A. Introduction

The Audit Commission ("Audit") conducted a review of the operation of the Government Flying Service ("GFS") with a view to identifying room for improvement.

Background

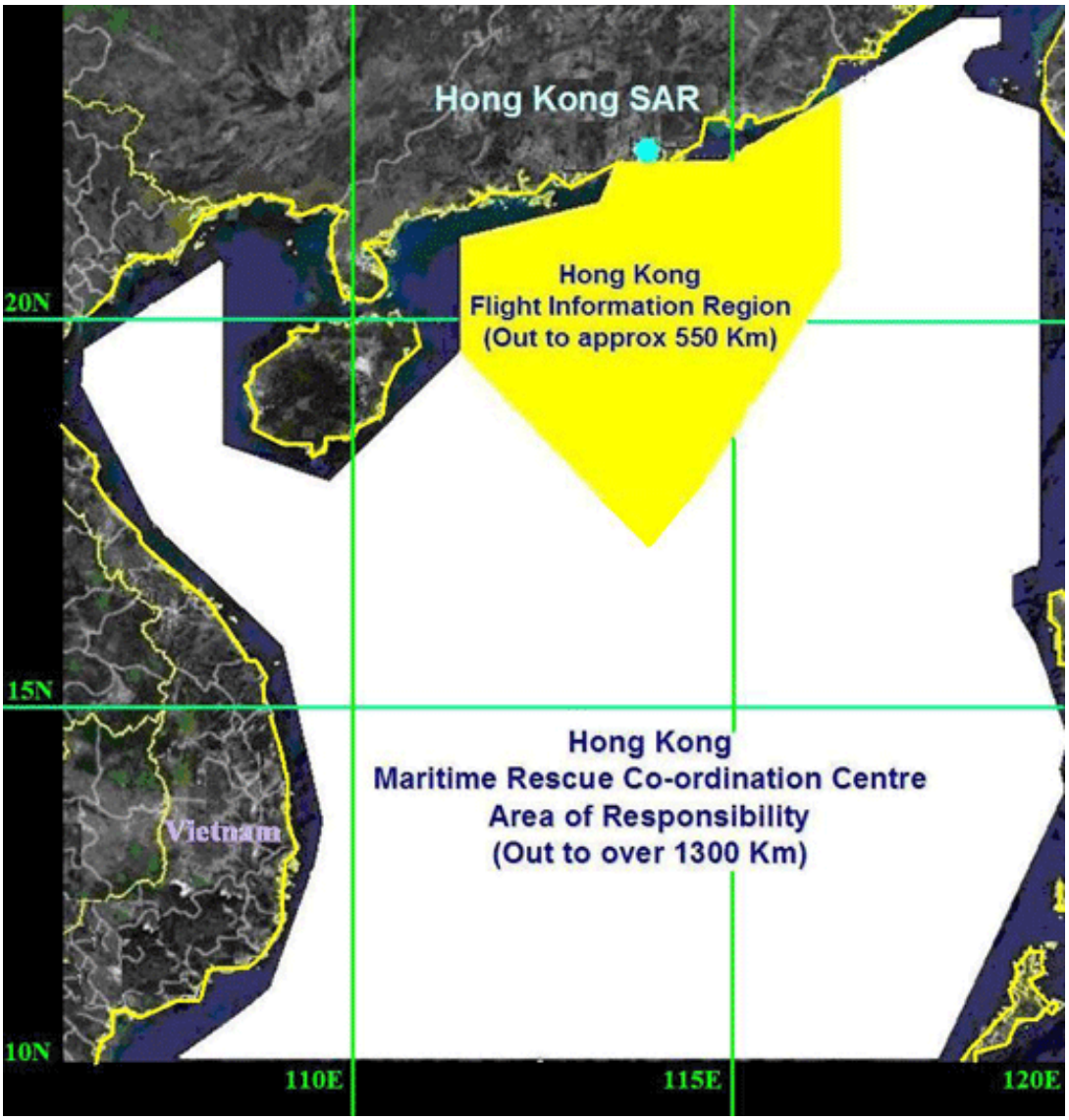
2. GFS was established under the GFS Ordinance (Cap. 322) in 1993 to provide flying services to the Government and those in need. Its statutory functions include providing flying services for medical services purpose, search and rescue and casualty evacuation purposes, fire fighting, aerial surveys, supporting the Hong Kong Police Force and other law enforcement agencies of Hong Kong in carrying out their law enforcement duties and carrying passengers as authorized by Secretary for Security.

3. GFS is required to provide emergency response on a 24-hour basis year-round. Its search and rescue operations cover both the Hong Kong Flight Information Region and Hong Kong Maritime Rescue Co-ordination Centre area of responsibility[1]. As at 31 December 2014, GFS had a fleet of 11 aircraft comprising four fixed-wing aircraft and seven helicopters. From 2010 to 2014, the overall flying services in terms of flying hours provided by GFS increased by 18% from 3 253 hours to 3 833 hours. During the same period, services provided by GFS (i.e. air ambulance service, search and rescue, law enforcement, fire fighting and other services for government bureaux/departments ("B/Ds")) recorded increases ranging from 9% to 65%[2].

1 GFS' area of responsibilities cover the Hong Kong Flight Information Region (extending up to 550 kilometres south of Hong Kong) and Hong Kong Maritime Rescue Co-ordination Centre Area of Responsibility (extending up to 1 300 kilometres south of Hong Kong) (Photograph 1).

2 Air ambulance service, search and rescue, law enforcement, fire fighting and other services for B/Ds recorded an increase of 26%, 20%, 19%, 65% and 9% respectively between 2010 and 2014.

Photograph 1



Area of responsibilities of GFS' search and rescue operations

4. In June 2009, GFS obtained funding of $776 million from the Legislative Council ("LegCo") Finance Committee ("FC") for the procurement of two new fixed-wing aircraft for replacing the existing two fixed-wing aircraft which were approaching the end of their serviceable life[3]. In June 2013, GFS also obtained FC's approval of $2,187.5 million to replace the seven helicopters which would reach the end of their service lifespan after 2017[4]. Due to technical problems encountered in the flight tests, the expected delivery date of the first fixed-wing aircraft would be

3 The approved funding comprised capital cost of aircraft; cost of mission equipment and modification work for the installation of the equipment; spare parts and tools; training for aircrew and engineering staff and contingency.

4 The approved funding comprised capital cost of aircraft; cost of mission equipment and modification work, spare parts and tools; training for aircrew and engineering staff; evaluation and support and contingency.

late 2015, i.e. 33 months later than the target commissioning date of March 2013 as stated in the FC paper. As at February 2015, tender evaluation of the replacement of the helicopter fleet was still in progress.

5. GFS is headed by the Controller who reports directly to Secretary for Security. As at 1 May 2015, GFS had an establishment of 230 civil servants and 13 staff of various posts on non-civil service terms[5]. The 2015-2016 estimated expenditure of GFS was $583.3 million[6]. An organization chart showing the approved establishment and working strength of GFS is in ***Appendix 18***.

The Committee's Report

6. The Committee's Report sets out the evidence gathered from witnesses. The Report is divided into the following parts:

- Introduction (Part A) (paragraphs 1 to 10);
- Provision of flying services (Part B) (paragraphs 11 to 20);
- Management of aircrew members (Part C) (paragraphs 21 to 31);
- Maintenance of aircraft (Part D) (paragraphs 32 to 41);
- Procurement of aircraft and spare parts (Part E) (paragraphs 42 to 52);
- Way forward (Part F) (paragraph 53); and
- Conclusions and recommendations (Part G) (paragraphs 54 to 56).

Public hearing

7. The Committee held a public hearing on 9 May 2015 to receive evidence on the findings and observations of the Director of Audit's Report ("the Audit Report").

5 As at 1 May 2015, GFS had an establishment of 230 staff comprising the Controller, 44 pilots, 33 air crewman officers, 25 aircraft engineers, 71 aircraft technicians and 56 support staff. In addition, GFS employed 13 staff of various posts on non-civil service terms.

6 The provision for 2015-2016 estimated expenditure ($583.3 million) is 61.8% higher than the revised expenditure for 2014-2015 ($360.5 million), mainly attributable to the increased cash flow requirement for the replacement of fixed-wing aircraft and procurement of helicopters, and the creation of one post.

Visit

8. The Committee conducted a visit to GFS on 23 May 2015 to understand their operations and daily work. The Committee also took the opportunity to meet with members of GFS' staff union members.

Photograph 2

LegCo Members and Mr David SUN Tak-kei, Director of Audit, visited GFS

Photograph 3

LegCo Members got on a fixed-wing aircraft of GFS to better understand its operation

Submissions from GFS' staff unions

9. The Committee has received submissions from four GFS' staff unions[7] expressing views on the work of and manpower arrangement for different ranks in GFS. Their submissions are in ***Appendices 19 to 22***. While the Committee welcomes members of the public to give views on the subject under investigation, the Committee has followed the established practices that this Report only contains evidence obtained from witnesses at the public hearings as well as written submissions from witnesses providing supplementary information to their evidence. At the request of the Committee, responses made by Secretary for Security and Controller of GFS to the views expressed by the staff unions are provided in ***Appendix 23***.

7 The four staff unions are: Government Flying Service Aircraft Technicians Union, Government Flying Service Aircraft Engineers Association, Government Flying Service Aircrewman Officers Association and Government Flying Service Pilots Union.

Opening statement by Secretary for Security

10. **Mr LAI Tung-kwok**, **Secretary for Security** made an opening statement at the beginning of the Committee's public hearing held on 9 May 2015, the summary of which is as follows:

- the Administration generally agreed with the Audit's findings and would actively follow up the recommendations, including exploring ways to improve the disclosure of GFS' operation data in the Controlling Officer's Reports ("CORs"); deploying manpower efficiently with a view to satisfying the continuous increase in service demands; continuing to inspect and maintain its aircraft in strict accordance with the requirements of the civil aviation legislation and professional standards; maintaining high availability of GFS' fleet and reminding staff members to be more cautious when handling matters concerning procurement;

- GFS was one of the departments in the Government with the least number of staff. The current civil service establishment was 229 persons, but the actual working strength was 214 persons only[8]. To relieve the pressure of manpower shortage especially in the pilot grade, the department had implemented a number of measures such as accelerating the recruitment procedures to fill up vacancies as early as possible. The Security Bureau and GFS would make the best manpower arrangements under existing resources and bid additional manpower in accordance with the established mechanism, with a view to meeting the service needs and ensuring flying safety of its staff members;

- safety would always be the most important consideration in flying services. It was therefore necessary for each operation of GFS to be executed by adequately trained aircrew and properly inspected aircraft. Although scheduled or unscheduled inspections and maintenance might affect the number of available aircraft, these tasks were deemed necessary. GFS would strive to carry out maintenance work more efficiently by strengthening the review on the maintenance plans and procedures; and

- GFS was a unique government department, and was the only entity in the world which offered flying services covering search and rescue, law

8 The figures referred to by Secretary for Security were GFS' establishment and strength in April 2015. As at 1 May 2015, the establishment and strength of GFS was 230 and 215 respectively.

enforcement and casualty evacuation, etc. In spite of the challenges and at times dangers, members of GFS had always been doing their best in serving the public. The long standing contributions of GFS should be recognized.

The full text of Secretary for Security's opening statement is in ***Appendix 24***.

B. Provision of flying services

Performance targets of primary tasks

11. According to paragraph 2.4 of the Audit Report, of the 11 175 call-out cases responded by GFS relating to the 23 on-scene time targets reported in CORs between 2010 and 2014, 902 cases could not meet the respective pledged on-scene times. On average, six of the 23 on-scene time targets were not met each year during the period. In particular, four targets were consistently not met for four to five years[9]. The Committee enquired about the reasons why the targets were not met, and whether GFS would review the need to setting more realistic targets.

12. **Captain Michael CHAN, Controller of GFS** replied at the public hearing that:

- the 902 out-of-pledged cases were attributable to a number of factors which were beyond the control of GFS. Such factors included weather limitations (431 cases), air traffic control delay (96 cases) and other reasons including the change of aircraft/mission equipment for different tasks, longer flight time required due to extreme range and location and fuel planning (173 cases); and

- due to increase in service demands, it was inevitable that the aircraft and crew members might need to cope with multiple call-outs at the same time. Also, in situations where defects were reported on the operational aircraft, the provision of flying services would need to be deferred or delayed to ensure flight safety. In both situations, on-scene times of the responding aircraft would be adversely affected.

9 The four on-scene time targets not met as reported by GFS included: (i) air ambulance service: Types A+ and A casualty evacuation situations within Island Zone; (ii) inshore search and rescue by helicopter: between 22:00 and 06:59 where additional crew/specialized equipment not required; (iii) law enforcement: outside Island Zone where additional crew/specialized equipment not required; and (iv) fire fighting: water bombing.

13. As regards the four on-scene time targets that were consistently not met for four to five years between 2010 and 2014, **Controller of GFS** supplemented in his reply dated 1 June 2015 (in Appendix 23) that around 70% of the out-of-pledge cases were due to undesirable weather conditions and air traffic control. There were also rising number of occasions where GFS' aircrew and aircraft had to cope with multiple call-out situations and unscheduled maintenance in the past five years. GFS would make reference to the guidelines for setting performance targets to review the four on-scene time targets in consultation with the Security Bureau, the Financial Services and the Treasury Bureau and other relevant government departments.

Provision of flying services for B/Ds

14. The Committee expressed concerned that, even though there was an immense demand for overall flying services as reflected by the increase in GFS' flying hours by 18% between 2010 and 2014, GFS still accorded 40% of its flying services in terms of flying hours to provide other services for B/Ds in 2014. The Committee enquired whether there were any guidelines for handling flying service requests from B/Ds, and the justifications of according a high proportion of its flying services to requests from B/Ds from 2010 to 2014.

15. **Controller of GFS** responded at the public hearing and supplemented in his reply dated 1 June 2015 (in Appendix 23) that:

- the relevant guidelines for GFS to handle flying requests from B/Ds were stipulated in the government's General Regulations and GFS Operations Manual. According to the guidelines, GFS would provide flying services to B/Ds on the condition that the emergency rescue services of GFS would not be affected. Applications from B/Ds for non-emergency flying services or passengers carrying had to be agreed and signed by the Heads of Departments or authorized directorate officers in the departments. Approval would only be given for tasks that were related to the work of the government or public service involving aerial operations, and where the department could not identify other suitable modes of transport to meet the needs;

- all routine government tasks were of a lower priority than GFS' emergency rescue and air ambulance services. Should there be a last minute call for flying resources arising from an emergency task, any commitments to lower priority tasks would need to be postponed or cancelled; and

- it was worthy to note that routine government tasks provided important opportunities for junior pilots to accumulate their required flying hours, consolidate flying skills, and build up their operational experience levels with a view to better preparing themselves for acquiring higher professional qualifications. The services provided to B/Ds were, therefore, part of GFS' training programmes for junior pilots. Providing flying services to B/Ds and at the same time offering real-time training to junior pilots would facilitate the most optimal use of GFS' limited flying resources.

16. Referring to Case 3 in the Audit Report relating to an out-of-pledge case for air ambulance service due to scheduled familiarization flights for B/Ds, the Committee enquired for the reasons why the relevant guidelines of according priority to emergency services were not complied with, and measures to be taken by GFS to prevent similar occurrence in future.

17. **Controller of GFS** replied at the public hearing and supplemented in his reply dated 1 June 2015 (in Appendix 23) that the case happened when GFS' aircrew were engaged in a multiple call-out situation in that two familiarization flights had been scheduled when GFS received a call-out for air ambulance service. GFS had reviewed the case and concluded that there could be room for improvement in terms of aircrew deployment should there be an experienced supervisor stationed at the Air Command and Control Centre to coordinate tasking priorities on site. To prevent similar occurrence in future, GFS had issued an operational notice to remind staff members of the need to adhere to the guidelines on tasking priority, and would continue to review its operation and implement suitable measures to prevent the reoccurrence of similar situation in future.

18. Noting the high direct operating cost of helicopters[10], the Committee expressed concern on the use of helicopters by B/Ds for undertaking non-critical tasks, and enquired whether GFS would disclose these costs to B/Ds to raise their cost-consciousness of using GFS service. The Committee also suggested GFS to consider outsourcing certain flight services, such as familiarization flights, or referred B/Ds to seek external service providers for non-critical tasks so that GFS could devote its limited resources to providing the most needed primary emergency services.

10 The direct operating cost (i.e. fuel cost and maintenance cost) of the helicopters was $23,890 per hour for the model of EC155 and $35,270 per hour for the model of Super Puma.

19. **Controller of GFS** responded at the public hearing and supplemented in his reply dated 1 June 2015 (in Appendix 23) that flying services in terms of flying hours provided to B/Ds offered a good opportunity for training up young pilots. Even if flying services for B/Ds had not been arranged, GFS would still need to allocate sufficient flying hours for junior pilots to attain essential flight licences and qualifications. Providing flying services to B/Ds and at the same time, offering real-time training for junior pilots would ensure that GFS' limited resources would be put to the most effective use. In order to raise B/Ds' cost-consciousness when using flying services, GFS had issued a memo on 12 May 2015 to remind all B/Ds to be vigilant in their consideration of requesting GFS' flying services in accordance with the government's General Regulations. The current operating costs of GFS' aircraft were also mentioned in the memo. GFS would remind B/Ds again of the direct operating cost in its annual call memo on the forecast of requests for GFS' flying services.

20. As pointed out in paragraph 2.22 of the Audit Report, the Committee expressed concern about the lack of proper recording of passenger details for some of GFS' flights. **Controller of GFS** replied at the public hearing that in carrying out flying duties for B/Ds, it was the normal practice for GFS to request information relating to passenger details from B/Ds for proper recording. The case depicted in the Audit Report was a stand-alone case in which the full name and post title of the passengers had not been properly recorded. GFS would remind its staff to ensure that similar incident would not occur in future.

C. Management of aircrew members

Manpower situation in GFS

21. The Committee expressed concern over the manpower situation of GFS. According to paragraph 3.6 and Note 14 of the Audit Report, around 35% to 40% of the pilots were under training at various stages and as a result, not all pilots were fully qualified for all types of missions or tasks. The Committee also noted that due to pre-mature wastage of pilots especially in the aeroplane stream, GFS was suffering from manpower shortage problem in its pilot grade. In the light of the above, the Committee sought information on:

- the extent of manpower shortage in the pilot and air crewman officer grades, with reference to relevant statistics on the wastage, reasons for the wastage as collected from exit interviews and the number of

recruitment exercises conducted for filling the vacancies arising from the wastage in the past ten years;

- measures GFS had undertaken to ensure that the number of qualified pilots were manned at a sufficient level in each shift to respond to service demands of different missions or tasks; and

- measures GFS had undertaken to retain staff, such as enhancing its remuneration package and working conditions.

22. **Controller of GFS** replied at the public hearing and supplemented in his replies dated 1 June 2015 (in Appendix 23 and ***Appendix 25***) that:

- as at 1 May 2015, the approved establishment of GFS was 230 persons, but the actual working strength was 215 persons only. The shortfall in the strength of GFS as compared to its establishment was 9%. The grades of pilot, air crewman officer and aircraft technician faced shortfalls of 16%, 6% and 4% respectively in their strengths as compared to their establishments. The drainage of experienced pilots to the commercial sector during 2008 to 2014 had posed pressure on the pilot grade;

- in the past ten years, there were altogether nine operational pilots leaving the pilot grade prematurely, of which six of them had been working in GFS for over 10 years. The attrition accounted for more than 20% of the establishment of the pilot grade. As regards air crewman officer grade, the number of officers who had resigned or had been transferred to other government departments was 13 in the same period;

- as regards reasons for premature wastage, information collected from resigned officers at exit interviews included achieving a better lifestyle with better work/life balance, higher salary and better career prospect;

- GFS had expedited its recruitment process by streamlining recruitment procedure where possible to fill up vacancies arising from the wastage. In the past ten years, GFS conducted seven recruitment exercises for the ranks of Air Crewman Officer ("ACMO") III and Cadet Pilot. The number of intakes in each recruitment exercise for ACMOIII and Cadet Pilot was between two and seven and between two and four respectively;

- to offset the loss in experienced pilots in the past 10 years and alleviate the manpower shortage/drainage problems in the pilot grade, GFS had engaged one Qualified Flying Instructor and two Senior Line Pilots on non-civil service contract ("NCSC") terms with a view to recovering the department's training and operational capacity. However, GFS was not able to offer an attractive remuneration package to attract overseas talents to fill up the vacant pilot positions for enhancing the competency of its pilot grade;

- continuous efforts had also been made in streamlining various stages of the training processes to ensure that the new intakes could be equipped with the required skills and professional qualifications for performing the full range of operational duties as soon as possible;

- as a result of the department's recruitment and training effort, 12 officers recruited at the rank of Cadet Pilot had been qualified as junior operational pilots in the past 10 years, reducing the number of vacancies in the pilot grade to five as at June 2015. The vacancies would likely be filled up within 2016 by another recruitment exercise underway. With 105 conversion or upgrade courses conducted for helicopter pilots from 2010 to 2014, the number of qualified helicopter pilots had also increased to 19 as at January 2015; and

- on the remuneration package and working conditions, the Standing Committee on Disciplined Services Salaries and Conditions of Service ("SCDS") conducted a grade structure review for the disciplined services in 2008. SCDS had recommended some improvements to the pay scales of four grades in GFS, i.e. pilot, air crewman officer, aircraft engineer and aircraft technician, which were accepted by the Chief-Executive-in-Council in 2009. SCDS had stated in its report that raising the pay of GFS pilots might not fully address the wastage of the grade. The Security Bureau and GFS would keep in view the manpower situation and where necessary, consider various options for retaining experienced officers.

23. The Committee enquired whether the engagement of overseas pilots on NCSC terms an effective measure in alleviating manpower shortage/drainage problems faced by GFS, and what could be done to further enhance the remuneration package offered so as to attract overseas talents.

24. **Controller of GFS** responded in his reply dated 1 June 2015 (in Appendix 25) that in an attempt to enhance both the operational and training capabilities of GFS, it was currently employing three NCSC pilots (i.e. one Qualified Flying Instructor and two Senior Line Pilots) and one Flight Operations Manager with a remuneration package comparable to that for the rank of Senior Pilot. Two NCSC qualified crewman instructors were also employed with a remuneration package comparable to that for the rank of Senior Air Crewman Officer and Air Crewman Officer I respectively. It was considered that the remuneration packages were appropriate with reference to the individual officers' responsibilities, experience and instructional and/or training experience. Under the guiding principle of NCSC Scheme, it might not be possible to enhance the remuneration packages currently offered to the NCSC aircrew in GFS.

Number of Commander Discretion Reports

25. Noting from paragraph 3.12 of the Audit Report that during the five-year period from 2010 to 2014, GFS could not meet the targets on the number of Commander Discretion Report[11] ("CDR") for three years. The Committee was of the view that GFS should aim to minimize the number of CDRs in order to ensure that aircrew members could have sufficient rest time for flight operations. The Committee also sought information on the target number of CDRs for 2015.

26. In response, **Controller of GFS** replied in his letter dated 1 June 2015 (in Appendix 23) that on many occasions, CDRs were issued because of the extension of duty period for the completion of emergency flying call-outs received towards the end of shifts. It would be more effective and reasonable for the aircrew members to slightly extend their duty period, which was usually within one hour, to complete the tasks instead of leaving them to the next shift. It was therefore not practical for GFS to completely eliminate the chance of issuing CDRs. In order to minimize the number of CDRs, a target number of CDRs would be set each year to serve as a safety performance indicator, which was the average number of CDRs in the preceding five years. GFS would strive to maintain a downward trend of CDRs as far as possible.

27. In reply to the Committee's enquiry for the reasons of the large number CDRs in 2012, and whether the health conditions of aircrew members and/or aviation

11 Due to the complexity and dynamic nature of the operational response of GFS, any need to extend the flying hours or duty hours, or to reduce the rest time of pilots and air crewman officers has to be recorded in a CDR. GFS has set a target each year on CDR to serve as a safety performance indicator.

safety were adversely affected as a result, **Controller of GFS** responded in his reply dated 1 June 2015 (in Appendix 23) that the more than usual number of CDRs for the extension of duty period in 2012 was mainly due to the unusually high number of air ambulance requests and search and rescue missions towards the end of shifts. Of the 25 CDRs issued in 2012, 23 involved extensions of duty for less than one hour, and the remaining two CDRs involved extension of duty for 1.17 and 1.58 hours respectively. The rest time given to the concerned aircrew members after the extended duty period in all these 25 cases was on par with the legal minimum rest period as set out in the "Flying Time and Duty Hours Limitation Scheme" in the GFS Operations Manual. GFS considered that the health conditions of aircrew members and flight safety were not adversely affected as a result.

28. The Committee also enquired about the reasons for a higher number of CDRs involving air crewman officers than pilots during the five-year period from 2010 to 2014. **Controller of GFS** responded in his reply dated 1 June 2015 (in Appendix 23) that according to GFS Operations Manual, if aircrew members operated in pairs in a particular shift, their maximum allowable duty hours would be one hour longer than an aircrew member working by himself/herself. While it was a legal requirement for pilots to work in pairs for most operations, air crewman officers often operated individually under the current resource deployment pattern of the department. As most cases involved a slight extension of duty period of usually less than an hour, the two pilots involved were not required to submit a CDR, whereas the single air crewman officer on the same flight would be required to do so.

Submissions from GFS' staff unions

29. The Committee had received submission of views from four staff unions of GFS regarding work and manpower arrangement of their respective ranks[12] (in Appendices 19 to 22), and noted that there had been manpower shortage/drainage problems for some of the grades, attributable to the increase in workload and work pressure, increase in overtime work, less attractive remuneration and conditions of service as compared to the commercial sector, retirement of experienced staff, etc. Consequently, different ranks in GFS had to undertake extra duties on top of their core duties. For instance, in addition to their operational flying duties, Senior Pilots and Chief Pilots were also responsible for providing in-house training for junior pilots, planning and reviewing of aircrew's overseas training and management of aircraft replacement projects, etc. Some ranks in the air crewman officer and the

12 The four staff unions were Government Flying Service Aircraft Technicians Union, Government Flying Service Aircraft Engineers Association, Government Flying Service Aircrewman Officers Association and Government Flying Service Pilots Union.

pilot grades were required to undertake duties at the Air Control and Command Centre, Wan Chai helipad control room and Flight Safety Unit when they were not flying. Apart from aircraft maintenance work, aircraft engineers and technicians would need to support the operations of the Design Office. In view of the concerns expressed by the staff unions, the Committee enquired about the measures to be taken by the Security Bureau and GFS to address their concerns.

30. **Secretary for Security** replied at the public hearing that the Administration recognized the unique and multi-role nature of GFS in that it had to carry out a wide spectrum of statutory functions round-the-clock. The increase in service demands coupled with the manpower shortage problems in certain grades posed great work pressure to staff of different ranks. In the light of the resources constraints faced by GFS to cope with the upsurge in service demands, the Security Bureau had allocated funding to GFS in 2015-2016 to commission a consultancy study on how well and sustainable the manpower and structure of GFS could support its mission, objectives and needs in the short, medium and long terms.

31. **Controller of GFS** supplemented in his reply dated 1 June 2015 (in Appendix 23) that:

- for the pilot grade, apart from the increase in service demands, the grade was also facing premature wastage problem and was constrained by the long lead time of about 10 years in training up a fully qualified pilot for all types of tasks and missions. Measures such as streamlining recruitment process to expedite the filling-up of vacancies, expediting and streamlining various stages of the training process and engaging overseas experienced pilots on NCSC terms to supplement the adequacy and competency of the pilot grade had been put in place;

- as regards the air crewman officer grade, it had no apparent talent retention and recruitment problems at the moment. The main issue facing the grade was manpower shortage problem arising from the increase in flying missions in recent years on top of their support to the operation and management of Air Control and Traffic Command Centre and daytime operation of the Wan Chai helipad control room. GFS had implemented flexible deployment measures and engaged NCSC staff to relieve the manpower pressure in the interim. To address the issue in the longer run, the department would critically review the establishment of the grade and bid additional resources if necessary under the established mechanism; and

- for the aircraft engineer and aircraft technician grades, the main challenge was manpower shortage problem arising from the increasingly frequent maintenance exercises required as a result of the increased service demands in recent years, the more sophisticated maintenance requirements developed by the aviation industry, as well as the need to support the operation of a Design Organization. In addition, the grades also faced succession problem as experienced engineers would be retiring in the coming years. GFS had been implementing various measures to address the above problems, such as speeding up recruitment and training, engaging NCSC staff to share out duties, and seeking permission for deferring the retirement of suitable staff with a view to ensuring smooth succession of the two grades. GFS would critically review the establishment of the two grades having regard to the increase in service demands in recent years and explore possible options in consultation with relevant stakeholders for improving the manpower support of the department.

D. Maintenance of aircraft

Aircraft downtime due to scheduled/unscheduled maintenance

32. Referring to Figure 9 of the Audit Report, the Committee noted that from 2010 to 2014, the downtime of the nine operational aircraft totaled 78 961 hours. Routine maintenance and unscheduled maintenance accounted for 78% of the downtime hours. In particular, unscheduled maintenance was generally on an increasing trend. In view of this, the Committee enquired:

- whether the high percentage and rising trend of unscheduled maintenance was attributable to the ageing of the aircraft, which might warrant attention to aircraft safety;

- what measures could be taken to further reduce the downtime of operational aircraft due to unscheduled maintenance; and

- whether GFS would consider setting a target on unscheduled maintenance so as to minimize its disruption to day-to-day operations.

33. **Controller of GFS** replied that total flying hours relating to the provision of flying services had increased 18% from 2010 to 2014. The more intensive use of aircraft in the past few years had inevitably increased the need for both scheduled

and unscheduled maintenance. Despite the increase in the utilization of the aircraft, GFS had been able to keep the time spent on unscheduled maintenance at a relatively stable level with no obvious rising trend. As unscheduled maintenance was unpredictable and unavoidable in nature, it would not be meaningful for GFS to set a target number of unscheduled maintenance. Consideration could be given to increasing the manpower support to the Engineering Section with a view to speeding up the inspection and repairing works wherever an aircraft was grounded for maintenance. GFS would critically review the establishment of the Engineering Section and bid additional resources under the established mechanism if necessary.

Aircraft defects reported by pilots

34. Referring to paragraphs 4.9 and 4.10 of the Audit Report, the Engineering Section of GFS performed three types of daily inspections on aircraft used for flying duties or on standby. The Committee noted that despite routine maintenance and daily inspections were conducted, there were still a total of 2 895 defects reported by pilots before take-off for flying duties or after airborne from 2010 to 2014. On average, there were about 1.6 defects reported by pilots per day for the serviceable operational aircraft. In this connection, the Committee enquired about the reasons for such a high number of defects reported by pilots, and whether these defects could be revealed in routine/daily maintenance or inspections to minimize their occurrence.

35. **Mr Johnny YEE, Chief Aircraft Engineer of GFS** replied at the public hearing that to ensure the safety and operability of the aircraft, the Engineering Section of GFS conducted routine maintenance and inspection in strict accordance with the requirements of the aircraft manufacturer and the Civil Aviation Department ("CAD") of Hong Kong, as well as internal guidelines in the GFS Engineering Procedures Manual. He pointed out that however stringent these procedures were, the serviceability of many mechanical and electronic parts of an aircraft might not be revealed unless they were put to use under specific flying conditions.

36. **Controller of GFS** supplemented through his letter of 1 June 2015 (in Appendix 23) that to ensure safety, GFS' pilots were required to make a report to the Engineering Section should they observe anything unusual with the operation of an aircraft in Pilot Reported Defects ("PIREPs"). Even with all the maintenance and inspection procedures duly completed, it was still normal by industry standards to have a certain number of PIREPs for a particular aircraft. In fact, the PIREP level of GFS' aircraft had remained steady at around 550-600 cases in each of the past 10 years. CAD, which was responsible for regulating GFS' maintenance activities,

had also found no inadequacy in GFS' control over its PIREP level in its past operational reviews on the department. While most PIREPs were unavoidable, the Engineering Section of GFS would continue to monitor closely the PIREP level and review the nature of each reported case with a view to upholding the safety standard of GFS' aircraft and minimizing the number of PIREPs where possible.

37. In reply to the Committee's enquiry on whether aircraft defects reported by pilots were comparable to similar aircrafts used in Hong Kong or overseas, **Controller of GFS** replied in his letter dated 1 June 2015 (in Appendix 23) that as GFS provided a unique range of flying services, it did not have any comparable counterparts locally or elsewhere. It was therefore not possible to compare GFS' PIREP level with other operators directly. However, he pointed out that CAD had not raised any particular concern over the PIREP level of GFS in the past monthly maintenance review meetings and half-yearly audits on GFS' maintenance activities. The manufacturers of GFS' aircraft had also confirmed that PIREP level of GFS was similar to other operators using the same or similar aircraft model(s).

38. In response to the Committee's requests for recent audit and/or inspection report(s) from CAD and overseas organizations on GFS' operations, **Controller of GFS** explained at the public hearing that in order to assure that GFS' operations complied with statutory air traffic control requirements, CAD carried out inspections and audits of GFS activities periodically. In addition, GFS also engaged overseas military organizations to conduct periodic audits of its operations, such as search and rescue, so as to ensure that its more complex missions met high level of safety and professional standards. **Controller of GFS** provided the following reports, which are appended in ***Appendix 26***:

- report dated 4 December 2014 from the British Royal Air Force (Search and Rescue Force Standards and Evaluation) on helicopter operations in GFS;

- report dated 22 June 2011 from the 750 Naval Air Squadron of the Fleet Air Arm of the British Royal Navy on fixed-wing aircraft operations in GFS;

- report issued by CAD in December 2014 on the operation of GFS as a holder of the Air Operator's Certificate;

- report dated 30 December 2014 from CAD on the operation of GFS as an approved Aircraft Maintenance Organization; and

- report dated 24 April 2015 from CAD on the operation of GFS as an approved Design Organization.

39. The Committee enquired for the reason(s) of the relatively high number of aircraft defects reported by pilots on the Super Puma as depicted in Figure 11 of the Audit Report. **Controller of GFS** responded in his reply dated 1 June 2015 (in Appendix 23) that:

- the Super Puma was a larger helicopter which comprised more mechanical and electronic parts than another helicopter model, EC155. The possibilities of having individual parts malfunctioning would therefore be higher;

- the Super Puma was used for performing a wider range of services, including fire-fighting, off-shore search and rescue and etc., than the EC155. The aircraft was therefore exposed to a higher intensity of deterioration;

- the average flying hours of Super Puma helicopters were higher than the EC155. The possibilities of PIREPs were therefore higher; and

- a majority of the PIREPs captured in Figure 11 of the Audit Report were minor observations and defects which did not lead to any consequential safety issues or airworthiness implications.

40. Referring to paragraphs 4.19(a), (c) and (d) of the Audit Report on the Audit's recommendations on enhancing the maintenance works of GFS, the Committee enquired:

- what were the factors that hindered the synchronization of major repairs and inspections of aircraft;

- measures to minimize the waiting time for air tests of aircraft after maintenance work ("air tests") and the reduction in waiting time as a result;

- whether a quantitative target could be set for reduction in air tests waiting time; and

- measures to remind relevant staff to place order promptly for spare parts in accordance with the laid-down requirements, including whether information technology system could be used to issue such reminders.

41. **Controller of GFS** replied at the public hearing and supplemented in his reply dated 1 June 2015 (in Appendix 23) that:

- the Engineering Section of GFS had been making its best efforts in synchronizing major repairs with inspections so as to minimize the overall ground time of its fleet. However, synchronization might not be practical in some situations. For example, for ad-hoc major repairs which carried safety and airworthiness implications, the Engineering Section would need to carry out the repair works without any delay. Under such circumstances, it was not possible to tie-in the major repairs with the next routine inspection as it was neither appropriate to defer the major repairs, nor to advance the next routine inspection at the expense of shortening the regular maintenance cycle which might accelerate the deterioration of the aircraft. The Engineering Section would continue to exercise professional judgment in planning for the maintenance of its fleet;

- as regards the conduct of air tests, they needed to be carried out between 3 000 and 6 000 feet above ground and under good visibility conditions by experienced pilots with the required qualifications. Constrained by the limited number of days where suitable weather conditions were available each year, the stringent air traffic control of Hong Kong International Airport, the limited number of pilots qualified for conducting air tests, and the increasing number of call-out cases which had occupied most of the pilot's working hours, there were more occasions in recent years where a repaired aircraft was required to wait for a longer period of time before air tests could be arranged;

- GFS would endeavor to shorten the waiting time for air tests by strengthening communications between the Engineering Section and the Operations Section, so that flight operations supervisors could be fully aware of the imminent air test requirements and make their best efforts in taking them into account in planning the flying programmes for the qualified pilots;

- given that weather conditions, the airport traffic and demand for GFS' flying services were all factors beyond GFS' control, it would not be

meaningful for GFS to set any quantitative target on waiting time for air tests; and

- regarding the placement of orders for spare parts, GFS had conducted briefings to remind staff to place orders promptly in accordance with the established requirements. Regular meetings would continue to be held between the Engineering Section and the Supplies Office to discuss and review outstanding order(s).

E. Procurement of aircraft and spare parts

Payment issues on the procurement of aircraft and spare parts

42. The Committee noted from paragraphs 5.2 to 5.9 of the Audit Report about payment issues arising from the procurement of the training aircraft Zlin and the spare parts. In gist, when the training aircraft Zlin was procured in 2009, a 5% payment discount was not duly obtained pursuant to contract terms and as stipulated in Standing Accounting Instructions issued by the Treasury (in ***Appendix 27***). In addition, an advance payment of $550,760 for four purchase orders for spare parts of Zlin was written off due to bankruptcy of the spare parts supplier. While Controller of GFS had apologized for the negligence and admitted at the public hearing GFS' inadequacies in handling the relevant procurements, the Committee enquired the measures that had been taken by GFS to tighten payment control to prevent similar occurrence in future.

43. **Controller of GFS** responded in his reply dated 1 June 2015 (in Appendix 23) that GFS had conducted a review on the two incidents. In order to prevent similar occurrence in future, GFS had conducted a briefing in April 2015 to remind all relevant staff of the need to strictly adhere to the prevailing procurement and accounting rules and regulations. The department's guidelines for handling payment had also been reviewed and updated to require a statement in each payment application to confirm whether any applicable discount had been claimed, the precautions to be taken when entering into contract with an overseas company and appropriate procedures to safeguard the Government's interest in the event of a bankrupt contractor.

Low utilization of the training aircraft

44. The Committee noted with concern from paragraphs 5.10 and 5.11 of the Audit Report about the low utilization of the two training aircraft, Zlin and Diamond, which were procured in 2009 and 2012 respectively. When GFS planned for the purchase of the two new training aircraft, the estimated operating flying hours per year for Zlin and Diamond were 200 and 500 respectively, and yet the actual flying hours of the two aircraft were only 61 and 90 respectively in 2014. Both aircraft had experienced long downtime in addition to their low utilization.

45. The Committee also noted that when the government submitted an information note[13] on the procurement of aircraft for GFS to FC of LegCo in 2011, FC was informed that the procurement of Diamond would increase the availability of the operational aircraft J-41s for responding to emergency call-outs by minimizing its use for training purpose. However, the use of J-41s for training had not decreased after Diamond was procured. The use of J-41s for training purpose in 2013 and 2014 (i.e. 1 299 hours) was comparable to the level in 2011 and 2012 (i.e. 1 200 hours). In this connection, the Committee enquired:

- the reasons for continuing using the operational aircraft J-41s for training purpose after Diamond was procured;

- whether this would affect the deployment of J-41s for operational use; and

- measures that had been taken to increase the utilization of Zlin and Diamond for training purpose.

46. **Captain Trevor MARSHALL, Chief Pilot (Training and Standards)** replied at the public hearing and **Controller of GFS** supplemented in his reply dated 1 June 2015 (in Appendix 23) that:

- some of the flying hours of operational aircraft were deployed for providing flying services for B/Ds and at the same time, offering real-time training for junior pilots. This explained why flying hours of J-41s for training purpose had not decreased;

- both the training aircraft were procured for enhancing basic skills and decision-making, and as platform for accumulating flying hours

13 See FCRI(2011-12)5.

towards an Airline Transport Pilots License. Most of the operational training that would enable fixed-wing pilots to become fully qualified was aircraft type-specific. Hence there was still a need for a specific amount of actual operational training on the frontline aircraft itself (i.e., J-41 and the two new fixed-wing aircraft in future);

- due to current manpower situation in the fixed-wing aeroplane stream, there was often only one crew on shift (from 07:00 to 13:00, and from 16:00 to 22:00), so the aircrew members might need to carry out training whilst at the same time, maintaining airborne standby for any emergency call-outs; and

- GFS would identify ways to increase the utilization of the training aircraft and take the following measures:

  (i) instigating a structured training programme focused primarily on the development of GFS junior pilots which would ensure that the usage of the aircraft would increase in future; and

  (ii) qualifying all fixed-wing aeroplane pilots to fly the Diamond, so that with the commissioning of the new aircraft by the end of 2015, Diamond would form a training partner with the new aircraft.

Procurement of the two new fixed-wing aircraft

47. Referring to paragraphs 5.19 to 5.26 of the Audit Report, the Committee noted with concern that the two new fixed-wing aircraft, which were expected to be commissioned in March 2013, were still not delivered as of to date. GFS expected that the delivery date of the first aircraft would be late 2015, which was 33 months later than the original delivery date stated in the paper[14] to FC in 2009. As the aircraft manufacturer had ceased production of J-41, the level of technical support available from the manufacturer and spares suppliers would gradually decline. Also, there were difficulties in maintaining the serviceability of the existing J-41s aircraft as they were approaching the end of their serviceable life. The Committee enquired about the reasons for the delay in the delivery of new aircraft and measures to maintain the serviceability of the existing ones.

14 See FCR(2009-10)24.

48. **Controller of GFS** responded at the public hearing that:

- the delay was attributable to the need to modify the aircraft in order to install and certify various mission equipment, in particular the digital aerial camera of the Lands Department which would be used for the provision of aerial photograph services for all B/Ds, and the failing of flight tests due to flying stability problems. With the completion of some milestone flight tests, GFS was informed by the supplier that the delivery date of the new aircraft would be late 2015;

- as it was the supplier's responsibility to deliver the fully-operated new aircraft in accordance with contract specifications, no extra costs had been incurred by the Administration in this regard;

- GFS would step up maintenance efforts for the exiting J-41s aircraft and their mission equipment to ensure that both aircraft would continue to provide safe and reliable flying service; and

- the increase in the supply of second-hand spare parts of J-41s in recent years had relieved the pressure of procurement of spare parts from suppliers.

Replacement of existing helicopters by a single-model fleet

49. Referring to paragraph 5.32 of the Audit Report, there were three occasions between 2009 and 2014 that either all Super Pumas or all EC155s had to be suspended from service. The Committee noted that if a single-model helicopter fleet was to be procured to replace the existing two-model helicopter fleet, there might be a risk of full-scale suspension of helicopter services if there were any manufacturing defects or reported failures of the new model. The Committee enquired whether GFS would re-consider its decision to adopt a single-model fleet for its new helicopters the procurement of which was still in progress and about the adequacy of maintaining one EC155 as a backup for the new helicopter fleet, as the EC155 would reach the end of its service lifespan after 2017.

50. **Controller of GFS** replied at the public hearing and supplemented in his reply dated 1 June 2015 (in Appendix 23) that:

- GFS had conducted a comprehensive evaluation and risk assessment of operating a single-model fleet, and came to a conclusion that the

benefits of a single-model feet out-weighted its risks, which were as follows:

(a) a single-model helicopter fleet would allow uniformity in operational procedures, hence enhancing flight safety;

(b) a single-model fleet would require stocking fewer spare parts, tools and equipment, resulting in a more effective use of resources;

(c) as flight crew and engineer staff would only need to familiarize themselves with the operation of one helicopter model, their training could be more focused and thus improve operational efficiency;

(d) it was specifically mentioned in the tender documents for the helicopter fleet that the new helicopter model should have at least three years of proven operational experience. It was expected that the new model would bring increased reliability as a result of enhanced technology and more stringent international safety standards governing the manufacture and certification of such aircraft. As such, the chance of the whole fleet being grounded due to manufacturing defects was assessed to be extremely small; and

(e) GFS considered its plan to retain one EC155 as contingency back-up still appropriate. It would monitor the operation of the new helicopter fleet upon delivery and formulate suitable contingency measures as necessary.

51. In reply to the Committee's concern about the tendering process for the procurement of the helicopter fleet and whether external consultant would be engaged to facilitate the Central Tender Board ("CTB") on tender evaluation, **Secretary for Financial Services and the Treasury** replied in his letter dated 20 May 2015 (in ***Appendix 28***) that:

- pursuant to the Stores and Procurement Regulations, it was the procuring department's responsibility to draw up tender requirements/ specifications in a manner which was clear, objective and in compliance with the government procurement principles of maintaining open and fair competition;

- as for tender evaluation, the procuring department should appoint a tender assessment panel ("TAP") which comprised properly qualified persons to do the job. To safeguard the integrity of the procurement exercise, TAP should comprise government officials only. In case where independent and/or expert advice on particular subjects/issues was required, the procuring department might engage consultants to assist in drawing up tender requirements/specifications and tender evaluation process. The consultants so engaged were required, as per government officials, to declare any actual, potential or perceived conflict of interest in the procurement exercise. There were also standard provisions in the consultancy agreements on confidentiality, prevention of bribery, ethnical commitment, avoidance of conflict of interest and debarring requirements which were in line with the advice of the Independent Commission Against Corruption. In tender evaluation, the consultants would assume the role of facilitator providing independent and/or expert advice but not of marking member of TAP; and

- CTB was appointed by Financial Secretary to advise on the acceptance of non-works tenders exceeding $15 million and works tenders exceeding $30 million. It was chaired by Permanent Secretary for Financial Services and the Treasury (Treasury). In considering the recommendations of procuring departments on tender acceptance, CTB would examine whether the procurement exercises and tender evaluation process had been conducted with due regard to government procurement principles and in full compliance with procedural fairness and propriety. To maintain clear segregation of roles and duties, CTB had not been and should not be involved in drawing up tender requirements/specifications or tender evaluation process. As such, CTB had not engaged any independent consultants for doing the same.

52. At the request of the Committee, **Controller of GFS** provided details of the staff, including their post titles and experience, for preparing the tender documents and tender assessments for the procurement of helicopter fleet, details of which were given in Appendix 23.

F. Way forward

53. Noting that GFS had obtained funding from the Security Bureau to commission a consultancy study on how well and sustainable the GFS' manpower

and structure could support its mission, objectives and needs in the long term, the Committee enquired on the timetable and implementation plan for commissioning the consultancy study. **Controller of GFS** responded in his reply dated 1 June 2015 (in Appendix 23) that GFS planned to complete the invitation of Expression of Interest from potential contractors of the project in 2015-2016 for commencing the tender process as soon as possible.

G. Conclusions and recommendations

Overall comments

54. The Committee:

- notes that the Government Flying Service ("GFS") began its operation on 1 April 1993 immediately after the disbandment of its predecessor, the Royal Hong Kong Auxiliary Air Force. As one of the government's disciplined services departments, GFS is responsible for performing a wide spectrum of statutory functions 24-hours daily. The statutory functions of GFS include providing flying services for medical services purposes, search and rescue and casualty evacuation purposes, fire fighting, aerial surveys, supporting the Hong Kong Police Force and other law enforcement agencies of Hong Kong in carrying out their law enforcement duties, and carrying passengers as authorized by Secretary for Security. This multi-role nature of GFS is unique and there is no other flying service organization in other parts of the world which provides such a broad range of services as GFS;

- appreciates the contributions of GFS in carrying out life-saving and rescue missions to those in need in often adverse and dangerous conditions, such as typhoons, in an efficient and cost-effective manner, and stresses that the safety of aircrew members and passengers is of utmost importance when GFS is discharging its duties;

- conducted a visit to GFS on 23 May 2015 to understand GFS' operations and daily work, and took the opportunity to meet with members of GFS' staff unions;

- expresses concern that GFS, as one of the smallest government departments with an establishment of only 230 staff[15] and a fleet of 11 aircraft, was overstretching its manpower resources and operational aircraft to cope with the ever-increasing demand for flying services, and the provision of primary emergency services was affected as a result, as evidenced by the following:

  (a) the overall flying services in terms of flying hours provided by GFS had increased by 18% from 3 253 hours to 3 833 hours between 2010 and 2014. All services reported increase ranging from 9% to 65% within the same period[16];

  (b) as at 1 May 2015, there was about 9% shortfall in the strength of GFS as compared to its establishment. In particular, the pilot grade was suffering from manpower shortage problem in that it had 16% shortfall in its strength as compared to its establishment. The drainage of experienced pilots to the commercial sector during 2008 to 2014 had posed pressure on the pilot grade;

  (c) at the present staffing level, only day time and evening shifts for the aeroplane stream could be arranged. For any call-outs for long-range search and rescue during night time (i.e. from 21:59 to 06:59), it was necessary to call in any available pilots and air crewman officers. Taking into account the call-in arrangement, the pledged on-scene times for the long-range search and rescue services during night time was 60 minutes longer than those for daytime and evening;

  (d) the minimum crew requirement[17] was not met in some shifts. For instance, in 2013 and 2014, 178 shifts (out of a total of 4 142 shifts) were manned by fewer pilots than the minimum requirement. In particular, no aeroplane pilots were rostered for

15 As at 1 May 2015, GFS had an establishment of 230 staff comprising the Controller, 44 pilots, 33 air crewman officers, 25 aircraft engineers, 71 aircraft technicians and 56 support staff. In addition, GFS employed 13 staff of various posts on non-civil service terms.

16 Air ambulance service, search and rescue, law enforcement, fire fighting and other services for government bureaux/departments had recorded an increase of 26%, 20%, 19%, 65% and 9% respectively between 2010 and 2014.

17 GFS maintained a minimum crew requirement in each shift as set out in its Operations Manual in order to provide primary emergency services in addition to other planned tasking commitments. According to GFS, the manning level is a guideline for the supervisor to roster the 24-hour coverage. It is not a mandatory requirement and roster planning largely depends on crew availability and qualifications, and other commitments.

65 shifts in 2013 and 26 shifts in 2014. The provision of primary emergency services might be adversely affected as a result;

(e) the Commander Discretion Report[18] ("CDR") targets were not met for three years during the five-year period from 2010 to 2014. The long flying hours and reduced rest time of pilots and air crewman officers might affect safety and their health conditions during flight operations;

(f) there was a rising trend of unscheduled maintenance, which accounted for 26% of the total downtime of operational aircraft from 2010 to 2014. Even though operational aircraft were subject to daily inspections, there were still a total of 2 895 defects (1.6 defects per day on average) reported by pilots before take-off for flying duties or after airborne in the same period. This might be an indication of ageing of GFS operational aircraft; and

(g) due to unavailable crew members/aircraft as a result of factors such as crew members being engaged in other tasks/duties, fewer pilots being rostered than the required level or unserviceable aircraft due to defects/maintenance, the provision of primary emergency services was affected as a result:

(i) from 2010 to 2014, of the 202 out-of-pledge cases due to unavailable crew/aircraft, 72 (36%) were top priority cases and the time taken for responding to the call-outs exceeded the respective pledged on-scene times by more than 50%; and

(ii) during the same period, of the 83 declined call-outs due to unavailable crew/aircraft, 32 (39%) were top priority cases;

18 Due to the complexity and dynamic nature of the operational response of GFS, any need to extend the flying hours or duty hours, or to reduce the rest time of pilots and air crewman officers has to be recorded in a Commander Discretion Report ("CDR"). GFS has set a target each year on CDR to serve as a safety performance indicator.

- expresses concern on the manpower situation of GFS as revealed in the Director of Audit's Report ("Audit Report") and views expressed by four staff unions of GFS[19]:

  (a) different grades in GFS were facing manpower shortage/drainage problems[20], attributable to the increase in workload and work pressure, increase in overtime work, less attractive remuneration and conditions of service as compared to the commercial sector, retirement of experienced staff etc.;

  (b) it would take approximately 10 years to train up a pilot for him/her to be fully qualified for all types of missions/tasks. From 2005 to 2014, nine operational pilots left GFS, of which six of them had been working in GFS for more than 10 years. The attrition accounted for more than 20% of the establishment of the pilot grade;

  (c) to alleviate the manpower shortage/drainage problems in the pilot grade, GFS had employed overseas pilots on non-civil service contract ("NCSC") terms. However, GFS was not able to offer an attractive remuneration package to attract overseas talents to fill up the vacant pilot positions for enhancing the competency of its pilot grade[21];

  (d) in order to cope with the heavy workload, different ranks in GFS were overstretched in that they had to undertake many different tasks on top of their core duties. The following are some examples:

    (i) in addition to their operational flying duties, Senior Pilots and Chief Pilots were also responsible for providing in-house training for junior pilots, planning and reviewing

19 Government Flying Service Aircraft Technicians Union, Government Flying Service Aircraft Engineers Association, Government Flying Service Aircrewman Officers Association and Government Flying Service Pilots Union submitted views to the Committee regarding work and manpower arrangement of their respective ranks. Secretary for Security and Controller of GFS provided response to the views at the public hearings, details of which were provided in Appendix 23.

20 As at 1 May 2015, there were shortfalls of 16%, 6% and 4% respectively in the strengths of the pilot, air crewman officer and aircraft technician grades as compared to their establishments. In the past ten years, a total of 9 pilots and 13 air crewman officers had left GFS due to premature wastage.

21 It is the government policy that the employment package for NCSC staff should be no less favourable than the provisions of the Employment Ordinance (Cap. 57) and no more favourable than civil servants in comparable ranks.

of aircrew's overseas training, management of aircraft replacement projects, development and reprovisioning of the new helipad and assessment of the adverse impact on the operations of GFS from large-scale infrastructure projects;

(ii) eleven pilots at the ranks of Chief Pilot and Senior Pilot were qualified pilots who were required to conduct air tests for the two fixed-wing aircraft and seven helicopters after maintenance work ("air tests"). Because of operational priority, there were instances in which these qualified pilots were deployed for providing emergency services and could not conduct air tests in a timely manner. Aircraft downtime was prolonged as a result;

(iii) apart from operational flying duties, some of the ranks in the air crewman officer and the pilot grades were required to undertake duties at the Air Control and Command Centre and Wan Chai helipad control room and Flight Safety Unit when they were not flying; and

(iv) apart from aircraft maintenance work, aircraft engineers and technicians would need to support the operations of the Design Office; and

(e) around 35%-40% of the pilots were under training at various stages. Training and tests/examinations to acquire flight licenses and qualifications remained high priority tasks. As not all pilots were fully qualified for all types of missions/tasks, the provision of certain types of flying services might be adversely affected;

- expresses serious concern that even though GFS faced resources constraints in coping with strong demands for primary emergency services, the department had accorded 40% of its flying services in terms of flying hours (i.e. 1 538 hours out of 3 833 hours) to provide other services for government bureaux/departments ("B/Ds") in 2014[22]. There was a case (Case 3 in the Audit Report) in which the provision of air ambulance service was affected due to scheduled familiarization flights;

22 Examples of other flying services provided for B/Ds included aerial surveys, passenger transfer and oil pollution surveillance.

- notes the explanation of GFS that the provision of flying services to B/Ds also served the purpose of training junior pilots so that relevant resources could be more optimally utilized;

- acknowledges the efforts made by GFS in addressing the manpower shortage/drainage problems especially in the pilot grade by streamlining the recruitment procedures, expediting training for junior staff and employing experienced and retired staff on NCSC terms where there were operational needs;

- urges that:

  (a) the Security Bureau should consider reviewing the positioning of GFS as compared to other disciplined services departments in terms of organization, manpower and remuneration structures, deployment of resources and the mode of operation so that GFS could have the required capacity in carrying out essential life-saving and rescue missions in an efficient and effective manner; and

  (b) GFS should conduct a review on its service scope so that it could devote its limited resources to providing the most needed primary emergency services, such as those related to life-saving and rescue. For service demands that were less critical in nature, GFS could consider outsourcing them to other service providers, if possible;

- urges GFS that, although it would commission a consultancy study on how well and sustainable its manpower and structure could support its mission, objectives and mode of operation in the long term, there is an urgent need for it to devise short and medium term measures to address the problems identified in the Audit Report, including but not limited to, manpower shortage problems faced by different grades in the department, prioritization in the provision of flying services in view of competing demands, training of pilots and aircrew members, proper maintenance of aircraft to enhance aircraft availability, procurement of aircraft and spare parts and drawing up of a contingency plan in case of manufacturing defects or failure of its aircraft/helicopter fleet;

Performance targets reported in the Controlling Officer's Report

- expresses serious concern that:

  (a) there were deficiencies in the way GFS reported its performance targets in the Controlling Officer's Reports ("CORs") from 2010 to 2014, as evidenced by the following:

    (i) the number of on time call-out cases had been overestimated by 311 cases because of computing errors;

    (ii) for multiple call-out [23] cases, the on-scene time of subsequent responses were not included in calculating performance data in the CORs. Of the 609 unreported multiple call-out cases (equaling to 5.4% of the 11 175 reported call-out cases responded by GFS from 2010 to 2014), 550 (90%) cases could not meet the pledged on-scene times, and 500 cases were of top priority category (i.e. Types A+ and A air ambulance services[24] and search and rescue);

    (iii) after making adjustments for the overstated 311 on time call-out cases and 550 unreported multiple call-out cases which could not meet the pledged times (paragraphs (i) and (ii) above), the total number of on-scene time targets not met was 49 (averaging 9.8 per year) instead of 30 (averaging six per year) as reported by GFS in the CORs for the five years from 2010 to 2014; and

    (iv) there were 852 service requests (equaling to 8% of the 11 175 call-out cases responded by GFS from 2010 to 2014) in which GFS could not respond to after having considered factors of urgency, weather conditions, availability of air assets and tasking priority. These declined service requests had not been included when GFS calculated its response rates to flying services in CORs; and

23 Multiple call-outs refer to cases in which one GFS aircraft has to respond to more than one call-out requests sequentially within the same period. GFS has laid down priority guidelines in meeting competing demands for its primary tasks.

24 Type A+ denotes casualty evacuation involving life-threatening cases. Type A refers to casualty evacuation involving emergency medical conditions which are not life-threatening.

(b) of the 23 performance targets in the CORs on four types of primary tasks (air ambulance service, search and rescue, law enforcement and fire-fighting operations), GFS reported that it could not meet six of the targets on average from 2010 to 2014. In particular, four targets were consistently not met for four to five years[25];

- notes the Controller of GFS' explanation that the out-of-pledge cases relating to the four types of primary tasks mentioned in paragraph (b) above were mainly attributable to uncontrollable factors such as undesirable weather conditions and air traffic control;

- urges GFS to review the 23 performance targets in its COR, in particular the targets that were consistently not met in the past five years. Taking into account the changes in air traffic environment, service demand levels and complexity of the missions involved, GFS should consider making suitable adjustments to its performance targets so as to accurately and realistically reflect different variable factors that might affect the completion of its flying missions;

Provision of familiarization flight services for other B/Ds

- expresses concern that:

(a) even though there was immense demand for GFS' flying services, the number of familiarization flights provided for B/Ds increased from 54 to 58 (7%) between 2010 and 2014. GFS also arranged, on average, 26 familiarization and passenger flights (including flights for charity and youth organizations) each year during the period;

(b) for some of the flights, passenger details were not properly recorded. This might undermine public accountability and arouse public concern of the possibility of abuse of GFS service;

25 The four on-scene time targets not met were: (i)Air ambulance services: Types A+ and A casualty evacuation situations within Island Zone; (ii)Inshore search and rescue by helicopter: between 22:00 and 06:59 where additional crew/specialized equipment not required; (iii)Law enforcement: outside Island Zone where additional crew/specialized equipment not required; and (iv)Fire fighting: water bombing.

(c) in the absence of interdepartmental charging[26], user B/Ds might not have given any thought to the high operating cost of aircraft when requesting familiarization flight services[27]; and

(d) it was noted that there was a case of task prioritization problem[28] revealed in Case 3 in the Audit Report in that the provision of primary task service was delayed because the available aircraft or aircrew members were engaged in familiarization flights that had been scheduled earlier on;

- urges that GFS should proactively disclose the cost of familiarization flight service offered to B/Ds and raise their cost-consciousness when using the service. GFS should consider outsourcing non-critical flying duties to outside service providers where it was feasible and cost effective to do so;

- notes that proper guidelines[29] are in place on the prioritization of using GFS' flying services and the Controller, GFS has written to B/Ds to raise their cost-consciousness when using the service. It is the duties of flight operation supervisors to determine, based on his/her professional judgment, the relative urgency of competing demands and complexities of individual flying missions when deploying resources to deliver services in the most appropriate and effective way;

- notes the explanation by GFS that cases revealed by the Audit relating to missing passenger details and prioritization problem in the provision of flying services were stand-alone cases and GFS would step-up efforts to prevent similar occurrence in future;

26 Financial and Accounting Regulations 435 states that except where special approval has been given by Secretary for Financial Services and the Treasury, no charge will be made for services rendered by one department to another.

27 The direct operating cost (i.e. fuel cost and maintenance cost) of the helicopters was $23,890 per hour for the model of EC155 and $35,270 per hour for the model of Super Puma.

28 According to the instructions issued by Secretary for Security, should there be a last minute call on resources arising from a primary task, any commitments to secondary functions should be cancelled or postponed.

29 According to the guidelines stipulated in the government's General Regulations and GFS Operations Manual, GFS provides flying services to other government departments on the condition that the emergency rescue services of GFS are not affected. Applications from government departments for non-emergency flying service or passengers carrying have to be agreed and signed by the Heads of Departments or authorized directorate officers. Approval will only be given for tasks that are related to the work of the government or public service involving aerial operations where the department cannot identify other suitable modes of transport to meet the need.

Manning for 24-hour flying services

- expresses grave concern that:

  (a) there were occasions where the number of pilots on duty was below the minimum crew requirement, resulting in some call-out cases being delayed or declined. As around 35% to 40% of the pilots were under training at various stages, not all pilots were fully qualified for all types of missions/tasks in the shifts;

  (b) as there was no night time shift arranged for the aeroplane stream, any call-outs for long-range search and rescue would need to call in any available pilots and air crewman officers. Of the 103 call-outs requiring long-range search and rescue between 2010 and 2014, 26 (25%) were received during night time requiring the call-in of pilots and air crewman officers. In 2014, there was a case in which GFS had difficulties in calling the crew members, resulting in longer time taken in responding to the call-out; and

  (c) there were a total of 133 CDRs issued during the period from 2010 to 2014. Of the total 133 CDRs, 52 involved pilots, 76 involved air crewman officers and five involved both of them. The need to extend the flying hours or reduce rest time of aircrew members might affect safety and their health conditions;

- urges GFS to make greater effort to maintain sufficient crew for each shift of flying duties, and to consider ways to better meet the demand for night time search and rescue services. GFS should also closely monitor the number of CDRs so as to enhance the safety and health conditions of crew members;

Maintenance of aircraft

- expresses grave concern that:

  (a) the minimum aircraft availability target[30] could not be met for 33 months during the five-year period from 2010 to 2014, mainly attributable to major structural repairs on one model of

30 The Engineering Section of GFS was committed to making available a minimum of five operational aircraft (i.e. one J-41, two Super Pumas and two EC155s) from 07:30 to 23:00, and four operational aircraft (i.e. one J-41, one Super Puma and two EC155s) from 23:01 to 07:29 for 95% of the time for each month.

helicopter. The failure to meet the aircraft availability target during the long maintenance period affected the provision of emergency flying services;

(b) from 2010 to 2014, the downtime of the nine operational aircraft totaled 78 961 hours, of which routine maintenance and unscheduled maintenance accounted for 78% of the downtime. In particular, unscheduled maintenance was generally on an increasing trend (i.e. rising to 4 539 hours in 2014 which were higher than the five-year average of 4 149 hours by 9.4%);

(c) although the Engineering Section of GFS performed three types of daily inspections on aircraft, there were still a total of 2 895 defects reported by pilots before take-off for flying duties or after airborne during the period from 2010 to 2014; and

(d) waiting time for air tests increased from 274 hours in 2010 to 545 hours in 2014, resulting in prolonged downtime of operational aircraft;

- notes that GFS would:

(a) review its maintenance planning and synchronize major repairs and inspections as far as possible to increase the availability of aircraft without compromising the safety, quality and airworthiness of its fleet;

(b) look into the arrangements of air tests and take necessary actions to minimize the waiting time without compromising the emergency response needs; and

(c) consider ways to minimize the downtime of operational aircraft due to unscheduled maintenance;

<u>Procurement of aircraft and spare parts</u>

- expresses concern that:

(a) a payment discount of 5% was not duly obtained pursuant to the contract terms when Zlin was procured in 2009. This is contrary to the Standing Accounting Instructions requirements issued by the Treasury; and

(b) GFS made advance payments to a supplier for nine purchase orders for the supply of spare parts for the new training aircraft Zlin at a total cost of $762,600. Subsequently, spare parts for four purchase orders had not been delivered due to bankruptcy of the supplier. However, GFS had not filed in time a proof of debt with the liquidator for the discharge of the debt if the supplier had any asset to do so. As a result, the irrecoverable amount of $550,760 was written off with the approval of the Financial Services and the Treasury Bureau;

- notes that GFS had conducted a review on the above two incidents and issued instructions to remind its staff of payment control, especially when entering into contract with an overseas company and in the event of a bankrupt contractor;

Low utilization of the two training aircraft

- expresses serious concern that:

(a) the number of flying hours for the two training aircraft, Zlin and Diamond, was consistently below the estimated levels. Expected flying hours per year for Zlin and Diamond were 200 and 500 respectively, and yet the actual flying hours of the two aircraft were only 61 and 90 respectively in 2014;

(b) when the Administration submitted an information note on the procurement of aircraft for GFS to the Finance Committee ("FC") of Legislative Council ("LegCo") in 2011, FC was informed that the procurement of Diamond would increase the availability of the operational aircraft J-41s for responding to emergency call-outs by minimizing its use for training purpose. However, the use of J-41s for training had not decreased after Diamond was procured; the use of J-41s for training purpose in 2013 and 2014 (i.e. 1 299 hours) was comparable to the level in 2011 and 2012 (i.e. 1 200 hours); and

(c) both Zlin and Diamond had experienced long downtime in addition to their low utilization rate. The number of downtime for Zlin and Diamond in 2014 were 3 962 hours and 2 603 hours respectively;

- notes GFS' explanation that:

  (a) the operational aircraft were deployed for providing flying services for B/Ds and at the same time, offering real-time training for junior pilots. This explained why flying hours of J-41s for training purpose had not decreased; and

  (b) GFS would identify ways to improve the serviceability of the two training aircraft. It was expected that the utilization of Diamond would increase after the two new operational aircraft came into service in late 2015, as both models had similar cockpit design concept;

Procurement of the two new fixed-wing aircraft

- expresses concern that:

  (a) the two new fixed-wing aircraft, which were expected to be commissioned in March 2013, were still not delivered as of to date. According to GFS, the delay was attributable to the need to modify the aircraft in order to install and certify various mission equipment, in particular the digital aerial camera of the Lands Department which would be used for the provision of aerial photograph services for all B/Ds, and the failing of flight tests due to flying stability problems related to the camera sliding cover . GFS expected that the delivery date of the first aircraft would be late 2015, which was 33 months later than the original delivery date (i.e. March 2013) as stated in the paper to FC in 2009[31];

  (b) the existing J-41s were approaching the end of their serviceable life, which posed difficulties in maintaining their serviceability:

    (i) the aircraft manufacturer had ceased production of J-41, therefore the level of technical support available from the manufacturer and spares suppliers would gradually decline;

    (ii) the total downtime of the two J-41s had increased from 1 704 hours in 2012 to 3 187 hours in 2014. In 2013,

31 See FCR(2009-10)24.

there were two consecutive days in which both J-41s were not serviceable; and

(iii) the mission equipment installed on the two J-41s had been in use since 1999 and would reach the end of their serviceable life. For instance, the only spare weather radar system and spare engine of the two J-41s, and the infrared detection system of one of the J-41s had already become unserviceable; and

(c) although there was a significant delay in the delivery of the two new fixed-wing aircraft, GFS had not kept FC and LegCo Panel on Security informed of the progress and reasons of their delay;

- notes that:

(a) with the completion of some milestone flight tests, GFS was informed by the supplier that the delivery date of the new aircraft would be late 2015;

(b) as it was the supplier's responsibility to deliver the fully-operated new aircraft in accordance with the contract specifications, no extra costs had been incurred by the Administration in this regard;

(c) GFS would step up maintenance efforts for the existing J-41s aircraft and their mission equipment to ensure that both aircraft would continue to provide safe and reliable flying service; and

(d) the increase in the supply of second-hand spare parts of J-41s in recent years had relieved the pressure of procurement of spare parts from suppliers;

- recognizes that GFS had been closely monitoring the procurement project to expedite the delivery of the aircraft. It was understandable that the installation of necessary mission equipment and a series of certification flight tests would need to be duly completed before the new aircraft could be commissioned for conducting flying mission efficiently and safely;

Replacement of existing helicopters by a single-model fleet

- expresses concern that:

  (a) if a single-model fleet was adopted, there might be a risk of full-scale suspension of helicopter services if there were any manufacturing defects or reported failures of the new model. Adopting a two-model helicopter fleet could minimize this risk; and

  (b) it was GFS' plan to maintain one of the existing helicopters EC155 as backup in case of defects/failure of the new helicopter model. However, the backup EC155 would reach the end of its service lifespan after 2017. The adequacy and effectiveness of using EC155 as a contingency backup was doubtful;

- notes that GFS had conducted a comprehensive evaluation in the procurement of a single-model fleet, and came to a conclusion that the benefits of a single-model fleet outweighed its risks:

  (a) a single-model helicopter fleet would allow uniformity in operational procedures, hence enhancing flight safety;

  (b) a single-model fleet would require stocking fewer spare parts, tools and equipment, resulting in a more effective use of resources; and

  (c) as flight crew and engineer staff would only need to familiarize themselves with the operation of one helicopter model, their training could be more focused and thus improve operational efficiency; and

- acknowledges that it was specifically mentioned in the tender documents that the new helicopter model should have at least three years of proven operational experience. GFS expected that the new model would bring increased reliability as a result of enhanced technology and more stringent international safety standards governing the manufacture and certification of such aircraft. According to GFS, the chance of the whole fleet being grounded due to manufacturing defects was assessed to be extremely small.

Specific comments

55. The Committee:

Provision of flying services

- expresses serious concern that:

  (a) of the 23 targets set in the COR for measuring the performance of its primary tasks, GFS reported that on average six (26%) were not achieved each year from 2010 to 2014, as 902 (8%) of 11 175 responded call-out cases could not meet the pledged on-scene times. In particular, four targets (relating to Types A+ and A air ambulance service, inshore search and rescue, law enforcement and fire fighting) were consistently not met for four to five years. Unserviceable aircraft and unavailable aircrew accounted for 202 (22%) of the 902 out-of-pledge cases;

  (b) GFS' reported performance data in its CORs for 2010 to 2014 had not taken into account 609 multiple call-outs of which 550 were out-of-pledge cases. In addition, 311 out-of-pledge cases were incorrectly reported as on time cases. Based on the corrected figures, the number of on-scene time targets not met averaged 9.8 per year, instead of 6 out of 23 as reported by GFS; and

  (c) from 2010 to 2014, GFS declined 852 service requests. While 81% of the declined cases were caused by weather limitations, 10% were due to unavailability of aircraft/aircrew. GFS had not duly taken into account these declined cases when reporting its response rates to flying services in the CORs;

- notes that Controller of GFS has generally agreed with the Audit recommendations in paragraphs 2.13, 2.18 and 2.28 of the Audit Report;

Management of aircrew members

- expresses grave concern that:

  (a) of the 4 142 aircrew shifts rostered for providing emergency and other planned services in 2013 and 2014, 178 shifts (4.3%) were manned by fewer pilots than the minimum stipulated in GFS' guidelines. As a result, some emergency call-out cases were delayed or declined; and

  (b) for three of the five years from 2010 to 2014, there were more occasions of extension of flying/duty hours of the aircrew and reduction of their rest time than targeted;

- notes that:

  (a) due to pre-mature wastage of pilots (in particular for the aeroplane stream) and the increase in the number of call-outs in recent years, GFS was suffering from manpower shortage problems in its pilot grade. GFS had been implementing a number of measures, including speeding up its recruitment and training process, to mitigate the problem in the longer term; and

  (b) Controller of GFS has generally agreed with the Audit recommendations in paragraph 3.13 of the Audit Report. GFS will make continuous efforts to review the manning levels and manpower deployment of the aircrew against the service needs without compromising flight safety and aircrew health;

Maintenance of aircraft

- expresses grave concern that:

  (a) while GFS aims to make available a minimum of five of its nine operational aircraft from 07:30 to 23:00, and four operational aircraft from 23:01 to 07:29 for 95% of the time for each month, the target was not met in 33 (55%) months during the five-year period from 2010 to 2014, mainly due to major repairs and inspections. As a result, some emergency call-out cases were affected;

(b) from 2010 to 2014, unscheduled maintenance increased from 3 799 hours in 2010 to 4 539 hours in 2014. Over the same period, there were a total of 2 895 aircraft defects reported by pilots before take-off for flying duties or after airborne; and

(c) the waiting time for air tests increased from 274 hours in 2010 to 545 hours in 2014;

- notes that Controller of GFS has generally agreed with the Audit recommendations in paragraph 4.18 of the Audit Report;

Procurement of aircraft and spare parts

- expresses concern that:

(a) the utilization of the two training aircraft (Zlin and Diamond) was lower than expected since their commissioning in 2009 and 2013 respectively. Even though the two aircraft had low flying hours, both aircraft had experienced long downtime. For the training aircraft Zlin, GFS had not obtained the 5% ($181,000) payment discount provided for in the procurement contract. Moreover, advance payments for spare parts totalling $550,760 were written off as the overseas supplier went bankrupt without delivering the outstanding spare parts;

(b) there was a delay in the target commissioning of GFS' fixed-wing aircraft replacement project (with an approved funding of $776 million) from March 2013 (as stated in the FC paper) to late 2015. After two unsuccessful flight tests in August 2013 and July 2014, the new aircraft passed some milestone flight tests in November 2014. However, there were still other tests of the aircraft and mission equipment to be carried out in accordance with the contract terms. As a result, the expected benefits of the new aircraft to enhance GFS' operational efficiency could not be realized in the interim and there were difficulties in maintaining the serviceability of the existing ageing aircraft; and

(c) there is an inherent risk in GFS' ongoing project (with an approved funding of $2,187.5 million) to replace the existing two-model helicopter fleet by a single-model fleet. GFS' emergency services could be adversely affected in the event of

manufacturing defects or reported failure of helicopter of the same type. GFS planned to use one of the existing helicopters as backup for four to five years after the new single-model helicopter fleet was commissioned, but the existing helicopters would reach their serviceable lifespan after 2017;

- notes that:

  (a) Controller of GFS has generally agreed with the Audit recommendations in paragraphs 5.15, 5.27, 5.33 and 5.39 of the Audit Report; and

  (b) Director of Accounting Services and Director of Government Logistics have agreed with the Audit recommendation in paragraph 5.16 of the Audit Report; and

Way forward

- notes that:

  (a) GFS had obtained funding from the Security Bureau for 2015-2016 to commission a consultancy study on how well and sustainable its manpower and structure could support its mission, objectives and needs in the short, medium and long terms; and

  (b) Controller of GFS has generally agreed with the Audit recommendation in paragraph 6.8 of the Audit Report.

Follow-up action

56. The Committee wishes to be kept informed of the progress made in implementing the various recommendations made by the Committee and the Audit Commission.