Director for Aviation Meteorological Services lapses on 1 April 2000.

PROPOSAL

2. The Director of Hong Kong Observatory (DHKO) proposes to create one permanent post of Assistant Director of the Hong Kong Observatory (AD) to oversee aviation meteorological services and weather radar and satellite reception functions, with effect from 1 April 2000.

JUSTIFICATION

3. Currently, the HKO operates through its four Branches, each headed by an AD, as shown in the organisation chart at Enclosure 1.

Encl. 1

/4. …..

4. As a result of increase in demand for more sophisticated meteorological information by the aviation industry, relocation of the Hong Kong International Airport to Chek Lap Kok (CLK) and rising demand for public weather services, the workload and degree of job specialisation of various services provided by the HKO, in particular aviation meteorological and weather forecasting services, have increased considerably. These developments, coupled with the impending lapse of the supernumerary AD post heading the Aviation Meteorological Services Branch (AD(A)), call for a review of the existing staffing support in HKO at the directorate level.

Increase in scope and complexity of Aviation Meteorological Services

5. The scale of operation of the new airport at CLK is much larger than that at Kai Tak. The scale, capability and complexity of aviation meteorological services and facilities required of HKO have also increased substantially. Unlike the systems at Kai Tak which operated on a stand-alone mode and were simple in their design and functions, those at CLK are highly specialized and tightly integrated among themselves and with other airport systems. Many of these systems, such as those for windshear and turbulence detection, embody new technologies. The cost of meteorological facilities at CLK at $380 million accounts for over 70% of the value of HKO's total equipment asset. To ensure the effective operation of these systems and their continued development and enhancement in the light of service needs, continued high level input at AD level is required.

6. AD(A) who is currently responsible for aviation meteorological services has the following main duties -

(a) the on-going development and enhancement of methodology for detecting windshear and turbulence, verification of performance of warning systems, modification of these systems to meet users' requirements. These tasks are multi-disciplinary and involve interaction among senior professionals, aviation forecasters, air traffic control personnel and pilot representatives;

(b) acquisition of new equipment employing the most up-to-date technology. For example, a Light Detection and Ranging system costing $9.5 million is scheduled to be installed in 2002 to enhance low-level windshear detection in non-rainy situations;

(c) implementation of changes in the standards and recommendations promulgated by the International Civil Aviation Organization (ICAO) from time to time. On average, changes of substantial nature occur once every two years, and their implementation would require two to three years to complete. Apart from entailing major additions and

/modifications …..

modifications to operational procedures and instrumentation, these changes are multi-disciplinary in nature, involving input from several senior professionals and interaction with the user community;

(d) close liaison with the Civil Aviation Administration of China (CAAC) and other mainland authorities in the co-ordination and setting of policies on interaction with ICAO. Such work requires specialised knowledge in aviation meteorology and practices in the aviation community and would help HKO to fulfil its obligations under ICAO, keep up with international standards and benefit from international co-operation;

(e) close liaison with the meteorological offices of neighbouring airports and regional and central meteorological divisions of CAAC on matters related to the exchange of aviation weather information and technology; and

(f) the overall management of 60 professional and technical staff, and departmental expenditure of the Aviation Meteorological Services Branch.

7. Besides the on-going work described in paragraph 6 above, AD(A) is also responsible for planning the development of meteorological facilities and services and co-ordinating with the Civil Aviation Department and airlines on their requirements in respect of computerised exchange of meteorological information between ground and aircraft for a smooth transition to the Communication, Navigation and Surveillance/Air Traffic Management (CNS/ATM) systems[1]. In this connection, he would also need to keep abreast of global development in CNS/ATM.

Rising demand for public weather service

8. The workload of the AD who heads the Forecasting and Warning Services Branch (AD(F)) has also increased significantly in recent years as a result of rising demand for improved public weather service. AD(F) is responsible for the provision of weather services to government departments and the public. He oversees the Central Forecasting Office at HKO headquarters and looks after public weather warning systems including warnings of tropical cyclones, thunderstorms, rainstorms and landslides. In recent years, there has been a significant increase in his workload and job specialisation in the following areas -

/(a) …..

(a) the operation, review and further improvement of the amber/red/ black rainstorm warning system introduced in 1992, which has a great impact on daily life and is considered by more and more people to be as important as the tropical cyclone warning system;

(b) meeting public demand for more detailed weather information and longer range advance weather forecasts. These require policy formulation and high level guidance on the execution of a forecast technique improvement programme which uses advanced equipment for weather observations;

(c) meeting public and specific users' demand for more information in easily accessible forms, possibly making use of information technology, such as the recently introduced web-based public weather service;

(d) formulating strategies for public opinion surveys and providing input for education and publicity programmes designed to help enhance the effectiveness of crisis management in natural disasters;

(e) acquisition, operation and maintenance of weather radar systems and satellite reception systems, which are vital equipment for monitoring severe weather such as rainstorms and tropical cyclones. The number of such systems has doubled from two to four in recent years, and the systems have become increasingly complex as technology advances; and

(f) liaison with mainland and overseas meteorological services to ensure acquisition of reliable meteorological data and dissemination of weather information within the framework of the World Meteorological Organization.

Proposed creation of a permanent AD post and re-arrangement of work

9. The DHKO has carefully and critically reviewed the total workload of the directorate of his department and concludes that, with the increase in workload and job specialisation in recent years, there is a strong need for a dedicated and permanent AD to manage and further develop the aviation meteorological services to ensure aviation safety and efficiency. He proposes that a permanent AD post be created with effect from 1 April 2000 when the present supernumerary AD(A) post lapses.

10. The DHKO considers that most of AD(A)'s current work is of an on-going and permanent nature. Moreover, there will also be new areas of work arising from the new CNS/ATM development as described in paragraph 7 above.

/11. …..

11. The DHKO further considers that the workload and job specialisation of AD(F) have increased substantially in recent years (as explained in paragraph 8 above). In view of these considerations, DHKO proposes to transfer the weather radar and satellite reception functions (presently under AD(F) and involving 19 professional and technical staff) from 'F' to 'A' Branch upon the creation of a permanent AD(A) post. This transfer will also enable the pooling of professional and technical personnel for weather radar and satellite reception systems with those for aviation meteorological systems, and will enhance efficiency in the operation and on-going development of HKO's major meteorological equipment.

12. In addition, DHKO is launching an efficiency enhancement programme involving further automation of work processes, design of new operational procedures and re-organisation of duties at the Airport Meteorological Office (AMO). Input at AD level is required for the planning and co-ordination of this long-term programme to ensure that the staff acquire the requisite skills, that transition to new procedures goes smoothly, and that aviation safety and efficiency will be maintained. DHKO proposes that the new permanent AD(A) post should also take up this responsibility.

Encl. 2 13. The proposed organization chart of HKO is at Enclosure 2. The job descriptions of the AD(A) and AD(F) as revised to reflect the proposed re-
Encls. 3&4 arrangement of work are at Enclosures 3 and 4 respectively.

Alternatives considered

14. We have examined the feasibility of extending the existing supernumerary AD(A) post for another period of time. We do not recommend this option as it would not be able to address the long term requirements described above. We have also considered requiring the remaining three ADs to absorb the work of the proposed AD(A). This is not feasible because AD(F) is already overloaded in the face of increased workload related to the provision of public weather services, as explained in paragraph 8 above, while the other two ADs are also fully occupied with on-going duties of the Development, Research and Administration Branch and the Radiation Monitoring and Assessment Branch.

15. The AD heading the Development, Research and Administration Branch is responsible for the overall administration of the department, formulation of policy on the development and use of up-to-date information and telecommunication technologies, networking and exchange of meteorological data internationally, provision of port meteorological services and provision of climatological services to the public and the engineering community. He also plans and implements new technologies for earthquakes monitoring and assessment and

/liaise …..

liaise with counterparts in the mainland to meet the public demand for information in such area. In recent years, the implications of global issues like climate change, El Nino, La Nina, ozone depletion and greenhouse effects on the local environment are attracting considerable public attention. This AD also directs study programmes to meet demand for information on these issues.

16. The AD heading the Radiation, Monitoring and Assessment Branch is mainly responsible for formulating and implementing policies on nuclear radiation monitoring and assessment having regard to local condition and international standards. He participates in discussions with the Mainland authorities over nuclear contingency planning and implements the agreed plans. He oversees the operation of the Monitoring and Assessment Centre and ensures that its operation staff are in a state of readiness to respond to nuclear accidents. This includes co-ordination of drills and exercises on emergency response with the Mainland and international counterparts, in accordance with the guidelines issued by the International Atomic Energy Agency. He is also responsible for developing and maintaining automatic observing networks for weather and tides, and for training and development programmes for all departmental staff.

FINANCIAL IMPLICATIONS

17. The notional annual mid-point salary of the proposed AD post is $1,443,000, and the full annual average staff cost, including salaries and staff on-costs, is $2,534,000. We have included sufficient provision under Head 168 Hong Kong Observatory to meet the cost of this proposal.

18. We will continue to charge the Airport Authority (AA) for the provision of aviation meteorological services for the CLK airport on a full cost recovery basis. The cost of the AD post accounts for less than 0.06% of the total annual operating costs of AA based on its present cost structure.

BACKGROUND INFORMATION

19. Before 1992, there were only three Branches under HKO's set-up. The AMO at Kai Tak Airport was at the time under AD(F) (then AD(Operations)). In 1992, the Finance Committee approved the creation of a supernumerary AD post to formulate policies and strategies regarding aviation meteorological services and to oversee the development of meteorological facilities and services for the new airport at CLK. The DHKO established the Aviation Meteorological Services Branch in 1992 with the supernumerary AD post as head of this new Branch. The post was subsequently extended four times. In approving the extension of the post to 31 March 2000, Members noted that the post was to oversee the aviation

/meteorological .....

meteorological services, further development and improvement of the specialised aviation meteorological systems and other related duties. Members were also informed of the possible long term need for an AD post to maintain a world class aviation meteorological service in line with evolving international standards and user requirements.

CIVIL SERVICE BUREAU COMMENTS

20. The Department has considered carefully alternative means to provide the appropriate level of service bearing in mind the need for efficiency and productivity but considers this proposal the most appropriate way to proceed. Having regard to the reasons put forward, Civil Service Bureau considers the proposal justified and the grading and ranking appropriate.

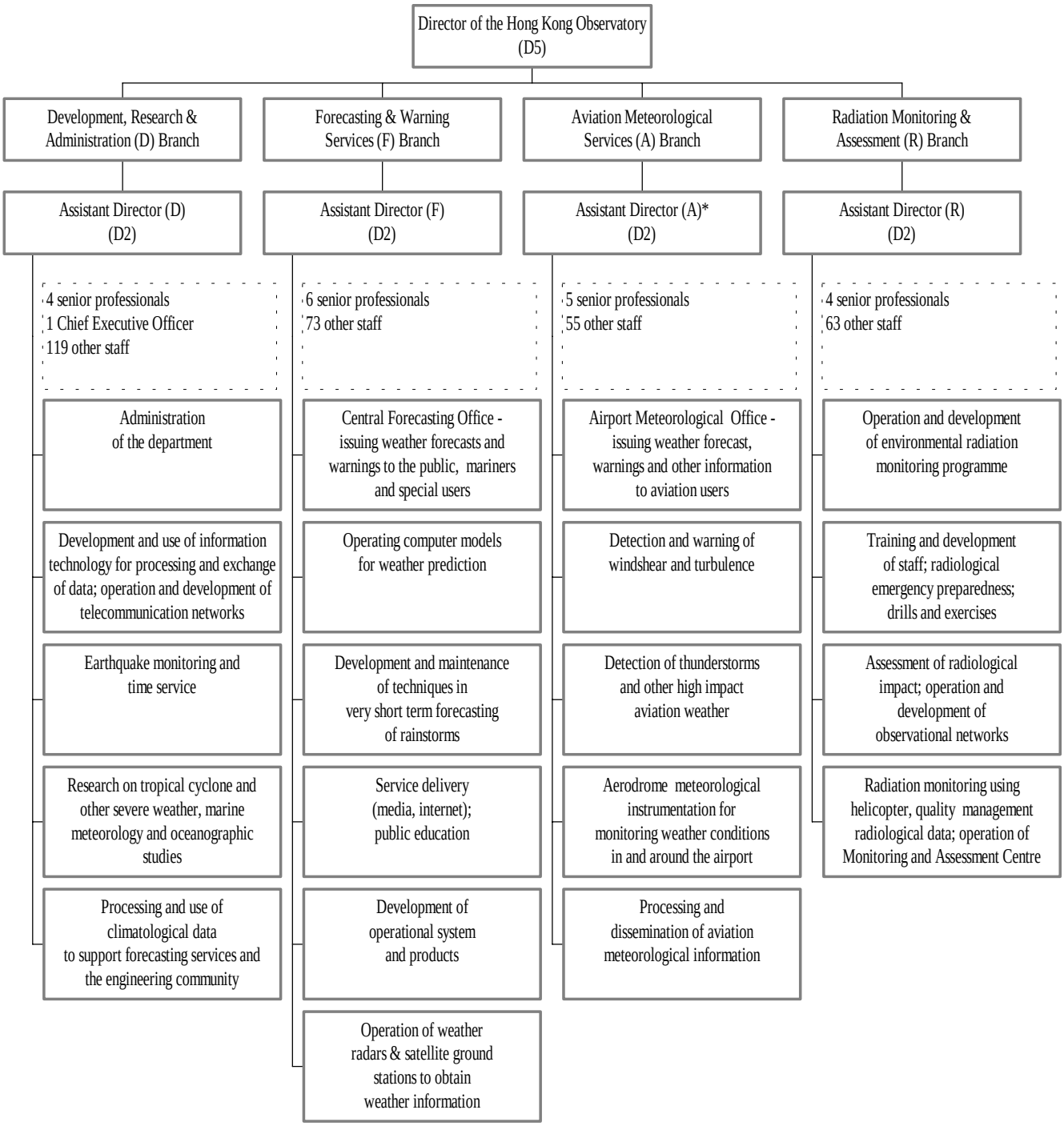
ADVICE OF THE STANDING COMMITTEE ON DIRECTORATE SALARIES AND CONDITIONS OF SERVICE

21. The Standing Committee on Directorate Salaries and Conditions of Service has advised that the grading proposed for the post would be appropriate if the post were to be created.

Economic Services Bureau
January 2000

Enclosure 1 to EC(1999-2000)36

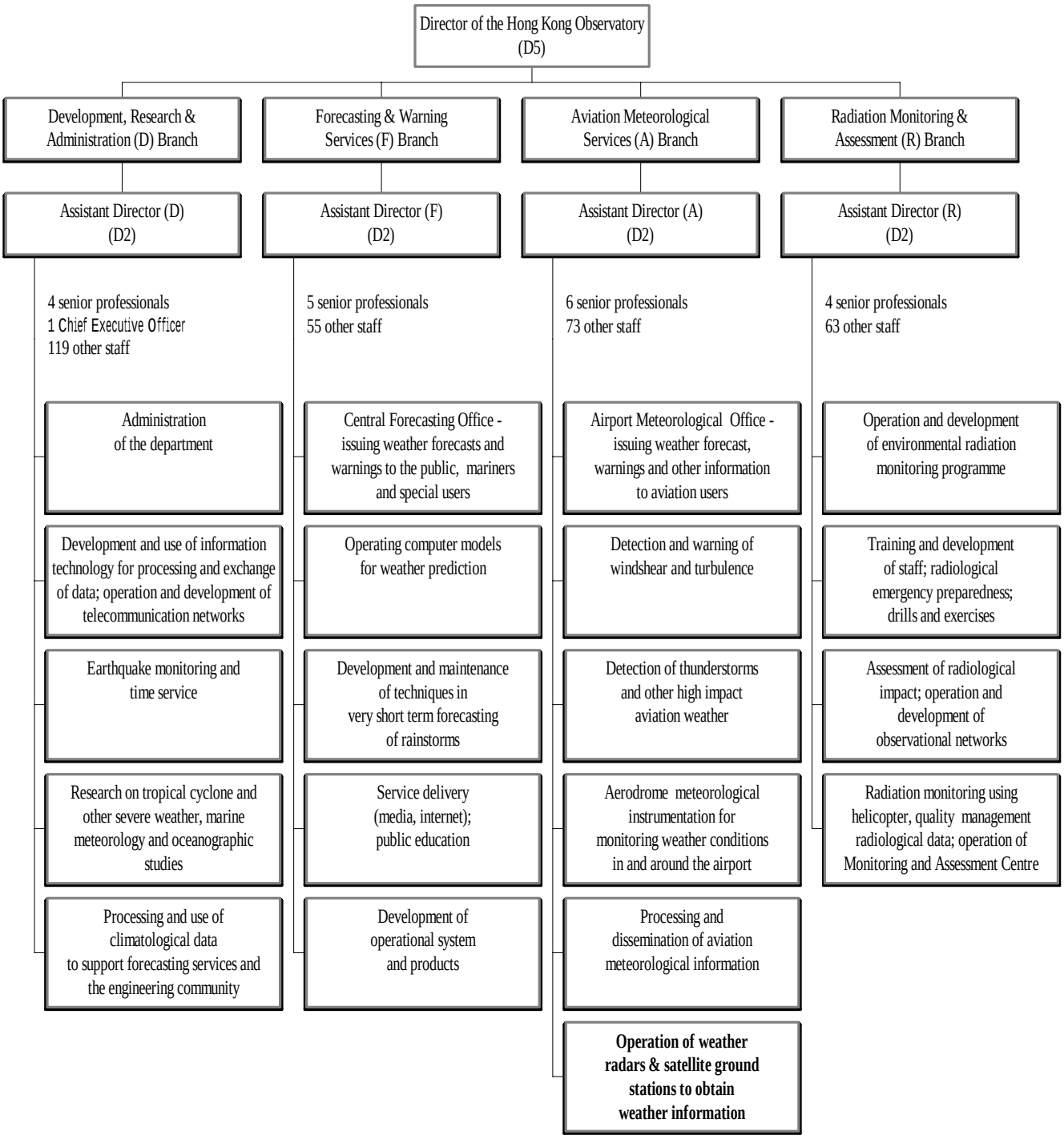
HONG KONG OBSERVATORY
ORGANISATION CHART (EXISTING)



*Supernumerary Assistant Director post (to lapse on 1 April 2000)

Enclosure 2 to EC(1999-2000)36

HONG KONG OBSERVATORY
ORGANISATION CHART (PROPOSED)



Job Description
for the proposed Assistant Director (Aviation Meteorological Services) post

Post: Assistant Director (Aviation Meteorological Services)

Rank: Assistant Director of the Hong Kong Observatory

Responsible to: Director of the Hong Kong Observatory

Duties and Responsibilities -

1. Overall control and management of Aviation Meteorological Services Branch.

2. To formulate and keep under constant review policies in the operation, maintenance and development of meteorological facilities and services for the Hong Kong International Airport.

3. To maintain close watch on daily operation of the Airport Meteorological Office and to give guidance as appropriate.

4. To determine and keep under regular review internal operational procedures and work processes in respect of provision of weather services to the aviation community.

5. To co-ordinate Hong Kong Observatory programmes for Hong Kong International Airport with those of the Airport Authority and other government departments.

6. To co-ordinate with Civil Aviation Administration of China and other authorities in the Mainland to set policies on interaction with International Civil Aviation Organisation (ICAO) and overseas aviation meteorological authorities, and to liaise with counterparts.

7. To formulate policies and plan the development of meteorological facilities and services for the transition from ground-based to the satellite-based Communications, Navigation, Surveillance/Air Traffic Management (CNS/ATM) systems under the framework of ICAO.

8. To liaise with Civil Aviation Administration of China and other aviation meteorological services around the Pearl River Estuary, on operational matters and on technical exchanges in meteorological, communication and other areas.

/9. .....

9. To oversee meteorological services delivered to Civil Aviation Department and the aviation community at the Hong Kong International Airport, and to liaise with counterparts.

10. To plan and steer the on-going development of methodology in windshear and turbulence detection, verification of performance of the windshear and turbulence warning systems, modification of the systems to meet new requirements of air traffic controllers and to take advantage of emerging technology.

11. To supervise and steer senior professional officers in the maintenance and on-going development of aviation meteorological facilities and provision of observing and forecasting services.

*12. To oversee the acquisition, maintenance, operation and on-going development of meteorological radars and meteorological satellite reception systems.

13. To plan, co-ordinate and manage the streamlining, automation and rationalisation of operations in the Airport Meteorological Office.

14. To keep abreast of latest developments in aeronautical meteorology and implement the standards and recommendations of the International Civil Aviation Organisation.

* to be transferred from AD(Forecasting and Warning Services)

Enclosure 4 to EC(1999-2000)36

Revised Job Description
for the Assistant Director (Forecasting and Warning Services)

Post: Assistant Director (Forecasting and Warning Services)

Rank: Assistant Director of the Hong Kong Observatory

Responsible to: Director of the Hong Kong Observatory

Duties and Responsibilities -

1. Overall control and management of Forecasting and Warning Services Branch.

2. To maintain close watch on daily operation of the Central Forecasting Office and to give guidance as appropriate.

3. To take charge of the operation of the rainstorm warning system and the landslide warning system in heavy rain situations, and to assist the Director in the operation of the tropical cyclone warning system.

4. To formulate and keep under constant review policies in the provision of weather forecasting and warning services to the public, the media, government departments, the marine community, information service providers, public utilities and others.

5. To determine and keep under regular review internal operational procedures and work processes of the Central Forecasting Office, to ensure efficiency, timeliness and reliability.

6. To formulate and oversee the execution of a technique development programme in support of forecasting operations, including development work in numerical modeling, integrated use of radar and satellite data in rainstorm forecasting and other applied statistical and meteorological investigations.

7. To co-ordinate the organisation and mobilisation of physical and data facilities in support of Central Forecasting Office operations, such as data collection networks and IT aspects.

/8. .....

8. To formulate policies on and guide the development of new forecast products and service delivery modes in easily accessible forms, including the use of emerging technology such as internet.

9. To direct outreach programmes to monitor customer feedback and their changing requirements, including public opinion surveys, regular visits to customer groups and Friends of the Observatory activities.

10. To oversee the Observatory's television weather programmes and guide their development in accordance with user demand.

11. To formulate policies on and co-ordinate a departmental publicity programme, including press briefings and press releases, with emphasis on weather and related matters.

12. To maintain regular contacts with overseas meteorological services, within the framework of the World Meteorological Organization, to ensure the delivery of the Observatory's services and the supply of relevant data required for Hong Kong forecasting operations.