

CHAPTER 2

**Commerce, Industry and Technology Bureau
Innovation and Technology Commission**

**Administration of Hong Kong Applied Science and
Technology Research Institute Company Limited**

**Audit Commission
Hong Kong
28 March 2007**

This audit review was carried out under a set of guidelines tabled in the Provisional Legislative Council by the Chairman of the Public Accounts Committee on 11 February 1998. The guidelines were agreed between the Public Accounts Committee and the Director of Audit and accepted by the Government of the Hong Kong Special Administrative Region.

Report No. 48 of the Director of Audit contains 8 Chapters which are available on our website at <http://www.aud.gov.hk>.

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**ADMINISTRATION OF HONG KONG APPLIED
SCIENCE AND TECHNOLOGY RESEARCH
INSTITUTE COMPANY LIMITED**

Contents

	Paragraph
PART 1: INTRODUCTION	1.1
Background	1.2 – 1.9
Organisation structure of ASTRI	1.10 – 1.11
Audit review	1.12
General response from the Administration and ASTRI	1.13 – 1.14
Acknowledgement	1.15
PART 2: CORPORATE GOVERNANCE	2.1
Governance structure	2.2 – 2.3
Attendance rates of Directors at Board/Committee meetings	2.4
<i>Audit observations</i>	2.5 – 2.9
<i>Audit recommendations</i>	2.10 – 2.11
Response from the Administration	2.12
Response from ASTRI	2.13
Documentation of Committee proceedings	2.14 – 2.15
<i>Audit observations</i>	2.16
<i>Audit recommendation</i>	2.17
Response from ASTRI	2.18
Submission of discussion papers to Board/Committees	2.19
<i>Audit observations</i>	2.20

	Paragraph
<i>Audit recommendation</i>	2.21
Response from ASTRI	2.22
Minutes of Board/Committee meetings	2.23
<i>Audit observations</i>	2.24
<i>Audit recommendations</i>	2.25
Response from ASTRI	2.26
Management of conflict of interest	2.27 – 2.31
<i>Audit observations</i>	2.32 – 2.35
<i>Audit recommendations</i>	2.36
Response from ASTRI	2.37
 PART 3: REMUNERATION AND RECRUITMENT	 3.1
Background	3.2 – 3.4
Pay structures	3.5 – 3.8
<i>Audit observations</i>	3.9 – 3.12
<i>Audit recommendation</i>	3.13
Response from ASTRI	3.14
Staff recruitment	3.15 – 3.16
<i>Audit observations</i>	3.17 – 3.30
<i>Audit recommendations</i>	3.31
Response from ASTRI	3.32
Performance-based variable payments	3.33 – 3.34
<i>Audit observations</i>	3.35
<i>Audit recommendations</i>	3.36
Response from ASTRI	3.37

	Paragraph
Annual salary adjustments	3.38 – 3.39
<i>Audit observations</i>	3.40 – 3.41
<i>Audit recommendations</i>	3.42
Response from ASTRI	3.43
Staff incentive payments	3.44 – 3.47
<i>Audit observations</i>	3.48
<i>Audit recommendations</i>	3.49
Response from ASTRI	3.50
Review of senior staff's remuneration package	3.51
<i>Audit observations</i>	3.52 – 3.54
<i>Audit recommendations</i>	3.55
Response from ASTRI	3.56
 PART 4: PROJECT MANAGEMENT	 4.1
Background	4.2 – 4.3
Project planning	4.4
<i>Audit observations</i>	4.5 – 4.17
<i>Audit recommendations</i>	4.18
Response from ASTRI	4.19
Project monitoring	4.20 – 4.21
<i>Audit observations</i>	4.22 – 4.34
<i>Audit recommendations</i>	4.35
Response from the Administration	4.36
Response from ASTRI	4.37
Project evaluation	4.38 – 4.39

	Paragraph
<i>Audit observations</i>	4.40 – 4.45
<i>Audit recommendations</i>	4.46 – 4.47
Response from the Administration	4.48
Response from ASTRI	4.49
Industry contribution	4.50 – 4.51
<i>Audit observations</i>	4.52 – 4.56
<i>Audit recommendations</i>	4.57
Response from the Administration	4.58
Response from ASTRI	4.59
PART 5: PROJECT COST CONTROL	5.1
Background	5.2 – 5.3
Control of project costs	5.4
<i>Audit observations</i>	5.5 – 5.20
<i>Audit recommendations</i>	5.21
Response from ASTRI	5.22
PART 6: ADMINISTRATIVE ISSUES	6.1
Entertainment expenses	6.2 – 6.4
<i>Audit observations</i>	6.5 – 6.9
<i>Audit recommendations</i>	6.10
Response from ASTRI	6.11
Project-related overseas duty visits	6.12
<i>Audit observations</i>	6.13 – 6.18
<i>Audit recommendations</i>	6.19

	Paragraph
Response from ASTRI	6.20
Non-project-related overseas duty visits	6.21
<i>Audit observations</i>	6.22 – 6.23
<i>Audit recommendation</i>	6.24
Response from ASTRI	6.25
Procurement of air tickets	6.26
<i>Audit observations</i>	6.27 – 6.29
<i>Audit recommendations</i>	6.30
Response from ASTRI	6.31
Company vehicles	6.32
<i>Audit observations</i>	6.33 – 6.40
<i>Audit recommendations</i>	6.41
Response from ASTRI	6.42
Fung shui consultancy fees	6.43
<i>Audit observations</i>	6.44
<i>Audit recommendation</i>	6.45
Response from ASTRI	6.46
Low interest income	6.47
<i>Audit observations</i>	6.48
<i>Audit recommendation</i>	6.49
Response from ASTRI	6.50
PART 7: COST AND ACHIEVEMENTS OF ASTRI	7.1
Cost of ASTRI's operations	7.2
<i>Audit observations</i>	7.3

	Paragraph
<i>Audit recommendation</i>	7.4
Response from ASTRI	7.5
Evaluation of ASTRI's performance	7.6 – 7.7
<i>Audit observations</i>	7.8 – 7.10
<i>Audit recommendations</i>	7.11 – 7.12
Response from the Administration	7.13
Response from ASTRI	7.14

Page

Appendices

A : Hong Kong Applied Science and Technology Research Institute Company Limited organisation chart (extract) (31 December 2006)	79
B : Analysis of entry pay based on 20 cases examined by Audit	80
C : Reimbursements for entertainment expenses which exceeded the cost-per-head spending limits (2005-06)	81
D : Summary of ASTRI's performance 2000-01 to 2006-07 (up to December 2006)	82 – 83
E : Summary of performance indicators used by ETRI and ITRI	84
F : Acronyms and abbreviations	85

PART 1: INTRODUCTION

1.1 This PART describes the background to the audit and outlines the audit scope and objectives.

Background

1.2 In his 1997 Policy Address, the Chief Executive set forth his vision of making Hong Kong an innovation centre for South China and the region. In March 1998, he appointed the Chief Executive's Commission on Innovation and Technology to advise him, among other things, the institutional arrangements that should be in place to drive forward innovation and technology improvement in Hong Kong. In September 1998, the Commission submitted its first report to the Chief Executive. One of the report's recommendations accepted by the Administration was to establish an applied science and technology research institute to conduct research and development (R&D).

1.3 In January 2000, the Government incorporated a limited company named the Hong Kong Applied Science and Technology Research Institute Company Limited (ASTRI) under the purview of the Innovation and Technology Commission (ITC) of the Commerce, Industry and Technology Bureau (CITB).

ASTRI's missions and operating strategy

1.4 ASTRI's missions are to:

- (a) perform relevant and high quality R&D for transfer to Hong Kong industry;
- (b) enhance Hong Kong's technological human resources development;
- (c) become a focal point for attracting outside R&D personnel to work in Hong Kong;
- (d) act as a spawning ground for technology entrepreneurs;
- (e) promote greater application of technology in industry; and
- (f) provide a focal point for industry-university collaboration.

1.5 ASTRI's operating strategy is to transfer the technologies and results developed from its R&D projects to industry for technology dissemination through spinning-off (Note 1) or licensing. The objective is to elevate the technology level of industry and to accelerate the expansion of technology industry base, thereby creating new employment opportunities.

1.6 In May 2005, the CITB informed the Panel on Commerce and Industry (CI Panel) of the Legislative Council (LegCo) of a plan to set up five R&D Centres for implementing the new strategy of innovation and technology development. Under the new plan, ASTRI would host the R&D Centre on Information and Communications Technologies (ICT) focusing on four technology areas, namely, communications technologies, consumer electronics, Integrated Circuit (IC) designs and opto-electronics.

Funding and financial control mechanism

1.7 ASTRI is provided with an annual recurrent subvention, in the form of an annual block grant, to cover its day-to-day operating expenses. The subvention in 2006-07 (all years mentioned hereinafter refer to financial years) would be \$120 million. To ensure that ASTRI uses the public funds properly, the Administration and ASTRI have entered into a set of Memorandum of Administrative Arrangements on the administration of the recurrent subvention (hereinafter referred to as the Subvention MAA). In general, ASTRI is required to observe the rules on the use of the subvention that are applied to other subvented organisations.

1.8 To support its research, ASTRI has to apply to the Innovation and Technology Fund (ITF) for funding. The Administration and ASTRI have entered into a separate set of Memorandum of Administrative Arrangements (hereinafter referred to as the ITF MAA) on the administration of funding from the ITF. ASTRI is required to observe the general rules on the use of the ITF funding that are applied to other ITF recipient organisations.

1.9 Since its inception in January 2000 and up to December 2006, ASTRI incurred \$473 million on its administration cost and \$382 million on its project cost. Table 1 summarises the number of R&D projects that ASTRI had completed or was undertaking as at 31 December 2006.

Note 1: *Spinning-off normally takes the form of an outright sale of assets and intellectual property rights of one or a bundle of R&D projects which may be injected into a subsidiary company of ASTRI specifically formed for the purpose. The subsidiary company is sold to a private investor in return for cash or other consideration. The deal may involve a transfer of ASTRI staff to the buyer and may include a profit-sharing arrangement.*

Table 1
Number of projects undertaken by ASTRI
(31 December 2006)

	Number of projects completed	Number of projects in progress	Total
Full projects (Note 1)	21	16	37
Seed projects (Note 2)	25	5	30
Total	46	21	67

Sources: ASTRI records

Note 1: A full project typically lasts for one to two years with a budget of up to \$15 million.

Note 2: A seed project typically lasts up to six months with a budget not exceeding \$2 million.

Organisation structure of ASTRI

1.10 As at 31 December 2006, ASTRI had a total of 376 staff, comprising 309 R&D staff and 67 administrative and support staff. The 309 R&D staff were grouped into four interrelated technology domains, namely, IC designs, communications technologies, enterprise & consumer electronics, and material & packaging technologies. ASTRI's organisation chart as at 31 December 2006 is shown at Appendix A.

Reporting arrangements

1.11 According to the Subvention MAA, ASTRI is required to submit to the ITC annually a three-year strategic plan and an annual plan. The annual plan should include detailed draft annual estimates of income and expenditure for the forthcoming financial year and the audited accounts of the previous year. There is no requirement for ASTRI to report to or brief Panels or Committees of LegCo on a regular basis.

Audit review

1.12 The Audit Commission (Audit) has recently conducted a value for money audit on the administration of ASTRI. The audit focused on the following areas:

- (a) corporate governance (see PART 2);
- (b) remuneration and recruitment (see PART 3);

- (c) project management (see PART 4);
- (d) project cost control (see PART 5);
- (e) administrative issues (see PART 6); and
- (f) cost and achievements of ASTRI (see PART 7).

Audit has identified a number of areas where there is room for improvement and has made a number of recommendations to address the issues.

General response from the Administration and ASTRI

1.13 The **Secretary for Commerce, Industry and Technology** agrees with the audit observations and recommendations. He has said that he welcomes this value for money audit on the administration of ASTRI which should help improve ASTRI's operational effectiveness. He will work closely with ASTRI to ensure its implementation of the improvement measures as appropriate.

1.14 The **Chief Executive Officer (CEO), ASTRI** has said that ASTRI would like to thank Audit for the time and effort spent to examine ASTRI's operations. ASTRI appreciates all of the recommendations which would no doubt help further improve the overall administration of ASTRI. ASTRI will endeavour to implement the recommendations with the best efforts. He has also said that:

- (a) as a young R&D organisation, ASTRI has made substantial progress towards the fulfilment of its founding missions. In the past few years, its R&D output has grown substantially both in terms of impact to industry (the number of technologies transferred to industry grew from 2 to 10 and 18 per year during 2003-04 to 2005-06, targeting 31 in 2006-07), and intellectual property generation (the number of patent filing grew from 6 to 14 and 31 per year during 2003-04 to 2005-06, targeting 61 in 2006-07);
- (b) ASTRI recognises that there is room for further progress and improvement, not only in the R&D but also in its overall management and administration. For this reason, ASTRI has established its Corporate Governance Manual that was approved for implementation by the Board in 2003. Furthermore, ASTRI had committed concerted efforts to formulate and put into operation comprehensive management and administration procedures and obtained ISO-9001:2000 certification from the International Organization for Standardization in April 2006;
- (c) ASTRI understands that these were only the first steps towards truly well developed operations and is committed to the principles of continuous improvement that are the central tenet for ISO systems. The discrepancies identified by Audit and the recommendations made will be comprehensively

incorporated so that ASTRI can become the centre of excellence expected by the government and industry stakeholders in the shortest time possible;

- (d) an applied research organisation typically would go through several stages in its overall development. In the first stage, its efforts would primarily be spent on starting up the operation and building up its technology base. As it becomes strong enough technically, it enters a second stage where the organisation starts to fulfil its founding public missions by developing and transferring an increasing number of technologies to the industry. As these technology transfer activities start to build up industry support, track records and brand name, it then enters a third stage and begins to generate more income from industry through its various dissemination and service activities. Eventually, the accumulation of these operating results over the years would lead to the macro-level impacts such as industry building, job creation and the overall enhancement of the society's competitiveness and well being;
- (e) ASTRI is now in the second stage of development mentioned in (d) and gaining momentum at a good pace. With its 30-plus technology transfer and 60-plus patent filing output, ASTRI is building a systematic "execution platform" called "Customer-focused R&D" that is capable of producing substantial benefits to the industry on a continuous and consistent basis;
- (f) looking towards the future, he expects an increasingly mature ASTRI will continue to expand its R&D output and technology dissemination impacts continuously. By 2010, ASTRI plans to enter the third stage and earn income from the private sector equivalent to 40 percent of its R&D income. Its goals are to become one of the world's most "productive" R&D organisations both in terms of the quality of intellectual properties and the quantity of transfers to industry; and
- (g) while ASTRI is progressing well technically, a particular difficulty for ASTRI in this early stage of its development is the challenge to recruit outstanding R&D talents who are also experienced with management and administration practices. Many of ASTRI staff had to learn and acquire such skills during the course of their R&D and technology dissemination work. They would often inadvertently adopt practices that they were familiarised with prior to joining ASTRI and overlook some procedural requirements in the course of this learning curve. This might perhaps explain part of the irregularities identified by Audit. ASTRI hopes that increased attention on administrative details and ASTRI's general maturing as an organisation would overcome these initial difficulties soon.

Acknowledgement

1.15 Audit would like to acknowledge with gratitude the full cooperation of the staff of the CITB, the ITC and ASTRI during the audit.

PART 2: CORPORATE GOVERNANCE

2.1 This PART examines corporate governance issues of ASTRI.

Governance structure

2.2 ASTRI's Board of Directors (Board) comprises two government Directors, namely, the Permanent Secretary for Commerce, Industry and Technology (Communications and Technology) and the Commissioner for Innovation and Technology, and up to 18 non-government Directors (including the Chairman) appointed by the Government from different sectors (academics, professionals, industrialists and businessmen).

2.3 The Board gives strategic direction to ASTRI regarding its R&D programmes. It also monitors the progress of R&D projects. Three functional committees composed of Board members, namely the Finance and Administration Committee (FAC), the Technology Committee (TC) and the Audit Committee, have been set up to assist the Board to conduct its business. The CEO of ASTRI is responsible to the Board for the overall management of ASTRI.

Attendance rates of Directors at Board/Committee meetings

2.4 According to ASTRI's Corporate Governance Manual, the Board, the FAC and the TC should meet quarterly. The Audit Committee should meet not less than twice a year. An audit analysis of the attendance of ASTRI's Directors at Board/Committee meetings is shown in Table 2.

Table 2
Attendance of Directors at Board/Committee meetings
(2000-01 to 2006-07)

Year	Board meeting	TC meeting	FAC meeting	Audit Committee meeting (Note)
2000-01	71%	61%	80%	N/A
2001-02	73%	52%	100%	N/A
2002-03	71%	53%	79%	N/A
2003-04	74%	62%	65%	100%
2004-05	72%	68%	67%	100%
2005-06	75%	71%	94%	100%
2006-07 (up to September 2006)	69%	57%	67%	100%
Average	72%	61%	79%	100%

Source: ASTRI records

Note: The Audit Committee was established in 2003. The first meeting was held in June 2003.

Audit observations

2.5 The overall effectiveness of the governing body of any institution to fulfil its responsibilities (e.g. providing strategic insights and effective monitoring of the performance of the management) is largely dependent on its members' knowledge, experience, and competency and most important of all, commitment.

Attendance of non-government Directors

2.6 Audit found that the attendance of some Directors was low, as shown below:

- (a) in 2005-06, three non-government Directors attended only one of the four Board meetings held;

- (b) a non-government Director attended only one TC meeting and was absent from all 21 other Board/Committee meetings during his tenure from May 2000 to June 2002; and
- (c) a non-government Director attended only one of the eight Board/Committee meetings held between December 2004 and September 2006.

2.7 The low attendance of Directors at Board/Committee meetings is a matter of concern because, without the specific expertise and experience of the absentees, the effectiveness of the Board/Committees might be affected. **Audit considers that ASTRI needs to take appropriate action on this issue.** For example, reminders may be issued to those directors whose attendance at Board/Committee meetings is low.

2.8 Audit noted that the non-government directors whose attendance was low had not been re-appointed in October 2006. Audit supports this measure.

Attendance of government Directors

2.9 Audit noted that the Permanent Secretary for Commerce, Industry and Technology (Communications and Technology), who was a government Director, did not attend ten TC meetings consecutively during the period July 2004 to September 2006. The Commissioner for Innovation and Technology, as the alternate director of the Permanent Secretary, was present at five of the ten meetings. In respect of the remaining five meetings, the Commissioner for Innovation and Technology did not attend but appointed an alternate to attend. Thus, the Permanent Secretary was not represented at these five meetings.

Audit recommendations

2.10 **Audit has recommended that ASTRI should:**

- (a) **monitor the attendance of Directors at Board/Committee meetings and ascertain, where necessary, the reasons for low attendance; and**
- (b) **consider taking action to improve the attendance of Directors at Board/Committee meetings by, for example:**
 - (i) **providing adequate guidelines on the role and responsibility of Directors; and**
 - (ii) **issuing reminders to the Directors concerned if their attendance is low.**

2.11 **Audit has recommended that the Secretary for Commerce, Industry and Technology should continue to take into account the attendance of Directors at Board/Committee meetings when considering the re-appointment of non-government Directors.**

Response from the Administration

2.12 The Secretary for Commerce, Industry and Technology agrees with the audit recommendation. He has said that:

- (a) he will continue to take into account the attendance records of the non-government Directors in considering their re-appointment; and
- (b) the Permanent Secretary for Commerce, Industry and Technology (Communications and Technology) will in future appoint another officer as his alternate whenever the Commissioner for Innovation and Technology is unable to represent him at meetings of the TC.

Response from ASTRI

2.13 The CEO, ASTRI agrees with the audit recommendations. He has said that:

- (a) the quorum necessary for the transaction of business at all the Board and Committee meetings has always been met;
- (b) Directors are in general aware of their role and responsibility at Board/Committee meetings. ASTRI will remind and encourage them to participate more actively in Board and Committee meetings as appropriate; and
- (c) ASTRI will also continue to monitor the attendance of Directors as recommended.

Documentation of Committee proceedings

2.14 Audit examination of ASTRI's records showed that the FAC had held only two meetings in 2004-05 and three meetings in 2005-06 instead of four each year. No meeting of the FAC was held between September 2004 and May 2005, and between December 2005 and June 2006. Discussion papers were circulated to Directors for information and decision during these periods. However, ASTRI did not keep documentation to record Directors' comments and decisions in response to the papers circulated.

2.15 In response to Audit's enquiry, ASTRI advised in October 2006 that its Intranet system allowed Directors to report their comments and decisions on line.

Audit observations

2.16 Audit noted that ASTRI had not kept any documentation of the Directors' comments and decisions during the periods when the FAC's business was carried out by circulation of papers.

Audit recommendation

2.17 **Audit has recommended that ASTRI should maintain documentation of Directors' comments and decisions when Board/Committee's business is conducted by circulation of papers.**

Response from ASTRI

2.18 The CEO, ASTRI agrees with the audit recommendation. He has said that comments and decisions made by Directors will in future be reported to the Board at the earliest meeting following the circulation of the papers. The information will be recorded in the minutes of the meetings.

Submission of discussion papers to Board/Committees

2.19 According to the corporate governance guidelines for public bodies issued by the Hong Kong Institute of Certified Public Accountants, members of the governing board should ensure that they are provided with all the information that they need to properly consider issues to be discussed at a governing board meeting, in good time before the meeting. ASTRI's Procedure Manual also stipulates that papers for Board/Committee meetings should be issued to Directors seven days in advance.

Audit observations

2.20 Audit examination of ASTRI records showed that the seven-day requirement was not always met. Audit noted of the ten Board meetings held during the period June 2004 to September 2006, the seven-day requirement was met in only three meetings.

Audit recommendation

2.21 **Audit has recommended that ASTRI should remind its staff to comply with the seven-day requirement for distributing papers for Board/Committee meetings.**

Response from ASTRI

2.22 The CEO, ASTRI agrees with the audit recommendation. He has said that ASTRI will draw up a schedule setting out the deadlines for each preparatory step of Board/Committee meetings to ensure that papers are prepared and issued seven days before such meetings.

Minutes of Board/Committee meetings

2.23 The minutes of meetings are the official records of the proceedings. It is therefore important that key information (such as list of attendees, views expressed, decisions made and votes taken) is completely and accurately recorded. According to ASTRI's Procedure Manual, draft minutes should be sent to Directors for comments. The revised minutes, after taking account of Directors' comments, would be submitted for Directors' confirmation at the next meeting.

Audit observations

2.24 Audit examination of the minutes of the 31 ASTRI meetings (Note 2) held during the period 2004-05 to 2006-07 (up to September 2006) revealed that there were areas where improvements could be made, as follows:

- (a) **Accuracy.** Audit noted two cases where the confirmed meeting minutes contained inaccurate information. In the first case, the names of two Directors appeared in both lists of the attendees and the absentees. The name of another Director who had attended the meeting was not included in the list of attendees. In another case, the meeting minutes did not record the attendance of a Director who had raised several questions during the meeting;
- (b) **Time taken to issue draft meeting minutes.** The time taken by ASTRI to issue draft minutes to Directors for comments ranged from 9 to 142 days. The average time lapse was 34 days;
- (c) **Documentation of comments.** ASTRI did not keep any documentation of comments received from Directors on the draft minutes; and
- (d) **Votes taken not recorded.** The Articles of Association of ASTRI and the Subvention MAA stipulate that questions arising at any meetings should be

Note 2: *The 31 meetings comprised ten Board meetings, ten TC meetings, seven FAC meetings and four Audit Committee meetings.*

decided by a majority of votes which must include the votes of all government Directors. Audit noted that votes taken at meetings had not been recorded.

Audit recommendations

2.25 Audit has recommended that ASTRI should:

- (a) **ensure the accuracy of information recorded in minutes of Board/Committee meeting;**
- (b) **ensure that draft minutes for Board/Committee meetings are issued to Directors for comments as soon as possible, and that Directors' comments are documented; and**
- (c) **provide information on the votes taken at Board/Committee meetings in the minutes of meeting.**

Response from ASTRI

2.26 The CEO, ASTRI agrees with the audit recommendations. He has said that:

- (a) the minutes of all the Board and Committee meetings held since September 2006 were issued within 14 to 30 days;
- (b) the inaccurate information reported in paragraph 2.24(a) has been rectified; and
- (c) so far, the decisions made at Board/Committee meetings had been reached through consensus. If there is a need to vote in future, the votes taken will be recorded in the minutes.

Management of conflict of interest

2.27 At a meeting of the LegCo CI Panel held in February 2006 to discuss the establishment of the proposed R&D Centre to be hosted by ASTRI, the Deputy Chairman of the Panel stressed that the selection of R&D projects by ASTRI should be fair, open and objective. He cautioned that while ASTRI could undertake projects sponsored by companies, it should ensure that its resources would not be used by individual private enterprises to pursue their own R&D projects.

2.28 To improve the transparency of ASTRI's project selection process, it is important for ASTRI to establish guidelines to define what constitutes a conflict of interest and to put in place procedures to address situations where there is actual or perceived conflict of interest.

Declaration of interests by Directors

2.29 In December 2001, the Board approved a two-tier system for Directors to disclose their pecuniary interests and conflicts of interests as and when such situations arose in conducting meetings. At the beginning of each year, Directors are invited to report their pecuniary interests by completing a register of interest form. The completed forms are kept in a Register of Directors' Interests. The types of interests required for registration include:

- (a) proprietorship, partnership or directorship of local or overseas companies;
- (b) remunerated employment and offices; and
- (c) shareholdings in any public or private companies which represent 1% or more of the issued share capital of the companies concerned.

2.30 Under the two-tier system, if a Director has any interest in any matter under consideration at Board/Committee meetings, he is required to disclose his interest to the Chairman prior to the discussion of the matter. The Chairman would then decide whether the Director concerned may speak or vote in the matter, remain at the meeting as an observer or should withdraw from the meeting. All cases of declaration of interests should be recorded in the minutes of the meeting.

Preservation of secrecy of confidential information

2.31 In order to enhance the accountability and protect the integrity of ASTRI's projects, the Board agreed in December 2001 that all Directors should sign a non-disclosure agreement (NDA) relating to individual R&D projects.

Audit observations***Register of Directors' Interests***

2.32 Audit examination of ASTRI's Register of Directors' Interests revealed that the completed register of interest forms for the period April 2003 to August 2006 could not be located. In response to Audit's enquiry, the Director of Administration of ASTRI said in October 2006 that the folder containing the register of interest forms in question was found lost in August 2006.

2.33 **Audit considers that ASTRI needs to improve its record keeping system. ASTRI may need to review the need for making its Register of Directors' Interests available for public inspection to enhance transparency and accountability.**

Signing of NDAs

2.34 Audit examination of ASTRI's records indicated that from December 2001 to December 2006, 37 full R&D projects and 30 seed projects had been approved. Of these 67 projects, NDAs were signed for only 11 full projects. However, in these 11 full projects, NDAs were not signed by all Directors. Table 3 shows the audit findings.

Table 3
Number of Directors
who did not signed NDAs since December 2001

Project	Number of Directors
A	6
B	6
C	6
D	6
E	16
F	13
G	13
H	16
I	16
J	13
L	13

Source: ASTRI records

2.35 Since December 2002, no Directors had signed any NDA. **Audit considers that ASTRI needs to ascertain the reasons for not signing NDAs by its Directors and remind them to comply with the requirement.**

Audit recommendations

2.36 **Audit has recommended that ASTRI should:**

- (a) **investigate the reasons for the loss of Directors' completed register of interest forms, and take action to improve the record keeping system to ensure that company records are properly maintained and safely kept;**
- (b) **consider setting a time-frame for making available the Register of Directors' Interests for public inspection; and**
- (c) **take action to ensure that NDAs are signed by all Directors for all projects undertaken by ASTRI.**

Response from ASTRI

2.37 The CEO, ASTRI has said that:

- (a) the loss of the completed register of interest forms was most probably due to the relocation of ASTRI Headquarters (HQ) in April 2006. To prevent recurrence of similar incidents, the forms are locked and kept in a cabinet under the custody of the Director of Administration of ASTRI;
- (b) Directors have been informed that their declaration of interests may be made available for public inspection upon request. ASTRI will seek the Board's views on the time-frame and arrangement for making available the Register of Directors' Interests for public inspection; and
- (c) according to the legal advice ASTRI obtained recently, Directors have a fiduciary duty at both equity and common law to act in good faith, i.e. in the best interest of the company. Acting in the best interest of the company must by implication require a self-restraint not to do anything that may prejudice the interest of the company. Non-disclosure of company information is also one aspect of such fiduciary duty. The common law duty therefore exists even without any contract. Nevertheless, ASTRI will seek the Board's views on the issue.

PART 3: REMUNERATION AND RECRUITMENT

3.1 This PART examines the remuneration and recruitment practices of ASTRI and examines areas where improvements could be made.

Background

3.2 The Human Resources (HR) Department of ASTRI oversees human resources matters, including the setting of policy for remuneration and recruitment. As at 31 December 2006, the HR Department, which comprised six staff, was headed by the HR Director who reported directly to the CEO.

3.3 Prior to 2003, ASTRI, as a subvented organisation, was required to follow the “no better than” rule in remunerating its staff. The rule prescribed that the terms of service for ASTRI’s staff should not be better than those offered by the Government to comparable grades in the civil service.

3.4 In 2003, the Government ceased applying the “no better than” rule. Subvented organisations including ASTRI have since been required, among other things, to make reference to market practices in determining the remuneration packages for their staff if no comparable grades could be found in the civil service.

Pay structures

3.5 ASTRI staff, except the CEO, are graded in six pay band levels. Level One is the top level for senior management executives and R&D directors, while Level Six is the lowest level for junior supporting staff. Table 4 shows the job positions at each of the six levels.

Table 4

Job positions at each of the six levels

Level	Job positions
One	Vice President and R&D Directors Vice President (Planning) Chief Financial Officer
Two	Vice Presidents (R&D projects)/R&D Directors Vice President (Corporate Management) Director of Administration
Three	Principal R&D Engineers Directors/Senior Manager (Business Development) Administration and other supporting staff
Four	Senior R&D Engineers Administration and other supporting staff
Five	R&D Engineers Research Associates/Assistants Multi-skilled Secretarial/Clerical Staff
Six	Other junior supporting staff

Source: ASTRI records

3.6 The remuneration package for ASTRI staff, including the CEO, comprises a basic salary and an annual performance-based variable payment of up to 15% of their basic salary. Before 2004, a non-accountable cash housing allowance (NCA) was offered to staff whose annual basic salary exceeded \$575,640 (Note 3). The NCA was not offered to the CEO and staff at Level One. Their employment contracts allowed them to treat up to 40% of their monthly salary as reimbursement by ASTRI for renting their residence. In 2004, the Board decided to phase out the NCA and consolidate the allowance into the basic salary.

Note 3: The median annual NCAs offered in 2004 to Levels Two and Three staff were \$204,000 and \$156,000 respectively.

3.7 In 2004, ASTRI engaged a consultant to review its pay levels and to align them with market practices. The consultant completed the review in June 2004. Among other things, the consultant found that ASTRI's pay bands for its staff at Levels One to Five were 5% to 40% **above** market level. The consultant's findings are summarised in Table 5.

Table 5

**Comparison of ASTRI salary to market
(based on 2004 consultancy review)**

ASTRI			Market Median (b)	Difference [(a)-(b)]/(a)
Level	Pay band (basic salary)	Median (a)		
One	\$1,350,000 to \$2,500,000	\$2,100,000	\$1,434,710	32%
Two	\$755,100 to \$1,193,580	\$974,340	\$922,256	5%
Three	\$498,850 to \$925,980	\$576,000	\$536,640	7%
Four	\$303,200 to \$516,720	\$420,000	\$251,412	40%
Five	\$99,150 to \$321,660	\$204,000	\$188,500	8%
Six	\$69,400 to \$161,000	\$90,000	\$135,192	(50%)

Source: ASTRI records

3.8 In September 2004, the Board accepted the consultant's findings and decided to adjust ASTRI's pay bands to the market level with effect from October 2004. Apart from adjusting the pay bands for basic salary, the Board decided to consolidate the NCA to make it part of the basic salary. Table 6 shows ASTRI's adjusted pay bands.

Table 6

**ASTRI's adjusted basic salary pay bands
(October 2004)**

Level	Adjusted basic salary pay band	Change
One	\$1,018,644 to \$2,008,594	Pay band median was reduced by 32% as per the consultant's findings.
Two	\$832,192 to \$1,468,548	Pay band median was reduced by 5% as per the consultant's findings. Median NCA (\$204,000) was consolidated into the basic salary.
Three	\$381,014 to \$886,548	Pay band median was reduced by 7% as per the consultant's findings. Median NCA (\$156,000) was consolidated into the basic salary.
Four	\$257,424 to \$507,598	Pay band median was reduced by 14%, which was 44% higher than that recommended by the consultant (Note).
Five	\$133,835 to \$263,900	Pay band median was reduced by 8% as per the consultant's findings.
Six	\$95,986 to \$189,268	Pay band median was increased by 50% as per the consultant's findings.

Source: ASTRI records

Note: The Board considered that the market median of Level Four identified by the consultant was too low and decided to adjust it upwards to \$362,570 (i.e. the mid-point between Levels Three and Five), instead of \$251,412 identified by the consultant.

Audit observations

3.9 Audit noted that, as at October 2004, 35 ASTRI staff received a salary higher than the maximum of the respective adjusted pay bands. The Board directed that these staff should retain their salary until the expiry of their contracts. If these staff's employment contracts were to be renewed, their salaries could be reviewed for possible downward adjustment. Alternatively they could be considered for promotion to a higher level, subject to a review of their job contents.

3.10 An examination of the payroll records of these 35 staff as at November 2006 showed that:

- (a) 9 staff had left ASTRI since October 2004; and
- (b) 18 staff had been promoted to a higher level.

However, the remaining eight staff, after their contract renewal, still received a salary higher than the maximum of their respective pay bands as at November 2006.

3.11 Audit also noted that, apart from the eight staff mentioned above, another ten staff received salaries higher than the maximum of the respective pay bands as at November 2006. The pay history of these ten staff showed that one of them was offered a monthly salary about 10% above the maximum of his pay band when he joined ASTRI in November 2004. The other nine staff had received above average annual salary adjustment in preceding years, which resulted in their salaries exceeding the maximum of the respective pay bands.

3.12 Audit estimated that, had the 18 staff received salaries not exceeding the maximum of the respective pay bands, their total salary cost would have been reduced by \$1.3 million up to November 2006.

Audit recommendation

3.13 **Audit has recommended that ASTRI should review the cases where staff are receiving salaries higher than the maximum of the respective pay bands, and take action to revise their salaries where appropriate.**

Response from ASTRI

3.14 The **CEO, ASTRI** agrees with the audit recommendation. He has said that:

- (a) the management had noted the anomalies (see paras. 3.10 and 3.11) and recommended measures to bring the salary of staff concerned to a level commensurate with their pay levels. All such cases were resolved by 31 January 2007; and
- (b) the Board endorsed the actions to be taken by the management to prevent recurrence of similar incidents.

Staff recruitment

3.15 Being a publicly-funded organisation, it is important that ASTRI has in place an open and fair recruitment system. ASTRI has issued a set of staff recruitment guidelines, which have been incorporated in its Corporate Governance Manual and approved by the Board.

3.16 During the period April to October 2006, ASTRI had recruited 105 new staff. Audit randomly selected 20 cases (about 19%) for examination and noted that there was room for improvement in a number of areas. The audit findings are reported in paragraphs 3.17 to 3.30.

Audit observations

Advertisement for job vacancies

3.17 According to ASTRI's guidelines, all recruitment must be made through open recruitment. Job vacancies should be advertised in at least one **local newspaper** and ASTRI's website, specifying the job descriptions, minimum academic qualifications and job experience required, and the deadline for submitting applications.

3.18 Of the 20 recruitment cases selected for examination, Audit noted that in four cases (20%), local newspaper advertisements were placed **after** selection of the successful candidates. In response to Audit's enquiry, the HR Director of ASTRI advised in November 2006 that in three of these four cases, advertisements for job vacancies were placed in overseas newspapers. The R&D Directors interviewed the three candidates overseas. In the remaining case, the new recruit was referred by ASTRI's staff.

3.19 **Audit is concerned that, contrary to the guidelines approved by the Board, the vacancies in these four cases were not advertised in at least one local newspaper. ASTRI needs to ensure that its recruitment guidelines are followed.**

Referrals by staff

3.20 Audit noted that in 5 of the 20 selected cases, the candidates were referred by ASTRI staff. In three cases (including the case mentioned in para. 3.18), the ASTRI staff making the referrals were also members of the selection panel. However, there was no documentary evidence that they had informed the selection panel.

3.21 **ASTRI needs to ensure a fair and open system in the recruitment of new staff.** For example, staff involved in the recruitment process should be required to make a declaration in writing whether they know or are related to the candidates.

Selection panel

3.22 Audit examination of the 20 selected cases also revealed that there was room for improvement in the convening of selection panel meetings for vacancies at Level Three and below:

- (a) contrary to the recruitment guidelines, the selection panel did not include a member from the HR Department. The justifications and approval for this non-compliance were not documented; and
- (b) in six cases, the selection panels comprised staff who were at a lower pay band than that of the post under recruitment.

3.23 In response to Audit's enquiry, ASTRI advised in February 2007 that:

- (a) the reason for having a representative from the HR Department in a selection panel was to answer applicants' questions on terms and conditions of appointment. However, given the manpower constraint of the HR Department, it was difficult to provide an HR staff for this secondary function at every selection panel; and
- (b) in determining the professional/technical expertise of the applicant, the panel may include staff members who have to work closely with but not necessarily more senior than the applicant.

3.24 **Audit considers that ASTRI needs to review the composition of selection panel. If it is decided that a representative from the HR Department is not necessary, the recruitment guidelines should be revised.**

Number of candidates interviewed

3.25 According to ASTRI's recruitment guidelines, all candidates who meet the pre-requisites are entitled to be invited to attend a selection interview. If the number of qualified candidates for a particular position is exceedingly large, at least five applicants should be interviewed. Audit examination of the 20 selected cases revealed that:

- (a) the number of candidates who fulfilled the pre-requisites was not recorded in four cases;

- (b) the requirement of inviting all qualified candidates (or at least five if the number of qualified candidates was exceedingly large) for interview was not complied with in six cases; and
- (c) in one of the six non-compliance cases, only one candidate was invited for interview. The justifications and approval for not inviting all candidates who fulfilled the pre-requisites were not documented.

Determining the entry pay

3.26 According to ASTRI's recruitment guidelines, the entry pay to be offered to a successful candidate should take into account the prevailing market trends, his qualifications, work experience and latest salary.

3.27 Since April 2005, ASTRI has established an entry pay formula for fixing the entry pay for new recruit. In essence, the entry pay to be offered is based on the qualifications of the new recruit, his experience and the market trend for those with similar qualifications and experience. Both the HR Department and the hiring departments may consult each other and adjust the entry pay up to 20%. The CEO's approval is required if the variation exceeds 20%.

3.28 Of the 20 cases examined by Audit, the actual entry pay in 17 cases was at variance with that determined by the entry pay formula. Higher entry pay was offered in eleven cases, and lower entry pay was offered in six cases. However, the justifications and the basis used to determine the actual entry pay offered were not documented. The audit findings are summarised at Appendix B.

3.29 In response to Audit's enquiry, ASTRI advised Audit in February 2007 that:

- (a) the entry pay formula was meant as a reference rather than the sole and rigid determining factor of entry pay. The formula formed only part of the overall consideration. Other factors not covered by the formula, e.g. job market, scarcity of specialty, and new recruit's pay before coming to ASTRI, should also be considered; and
- (b) ASTRI would offer entry pay based on the formula and then negotiate. If the offer was not accepted, new offer would be recommended by the hiring department, reviewed by HR Department and approved by the CEO.

3.30 **Audit considers that ASTRI needs to ensure that the justifications and basis for the entry pay offered should be documented for approval.**

Audit recommendations

3.31 **Audit has recommended that ASTRI should:**

- (a) **ensure that all staff are recruited in accordance with the guidelines approved by the Board. Where there are cases which require different treatment, the justifications should be documented and approval should be sought from the appropriate authority;**
- (b) **ensure an open and fair recruitment process in cases where the job applicants are referred by ASTRI staff;**
- (c) **review the composition of selection panels;**
- (d) **ensure that selection panels comprise staff of suitable seniority;**
- (e) **ensure that all candidates (or at least five if the number of qualified candidates is exceedingly large) who meet the pre-requisites of the job should be invited to attend selection interviews; and**
- (f) **ensure that the justifications and basis for determining the entry pay for new recruits are documented for approval.**

Response from ASTRI

3.32 **The CEO, ASTRI agrees with the audit recommendations. He has said that:**

- (a) **for the three cases where ASTRI interviewed candidates before the vacancies were advertised in local newspapers (see para. 3.18), they involved very strong candidates with unique technical background. ASTRI seized the first opportunity to contact these candidates in January 2006 since they could most likely be very much sought after by other companies. ASTRI will seek the prior approval of the FAC or the Board Chairman for any exceptional recruitment arrangements in future;**
- (b) **ASTRI has already set rules for selection panel members to declare conflict of interest. Acquaintances of the candidate are also not permitted to serve on these panels;**
- (c) **ASTRI is reviewing the need for representatives from the HR Department to be always a mandatory member of a selection panel;**

- (d) in the four cases reported in paragraph 3.25(a), the hiring department did not interview all the candidates because their qualifications and expertise fell considerably short of the candidates first interviewed. ASTRI will ensure that at least five qualified candidates would be interviewed in future;
- (e) ASTRI will record the justifications for not inviting qualified candidates for interview in future; and
- (f) the entry pay formula serves as a reference point rather than a rigid requirement in making employment offers. Other factors such as the market situation, the candidates' qualifications etc. have to be considered. ASTRI agrees that record of the negotiation process should be better documented and the justifications for making offers significantly higher than the formula need to be specifically stated and documented.

Performance-based variable payments

3.33 ASTRI staff, including the CEO, are entitled to a discretionary year-end performance-based variable payment. The amount of such payment for the CEO is up to \$400,000 a year and is subject to the approval of the Board. **For all other staff, the amount is determined by the CEO, based on individual staff's performance and is subject to a ceiling of 15% of their annual pay.**

3.34 Table 7 summarises the performance-based variable payments awarded for 2005-06.

Table 7

Summary of performance-based variable payments awarded for 2005-06

Performance rating (Note)	Number of staff awarded payment of					Total	Average payment
	0%	1% to 5%	6% to 10%	11% to 14%	15%		
AA	—	—	1	9	38	48	14.5%
A	1	1	4	28	42	76	13.5%
B	—	—	24	74	34	132	12.5%
C	—	6	2	—	—	8	5.0%
Total	1	7	31	111	114	264	

Source: ASTRI records

Note: The performance ratings of ASTRI staff are grouped into 5 classes. AA is the highest rating, and D is the lowest. In 2005-06, no staff was rated D.

Audit observations

3.35 Audit examination of the performance-based variable payments awarded for 2005-06 revealed that:

- (a) there were inconsistencies in the percentage of payments awarded. As shown in Table 7, the payment awarded to a staff member with a higher performance rating could be lower than that awarded to a staff with a lower performance rating; and
- (b) there was no documentation recording how the performance-based variable payments were determined.

Audit recommendations

3.36 Audit has recommended that ASTRI should:

- (a) establish a mechanism to determine the performance-based variable payments to staff based on performance rating; and

- (b) where it is considered necessary to award a performance-based variable payment different from the established mechanism, document the justifications.

Response from ASTRI

3.37 The CEO, ASTRI agrees with the audit recommendations. He has said that:

- (a) ASTRI will further strengthen the mechanism and its execution to ensure fair and meaningful distribution of performance-based variable payments; and
- (b) when distributing performance-based variable payments, the line managers have to consider a number of factors. For example, the staff's salary level and other adjustments, rewards or recognitions a particular staff may have already received prior to the adjustment exercise. These considerations may cause the percentage of performance-based variable payment not to exactly follow the relativity of performance rating.

Annual salary adjustments

3.38 ASTRI staff at Level Two and below are entitled to annual salary adjustment. At the beginning of each year, the HR Department would carry out a survey on external salary adjustment and bonus practice. Based on the survey results, the HR Department would work out the adjustment rate for the next financial year and seek approval from the CEO. The adjustment rates for 2005-06 and 2006-07 were 3% and 2.5% respectively.

3.39 According to ASTRI's guidelines, annual salary adjustments for individual staff member should be based on performance rating and existing salary. For example, a staff member with high performance rating (e.g. "AA") and a salary already at the top end of his pay band will have a lower annual salary adjustment than another staff member who performs equally well, but whose salary is at the low end of his pay band.

Audit observations

Need to obtain Board's approval for annual salary adjustments

3.40 Audit notes that ASTRI has not sought the Board's approval for the annual salary adjustment rate and the mechanism for determining the adjustment rates for individual staff. An examination of the annual salary adjustments made to staff at Levels Two to Six for 2006-07 revealed that the actual salary adjustments made varied significantly and were not consistent with staff's performance ratings. For example, in some cases, the salary

adjustment of staff with a high performance rating was less than that of staff with a lower performance rating. The audit findings are shown in Table 8.

Table 8
Annual salary adjustments for 2006-07

Performance rating	Number of staff with actual adjustment						Total
	0%	>0% to 1.5%	>1.5% to 2.5%	>2.5% to 5%	>5% to 10%	More than 10% (Note)	
AA	6	6	2	17	10	3	44
A	16	6	10	20	21	2	75
B	11	28	47	36	7	3	132
C	6	2	—	—	—	—	8
Total	39 (15%)	42 (16%)	59 (23%)	73 (28%)	38 (15%)	8 (3%)	259 (100%)

Source: ASTRI records

Note: The highest annual salary adjustments made were as follows: "AA":16%; "A":11%; "B":14% and "C":0.6%.

3.41 Audit considers that ASTRI needs to establish a mechanism to determine the annual salary adjustments for staff based on performance rating. Moreover, in view of the nature of the adjustment and the significant amounts involved, ASTRI needs to seek the Board's approval for the mechanism and the annual salary adjustment rate.

Audit recommendations

3.42 Audit has recommended that ASTRI should:

- (a) establish a mechanism to determine the annual salary adjustments for staff based on performance rating and seek the Board's approval for the mechanism and the annual salary adjustment rate; and
- (b) in cases where an adjustment made would deviate from the approved guidelines, seek approval from the appropriate authority and document the justifications for the deviation.

Response from ASTRI

3.43 The CEO, ASTRI agrees with the audit recommendations. He has said that:

- (a) the salary adjustment for the year of 2006-07 resulted from a survey by the HR Department based on the general trends of salary adjustments of similar organisations. 90% of this sum was distributed by line managers to individuals according to performance. 10% was distributed by the CEO to divisions according to divisions' performance, and then further distributed to individuals by line managers to reward individual performance. ASTRI considers that the line managers are in the best position to know staff's individual performance and the appropriate adjustments to be made. The HR Department would then assess whether the distributions made were generally fair;
- (b) the 10% distributed to divisions may cause some staff with performance rating of "B" (especially the lower salaried ones) in a high performance division to receive a higher adjustment than some of the staff in other divisions with performance rating of "A" or "AA";
- (c) for staff with lower performance receiving higher adjustment, this is due to the fact that their salaries were considered below market by their line managers; and
- (d) ASTRI will seek the Board's approval on annual salary adjustment rates. ASTRI will also propose the adjustment mechanism each year for the Board's endorsement. ASTRI will follow the mechanism agreed by the Board. In case the adjustment made deviates from the approved mechanism, ASTRI will seek approval from the appropriate authority and document justifications for the deviation.

Staff incentive payments

3.44 In April 2004, ASTRI sold three full projects in photonics packaging to an investor through a spinning-off exercise. Under the deal, ASTRI transferred to the investor the technologies, the key personnel, and equipment of the three projects. The total consideration for the deal included a cash lump sum of about \$110 million and an annual royalty of 5% of the investor's annual revenue generated from the photonics packaging business for a period of three years.

3.45 In May 2004, the Secretary for Financial Services and the Treasury and the Commissioner for Innovation and Technology agreed on the principles for the distribution of income generated from the deal, as follows:

- (a) the gross income from the sale would be split into the ITF portion and the recurrent subvention portion in accordance with the respective funding percentages;
- (b) income generated from the ITF portion would be ploughed back to the Fund;
- (c) the Government would recover the investment cost from the recurrent subvention. The remaining income generated from the recurrent subvention portion would be shared equally between the Government and ASTRI; and
- (d) ASTRI would keep its portion of net income in its reserve account.

3.46 Based on the above principles, the cash lump sum was distributed as follows:

- (a) \$97 million to the Government (\$50 million to the ITF and \$47 million to the General Revenue Account); and
- (b) **about \$13 million was kept by ASTRI** as its share of profits from the spinning-off exercise.

3.47 With regard to the \$13 million retained by ASTRI, the Board decided that \$10 million would be set aside for a staff incentive scheme to reward the 23 staff who were involved in the projects. The amount represented about 77% of ASTRI's share of profit (i.e. \$13 million). The incentive payment made to individual staff members, calculated based on a formula (Note 4) approved by the Board, ranged from \$5,800 to \$4.7 million.

Audit observations

3.48 Audit noted that while the incentive payment was approved by the Board, the basis for setting aside \$10 million for making the incentive payment had not been documented. **Audit considers that for better accountability, ASTRI needs to document the basis for determining the amount of staff incentive payment in future cases. To enhance transparency and to demonstrate the prudent use of public money, there is a need to disclose the staff incentive payments made.**

Note 4: *The formula took into account the staff's remuneration, length of service and work nature in determining the incentive payments to individual staff members.*

Audit recommendations

- 3.49 **Audit has recommended that ASTRI should in future spinning-off cases:**
- (a) **document the basis for determining the amount of staff incentive payments; and**
 - (b) **consider disclosing the staff incentive payment made to enhance transparency and demonstrate the prudent use of public money.**

Response from ASTRI

3.50 The CEO, ASTRI agrees with the audit recommendations. He has said that the amount of staff incentive payments reported in paragraph 3.48 was arrived at after negotiations with the staff concerned under the Board's guidance.

Review of senior staff's remuneration package

3.51 To enhance transparency and accountability, the Government promulgated a set of guidelines in February 2003 that require subvented organisations to review and report the number, ranking and remuneration of their top three-tier executives to their responsible Directors of Bureaux annually. Subvented organisations are also required to work out with the Government suitable arrangement for public disclosure of the report of their regular reviews.

Audit observations

Assessment of remuneration packages

3.52 In assessing the appropriateness of the number, ranking and remuneration of their top three-tier executives, subvented organisations are required to make reference to market practices if there are no comparable jobs in the civil service. Audit noted that ASTRI had engaged a consultant in 2004 to review its pay levels (see para. 3.7). However, the CEO's pay level was not included in the review. As such, the CEO's remuneration package for 2004-05 had not been assessed by making reference to market practices. Audit also noted that similar reviews had not been carried out for ASTRI's top three-tier executives for 2003-04 and 2005-06.

Disclosure of remuneration packages of senior executives

3.53 Since 2004, ASTRI has posted extracts of its reports of the annual remuneration package review of the CEO and the senior executives at Levels One and Two on its website. This information is summarised in Table 9.

Table 9

**Information provided by ASTRI
about the remuneration of its top three-tier executives**

Year	Information provided
2003-04	<p>The remuneration package of the new CEO was not more than that of the founding CEO.</p> <p>The minimum pay of the employees at second tier and below had been reduced by 10% since April 2003. Other than this, the employees' benefits remained the same.</p>
2004-05	<p>The remuneration package of the CEO had been modified to comprise fixed and variable performance-based remuneration. The modification had not increased the remuneration package of the CEO compared to that of the founding CEO.</p> <p>The remuneration packages of employees at Level One had been modified with an addition of an annual performance-based payment up to 15% of the basic salary. For Level Two employees, the pay band was modified with the incorporation of NCA into the basic salary.</p>
2005-06	Not applicable, as no relevant information was provided.

Source: ASTRI website

3.54 The information provided by ASTRI was much less than that provided by other public bodies. Audit considers that ASTRI needs to benchmark against practices on disclosure adopted by similar organisations.

Audit recommendations

3.55 **Audit has recommended that ASTRI should:**

- (a) **make reference to market practices in assessing the remuneration packages for its top three-tier executives, including that for the CEO; and**
- (b) **consider disclosing publicly the remuneration packages of its top three-tier executives (e.g. showing the amount that they receive in different bands without identifying the individuals) to enhance transparency.**

Response from ASTRI

3.56 The **CEO, ASTRI** agrees with the audit recommendations. He has said that:

- (a) ASTRI has appointed an HR consultant to periodically review the remuneration packages for all level of its staff, including himself. ASTRI will follow the government standard on the periodical reviews;
- (b) ASTRI will benchmark against practices adopted by comparable public organisations such as the Hong Kong Science and Technology Parks in disclosing the remuneration package of its top three-tier executives to the public; and
- (c) he was appointed in May 2004. The pay level consultancy study conducted for ASTRI in June 2004 therefore did not benchmark his remuneration package.

PART 4: PROJECT MANAGEMENT

4.1 This PART examines ASTRI's R&D project management and related matters.

Background

4.2 At ASTRI, the policy and procedures for the management of R&D projects are set out in the Corporate Governance Manual, which are generally in line with the requirements laid down in the ITF funding guidelines and the project agreements.

4.3 In order to ascertain the effectiveness of ASTRI's project management system, Audit examined the records of 18 full projects. Apart from three projects, all the other projects selected for examination had been completed as at December 2006. Audit noted that there was room for improvement in a number of areas.

Project planning

4.4 At ASTRI, a project plan is documented in the project proposal. In preparing the project proposals for full projects, ASTRI's project teams are required to provide information about the commercialisation potential of the project, such as:

- (a) the estimated number of customers that would adopt the new technology; and
- (b) the expected project income.

Audit observations

Information about commercialisation potential

4.5 Audit noted that ASTRI's project teams usually made little attempt to estimate the expected project income. Of the 18 project proposals examined by Audit, expected project income was estimated in only 4 projects. In the remaining 14 project proposals, no estimate of project income was provided.

4.6 Audit also noted that in 14 of the 18 project proposals examined, the project teams concerned had not estimated the number of expected customers who would use the technology to be developed. In the remaining four project proposals, three had not mentioned the basis for arriving at the expected number of customers.

4.7 **Audit considers that information about the commercialisation potential of the technology to be developed (e.g. the estimated number of customers and the expected project income) should be provided in the project proposals.** Such information helps assess the funding needs and provides quantifiable performance measures for evaluating the effectiveness and the achievement of the projects. **ASTRI needs to ensure that such information, including the basis for making the estimates, is provided in the project proposals.**

Risk analysis

4.8 It is generally accepted that risk management is an essential part of good project management practice. Project risk analysis is a valuable tool in helping management to:

- (a) identify the risk factors and assess their possible impact on the success of the R&D project;
- (b) formulate risk mitigation strategies; and
- (c) set contingencies for unanticipated events.

4.9 Sound risk management measures should ensure that:

- (a) project risks are reassessed throughout the project life cycle;
- (b) risk mitigation actions are being implemented; and
- (c) the effectiveness of the actions taken is monitored.

4.10 Audit noted that ASTRI's project management policy and procedures did not require its project teams to conduct risk analysis of the proposed R&D projects. **To enhance the project planning process, Audit considers that ASTRI needs to take action to establish a risk management process as part of its project management system.** Project risk analysis should be carried out at the project planning stage and the project risks be reassessed throughout the project period. It is also important that the results of the risk analysis and assessment are documented in project proposals and project progress reports.

Staff cost budget

4.11 ASTRI is required to provide a project budget in the project proposal. The budget comprises three components, namely, staff cost, equipment cost and other direct cost. For project proposals submitted after May 2005, the project proposal also includes a staff list showing the names of R&D staff to be involved in the project.

4.12 Of the 18 project proposals examined by Audit, four proposals included a staff list. Based on the staff lists and ASTRI's payroll records, Audit re-compiled the staff cost budgets for the four projects, and compared them to the staff cost budgets stated in the project proposals. Audit noted that in three out of the four projects examined, the staff cost budget in the project proposal was larger than that computed by Audit. The audit findings are shown in Table 10.

Table 10
Comparison of manpower budget stated in three project proposals to that computed by Audit based on project staff lists

Project	Staff cost budget stated in project proposal (\$ million)	Staff cost budget based on project staff lists and ASTRI's payroll records (Note) (\$ million)	Variance (\$ million)
U	12.30	10.78	1.52 (12%)
AA	5.40	4.65	0.75 (14%)
V	12.35	10.88	1.47 (12%)

Source: ASTRI records and Audit analysis

Note: For those posts that appeared on the staff list as posts to be recruited, Audit assumed that the new staff would be recruited when the project began and that they would be offered the expected salary provided by ASTRI in the project proposals.

4.13 **In view of the audit findings above, Audit considers that ASTRI needs to ensure that staff cost budget is accurately stated in the project proposal.**

4.14 Audit examination of the staff lists of the four project proposals revealed some inconsistencies. For example, five R&D staff were expected to be 100% involved in both Projects U and AA. However, the durations of these two projects overlapped between May and September 2006. Similar inconsistency was noted in Project Z. According to Project Z's proposal, the project leader would be 100% involved in this project throughout its project period from April 2006 to October 2007. However, during the period April 2006 to June 2007, the staff concerned was also expected to spend 36% of his time in Project V.

4.15 **Audit considers that ASTRI needs to ensure that the staff time is budgeted for correctly in the project proposal.**

Project budget for equipment

4.16 According to the ITF funding guidelines, in preparing the equipment cost budget, ASTRI needs to provide justifications for procuring the equipment and to state in the project proposal whether similar equipment is available for sharing within ASTRI or with other ITF recipient organisations. Of the 18 project proposals examined by Audit, the statement about the availability of similar equipment for sharing within ASTRI or with other ITF recipient organisations was found in only one project proposal.

4.17 **Audit considers that ASTRI needs to ensure that project teams check the availability of similar equipment for sharing within ASTRI or with other ITF recipient organisations in the project planning stage.** The checking results should be documented in the project proposals.

Audit recommendations

4.18 **Audit has recommended that ASTRI should:**

- (a) **ensure that information, such as the expected project income and estimated number of customers, about the commercialisation potential of the R&D projects being proposed and the basis for making the estimates are provided in the project proposals;**
- (b) **establish a risk management process as part of its project management system (see paras. 4.8 and 4.9);**
- (c) **ensure that the staff cost budget is accurately stated in the project proposal;**
- (d) **ensure that the staff time is budgeted for correctly in the project proposal; and**
- (e) **remind project teams to check and document in the project proposals the availability of similar equipment for sharing within ASTRI or with other ITF recipient organisations.**

Response from ASTRI

4.19 The CEO, ASTRI agrees with the audit recommendations. He has said that:

- (a) since June 2005, income projection has been included in all project proposals, except for seed projects which are exploratory in nature. All project teams have also provided information on target customers, except for seed projects;
- (b) although not systematically shown in the project proposals, risk analysis had been incorporated in ASTRI's project management process. ASTRI will ensure that systematic project risk management is carried out for all projects in future;
- (c) the discrepancies identified by Audit in budgeting project staff cost were due to the differences between using standard rates and actual salaries which could only be ascertained after the positions were filled. ASTRI will ensure that the staff cost rates used for budgeting project staff cost reflect the average actual salaries as far as possible;
- (d) in R&D projects, it is typical for researchers to work on more than one project. Staff reassignment also often occurs from proposal to actual project and from one proposal to another. Therefore, it is not unusual for overlapping of staff time, which is caused by reassignment in different proposals. The actual time charged in the projects mentioned by Audit (see para. 4.14) did not incur any double charging. ASTRI will endeavour to budget staff time as accurate as possible; and
- (e) ASTRI has in place measures to promote efficient usage of equipment. Upon reviewing new project proposals, the Planning Department reviews and comments on facility of new equipment and availability of the same equipment elsewhere in ASTRI, if any. When a purchase requisition request of new equipment is filed for an approved project, the Procurement Department will check the inventory system for availability elsewhere in ASTRI before endorsing the request. ASTRI agrees to follow the ITF guidelines to share the use of existing equipment within ASTRI or with other ITF recipient organisations.

Project monitoring

4.20 The implementation of a major project requires rigorous monitoring. This would ensure that the desired outcomes are achieved. At ASTRI, the project monitoring system requires the R&D Divisions to submit monthly progress reports in respect of the projects under the respective divisional portfolio to the Planning Department of the HQ Division. Since January 2006, monthly project progress review meetings have been held between the R&D teams and the Planning Department.

4.21 Apart from internal monitoring, the progress of projects is monitored by ASTRI's TC and the ITC. According to the project funding agreement, ASTRI is required to submit a project progress report to the TC in respect of each full project on a half-yearly basis. After being reviewed and endorsed by the TC, the half-yearly project progress report will be submitted to the ITC.

Audit observations

Project management information system not in place

4.22 Audit noted that up to December 2006, ASTRI had not put in place any computerised project management information system to record project information, such as staff time spent on projects, project financial information and progress. Instead, project information was kept by different R&D Divisions in various formats (e.g. paper files and e-mails). **Audit considers that ASTRI needs to put in place a computerised project management information system to facilitate effective project management.** Such a system can serve as a common database of project information for different projects, and enable the regular production of standardised management reports and on-line enquiry for management review.

Monthly progress reports not always submitted

4.23 Audit examination of the monthly progress reports submitted in 2005-06 and 2006-07 (up to December 2006) revealed that reports were not always submitted (see Table 11). **Audit considers that ASTRI needs to ensure that monthly progress reports are submitted by the R&D Divisions for review by the Planning Department of the HQ Division.**

Table 11

**Number of monthly progress reports not submitted
in 2005-06 and 2006-07**

Period	R&D Division A	R&D Division B	R&D Division C	R&D Division D
2005-06	3	2	2	1
2006-07 (up to December 2006)	4	2	2	0
Total	7	4	4	1

Source: ASTRI records

4.24 Audit noted that monthly project progress review meetings were not held in April, June and September to December 2006. In response to Audit's enquiry, the Project Manager of the Planning Department advised Audit in December 2006 that monthly project progress review meetings for April, June, September and December of 2006 were cancelled to make way for the TC meetings. In October and November 2006, high level annual project meetings were held between the Planning Department and each R&D Division to discuss annual project planning including progress of individual project. Separate project progress review meetings were therefore not held. In February 2007, ASTRI further advised Audit that, due to the transition to the more rigorous R&D Centre operating mode, ASTRI had a substantial increase in the number of review meetings that took place between September and December 2006. At each of these meetings, the projects were reviewed in detail. Because of this, ASTRI did not require monthly progress reports and individual project review meetings did not take place for the period.

4.25 Audit considers that ASTRI needs to ensure that project monthly review meetings are held to monitor the progress of projects. If such meetings cannot be held, the justifications should be documented for approval by the appropriate authority.

Delay in the submission of annual audited accounts

4.26 According to the ITF funding guidelines, ASTRI is required to submit for each full project an annual audited account (for the period up to 31 March each year) in or before June of that particular year to the ITC.

4.27 Of the 18 full projects examined by Audit, submission of annual audited accounts was not required in nine projects because of their short duration. The results of an audit examination of the submission records of the remaining nine annual audited accounts are shown in Table 12.

Table 12

**Submission status of annual audited project accounts of nine projects
(31 December 2006)**

Submission status	Number of accounts	Remarks
Late	5	The submission of the five accounts was late by over eight months.
Overdue	4	The submission of the four accounts was overdue by over six months.
Total	9	—

Source: ITC records

4.28 **Audit considers that ASTRI needs to ensure that annual audited accounts of projects are submitted to the ITC in accordance with the ITF funding guidelines.**

Information requested by the TC not provided

4.29 In January 2005, ASTRI proposed to the TC to adopt a new format for reporting the half-yearly project progress. The objective was to ensure that the half-yearly project progress report was concise and effective. In approving the new format, the TC suggested that information about the updated market conditions during the period should be provided in the report.

4.30 Of the 18 full projects examined by Audit, ASTRI had submitted 21 half-yearly project progress reports to the TC and the ITC in 2005-06 and 2006-07 (up to December 2006). Of these 21 half-yearly progress reports, information about the updated market conditions was provided in only 7 reports. **Audit considers that ASTRI needs to remind its project teams to provide such information in the half-yearly progress reports to the TC and ITC.**

Impact of project slippage not assessed

4.31 Setting project milestones and reporting periodically the progress in achieving these milestones are good project management practices. Where the stated project milestones are not achieved, the project teams should assess and report whether the slippage

would have any adverse impact (e.g. possible project delay/non-completion) on the project, and what corrective actions are required. For the 18 projects examined by Audit, ASTRI had submitted a total of 35 half-yearly project progress reports up to December 2006. Audit noted that project slippage was reported in eight such half-yearly reports. However, in five of these eight reports, no information was provided about the consequences or impact of the project slippage; and in four of these five reports, no information was provided about the follow-up actions taken to make up for the slippage. **Audit considers that ASTRI needs to ensure that project teams provide such information especially if there is project slippage.**

Late submission of requests for extension of project period

4.32 According to the ITF funding guidelines, if a project cannot be completed before the target project completion date, the project team should seek approval from the ITC through the TC to extend the project period. Of the 18 projects examined by Audit, request for extension of time was made in 8 projects. Audit noted that the requests were often made towards the end of the original project period. In two cases, the requests were made after the original project completion date. Details are shown in Table 13.

Table 13

Submission and approval of requests for extension of project period in eight projects

Request	Original project completion date	Request submission date	Approval date
1	29/7/2004	29/6/2004	9/8/2004
2	15/12/2004	2/12/2004	17/12/2004
3	29/1/2005	18/1/2005	16/2/2005
4	31/5/2005	26/5/2005	7/7/2005
5	31/7/2005	4/7/2005	13/7/2005
6	30/6/2006	9/8/2006	14/9/2006
7	30/6/2006	9/8/2006	21/8/2006
8	30/9/2006	28/9/2006	18/12/2006

Source: ITC records

- 4.33 In response to Audit's enquiry, ASTRI advised in February 2007 that:
- (a) extension requests are typically submitted during the later part of the project because the project team would try their best to remain on schedule until it becomes not feasible; and
 - (b) for the two cases where extension requests were made after the original project completion date (see para. 4.32), the requests had been made and approved in the TC meeting prior to the project completion date. However, due to project staff changes, longer time than anticipated had been taken to complete the applications to the ITC.
- 4.34 **Audit considers that ASTRI needs to ensure that projects are completed within the target completion date. In cases where extension of time is required, approval should be sought as soon as possible.**

Audit recommendations

- 4.35 **Audit has recommended that ASTRI should:**
- (a) **consider implementing a computerised project management information system to facilitate effective project management;**
 - (b) **ensure that monthly progress reports are submitted by the R&D Divisions for review by the Planning Department of the HQ Division;**
 - (c) **ensure that project monthly review meetings are held between the R&D Divisions and the Planning Department as scheduled. If a meeting cannot be held, the justifications should be documented for approval by the appropriate authority;**
 - (d) **ensure that the annual audited accounts of projects are always submitted to the ITC in accordance with the ITF funding guidelines;**
 - (e) **remind project teams to provide, in the half-yearly progress reports to the TC and the ITC, information about the updated market conditions, project slippages and its implications, and the corrective actions taken; and**
 - (f) **ensure that projects are completed within the target completion date. In cases where extension of time is required, approval should be sought as soon as possible.**

Response from the Administration

4.36 The **Commissioner for Innovation and Technology** agrees with the audit recommendation that ASTRI needs to submit the annual audited accounts of projects to the ITC in a timely manner. He has said that:

- (a) the delay in the submission of audited accounts is attributable to ASTRI's requirement for all its project audited accounts to be endorsed by its Audit Committee (which meets half-yearly) and then approved by the Board (which meets quarterly) before submission. The ITC has reminded ASTRI to take measures to improve the efficiency of preparing the reports;
- (b) ASTRI is reviewing its existing mechanism and procedures in order to improve the timeliness of their submission while maintaining the quality of the reports;
- (c) apart from the standard practice of sending reminders to ASTRI on late reports, the ITC will meet with ASTRI senior management regularly and discuss with them any delay in submission of audited accounts; and
- (d) the ITC will review the relevant ITF funding guidelines to ensure that the requirement is reasonable.

Response from ASTRI

4.37 The **CEO, ASTRI** agrees with the audit recommendations. He has said that:

- (a) ASTRI does have a project management information system in place to provide project management information needed. The present system allows flexibility for the R&D teams to use the project management tools that they are most familiar with so that they can manage their projects in the best way they can. ASTRI will continue to strengthen this system according to the audit recommendations. ASTRI will also evaluate the establishment of a dependable and cost-effective computerised project management information system in the future;
- (b) ASTRI will keep on strengthening the project monitoring process to make sure that all monthly progress reports are thoroughly reviewed as required;
- (c) because of the requirement stated in paragraph 4.36(a), late submission of the annual audited accounts was sometimes unavoidable. ASTRI is now working with the ITC to review the procedures with the aim of expediting the preparation and submission of the audited accounts;
- (d) ASTRI will endeavour to make sure that important market development is included in the half-yearly project progress reports; and

- (e) ASTRI will strengthen the project management process to provide follow-up action plans and report on the consequences or impact of project slippages.

Project evaluation

4.38 According to the ITF funding guidelines, ASTRI is required to submit a final project report to the ITC within two months after the completion of a project. In the project final report, ASTRI is required to report:

- (a) the achievement of individual milestones;
- (b) the achievement of deliverables;
- (c) a summary of the major activities during the report period and the results; and
- (d) the financial position of the project.

4.39 Apart from the submission of the final project report, ASTRI is required to submit to the ITC the final audited accounts of the project (for the period from the project commencement date to the project completion date) and a list of equipment purchased, within **three months** after the project completion date. ASTRI will consider the project closed once the project final report and the audited accounts are accepted by the ITC.

Audit observations

Delay in the submission of final project reports

4.40 As at December 2006, of the 18 projects examined by Audit, the final reports of 4 projects were not due for submission. Regarding the remaining 14 projects, the final reports of 12 projects were submitted late, and 2 had been overdue by about 30 days. The audit findings are reported in Table 14.

Table 14

**Delay in submission of final project reports
(based on 18 projects examined by Audit)**

Project	Submission due date	Actual submission date	Delay (days)
E	30/9/2005	9/1/2006	101
H	30/4/2005	14/5/2005	14
J	30/6/2005	20/9/2005	82
K	31/10/2005	9/1/2006	70
F	31/5/2006	16/10/2006	138
G	31/5/2006	16/10/2006	138
L	31/7/2005	20/9/2005	51
M	31/7/2005	20/9/2005	51
O	31/10/2006	20/12/2006	50
P	3/6/2006	16/10/2006	135
R	30/9/2006	20/12/2006	81
S	31/3/2006	7/7/2006	98
Q	30/11/2006	Not yet submitted	31 (as at 31/12/2006)
T	30/11/2006	Not yet submitted	31 (as at 31/12/2006)

Source: ITC records

Delay in the submission of final audited accounts

4.41 Audit noted that as at December 2006, the final audited accounts of 14 projects (out of the 18 projects examined by Audit) were due for submission. However, only one project's final audited accounts had been submitted. The audit findings are shown in Table 15.

Table 15

**Submission status of final project audited accounts
based on 18 projects examined by Audit
(31 December 2006)**

Submission status	Number of final audited accounts	Remarks
Late	1	The submission was late by 266 days.
Overdue	13	The average overdue period was about 246 days. Five of them had been overdue by over a year.

Source: ITC records

Delay in the submission of equipment lists

4.42 According to the project agreement, ASTRI should submit to the ITC a list of equipment purchased within three months of the completion of a project. This requirement is intended to facilitate equipment sharing among ITF recipient organisations. Audit noted that up to early November 2006, ASTRI had not submitted any project equipment list to the ITC. In response to the audit finding, ASTRI submitted equipment lists for 15 full projects and 13 seed projects to the ITC in mid-November 2006.

Two-stage assessment of ASTRI projects

4.43 At the meeting of the LegCo CI Panel held in February 2003, Members were informed that for the evaluation of ASTRI projects, a two-stage assessment would be adopted by the ITC. At the first stage, the assessment would focus on whether the project had been satisfactorily completed in accordance with the milestones and deliverables stipulated in the approved project proposal. At the second stage, the project would be assessed on the basis of the practical usefulness and benefits of the project deliverables to the relevant industry.

4.44 With regard to the first stage assessment, as reported in paragraphs 4.40 to 4.42, ASTRI has not been able to ensure strict compliance with the reporting requirements laid down in the ITF funding guidelines. **To facilitate evaluation of the project milestones and deliverables by the ITC, Audit considers that the ITC and ASTRI need to ensure that the reporting requirements laid down in the ITF funding guidelines are complied with in future projects.**

4.45 With regard to the second stage assessment, Audit noted that there was room for improvement. In particular, in the 12 final project reports examined by Audit, key information (such as customer feedback on the practical usefulness and benefits of the project deliverables, jobs created and sales generated from the technology transferred) was not always provided. **To ensure that the second stage assessment is carried out properly, the ITC needs to ensure that key information is provided by ASTRI.**

Audit recommendations

4.46 **Audit has recommended that the Commissioner for Innovation and Technology should, in conjunction with ASTRI, take measures to ensure that the reporting requirements laid down in the ITF funding guidelines are complied with in future projects.**

4.47 **Audit has recommended that the Commissioner for Innovation and Technology should, in respect of each full project, consider requesting ASTRI to provide key information (such as customer feedback, jobs created and sales generated from technology transferred) for assessing and reporting the practical usefulness and benefits of the project deliverables to the relevant industry.**

Response from the Administration

4.48 The **Commissioner for Innovation and Technology** agrees with the audit recommendations. He has said that ASTRI's delay in submitting project final reports and final audited accounts is attributable to ASTRI's reporting requirement that requires all final reports to be discussed and endorsed by the TC (which meets on a quarterly basis) before submission. He has also said that the ITC:

- (a) will alert ASTRI of any outstanding equipment lists at regular meetings with their senior management;
- (b) has put in place a reminder system for monitoring the submission of final reports of ITF projects;
- (c) will take measures, in conjunction with ASTRI management, to ensure that the reporting requirements laid down in the ITF funding guidelines are complied with in future projects;
- (d) will regularly meet with ASTRI senior management and discuss with them any delay in submission of project reports;
- (e) will review the relevant ITF funding guidelines to ensure that the requirement is reasonable; and

- (f) will consider ways to strengthen assessment on the practical usefulness and benefits of project deliverables to the industry. However, such assessment may sometimes be done only at a macro level and it may not always be feasible to include all key information on an individual project basis.

Response from ASTRI

4.49 The CEO, ASTRI has said that ASTRI is looking into ways to streamline the arrangements for submitting project final reports and final audited accounts to the ITC. Corrective actions have also been undertaken to ensure that project equipment lists are submitted on a timely basis.

Industry contribution

4.50 In May 2005, the LegCo CI Panel was informed that in order to demonstrate that projects undertaken by R&D Centres (see para. 1.6) would meet the needs of industry, R&D Centres, including ASTRI, would have to look for industry contribution (Note 5) to cover at least 10% of their project funding. The projects would be stopped if the industry contribution requirement was not met.

4.51 Of the 37 full projects undertaken by ASTRI, contributions from industry to cover part of the project funding were required in 11 projects. Of the 11 projects, Audit examined two projects which had to meet the industry contribution requirement by September 2006. The results are shown in Table 16.

Table 16

Industry contribution requirement and actual contribution received from two projects examined by Audit

Project	Deadline for receipt of contribution	Minimum contribution required		Cash contribution received by deadline	
		(\$)	(Percentage of project budget)	(\$)	(Percentage of project budget)
U	March 2006	1,564,700	10%	708,540	4.5%
V	September 2006	1,632,100	10%	807,300	5.0%

Source: ASTRI records

Note 5: Industry contribution includes cash and contribution in kind, license income and contracted service income.

Audit observations

Documentation of contribution in kind

4.52 According to ASTRI, Project U received contribution in kind from customers of about \$811,000, comprising equipment cost of \$55,000 and staff cost of \$756,000. However, Audit was unable to ascertain the accuracy of the staff cost because supporting documentation was lacking. In response to Audit's enquiry, the project leader concerned advised in December 2006 that a number of licensed customers of the project were involved in the project. The computation of the cost of staff provided by them was estimated based on ASTRI's knowledge about the customers. ASTRI was not in a position to ascertain the exact staff cost because such information involved the customers' internal operation.

4.53 **Given that obtaining industry contribution is one of the major project requirements, Audit considers that the ITC needs to consider specifying in the funding guidelines the requirement for proper documentation to substantiate the contribution in kind received for projects.**

Committed income from customer

4.54 According to ASTRI, Project V could meet the 10% industry contribution requirement if the committed income received from customers was taken into account. Audit noted that one of the licensed customers of Project V (Customer A) had committed to paying ASTRI US\$60,000 by three instalments. The first US\$20,000 should have been paid upon the signing of the contract in March 2006. Audit examination of the project accounts of Project V showed that up to December 2006, no payment had been received from this customer.

4.55 Apart from Customer A, ASTRI was also experiencing difficulties in collecting payment from another customer (Customer B). Customer B had committed to paying ASTRI US\$50,000 by three instalments. The first instalment should have been paid upon the signing of the contract in June 2005. However, ASTRI had not received any payment from Customer B up to December 2006.

4.56 **Audit considers that the ITC needs to consider specifying in the funding guidelines whether committed payments not honoured by customers count towards meeting the contribution requirement.**

Audit recommendations

4.57 **Audit has recommended that the Commissioner for Innovation and Technology should:**

- (a) **for projects which require contributions from industry, consider specifying in the funding guidelines the requirement for proper documentation to substantiate the contribution in kind received; and**
- (b) **determine whether committed payments not honoured by customers should be counted towards meeting the contribution requirement.**

Response from the Administration

4.58 The **Commissioner for Innovation and Technology** agrees with the audit recommendations. He has said that:

- (a) the ITC will review the ITF funding guidelines and specify the requirement for proper documentation to substantiate the contribution in kind received for ITF projects;
- (b) committed income is counted towards meeting the contribution requirement. ASTRI management should make their best efforts to collect the committed income from the customers throughout the project period; and
- (c) in case payment cannot be honoured by some customers, the original committed income would not be counted as industry contribution and ASTRI would need to identify replacement income to make up the shortfall. ITC will review the ITF funding guidelines and specify this requirement as appropriate.

Response from ASTRI

4.59 The **CEO, ASTRI** has said that:

- (a) ASTRI has already been working with the ITC on formulating the documentation for contribution in kind. Customer staff costs as contribution in kind are currently not allowed because they are too difficult to be ascertained; and
- (b) ASTRI has set up a mechanism to monitor the accounts receivable and track ageing accounts. ASTRI is taking all the necessary steps to follow up the two cases reported in paragraphs 4.54 and 4.55.

PART 5: PROJECT COST CONTROL

5.1 This PART examines ASTRI's control of project costs.

Background

5.2 For the purpose of enhancing the transparency and accountability of the use of public money, the Government has imposed certain requirements relating to the use of the ITF funding. These requirements are set out in the ITF funding guidelines and are applicable to all organisations that have sought project funding from the ITF. The salient features of the guidelines are as follows:

- (a) all ITF project funds are for the sole purpose of carrying out the projects;
- (b) separate project account should be kept for each project; and
- (c) funding should be used to cover expenditure incurred specifically for the carrying out of a project.

5.3 As one of the ITF recipient organisations, ASTRI signs a project funding agreement with the ITF for each project. The terms and conditions set out in the project funding agreement are basically modelled on those stated in the ITF guidelines.

Control of project costs

5.4 In order to ascertain whether ASTRI has a sound internal control system for project costs and whether the requirements set out in the ITF funding guidelines and agreements have been complied with, Audit randomly selected the project accounts of 18 projects for examination. The audit findings are reported in paragraphs 5.5 to 5.20.

Audit observations

Recording of project man-hours

5.5 Staff cost is the most significant cost item of ASTRI's R&D projects. In 2005-06, about 70% of project funding received from the ITF was used to cover project staff cost. It is therefore important that a reliable time recording system is in place to keep track of the staff cost in each project. Such a system can enhance the accountability of ASTRI in the use of project funding, assist the project teams to monitor and manage their staff resources, and provide records to facilitate audit checking.

5.6 To account for the staff cost incurred for each project, the heads of R&D Divisions are required to submit to the Accounts Department, at the end of each month, a manpower sheet for each project under their supervision, recording the names of R&D staff and the time they spent on the project for the month.

5.7 In response to Audit's enquiry, the Chief Financial Officer of ASTRI advised in October 2006 that a computerised manpower management information system was being developed. ASTRI had yet to set a target implementation date for the system.

5.8 **To enhance the accountability in the use of project funding and to address its own information needs, Audit considers that ASTRI needs to take action to ensure that the computerised manpower management information system under development could be implemented as soon as practicable.**

Incorrect charging of project costs

5.9 Of the 18 project accounts examined by Audit, charging of the project costs to incorrect project accounts was found in nine project accounts. The audit findings are reported below.

- (a) *Incorrect charging of staff cost to other projects.* Five projects were involved, as follows:

Project	Project budget (\$ million)	Project period
R	14.8	1/2/2005 to 31/7/2006
AL	2	15/4/2005 to 14/10/2005
M	15	1/12/2003 to 31/5/2005
V	14.8	12/12/2005 to 12/6/2007
Z	13.1	10/4/2006 to 9/10/2007

Audit noted that staff costs of \$0.37 million for Project M and \$0.56 million for Project AL had been charged to Project R in June 2005. According to ASTRI's records, such arrangements were needed because the manpower funding of Project AL had run out, and Project M had already been reported as completed. On the other hand, Audit noted that staff cost of about \$0.41 million for Project R had been charged to Projects V and Z;

- (b) ***Inclusion of staff cost for project not yet approved.*** Project U commenced in July 2005 with a budget of \$15 million. Audit examination of Project U's account revealed that it included staff cost of about \$0.7 million of Project AA. Approval for the commencement of Project AA had not yet been obtained at the time when the staff cost was charged to Project U;
- (c) ***Inclusion of material cost for other project.*** Audit noted \$115,000 of material cost for Project V was charged to Project R in August 2006. The amount was about 4% of Project V's budget for other direct costs; and
- (d) ***Charging of project cost to general administration cost account.*** Audit noted that staff cost of \$0.81 million for Project R had been charged to the general administration cost account (hereinafter referred to the subvention account). Audit also noted that overseas duty visit expenses of about \$129,000 for Project E and about \$761,000 for Project G in 2005-06 were charged to the subvention account. The amount charged represented 6% and 20% of the respective project budgets of Projects E and G for other direct costs.

5.10 **Audit noted that the project accounts were charged expenditures not related to the projects. Approved funding of a project should only be used to cover the expenditure of that specific project. ASTRI needs to take measures to ensure that project costs are charged to the correct project accounts.**

Charging of project staff cost to subvention account

5.11 Audit noted that project staff cost had been charged to the subvention account of ASTRI in 2004-05, 2005-06 and 2006-07 (up to December 2006). Table 17 shows the project staff cost charged to the subvention account.

Table 17
Project staff cost charged to subvention account
(2004-05 to 2006-07)

Year	Staff cost charged to subvention account (\$ million)
2004-05	9.1
2005-06	14.7
2006-07 (up to December 2006)	24.4
Total	48.2

Source: ASTRI records

5.12 As a matter of principle, R&D staff cost incurred for projects should not be charged to the subvention account. In response to Audit's enquiry, the Accounting Manager of ASTRI explained in November 2006 that during the interim period when the approval for a new project was pending, R&D staff cost incurred was charged to the subvention account.

5.13 **Audit considers that ASTRI needs to obtain funding approval from the ITF before the commencement of a project. Where there are difficulties in the deployment of staff during the period when a project is pending approval, ASTRI needs to report the matter to the Board and seek its approval on the arrangement that is needed (e.g. putting in place arrangements for recording and funding staff resources engaged in non-project-related work before commencement of projects).**

Charging of performance-based variable payment to project account

5.14 The remuneration package of ASTRI staff comprises a basic salary and an annual performance-based variable payment of up to 15% of their basic salary. The annual performance-based variable payment is paid in arrears in April of the following year, after the completion of the staff's annual performance appraisal.

5.15 In November 2005, approval was given for ASTRI to use the project funding from the ITF to cover performance-based variable payments made to R&D staff on the basis

that such payments formed part of the project staff cost. ASTRI would charge the full amount of performance-based variable payments to the project account in the month when payments were made to the R&D staff concerned (i.e. April each year). Audit noted that in 2006-07 (up to December 2006), a total of about \$7.4 million of performance-based variable payments had been charged to 10 project accounts.

5.16 The results of an audit examination of the performance-based variable payments made, as illustrated by three cases, are reported in paragraphs 5.17 to 5.19.

5.17 **Case 1.** Project R commenced in February 2005. For most of the time in 2005-06, about 30 R&D staff were involved in the project. However, ASTRI only charged to the project account the performance-based variable payments (about \$215,000) made to the four R&D staff who were still working on the project as at April 2006, instead of the payments made to all 30 R&D staff. **The amount charged to Project R's account was therefore understated.**

5.18 **Case 2.** Project Z commenced in April 2006. In the same month, the full amount of performance-based variable payments paid to 14 R&D staff in respect of their work on other projects was charged to the account of Project Z. **The amount charged to Project Z's account was therefore overstated.**

5.19 **Case 3.** This case concerns the performance-based variable payment made to a Level One R&D staff member, who had spent about 24% of her time in 2005-06 in three projects and about 76% in administration work. However, the full amount of the performance-based variable payment (\$231,100) made to her in April 2006 was charged to the account of only one of the three projects that she was involved in. **In Audit's view, the performance-based variable payment should have been charged to the accounts of all the three projects and the subvention account in proportion to the time spent by the employee.**

5.20 **To ensure that project costs are properly accounted for, Audit considers that ASTRI needs to draw up an accounting policy for charging performance-based variable payments to the relevant project accounts and the subvention account.**

Audit recommendations

5.21 **In order to enhance the accountability of ASTRI in the use of public funds, Audit has recommended that ASTRI should:**

- (a) take action to ensure that the computerised manpower management information system under development could be implemented as soon as practicable;
- (b) ensure that the ITF's funding guidelines are complied with, including:
 - (i) charging project expenditure (e.g. staff cost, overseas duty visit expenses and other costs) to the correct project accounts; and
 - (ii) obtaining funding approval from the ITF before commencement of a project;
- (c) where there are difficulties in the deployment of staff during the period when a project is pending approval, consider putting in place arrangements for recording and funding staff resources engaged in non-project-related work before commencement of projects;
- (d) keep records of the deployment of R&D staff, including those who are not yet engaged in approved projects;
- (e) develop an accounting policy for charging performance-based variable payments made to R&D staff to relevant accounts;
- (f) where it is not possible to comply with the ITF's funding agreement and guidelines, ensure that the justifications for non-compliance are documented and approval is obtained from the appropriate authority; and
- (g) make necessary adjustments for the project costs not charged to the correct project accounts.

Response from ASTRI

5.22 The CEO, ASTRI agrees with the audit recommendations. He has said that:

Recording of project man-hours

- (a) ASTRI will carefully evaluate and establish a dependable and cost-effective computerised manpower management system in the future;

Incorrect charging of project costs

- (b) the inclusion of staff cost for other projects and charging project cost to the subvention account (see para. 5.9) happened at the time when ASTRI first encountered the unexpected lengthy project approval lead times due to the preparation for and transition to the R&D Centre operating mode;

- (c) the inclusion of material cost for other project (see para. 5.9) was most likely a mistake and an isolated case. ASTRI would work with the ITC on possible remedial actions;
- (d) the charging of project overseas visit cost to the subvention account (see para. 5.9) was reported at a Special Committee meeting of the Board. The Committee was informed that there would be some recurrent expenses incurred for the marketing of technology and engaging customers and potential investors. This was endorsed by the Committee;

Charging of project staff cost to subvention account

- (e) certain R&D related costs were charged to the subvention account. These included, for example, senior R&D managers' time spent on managing the department rather than the project, time spent by new R&D leaders recruited and hired to prepare new project proposals and building core teams, and time spent by an R&D team waiting for approval of a new project after the completion of the old project. In future, ASTRI will continue to ensure that project expenditure is duly charged to the project account and keep the charging of the R&D staff cost that rightly belongs to the subvention account at a reasonable level;
- (f) ASTRI will seek to shorten the actual time required for the approval of projects and try its best to make just-in-time recruiting and hiring. ASTRI will also report to the Board on the staffing arrangement for cases which involve exceptional long approval lead time;
- (g) since December 2006, the HR Department has implemented a "Staff Assignment Planning" procedure. In future, assignment of R&D staff to projects will be estimated and the actual usage of staff time will be used to account for the actual cost; and

Charging of performance-based variable payments to project account

- (h) in December 2005, the FAC approved that the performance-based variable payments for R&D staff would be charged to R&D projects they work on. For the first financial year this was to be implemented, difficulties were encountered. In some cases, the project accounts had already been closed in the middle of the year, and newly added performance-based variable payments could therefore not be charged. As a result, it was necessary to continue charging part of the performance-based variable payments to the subvention account before the new arrangement was made. As budgeting for new projects would now take project staff performance-based variable payments into consideration, ASTRI expects that there will be no more such difficulties. ASTRI will continue to revisit the accounting procedures on this arrangement and ensure that project staff performance-based variable payments are charged to project account.

PART 6: ADMINISTRATIVE ISSUES

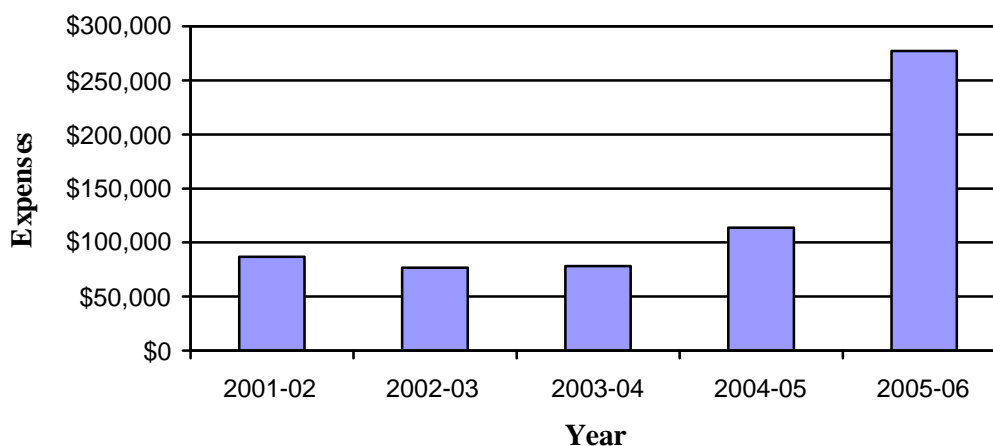
6.1 This PART reports the audit findings concerning various administrative issues of ASTRI.

Entertainment expenses

6.2 In 2005-06, ASTRI's entertainment expenses amounted to about \$277,000, which was about 140% more than those in 2004-05. Figure 1 shows ASTRI's entertainment expenses incurred in 2001-02 to 2005-06.

Figure 1

ASTRI's entertainment expenses
(2001-02 to 2005-06)



Source: ASTRI records

6.3 It is ASTRI's policy to reimburse its staff for expenses arising from entertaining ASTRI guests during the course of duty. The eligibility for reimbursement is set out in ASTRI's Corporate Circular No. 2/2001. Among other things, the Circular requires that entertainment expenses should be:

- (a) used for guests of ASTRI;
- (b) directly related to business purpose;
- (c) made by staff on official duty; and

- (d) authorised by the CEO or the Chief Administration Officer.

6.4 In July 2005, ASTRI issued a set of guidelines for the control of entertainment expenses. The guidelines stipulate that:

- (a) for budgetary control purpose, a fixed amount is earmarked by the CEO annually for each Division, having regard to its size and activities. Special approval from the CEO is required for incurring entertainment expenses in excess of the fixed amount;
- (b) ASTRI staff should aim to spend not more than \$250 per person for lunch or \$400 per person for dinner, inclusive of tips. Exceptional approval for exceeding these amounts should be sought from the CEO; and
- (c) if the guest(s) is entertained by a group of ASTRI staff, ASTRI staff should not outnumber the guest(s) by too great a margin.

Audit observations

Entertainment expenses incurred in excess of approved budget

6.5 The actual entertainment expenses incurred in 2005-06 were about \$277,000, which exceeded the annual budget of \$210,000 by 32%. A comparison of budget and actual entertainment expenses incurred by the five Divisions of ASTRI in 2005-06 is shown in Table 18.

Table 18
Comparison of budget and actual entertainment expenditure
(2005-06)

Division	Approved allocation	Actual expenditure	Variance	
			Amount	Percentage
	(a) (\$)	(b) (\$)	(c) = (b) - (a) (\$)	(d) = (c)/(a) × 100%
Enterprise & Consumer Electronics	30,000	34,505	4,505	15%
Material & Packaging Technologies	45,000	39,677	(5,323)	(12%)
IC Designs	50,000	13,489	(36,511)	(73%)
Communications Technologies	60,000	100,812	40,812	68%
Administration HQ	25,000	88,742	63,742	255%
Total	210,000	277,225	67,225	32%

Source: ASTRI records

6.6 ASTRI's records showed that the CEO had approved all the excesses. However, the justifications for the excesses were not documented. **Audit considers that ASTRI needs to remind its staff to limit entertainment expenses within budget. ASTRI also needs to ensure that approval for entertainment expenses in excess of budget is only given with sufficient justifications.**

Cases exceeding spending limits

6.7 Of 50 randomly selected entertainment reimbursement claims made in 2005-06, Audit found that nine claims involved expenses exceeding the cost-per-head spending limits stipulated in ASTRI's guidelines (see Appendix C). Audit noted that approvals were given by the CEO. However, no justifications were documented for giving such exceptional approvals (see para. 6.4(b)).

6.8 The cost-per-head spending limits stipulated in the guidelines help ensure economy when entertaining guests and avoidance of extravagance. **ASTRI needs to ensure compliance with these spending limits as far as possible.**

Number of ASTRI staff participating in entertainment functions

6.9 Audit noted that on seven occasions, the guests entertained were significantly outnumbered by ASTRI staff (see para. 6.4(c)). In all these seven cases, no explanations were provided in the claim forms to justify the large number of ASTRI staff (see Table 19). **Audit considers that ASTRI needs to ensure that the number of ASTRI staff participating in entertainment functions would not be excessive.**

Table 19

Cases where ASTRI staff outnumbered guests at entertainment function

Date	Type	Number of ASTRI staff	Number of guests	ASTRI staff outnumbered guests by
15/9/2005	Lunch	7	1	6
22/9/2005	Lunch	8	1	7
28/9/2005	Lunch	12	3	9
18/10/2005	Lunch	10	3	7
8/11/2005	Lunch	9	2	7
5/12/2005	Dinner	26	9	17
20/12/2005	Lunch	9	1	8

Source: ASTRI records

Audit recommendations

6.10 **Audit has recommended that ASTRI should tighten controls on entertainment expenses. In particular, ASTRI should:**

- (a) **remind its staff to limit entertainment expenses within budget;**

- (b) ensure that approval for entertainment expenses in excess of budget is only given under exceptional circumstances and with sufficient justifications;
- (c) remind staff that they should observe the cost-per-head spending limits. In cases where the limits are exceeded, justifications should be provided and approval should be sought; and
- (d) ensure that the number of ASTRI staff participating at entertainment functions would not be excessive.

Response from ASTRI

6.11 The CEO, ASTRI agrees with the audit recommendations. He has said that:

- (a) ASTRI's customer engagement activities had expanded rapidly over the past years and entertainment expenses involved had consequently increased. ASTRI will make better estimates on entertainment budget in future. It will also seek the approval of the Board for supplementary entertainment expense budget with the justifications documented;
- (b) among the nine cases reported in paragraph 6.7, four related to sponsorship to attend official dinners hosted by industry associations. ASTRI will document such justifications in future. ASTRI will also separate sponsorship of official dinners from the entertainment budget; and
- (c) on some occasions, there is a need for multiple staff to network with a particular guest. ASTRI will document the justifications in future.

Project-related overseas duty visits

6.12 Overseas duty visits expenses directly related to R&D projects funded by the ITF are provided for by the respective project funds. Visits that are not directly related to R&D projects are provided for by recurrent subventions and charged to the subvention account. In 2005-06, project-related overseas duty visit expenses amounted to about \$3.1 million.

Audit observations

Cases without prior approval

6.13 According to ASTRI's guidelines on overseas duty visits, all such visits shall be approved by the CEO, or the R&D Directors as authorised by the CEO. Approval of CEO's overseas duty visits rests with the Chairman of the Board. Audit examination of the records of 50 randomly selected overseas duty visits in 2005-06 revealed that in 11 cases,

the staff concerned had not obtained **prior approval** for their overseas duty visits. Instead, **covering approval** was sought upon return from the overseas visits. The audit findings are shown in Table 20.

Table 20
11 overseas duty visits approved retrospectively

Visit period	Application submission date	Application approval date
20 – 23/4/2005	25/4/2005	4/5/2005
10 – 13/7/2005	20/7/2005	9/8/2005
17 – 30/7/2005	9/8/2005	14/9/2005
25/7/2005	27/7/2005	9/8/2005
4 – 8/8/2005	9/8/2005	14/9/2005
14 – 17/8/2005	22/8/2005	14/9/2005
18 – 20/9/2005	18/1/2006	20/1/2006
12 – 13/10/2005	18/1/2006	20/1/2006
2 – 3/11/2005	19/1/2006	20/1/2006
7 – 16/11/2005	10/11/2005	22/11/2005
28/11/2005	19/1/2006	20/1/2006

Source: ASTRI records

6.14 Audit noted that in 3 of the 11 duty visits, brief explanations were given in the application forms for not seeking prior approval. In the other 8 cases, no explanation was provided.

Late applications

6.15 In June 2006, ASTRI issued a new directive about duty visit outside Hong Kong. The directive required staff to submit applications for overseas duty visits **at least ten calendar days** before the trip. The objective was to ensure that the Approving Officer would have sufficient time to consider and approve the applications.

6.16 To ascertain the incidence of compliance of this 10-day lead time requirement, Audit examined the records of all the 22 overseas duty visits made in June to August 2006. Audit noted that only in 5 (23%) cases, the 10-day requirement was met. Because of late applications, of the 22 cases examined by Audit, 15 visits had already commenced before formal approvals were given. **Audit considers that ASTRI needs to ensure that prior approval is obtained for all overseas duty visits.**

Travel by business class

6.17 The ITF funding guidelines on project-related overseas duty visits stipulate that the ITF funding should only be used to cover the cost of economy class air fares. Audit noted that in two overseas trips, the staff travelled by business class to the United States. The fares for the two trips were about \$38,400 and \$50,000. **Audit considers that ASTRI needs to ensure that staff undertaking project-related overseas duty visits would travel by economy class.**

Number of participants in overseas duty visits

6.18 The ITF funding guidelines on overseas trip stipulate that the number of participants should be limited to no more than one person from each project team. Audit noted non-compliance with the requirement in two overseas duty visits. In one case, **three** R&D staff members travelled to the United States to attend a conference. The total cost incurred was about \$68,000. In another case, **seven** R&D staff members travelled to Shanghai to co-organise a seminar. The total cost was about \$40,000. Audit could not find documented justifications for relaxing the limit on the number of project team members participating in overseas duty visits.

Audit recommendations

6.19 **Audit has recommended that ASTRI should:**

- (a) **ensure that prior approval is obtained for all overseas duty visits;**
- (b) **remind staff of the requirement that applications for overseas duty visits must be submitted at least ten days in advance. In cases where urgent approval is needed, the justifications should be documented;**
- (c) **ensure that staff undertaking overseas duty visits relating to ITF funded projects would travel by economy class; and**
- (d) **ensure compliance with the requirement for limiting the number of participants in project-related overseas duty visits to no more than one person from each project team.**

Response from ASTRI

6.20 The CEO, ASTRI agrees with the audit recommendations. He has said that:

- (a) ASTRI will try its best to enforce the 10-day requirement for seeking approval for overseas duty visits. Any approval given for exceptional cases will be fully documented;
- (b) ASTRI will make sure that the ITF funding guidelines on project-related overseas duty visits are followed; and
- (c) there are cases where the number of participants in overseas duty visits will be more than one person from each project team. ASTRI will seek approval from the ITC as required under the ITF guidelines if funding from the ITF is to be used, or will document the justification internally if the additional expenses required are to be charged to the subvention account.

Non-project-related overseas duty visits

6.21 For non-project-related overseas duty visits, ASTRI's guidelines stipulate that economy class passage should be booked for as far as practicable for all staff except the CEO who will travel by business class on all occasions. Subject to the availability of funds and approval from the CEO, staff at Level 2 or above may also travel by business class if the flying time exceeds 9 hours. The CEO may give exceptional approval to upgrade the air passage from economy to business class **for essential operational reasons**. In 2005-06, non-project-related overseas duty visit expenses amounted to about \$2.2 million.

Audit observations

Travel by business class

6.22 Audit had examined all non-project-related overseas duty visits in 2006-07 (up to December 2006). Audit found that the CEO had approved upgrading on three occasions where the staff member concerned travelled by business class for non-project-related trips to Beijing and Shanghai (the flying time was less than 9 hours). According to the HR Director of ASTRI, the staff member concerned claimed that she could not fly economy class for health reasons. There were no supporting medical certificates for her claims or any justifications for arranging her to travel by business class.

6.23 According to ASTRI's guidelines, the CEO can only give exceptional approval to upgrade air passage from economy class to business class for **essential operational reasons**. Therefore, it is unclear whether the CEO's approval for these three cases, based on health reasons, was appropriate in the circumstances.

Audit recommendation

6.24 **Audit has recommended that ASTRI should clarify if the Board's approval is needed for staff to travel by business class for reasons other than essential operational reasons.**

Response from ASTRI

6.25 The CEO, ASTRI agrees with the audit recommendation. He has said that he approved the cases because of physical difficulties of the staff member concerned. ASTRI will ensure that such approval is given for essential operational reasons or other reasons as approved by the Board in future.

Procurement of air tickets

6.26 ASTRI purchases a considerable number of air tickets. Audit examination of ASTRI's air ticket procurement in 2005-06 revealed that there was room for improvement in the following areas.

Audit observations

Quotation for air ticket procurement

6.27 According to ASTRI's guidelines, at least two quotations should be obtained for the procurement of air tickets. However, Audit noted that of the 175 tickets purchased in 2005-06, 21 were purchased without obtaining a second quotation. **Audit considers that ASTRI needs to ensure that at least two quotations are obtained for purchasing air tickets.**

Establishing term contract with travel agent

6.28 In view of the large volume of air tickets purchased by ASTRI, Audit considers that significant cost savings might be achieved if there is an agreement with travel agents or airlines for corporate discount or rebates on bulk purchase of air tickets.

6.29 In response to Audit's enquiry, the Director of Administration of ASTRI advised that ASTRI had explored the feasibility of setting up bulk purchase contract for air tickets with travel agents in 2005. A tendering exercise was conducted in August 2005. However, ASTRI and the travel agent that was selected through the tendering exercise could not agree on the contract terms. The tendering exercise was eventually cancelled by ASTRI. **In view of the potential saving that might be achieved, ASTRI needs to revisit the feasibility of**

entering into an agreement with travel agents or airlines for the bulk purchase of air tickets.

Audit recommendations

6.30 **Audit has recommended that ASTRI should:**

- (a) **ensure that at least two quotations are obtained for purchasing air tickets; and**
- (b) **revisit the feasibility of entering into an agreement with travel agents or airlines for the bulk purchase of air tickets.**

Response from ASTRI

6.31 The **CEO, ASTRI** agrees with the audit recommendations. He has said that:

- (a) with regard to the purchase of air tickets without obtaining a second quotation (see para. 6.27), it is believed that most of the purchases had been made to meet urgent requirements or had arisen from sudden change of duty schedules. ASTRI has put in place a new procedure to ensure that at least two quotations are obtained for purchasing air tickets; and
- (b) ASTRI is prepared to look into the feasibility of entering into agreement with travel agents or airlines for the bulk purchase of air tickets again in due course.

Company vehicles

6.32 As at December 2006, ASTRI had four company vehicles. In 2005-06, the running costs of these four vehicles together with the annual staff cost of the four drivers were about \$1.2 million.

Audit observations

Vehicle log records

6.33 According to ASTRI General Circular No. 1/2001 issued in 2001, all journeys undertaken in company vehicles must be recorded in the vehicle log books by the drivers and countersigned by the staff who have taken the journey.

6.34 Audit examination of the vehicle log books of ASTRI's company vehicles during the period January to November 2006 revealed that:

- (a) one of the drivers did not keep any vehicle log records;
- (b) the other three drivers started keeping vehicle log records in July 2006; and
- (c) vehicle log records were not countersigned by the staff who took the journey on many occasions.

6.35 **Audit considers that ASTRI needs to ensure that all journeys undertaken in company vehicles are recorded in vehicle log books and countersigned by the staff who have taken the journey.**

Utilisation of company vehicles

6.36 At ASTRI, company vehicles users are required to make their bookings with the Administration Division. A vehicle booking diary is kept to record all the bookings. Audit examination of the vehicle booking diary revealed that the utilisation of ASTRI's company vehicles was low. The audit findings are shown in Table 21.

Table 21

**Utilisation of company vehicles
(January to November 2006)**

Vehicle	Number of days			Total
	Not utilised	Utilised for		
		1 to 2 journeys per day	3 or more journeys per day	
A	25	155	48	228
B	32	163	33	228
C	89	129	10	228
D	46	133	49	228
Total	192 (21%)	580 (64%)	140 (15%)	912 (100%)

Source: ASTRI records

6.37 In view of the low utilisation of ASTRI's company vehicles, Audit considers that ASTRI needs to review whether there is scope for reducing the number of company vehicles.

Cost-effectiveness of the use of company vehicles

6.38 According to ASTRI's General Circular No. 1/2001, it is not advisable to use company vehicle to carry one person to a place accessible by public transport. Staff are encouraged to exercise economy in selecting the most effective means of transport.

6.39 Audit noted that during the period April to October 2006, the driver of Vehicle C visited the Immigration Department in Wanchai 47 times to handle working visa application matters on behalf of ASTRI's staff. Instead of using public transport, he used Vehicle C for all these visits.

6.40 Audit considers that savings could have been achieved had the driver used public transport instead of using company vehicle (Note 6). ASTRI needs to remind its staff to pay due regard to economy in the use of company vehicles.

Audit recommendations

6.41 Audit has recommended that ASTRI should:

- (a) ensure that all journeys of company vehicles are recorded in the vehicle log books and countersigned by the staff who have taken the journey;
- (b) review whether there is scope for reducing the number of company vehicles; and
- (c) remind its staff to pay due regard to economy in the use of company vehicles (e.g. by using public transportation instead).

Note 6: According to ASTRI's records, the driver normally used Lion Rock Tunnel and Cross Harbour Tunnel on his way to Wanchai and Western Harbour Tunnel and Shing Mun Tunnel on his way back to Science Park. The total tunnel fees were \$73. Parking fees were about \$66 (three hours at an hourly rate of \$22). The estimated fuel cost was about \$60 (40 kilometres per return journey × \$1.5/kilometre). On the other hand, if the driver used public transport (e.g. train and MTR), the total cost would have been about \$40. Therefore the savings per return journey would be about \$160 (\$73 + \$66 + \$60 - \$40). The total possible savings would be about \$7,500 (\$160 × 47).

Response from ASTRI

- 6.42 The CEO, ASTRI agrees with the audit recommendations. He has said that:
- (a) ASTRI will devise appropriate procedures to ensure that all journeys undertaken in company vehicles are recorded in the vehicle log books and countersigned by staff who have taken the journey;
 - (b) ASTRI will review whether there is scope for reducing the number of company vehicles; and
 - (c) although not recorded in the log sheet, the driver of Vehicle C (see para. 6.39) had on many occasions performed other assignments (e.g. delivery of urgent mail/documents) in addition to handling the visa applications.

Fung shui consultancy fees

6.43 ASTRI had paid fees of about \$181,000 for the engagement of fung shui (Note 7) consultants to advise on relocation of office and the office environment. Details are shown in Table 22.

Table 22

**Fung shui expenses incurred
(April 2002 — November 2006)**

Date	Amount
April 2002	\$1,000
June 2004	\$99,698
October 2005 and January 2006	\$80,100
Total	\$180,798

Source: ASTRI records

Note 7: *Fung shui is a discrete Chinese belief system involving a mix of geographical, religious, philosophical, mathematical, aesthetic, and astrological ideas.*

Audit observations

6.44 In the private sector, fung shui consultants are hired by some companies to advise on relocation of office and office environment. However, it is uncommon to use public funds for such a purpose. **ASTRI is a publicly-funded applied science and technology research organisation. Audit considers that ASTRI needs to review whether the use of fung shui consultants should be continued, having regard to the nature of its work.**

Audit recommendation

6.45 **Audit has recommended that ASTRI should review whether the use of fung shui consultants should be continued, having regard to the nature of its work.**

Response from ASTRI

6.46 The **CEO, ASTRI** agrees with the audit recommendation. He has said that ASTRI management does not believe in fung shui and had allowed it to go on believing it was a local custom. ASTRI will discontinue such practice in future.

Low interest income

6.47 According to the Corporate Governance Manual, ASTRI should open separate bank accounts to deposit the recurrent and the capital subvention. Funds not immediately required shall be placed in time deposits to generate a higher level of interest income. The CEO and the Chief Financial Officer are authorised to determine the amounts and durations of the deposits, taking into account the projected cash flow requirements.

Audit observations

6.48 Audit examination of ASTRI's annual accounts revealed that, despite the fact that ASTRI was maintaining a high level of cash and bank balance for the years 2003-04 to 2005-06, the annual interest income ASTRI received was low. The audit findings are shown in Table 23.

Table 23

**ASTRI interest income
(2003-04 to 2005-06)**

Year	Interest income (a) (\$)	Average cash and bank balance (b) (\$)	Return (c) = (a)/(b)×100%
2003-04	1,715	34,621,415	0.005 %
2004-05	33,046	60,294,836	0.05 %
2005-06	749,586	72,328,724	1.04 %
Average	261,449	55,748,325	0.47%

Source: *ASTRI records*

Audit recommendation

6.49 **Audit has recommended that ASTRI should consider implementing measures to improve the rate of return on its surplus funds.**

Response from ASTRI

6.50 The **CEO, ASTRI** agrees with the audit recommendation. He has said that **ASTRI** will consider finding suitable instruments to generate a better return for the recurrent reserve. These instruments should have reasonable yield, should be of low risk and subject to the Board's approval.

PART 7: COST AND ACHIEVEMENTS OF ASTRI

7.1 This PART takes stock of the cost and achievements of ASTRI.

Cost of ASTRI's operations

7.2 In May 2005, a Member of the LegCo CI Panel, in reviewing ASTRI's expenditure budget, expressed concern about the high administration cost. He was worried that, as a sizeable portion of the funding to ASTRI would be spent on overhead expenses, there might not be sufficient resources to cater for the substantial growth of its R&D programmes.

Audit observations

7.3 Audit conducted an analysis of ASTRI's operation cost for 2004-05 to 2006-07 (up to December 2006). Audit noted that ASTRI's administration cost, at 45% of the total cost for the period from 2004-05 to 2006-07 (up to December 2006), was high. The results are shown in Table 24.

Table 24

**Break down of ASTRI operation cost
2004-05 to 2006-07 (up to December 2006)**

	2004-05	2005-06	2006-07	Total
	(\$ million)	(\$ million)	(\$ million)	(\$ million)
Project cost	86.8	116.1	100.8	303.7 (55%)
Administration cost	70.4	90.1	85.8	246.3 (45%)
Total	157.2	206.2	186.6	550.0 (100%)

Source: ASTRI records

Audit recommendation

7.4 **Audit has recommended that ASTRI should critically examine its administration cost and take action to contain such cost to a lower level.**

Response from ASTRI

7.5 The CEO, ASTRI agrees with the audit recommendation. He has said that:

- (a) ASTRI will endeavour to control the administrative cost and lower its percentages significantly as it builds up the R&D capacity for the ICT R&D Centre (which encompasses essentially all of ASTRI's future activities) in the next five years;
- (b) the administration cost includes a number of items that are not direct overhead costs but are required to be charged to the subvention account. These include, for example, expenditure related to patent application fees, engagement of external legal advisory service for the sale or licensing of ASTRI technologies, marketing and commercialisation expenses and fees to conduct studies and market research to give directions on industry needs. These cost items amounted to over \$10 million in 2005-06; and
- (c) ASTRI is building up its operating capacity, the administration cost percentage is naturally relatively higher in its early development stage. ASTRI has already made plans to reduce this percentage towards the 25 percent range in the fourth and fifth year of the R&D Centre's operation.

Evaluation of ASTRI's performance

7.6 As the Controlling Officer of the Government's recurrent subventions to ASTRI, the Commissioner for Innovation and Technology reports the following performance indicators in respect of ASTRI's performance in the Controlling Officer's Report (COR) of the Annual Estimates:

- (a) number of patents filed;
- (b) number of technology workshops/seminars organised;
- (c) number of spinning-offs completed; and
- (d) number of technology licensing arranged.

7.7 In March 2003, the CITB reported to the LegCo CI Panel that, given ASTRI's public mission, ASTRI's performance might be evaluated in due course by yardsticks including the number of technology transfer activities, joint ventures or start-ups created, number of jobs created and income and equity holdings from licensing of the intellectual properties.

Audit observations

7.8 A summary of ASTRI's performance since its inception to December 2006 is at Appendix D. Audit noted that:

- (a) the financial returns of the projects which had been sold were 341% (for three projects) and 25% (for 1 project) respectively;
- (b) the financial returns of the other 17 completed projects ranged from zero to 54%. Eleven of them had a financial return rate of 5% or less. Six projects had not filed any patent application;
- (c) among the 74 customers who made use of the research results of ASTRI, 39 (53%) were outside Hong Kong; and
- (d) ASTRI had reported its performance to the LegCo CI Panel on various occasions. However, no information had been reported or kept on the number of jobs created, income, joint-ventures or start-ups created from the application of ASTRI's technologies.

7.9 **To enhance transparency and enable the public, including LegCo, to have a better picture of ASTRI's overall performance, Audit considers that ASTRI needs to evaluate its performance by the yardsticks as reported to the LegCo CI Panel (see para. 7.7). ASTRI needs also to consider reporting the evaluation results to the LegCo CI Panel at regular intervals.**

Need for performance measures

7.10 Audit scrutinised the performance measures used by the other two publicly funded applied science and technology research institutes in Asia, namely the Electronics and Telecommunications Research Institute (ETRI) of Korea and the Industrial and Technology Research Institute (ITRI) of Taiwan. Audit noted that there were a number of performance indicators used by both ETRI and ITRI (a summary is at Appendix E) for measuring and reporting achievements (e.g. the number of patents granted, participants for seminars/workshops organised, and income generated from technology transfer). **Audit considers that ASTRI may consider setting similar performance indicators for measuring and reporting its achievements.**

Audit recommendations

7.11 **Audit has recommended that ASTRI should:**

- (a) **evaluate its performance by the yardsticks (see para. 7.7) as reported to the LegCo CI Panel;**
- (b) **report the evaluation results to the ITC at regular intervals;**
- (c) **based on good overseas practices, set performance targets and indicators for assessing and reporting to the public its achievements and performance; and**
- (d) **periodically evaluate and report its performance to the public (e.g. posting of its performance data on its website).**

7.12 **Audit has recommended that the Commissioner for Innovation and Technology, as the Controlling Officer of the annual recurrent government subventions to ASTRI, should:**

- (a) **based on the performance measures devised by ASTRI, request ASTRI to provide the ITC with its annual performance data;**
- (b) **consider publicising the performance data provided by ASTRI in the COR; and**
- (c) **consider reporting ASTRI's performance to the LegCo CI Panel at regular intervals.**

Response from the Administration

7.13 **The Commissioner for Innovation and Technology agrees with the audit recommendations. He has said that:**

- (a) **during the early stage of ASTRI's operation when its R&D capability was still growing and the commercialisation direction and effects remained at the trial stage, only the key performance indicators were included in the COR;**
- (b) **with ASTRI becoming more mature and experienced in its operation as well as R&D capability, it is an opportune time to review the present evaluation yardsticks with a view to including a wider perspective of performance targets and indicators for measuring and reporting ASTRI's achievement;**

- (c) the ITC will work out with ASTRI on the expanded performance indicators for inclusion in the COR; and
- (d) with ASTRI's establishment of its Information and Communications Technologies R&D Centre in April 2006, performance of ASTRI and the Centre already forms part of the regular report on the performance of the five R&D Centres to the LegCo CI Panel. The ITC briefed the Panel on the latest position on the establishment of the five R&D Centres in November 2006.

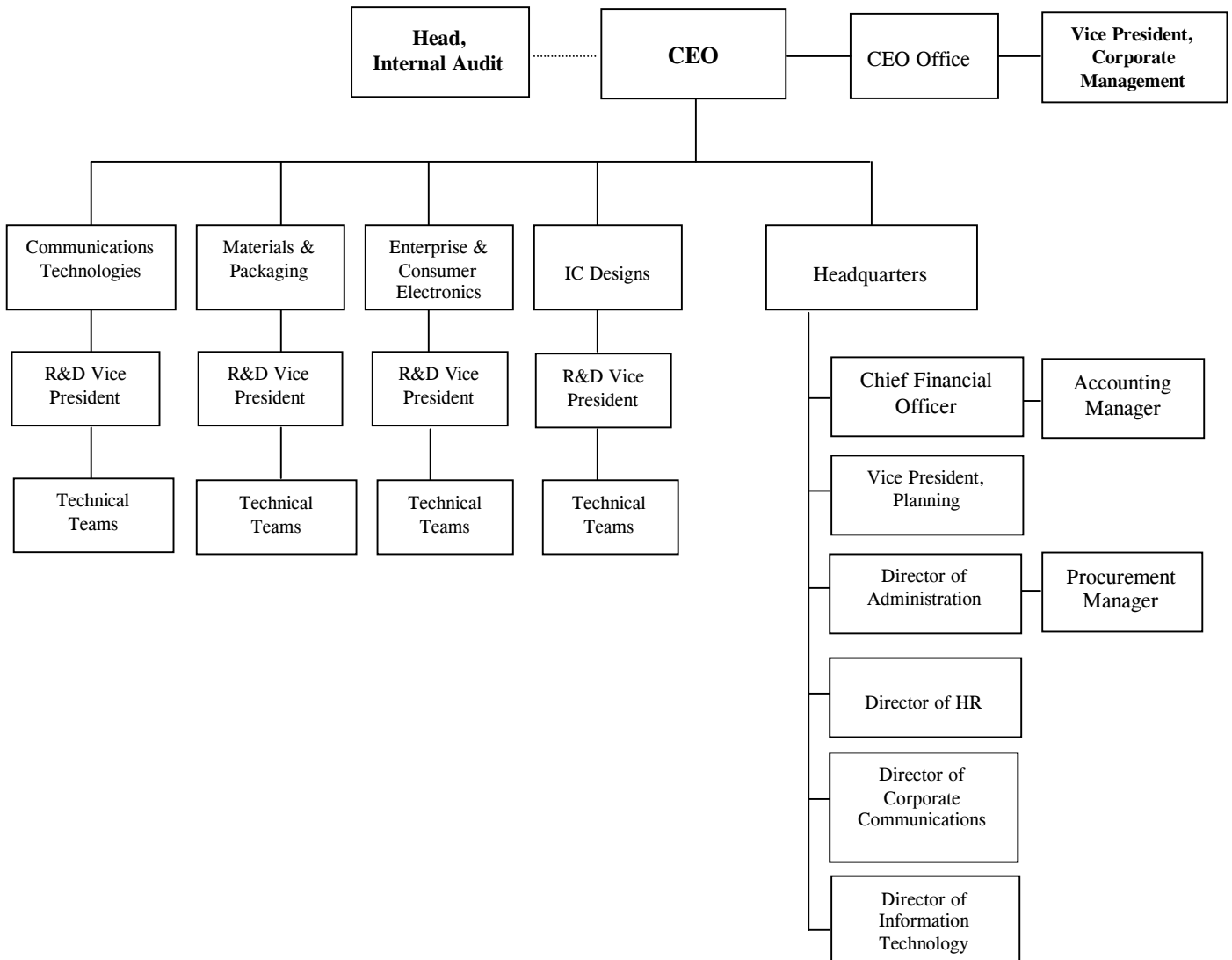
Response from ASTRI

7.14 The **CEO, ASTRI** agrees with the audit recommendations. He has said that:

- (a) ASTRI had evaluated and reported its performance to the LegCo CI Panel in November 2006; and
- (b) the 74 “customers” mentioned in paragraph 7.8(c) included companies to which ASTRI sold samples and evaluation pieces. These companies are not the companies expected to benefit through ASTRI's stated mission of technology transfers and services to the industry. For those companies to which ASTRI transferred technologies either through licensing, spin-offs or service contracts, 62% were local companies.

Hong Kong Applied Science and Technology Research Institute Company Limited

Organisation chart (extract)
(31 December 2006)



Source: ASTRI records

Analysis of entry pay based on 20 cases examined by Audit

Case	Level	Entry pay (monthly) suggested by the HR Department (a) (\$)	Actual entry pay (monthly) offered (b) (\$)	Variance	
				Amount (c) = (b)-(a) (\$)	Percentage (c)/(a)×100%
1	Three	23,200	60,000	36,800	159%
2	Three	38,400	65,000	26,600	69%
3	Three	40,900	68,000	27,100	66%
4	Three	42,760	60,000	17,240	40%
5	Three	43,000	68,000	25,000	58%
6	Three	43,000	70,000	27,000	63%
7	Three	52,300	49,000	(3,300)	(6%)
8	Three	63,400	65,000	1,600	3%
9	Three	58,400	66,000	7,600	13%
10	Four	21,500	21,500	—	—
11	Four	33,400	25,000	(8,400)	(25%)
12	Four	30,900	38,000	7,100	23%
13	Four	28,400	24,000	(4,400)	(15%)
14	Four	25,400	36,000	10,600	42%
15	Four	45,940	31,000	(14,940)	(33%)
16	Five	13,500	13,500	—	—
17	Five	18,800	20,600	1,800	10%
18	Five	20,900	20,900	—	—
19	Five	21,000	20,500	(500)	(2%)
20	Five	21,500	20,000	(1,500)	(7%)

Source: ASTRI records

**Reimbursements for entertainment expenses which
exceeded the cost-per-head spending limits
(2005-06)**

Date	Total expenses (\$)	Number of participants	Cost per head (Note 1) (\$)
(a) Lunch			
24/2/2005	4,040	6	673
17/6/2005	1,265	3	422
5/12/2005	600	2	300
9/1/2006	1,386	5	277
(b) Dinner			
29/9/2005	1,371	3	457
2/3/2006	11,976	12	998 (Note 2)
21/2/2006	23,776	24	991 (Note 3)
24/3/2006	3,000	6	500 (Note 4)
14/4/2006	9,360	12	780 (Note 5)

Source: *ASTRI records*

Note 1: *ASTRI's guidelines require that staff entertaining guests should aim to spend not more than \$250 per person for lunch and \$400 per person for dinner, inclusive of tips.*

Note 2: *This amount was incurred for attending the 2006 Annual Dinner of the Federation of Hong Kong Industries. 12 ASTRI staff attended the function at a cost of \$998 each.*

Note 3: *This amount was incurred for attending the Lunar New Year Spring Networking Dinner of the Hong Kong Critical Components Manufacturers Association Limited. ASTRI sponsored two tables at \$11,888 each. 13 ASTRI staff together with 11 guests attended the function.*

Note 4: *This amount was incurred for attending the Annual Dinner of the Hong Kong Institution of Engineers. Six ASTRI staff attended the dinner.*

Note 5: *This amount was incurred for attending the 2006 Spring Dinner of the Hong Kong Electronics Industry Council. ASTRI sponsored a table at a cost of \$9,360. 12 ASTRI staff attended the dinner.*

Appendix D
(para. 7.8 refers)

**Summary of ASTRI's performance
2000-01 to 2006-07 (up to December 2006)**

Project (Note 1)	Project cost (Note 2) (\$'000)	Income received (Note 3) (\$'000)	Financial return	Number of customers		Number of patents		Project status
				Hong Kong	Outside Hong Kong	Filed	Granted	
A	4,491	362	8.1%	4	—	—	—	Completed
B, C, D (Note 4)	32,047	109,365	341.3%	1	—	(Note 7)	(Note 7)	Completed
E, F, G (Note 5)	39,681	21,380 (Note 6)	53.9%	—	4	15	3	Completed
H	13,262	—	—	—	—	6	—	Completed
I	13,657	5	—	1	—	2	—	Completed
J	13,126	3,260	24.8%	—	1	(Note 7)	(Note 7)	Completed
K	10,124	20	0.2%	—	2	—	—	Completed
L	14,727	—	—	—	—	—	—	Completed
M	14,868	4,999	33.6%	3	1	2	—	Completed
N	12,860	10	0.1%	—	3	—	—	Completed
O	13,872	—	—	—	—	2	—	Completed
P	14,176	—	—	—	—	1	—	Completed
Q	14,114	154	1.1%	—	3	5	—	Completed
R	14,726	43	0.3%	—	2	—	—	Completed
S	9,234	14	0.2%	3	—	3	—	Completed
T	14,668	211	1.4%	—	2	6	—	Completed
U	15,828	1,238	7.8%	4	—	—	—	Completed
V	13,741	815	5.9%	3	8	—	—	In progress
W	8,298	294	3.5%	—	1	—	—	In progress
X	12,282	—	—	—	—	6	—	In progress
Y	11,428	422	3.7%	2	1	14	—	In progress

Appendix D
(Cont'd)
(para. 7.8 refers)

Project (Note 1)	Project cost (Note 2) (\$'000)	Income received (Note 3) (\$'000)	Financial return	Number of customers		Number of patents		Project status
				Hong Kong	Outside Hong Kong	Filed	Granted	
Z	8,680	1,178	13.6%	6	4	—	—	In progress
AA	6,061	386	6.4%	4	—	1	—	In progress
AB	4,050	1,189	29.4%	4	6	—	—	In progress
AC	4,212	—	—	—	—	1	—	In progress
AD	2,599	—	—	—	—	—	—	In progress
AE	3,860	—	—	—	—	2	—	In progress
AF	1,148	—	—	—	—	—	—	In progress
AG	589	—	—	—	—	—	—	In progress
AH	1,143	117	10.2%	—	1	—	—	In progress
AI	431	—	—	—	—	1	—	In progress
AJ	481	—	—	—	—	1	—	In progress
AK	2,634	—	—	—	—	—	—	In progress
Total	347,098	145,462	41.9%	35	39	68	3	

Source: *ASTRI records*

Note 1: *The analysis does not include seed projects.*

Note 2: *The analysis does not include project cost charged to the subvention account.*

Note 3: *Project income included proceeds from sale of technologies, licensing income, royalty and sale of samples.*

Note 4: *These three projects were interrelated and were spun off in 2004.*

Note 5: *The technologies developed in these three projects were interrelated and had been transferred to a customer through a 3-year exclusive licensing agreement.*

Note 6: *Income included expected royalty of \$15.6 million to be received by 2009.*

Note 7: *Patent filed was not included in this list because the technologies had already been sold.*

Appendix E
(para. 7.10 refers)

Summary of performance indicators used by ITRI and ETRI

Performance indicator	ITRI (Taiwan)	ETRI (Korea)
Number of new technologies/innovations	✓	✓
Number of patents filed	✓	✓
Number of patents granted	✓	✓
Intrinsic value of patents	×	✓
Number of scientific papers published	✓	✓
Number of technology transferred	✓	✓
Technology transferred to industry by number of clients	✓	✓
Royalty revenue	×	✓
Number of contract research by number of clients	✓	×
Number of general services to industry by number of clients	✓	×
Number of contract training organised and number of trainees	✓	×
Number of seminars held	✓	×
Number of participants for seminars	✓	×
Number of spinning-off companies	×	✓

Legend: ✓ denotes performance indicator used

× denotes performance indicator not used

Source: Audit research

Acronyms and abbreviations

Audit	Audit Commission
ASTRI	Hong Kong Applied Science and Technology Research Institute Company Limited
Board	Board of Directors
CEO	Chief Executive Officer
COR	Controlling Officer's Report
CI Panel	Panel on Commerce and Industry
CITB	Commerce, Industry and Technology Bureau
ETRI	Electronics and Telecommunications Research Institute
FAC	Finance and Administration Committee
HQ	Headquarters
HR	Human Resources
IC	Integrated Circuit
ICT	Information and Communications Technologies
ITC	Innovation and Technology Commission
ITF	Innovation and Technology Fund
ITRI	Industrial and Technology Research Institute
LegCo	Legislative Council
MAA	Memorandum of Administrative Arrangements
NCA	Non-accountable cash housing allowance
NDA	Non-disclosure agreement
R&D	Research and development
TC	Technology Committee