

## **CHAPTER 11**

**THE GOVERNMENT OF THE  
HONG KONG SPECIAL ADMINISTRATIVE REGION**

**GENERAL REVENUE ACCOUNT**

**GOVERNMENT DEPARTMENT**

**Information Technology Services Department**

**Management of information technology outsourcing  
and manpower resources**

**Audit Commission  
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# MANAGEMENT OF INFORMATION TECHNOLOGY OUTSOURCING AND MANPOWER RESOURCES

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# MANAGEMENT OF INFORMATION TECHNOLOGY OUTSOURCING AND MANPOWER RESOURCES

## Summary and key findings

A. **Introduction.** The Director of Information Technology Services is the Government's information technology (IT) adviser. The mission of the Information Technology Services Department (ITSD) is: to promote and enable the extensive adoption and use of IT in the Government; to enable individuals, businesses and the Government to interact easily and securely through the use of IT; and to promote the wider use of IT in the community. To achieve its mission, the ITSD secures its manpower resources through the employment of in-house staff and contract-in staff. In addition, the ITSD secures IT services through outsourcing. In the October 1998 Policy Address, the Government announced the adoption of a vigorous outsourcing strategy for the provision of IT services. In the October 1999 Policy Address, the Government stated the target of outsourcing two-thirds of all new IT projects by 2001. It also stated that the ITSD would progressively implement the outsourcing of application maintenance activities in consultation with user departments (paras. 1.2 to 1.10).

B. **Audit review.** Audit has recently conducted a review on the various methods adopted by the ITSD to secure IT services. The audit has also examined how the ITSD plans and controls its IT manpower resources in the light of the Government's vigorous outsourcing strategy. The audit findings are summarised in paragraphs C to G below (para. 1.11).

C. **Supply of contract-in staff.** Audit has noted that the ITSD has been taking action to improve its management of the IT manpower contracts. However, there is still scope for improvement in the turn-up rates of candidates supplied by the contractors for interviews and for services (paras. 2.7 and 2.14).

D. **Management of IT services contracts.** In 1994, the ITSD introduced a pilot arrangement, known as the Assignment Service Arrangement (ASA), for acquiring IT term services to supplement services provided by its in-house staff and contract-in staff. In 1996, the ITSD conducted a review of the pilot arrangement. The review recommended a number of improvement measures to be taken forward in a new arrangement, known as the Information Technology Services Arrangement (ITSA). In 1997, the ITSA was implemented. Up to March 2000, 123 projects had been assigned under the ASA/ITSA, with a total value of \$422 million (paras. 3.2 to 3.7). Audit has noted that:

- there is a need for the ITSD to explore ways and means to increase competition for ITSA assignments (para. 3.20);
- there is a need for the ITSD to ascertain and control its support effort on all ITSA assignments and to revise its Resources Estimation Guide based on updated data (paras. 3.34 and 3.36); and

- there is a need for the ITSD to consider including a provision for liquidated damages in future ITSA contracts (para. 3.39).

E. **Outsourcing IT activities on a departmental basis.** One of the initiatives the ITSD has undertaken is to help departments outsource their IT activities on a departmental basis (departmental outsourcing). Audit has noted that the ITSD and user departments are approaching departmental outsourcing with prudence and that the original implementation plan may be over-optimistic. Audit considers that a pragmatic and updated implementation plan is important, because it helps ensure that the ITSD provides timely and adequate support to user departments in their departmental outsourcing of IT activities. Audit has also noted that the ITSD set a target of achieving a 5% cost reduction for the outsourcing of application maintenance, and that this cost reduction target may not be achieved (paras. 4.2, 4.8 and 4.14).

F. **Manpower planning of the ITSD.** In line with the outsourcing strategy, the ITSD is changing its role from its traditional system delivery/maintenance role to that of a facilitator. There is a need for the ITSD to critically review its present and future workload and manpower needs, and to prepare a comprehensive manpower plan, in order to ensure the efficient and effective utilisation of manpower resources (paras. 5.3 and 5.9).

G. **Manpower control of the ITSD.** There is scope for improvement in the ITSD's manpower budgetary control system. The ITSD's Project and Resource Management System (PRMS), as a management tool for monitoring manpower resource utilisation, needs enhancement (paras. 6.5 and 6.8).

H. **Audit recommendations.** Audit has made the following main recommendations that:

- the Director of Information Technology Services should:
  - (a) explore ways and means to increase competition (para. 3.22(a));
  - (b) set up a mechanism for ensuring that there will be adequate competition among future ITSA contractors for each and every assignment (para. 3.22(b));
  - (c) ascertain and closely monitor the ITSD's support effort on all ITSA assignments (para. 3.37(a) and (c));
  - (d) revise the Resources Estimation Guide to take into account the updated data on the ITSD's support effort (para. 3.37(b));

- (e) consider including a liquidated damages clause in future ITSA contracts to compensate the Government for any loss resulting from contractors' delays and to deter undue delays in the completion of ITSA assignments (para. 3.40);
  - (f) in conjunction with the user departments, critically review and revise their plans for departmental outsourcing, taking into account the experience gained and the latest developments in various user departments (para. 4.9(a));
  - (g) closely monitor the implementation progress and take all necessary support actions to help user departments implement their departmental outsourcing smoothly and efficiently in order to meet their target time schedules (para. 4.9(b));
  - (h) in conjunction with the Judiciary (which is the first department to start departmental outsourcing), closely monitor the achievement of cost reduction (para. 4.15(a));
  - (i) adjust the cost reduction target in the light of experience gained and set up a mechanism for monitoring future cost reduction achievements for all IT outsourcing departments (para. 4.15(b));
  - (j) expedite action to prepare the 3-year Manpower Plan as soon as possible and ensure that the Plan is supported by a comprehensive review of both the present and future workload (para. 5.10(a) and (b));
  - (k) as part of the manpower planning exercise, critically review whether the present pace of outsourcing is appropriate, taking into account the impact of outsourcing on the utilisation of in-house staff (para. 5.10(c)); and
  - (l) take action to enhance the PRMS and use the PRMS for exceptional reporting (para. 6.9); and
- the Secretary for the Treasury should, in consultation with the Director of Information Technology Services and the Director of Government Supplies, set a financial limit for ITSA assignments so that projects exceeding this limit will be subject to normal tender procedures (para. 3.27(a)).

I. **Response from the Administration.** The Administration generally agrees with Audit's recommendations. The Director of Information and Technology Services has said that he has found the audit findings and recommendations useful. The ITSD is always striving for improvement and, in doing so, will take account of Audit's recommendations.





## **PART 1: INTRODUCTION**

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

### **Background**

1.2 The Director of Information Technology Services is the Government's information technology (IT) adviser. The mission of the Information Technology Services Department (ITSD) is:

- (a) to promote and enable the extensive adoption and use of IT in the Government;
- (b) to enable individuals, businesses and the Government to interact easily and securely through the use of IT; and
- (c) to promote the wider use of IT in the community.

1.3 The Information Technology and Broadcasting Bureau (ITBB) is the policy bureau of the ITSD. The ITSD works in three programme areas, namely, the use of IT in the Government (Programme 1), IT infrastructure and standards (Programme 2) and IT in the community (Programme 3). Under Programme 1, the ITSD's work is to assist bureaux and departments in identifying and planning for their IT needs, and to ensure the timely and cost-effective delivery of quality IT solutions. Its work includes IT programme development, enhancement, maintenance and ongoing support. In addition, the ITSD helps bureaux and departments develop their IT management and capability in order to take full advantage of the benefits of IT. Under Programmes 2 and 3, the IT infrastructure and standards and IT in the community are new programmes that the ITSD has taken up since 1998 arising from its expanded role in support of the ITBB.

### **Provision of IT manpower resources**

1.4 To achieve its mission, the ITSD secures its IT manpower resources through the following two methods:

- (a) ***In-house staff.*** As at 31 March 2000, the ITSD had 590 Analyst/Programmer (AP) grade staff (Note 1) with an annual staff cost of \$471 million; and
- (b) ***Contract-in staff.*** The ITSD acquires contract-in staff on an as-and-when-required basis through a number of term contracts (hereinafter referred to as the IT manpower contracts). As at 31 March 2000, the ITSD employed 377 contract-in staff at an annual contract cost of \$262 million.

## **Outsourcing of IT services**

1.5 To achieve its mission, the ITSD outsources many IT projects through a special assignment services contract, known as the Information Technology Services Arrangement (ITSA) contract (Note 2). In 1999-2000, projects assigned to the ITSA contractor amounted to \$152 million. Besides the ITSA contract, there are other term contracts under which IT services are outsourced. For example, under a term contract, the ITSD secures IT implementation and ongoing support services for office automation of government departments which, in 1999-2000, amounted to \$30 million. The ITSD also outsources some IT projects, which are mainly turnkey projects, through normal procurement procedures. In 1999-2000, projects outsourced through normal procurement procedures amounted to \$77 million (Note 3).

## **The adoption of a vigorous outsourcing strategy**

1.6 ***1998 Policy Address.*** In the October 1998 Policy Address, the Government announced that it would adopt a vigorous outsourcing strategy for the provision of IT services. This strategy was subsequently reaffirmed in a number of published documents and internal circulars.

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**Note 1:** *Most of the AP grade staff work in three Departmental Services Branches which are organised into Divisions and Sections. In each Section, there are several project teams. Among the three Departmental Services Branches, Branch 1 is responsible for implementing the Government Office Automation Programme, the IT outsourcing programme and the Year 2000 Compliance Programme, and Branches 2 and 3 are responsible for supporting bureaux and departments in managing their IT activities. Apart from these three Branches, the ITSD has a Corporate Services Branch, a Management and Community Services Branch, and an Infrastructure Services Branch.*

**Note 2:** *The current ITSA contract runs from June 1997 to June 2002. It replaced the previous contract, known as the Assignment Service Arrangement (ASA) contract that ended in June 1997. Paragraph 3.2 of the report refers.*

**Note 3:** *The figure did not include those IT projects which were below the value of \$1.3 million and which did not require the approval of either the Central Tender Board or the Government Supplies Department Tender Board. For these projects, no central record was available.*

1.7 **Digital 21 IT Strategy.** In the Digital 21 IT Strategy published in November 1998, the Government announced the target of outsourcing two-thirds of the Government's new IT projects by 2001 and the plan to start outsourcing of application maintenance activities in 1999-2000.

1.8 **ITSD circular.** In March 1999, the Director of Information Technology Services issued an ITSD Circular to bureaux and departments, informing them that effective from April 1999, "all new IT projects will be contracted out as the preferred option unless there are other overriding considerations". The Director also advised bureaux and departments that:

- (a) within 1999-2000, the ITSD would start to engage contractors to undertake application maintenance activities which hitherto had been performed in-house by the ITSD;
- (b) as part of the outsourcing strategy, the ITSD would also seek to enhance the capability of individual bureaux and departments to manage IT as part of their business. The ITSD would assist them to progressively assume day-to-day control of IT projects when the contractors assumed direct responsibility for service delivery and day-to-day project management; and
- (c) the ITSD would assist bureaux and departments to examine different ways to outsource the delivery of IT services (Note 4) that best met their individual needs.

1.9 **ITBB circular.** In August 1999, in an ITBB circular, the ITBB again promulgated the policy of vigorously outsourcing the development and maintenance of the Government's IT systems and services. According to that circular, the primary objective of this outsourcing strategy is to enlarge the delivery capacity for IT services, to accelerate the delivery of IT solutions, and to create a market of sufficient size to encourage the further development of the IT industry locally.

1.10 **1999 Policy Address.** In the October 1999 Policy Address, the Government stated the target of outsourcing two-thirds of all new IT projects by 2001. It also stated that the ITSD had identified the scope of application maintenance activities which could be outsourced, and that the ITSD would progressively implement outsourcing of these activities in consultation with user departments.

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**Note 4:** *The Director of Information Technology Services advised bureaux and departments in the ITSD Circular that there was a wide range of outsourcing options. It covered application system development and maintenance, network support, desktop technology support, IT helpdesk services, operation and management of computer systems and facilities, as well as the total outsourcing of all these services.*

## **Audit review**

1.11 Against the above background, Audit has recently conducted a review on the various methods adopted by the ITSD to secure IT services. The audit has also examined how the ITSD plans and controls its IT manpower resources (i.e. in-house staff and contract-in staff) in the light of the Government's vigorous outsourcing strategy. The audit has focused on, and identified scope for improvement in, the following areas:

- (a) the IT manpower contracts for the supply of contract-in staff (see PART 2 below);
- (b) outsourcing of IT projects through the ASA and ITSA (see PART 3 below);
- (c) outsourcing IT activities on a departmental basis (see PART 4 below);
- (d) manpower planning of the ITSD (see PART 5 below); and
- (e) manpower control of the ITSD (see PART 6 below).

Audit has made a number of recommendations to address the issues concerned.

## **General response from the Administration**

1.12 The **Director of Information and Technology Services** has said that he welcomes the audit review. He has found the audit findings and recommendations useful. The ITSD is always striving for improvements and will continue to do so in future. In doing so, the ITSD will take account of Audit's recommendations some of which, in fact, reflect actions which the ITSD has already initiated and are currently in progress.

1.13 The **Secretary for Information Technology and Broadcasting** supports the comments made by the Director of Information and Technology Services.

## **PART 2: SUPPLY OF CONTRACT-IN STAFF**

2.1 This PART examines how the ITSD manages the IT manpower contracts for the supply of contract-in staff to the Government.

### **Background**

2.2 Since early 1980s, the Government has been using IT manpower contracts for the supply of IT personnel (i.e. contract-in staff) on an as-and-when-required basis. IT manpower contracts are term contracts which usually last for 24 months. To ensure an adequate supply of candidates for selection, contracts are awarded to a number of contractors. For example, in the current contract period which runs from June 2000 to May 2002, contracts have been awarded to seven contractors.

2.3 Contractors have a pool of IT staff employed by them either on contract terms or permanent terms. The staff may be either engaged in other assignments or readily available to work in the ITSD if selected by the ITSD's interview board. When the need for contract-in staff arises, the ITSD selects suitable candidates for interview, based on the curricula vitae submitted from time to time by various IT manpower contractors. The ITSD prioritises the candidates and usually the ones with lower daily rates charged by the contractors will be given a higher priority for interview. Based on the interview results, the successful candidates are offered engagement and are seconded by the contractors to the ITSD to carry out IT work for a specified period of engagement. The charges for their services are paid to the contractors in accordance with the daily rates specified in the term contracts. As at 31 March 2000, the ITSD employed 377 contract-in staff at an annual contract cost of \$262 million.

2.4 *Audit findings.* Audit recently reviewed the ITSD's management of the IT manpower contracts. Audit has noted that:

- (a) the ITSD has been taking action to improve its management of the contracts (see paragraphs 2.5 to 2.8 below); but
- (b) there is still scope for improvement in the candidates' turn-up rates for interviews and for services (see paragraphs 2.10 to 2.16 below).

### **ICAC's review of the arrangement for acquiring contract-in staff**

2.5 Since 1996, the ITSD has been seeking advice from the Corruption Prevention Department of the Independent Commission Against Corruption (ICAC) on the management of the

IT manpower contracts. Based on the ICAC's advice, a number of improvements have been made. In its assignment report of June 2000, the ICAC identified a number of areas for further improvement in the ITSD's procedures and practices in the letting and administration of IT manpower contracts, including the following:

- (a) ***Supervisory checks.*** The services of contract-in staff were charged on a daily basis. They recorded their daily attendance in an attendance register maintained by a clerical officer or by the head of the project team. They also recorded any overtime work in an overtime and time-off register which was maintained for each staff member. Random checks by heads of project teams were not always performed and checks, if performed, were not always recorded. To enhance supervisory accountability, the ICAC recommended that heads of project teams should conduct random supervisory checks and properly record the checks performed;
- (b) ***Performance appraisal of contract-in staff.*** The ITSD did not carry out performance appraisal on contract-in staff, except for those whose services were terminated early due to unsatisfactory performance. The ICAC recommended that, in order to provide useful reference in selecting candidates for engagement, the ITSD should carry out performance appraisal on contract-in staff upon completion of their engagement. The ICAC further recommended that the performance appraisal information should be computerised for easy reference; and
- (c) ***Performance appraisal of contractors.*** Throughout the contract period, the ITSD monitored the performance of individual contractors by means of monthly statistical reports which contained key performance data (e.g. candidates' turn-up rate for interviews, success rate in interviews, turn-up rate for services and staff turnover rate). Half-yearly review meetings with contractors were also held. However, the ITSD did not carry out overall performance appraisal of every contractor. Performance appraisal was only done for those contractors who bid for another IT manpower contract. The ICAC recommended that the ITSD should formalise the procedures for appraising the overall performance of individual contractors.

2.6 In July 2000, the ITSD accepted the ICAC's recommendations.

### **Audit observations and recommendation on ICAC's review**

2.7 **Audit welcomes the ITSD's acceptance of the ICAC's recommendations.** The ICAC's recommended measures will enhance the ITSD's control of contract payments (see paragraph 2.5(a) above) and the ITSD's monitoring of the performance of the contract-in staff and the contractors (see paragraph 2.5(b) and (c) above).

2.8 **Audit has recommended that the Director of Information Technology Services should monitor the progress of implementing the improvement measures as recommended by the ICAC to ensure that they are put in place as soon as possible.**

### **Response from the Administration**

2.9 The **Director of Information Technology Services** has accepted the audit recommendation. He has said that all the recommendations proposed by the ICAC have been implemented and the implementation progress is being monitored. A review of the progress of implementation will be conducted with the ICAC in October 2000.

### **Candidates' turn-up rates**

2.10 As indicated in paragraph 2.5(c) above, key performance data of IT manpower contractors include candidates' turn-up rate for interviews and, after they have been selected, their turn-up rate for services. The ITSD reviews the turn-up rates in the half-yearly review meetings with the contractors.

2.11 From the statistics compiled by the ITSD, Audit has noted that:

- (a) ***Turn-up rate for interviews.*** Candidates short-listed for interviews sometimes declined the interview invitations, or they accepted the invitations but did not attend the interviews. For the period June 1998 to November 1999 (i.e. the latest readily available data), there were about 680 such cases, representing one-third of the interview invitations; and
- (b) ***Turn-up rate for services.*** Similarly, candidates selected after interviews sometimes declined the ITSD's engagement offers, or accepted the offers but did not turn up for services. For the period June 1998 to November 1999, the ITSD issued 377 engagement offers. However, 52 candidates (i.e. 14% of the offers made) declined the ITSD's offers, and 9 candidates (i.e. 2% of the offers made) who had accepted the offers did not turn up for services.

2.12 Audit has also noted that, as a deterrent measure, the ITSD will not short-list a candidate for interview again within a specified period of time (usually three months), if he has declined an interview invitation or not attended an interview for three times. This will also apply to a candidate who has declined an engagement offer, or not turned up for services after accepting an offer.



2.13 In response to Audit's enquiries on the candidates' turn-up rates, the ITSD gave the following comments in September 2000:

- (a) with regard to paragraph 2.11(a) above, it is not unusual for a candidate not to be available for a particular interview board scheduled on a fixed date, but to be available for another interview board on a future date. During the period 1998 to 2000, only one candidate had declined an invitation for interview for three times;
- (b) with regard to paragraph 2.11(b) above, the rates of declining an offer and not turning up for services should not be regarded as unacceptable, when compared with the ITSD's experience in the recruitment of the ITSD's AP staff and non-civil service contract staff. It is worth noting that the rate of failure to turn up for services, after acceptance of offer, has been decreasing. It has dropped from 3.3% under the contracts for the period 1996 to 1998 to 1.5% under the current contracts;
- (c) there are currently seven contractors. It is in their own financial interest to maximise the opportunities of having their staff interviewed and employed. The contractors' relative performance in making staff available for interviews and services will serve as a benchmark. With this benchmark, the ITSD will be able to identify contractors with unsatisfactory performance and take appropriate course of action. Such action may include issuing warning letters to the contractor and, in the extreme case, charging the contractor with a breach of the contract and terminating his contract; and
- (d) the current contract terms and the above measures are stringent enough to ensure that the contractors make the best efforts to minimise the occurrences of candidates not turning up for interviews or services. Nevertheless, the ITSD has to pragmatically consider the market situation in the actual execution of the relevant contract terms.

#### **Audit observations on candidates' turn-up rates**

2.14 In Audit's view, failure of candidates to turn up for interviews wastes the ITSD's time and effort in preparing for the interviews. Failure of candidates to turn up for services, after acceptance of offer, not only wastes the ITSD's preparation efforts, but may also affect the progress of the projects concerned. Audit notes the ITSD's comments that the candidates' turn-up rates for interviews and services should not be regarded as unacceptable (see paragraph 2.13(a) and (b) above). **However, based on the figures in paragraph 2.11 above, Audit considers that there is still scope for improvement.**

2.15 As the candidates are the contractors' employees (see paragraph 2.3 above), the contractors should take full responsibility if their employees fail to turn up for interviews or services. In this connection, Audit notes that there is a provision in the current contracts which requires the contractors to pay damages if a member of the contract-in staff resigns during the engagement period, or if the Government terminates the engagement of a member of the contract-in staff due to his unsatisfactory performance. **To further strengthen the deterrent measures, there is a need for the ITSD to consider the feasibility of applying this contract provision to require the contractors to pay damages in those cases where their employees have failed to turn up for services.**

#### **Audit recommendation on candidates' turn-up rates**

2.16 **Audit has recommended that the Director of Information Technology Services should consider taking further measures to improve candidates' turn-up rates for interviews or services. For example, the Director should consider the feasibility of requiring contractors to pay damages in those cases where their staff, after having accepted the ITSD's offers, fail to turn up for services.**

#### **Response from the Administration**

2.17 The **Director of Information Technology Services** has said that the ITSD will continue to seek improvements in the candidates' turn-up rates. He has also said that:

- (a) the ITSD will continue to monitor and use the turn-up rates as one of the performance indicators for the contractors. Appropriate action will be taken according to the current contract terms; and
- (b) with regard to the turn-up rate for interviews, the ITSD has not experienced any significant damages because, consistently, it has been able to get a sufficient number of candidates for selection at interview boards. With regard to candidates' failure to turn up for services after the acceptance of an offer, the ITSD will seek legal advice on the feasibility and applicability of the terms of the current contract in claiming damages from the contractors concerned.

## **PART 3: MANAGEMENT OF THE ASA AND ITSA CONTRACTS**

3.1 This PART examines the ITSD's management of the ITSA contracts and the pilot arrangement known as the Assignment Service Arrangement (ASA).

### **Background**

3.2 *Pilot ASA contract.* In 1994, the ITSD introduced a pilot arrangement, the ASA, for acquiring IT manpower resources to supplement its in-house staff and contract-in staff. In December 1994, through an open tender exercise, the ITSD awarded an ASA contract to a contractor. The contract period was 18 months which was later extended by 12 months to end in June 1997.

3.3 *Objectives.* The objectives of the ASA were:

- (a) to enhance access by the ITSD to IT human resources;
- (b) to strengthen the management of such resources; and
- (c) to reduce the professional and managerial resource burden of the ITSD through delegation to the contractors.

3.4 *ITSA contract.* In 1996, the ITSD conducted a review on the pilot arrangement. The review (the 1996 ASA review) confirmed the viability of the ASA and recommended improvement measures to be taken forward in a new arrangement (i.e. the ITSA). The major areas of improvement included: the introduction of multiple contractors (see paragraph 3.15(b) below); the linking of payments with deliverables; the establishment of a central control body; and the strengthening of the contractor's quality assurance management, human resources management and programme management (see Appendix A). Based on the recommendations of the 1996 ASA review, the ITSD prepared the ITSA contract. Through another open tender exercise, in June 1997, an ITSA contract (i.e. the current contract) was awarded to a contractor who happened to be the same contractor awarded with the ASA contract. The contract period of the ITSA contract was 36 months, which was later extended by 24 months to end in June 2002. Notwithstanding the extension of the current contract to June 2002, as at August 2000, the ITSD was in the process of preparing for another tender exercise with a view to awarding new ITSA contracts to more contractors. In response to Audit's enquiries, in August 2000, ITSD officers advised Audit that the new ITSA contracts would be significantly different from the current one.

3.5 **Characteristics of the ASA and ITSA.** Under the ITSA (and the previous ASA), IT projects are assigned to the contractor on an assignment basis. The contractor is required to supply the necessary manpower resources to carry out IT assignments. He is also required to complete the assignments on time, within budget and to specification. Various categories of work are assigned. They include information systems strategy studies (ISSS), feasibility studies, system analysis and design (SA&D), application development and implementation, support and maintenance, and IT project management.

3.6 **Charges under the ASA/ITSA.** Under the ASA/ITSA, the contractor charges the ITSD on an assignment basis. For each assignment, the contractor prepares an assignment proposal in which he estimates the manpower resources needed for different categories of staff. Further details are:

- (a) **ASA contract.** The contractor would charge the ITSD on the actual efforts spent, on the condition that the estimated efforts should not be exceeded. Based on the actual efforts or the estimated efforts (whichever was the less), the charge for each assignment would be calculated by applying the daily staff rates specified in the contract; and
- (b) **ITSA contract.** For some categories of work (e.g. application development), the contractor should estimate his resource requirement based on the number of “function points” derived from a methodology known as the Function Point Analysis (FPA — Note 5). For other categories of work (e.g. feasibility studies and ISSS), function point count is not applicable and judgement has to be applied. Based on the estimated manpower needs, the charge for each assignment will be calculated by applying the daily staff rates specified in the contract.

The ITSD will evaluate the assignment proposal, negotiate with the contractor on various aspects of the proposal and give formal approval to the proposal according to an established authorisation procedure. Once the proposal is accepted, the ITSD will issue to the contractor a Notice of Assignment which serves as an order for services under the contract.

3.7 **Value of assignments.** During the period December 1994 to March 2000, the contractor had been given 123 assignments, with a total value of \$422 million, under the ASA and the ITSA contracts, as follows:

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**Note 5:** *The FPA is a structured software measurement and resources estimation methodology recognised by the IT industry. The ITSD has, since 1988, adopted the FPA as a standard for resources estimation. The methodology measures the size of a system in terms of basic units called “function points”. The resources required for an assignment will be estimated based on the function point count in the assignment. This methodology provides an objective and consistent measure of software size and the associated resources required for development and maintenance.*

**Table 1**

**Assignments under the ASA and the ITSA**

	<b>Number of assignments</b>	<b>Total value</b> <b>(\$ million)</b>
ASA contract	45	159
ITSA contract	78	263
<b>Total</b>	<b>123</b>	<b>422</b>

*Source: ITSD's records*

3.8 **Audit findings.** Audit has recently reviewed the ITSD's management of the ASA and ITSA contracts. Audit has noted that:

- (a) there is a need for competition for ITSA assignments (see paragraphs 3.9 to 3.28 below);
- (b) there is a need for the ITSD to ascertain and control its support effort on all ITSA assignments, and to revise its Resources Estimation Guide based on updated data (see paragraphs 3.29 to 3.38 below); and
- (c) there is a need for the ITSD to consider including a provision for liquidated damages in future ITSA contracts (see paragraphs 3.39 to 3.41 below).

**Cost comparisons among three options**

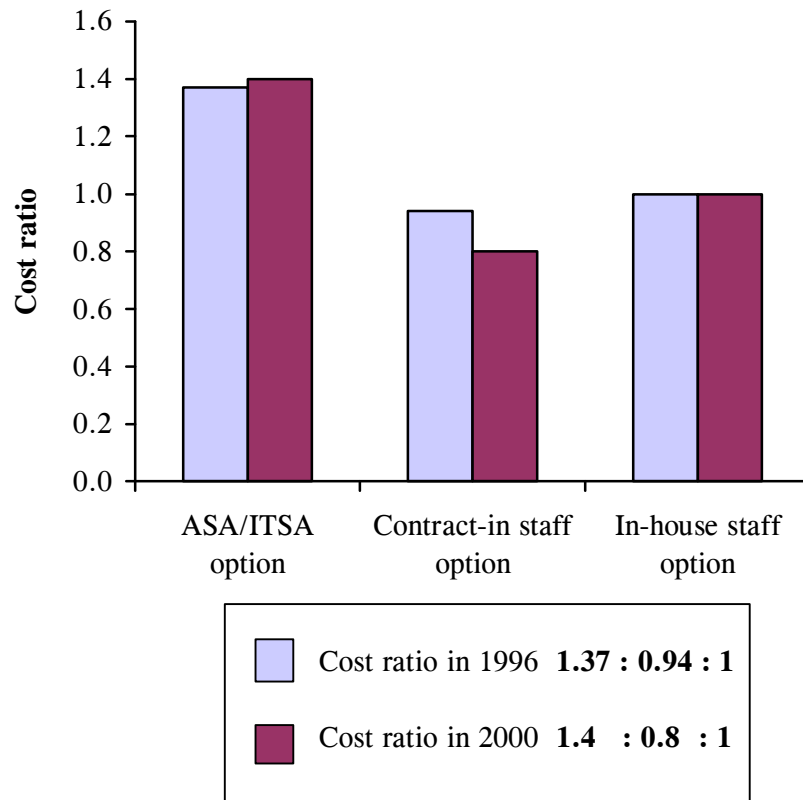
3.9 In the 1996 ASA review, the ITSD compared the costs of three options, namely, the ASA, contract-in staff and in-house staff. Based on a hypothetical cost model (Note 6), the ITSD found that the cost of outsourcing through the ASA was higher than that of the two other options. In July 2000, Audit conducted a similar cost comparison exercise based on the ITSD's updated cost data in respect of all the ITSA assignments completed up to March 2000 under the current contract (i.e. 41 assignments). The results reaffirmed the ITSD's findings in 1996. Audit's comparison indicates that the ratio between the costs of the three options (i.e. the ITSA, contract-in staff and in-house staff) is 1.4 : 0.8 : 1. Figure 1 below shows the results of the ITSD's 1996 and Audit's 2000 cost comparisons (see Appendix B for further details).

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**Note 6:** *In the cost comparison exercise, it was assumed that the same development efforts, in terms of man-days, would be required for completing an assignment under different options.*

**Figure 1**

**Cost comparison of the ASA/ITSA,  
contract-in staff and in-house staff options**



*Source: ITSD's costing data prepared in 1996 and 2000 with Audit's adjustments*

3.10 In response to Audit's enquiries, the ITSD commented in September 2000 that:

- (a) the comparison method has its limitations in representing and projecting real-life situations. This is because it cannot take into account circumstantial factors such as lead-time and procurement/sourcing overhead, productivity differences, project complexity and availability of skills. Therefore, as pointed out in the 1996 ASA review report, the results of cost comparisons based on the hypothetical model can only be used for indication and reference purposes; and
- (b) given the short time available between option selection and the commencement of IT projects, the other two options (i.e. the in-house staff option and the contract-in staff option) were not genuine, or generally available, alternatives that were open to the ITSD in deciding the sourcing means to meet the increasing demand for IT projects. Under the policy of containing the growth of the civil service, it had been extremely difficult, if not impossible, for the ITSD to recruit additional in-house staff to carry out projects. It was also not practicable to recruit contract-in staff to an extent comparable to the outsourcing means because of the limitations of recruitment and the associated in-house management overhead required.

3.11 Audit shares the ITSD's view, as mentioned in paragraph 3.10(a) above, that the cost comparison method based on a hypothetical model has limitations.

#### **Four cases indicating the high cost of ITSA assignments**

3.12 Audit has noted that, between June 1997 and March 2000, there were altogether four occasions on which the ITSD had to give up the ITSA option because the efforts (Note 7) estimated by the contractor were considered much higher than those of the other options (Note 8). By using other options (e.g. acquiring services through normal procurement procedures or contract-in staff), the ITSD was able to complete the assignments at a cost well below the charges estimated by the ITSA contractor. Table 2 below shows the relevant details.

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**Note 7:** *As mentioned in paragraph 3.6 above, the efforts estimated by the contractor for an assignment would affect the charges.*

**Note 8:** *For three of the four assignments, the ITSA contractor's estimated charges exceeded the approved budgets.*

**Table 2**

**Four cases indicating the high cost of ITSA assignments**

Assignments (Note 1)	Charges estimated by the ITSA contractor	Cost of assignment by using other options	Ratio (Note 2)
	(a)	(b)	(a) : (b)
	(\$ million)	(\$ million)	
(i) Feasibility study of the Government Property Agency's Integrated Government Property Information System (selective tender)	2.1	1.1	<b>1.9 : 1</b>
(ii) Feasibility study of the Department of Health's Laboratory Information System (use of contract-in staff)	5.5	2.1	<b>2.6 : 1</b>
(iii) Technical support services under the Government Office Automation Programme (another contractor under a term network implementation services contract entered with the ITSD)	4.5	1.6	<b>2.8 : 1</b>
(iv) Feasibility study of the Planning Department's Electronic Application Submission System (normal procurement procedures)	1.2	0.3	<b>4 : 1</b>

*Source: ITSD's records*

*Note 1: IT services for items (i) to (iv) were obtained through the options shown in the brackets.*

*Note 2: The comparison was made on the basis of the face value of the contract price. It did not take into account the extra procurement/sourcing cost and management overhead incurred in pursuing the other options, because such information was not readily available.*

3.13 In Audit's view, these cases illustrate the benefits of competition for ITSA assignments because the costs of assignments by using other options were much lower. In response to Audit's enquiries, the ITSD commented in September 2000 that, given the small number of assignments for which other options were taken, it was insufficient to establish a real price benchmark between the ITSA and other options. Furthermore, the lower cost achieved in these four cases illustrated that



the ITSD officers concerned had exercised good professional judgement in determining the most appropriate options to suit individual project needs.

### **The need for competition**

3.14 To secure good value for money for each and every ITSA assignment, Audit considers that there is a need for competition both at:

- (a) ***The contract level.*** This refers to competition, through open tenders, among tenderers for the award of contracts; and
- (b) ***The assignment level.*** This refers to competition, among different contractors who have been awarded ITSA contracts, for carrying out ITSA assignments. Competition at this level is only possible if there are more than one ITSA contractors.

Audit's findings are in paragraphs 3.15 to 3.21 below.

### **Competition at the contract level**

3.15 With regard to paragraph 3.14(a) above, when tendering for the ASA/ITSA contracts, tenderers were required to compete on the basis of daily staff rates for different categories of staff. The daily staff rates quoted in the successful tender would become the contract rates for calculating the costs of future assignments. In both the 1994 and 1997 tender exercises, there was only one tender that complied with the tender requirements. The following events are relevant:

- (a) ***The 1994 tender exercise.*** In this exercise, 17 tenders were received. The ASA contract was awarded to only one tenderer. Sixteen tenders, which did not fully meet the tender requirements, were rejected. In terms of tender price (Note 9), the successful tender was the ninth lowest. In response to Audit's enquiries, ITSD officers informed Audit in August 2000 that, because this was a pilot scheme, the ITSD had no intention of awarding ASA contracts to more than one contractor. Although the successful tender was the ninth lowest in tender price among the 17 tenders before evaluation, it was the lowest (and the only) complying and qualified tender;

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**Note 9:** *The tender price was calculated based on the estimated manpower resources to be acquired under the contract and the tendered daily staff rates.*

- (b) *The 1996 ASA review.* In the 1996 ASA review, the review team concluded that multiple contractors should be employed with a view to improving quality, and providing more choices and better availability of skills. The review team recommended that two contractors should be selected in the 1997 ITSA tender exercise, and that there should be competition between them for assignments; and
- (c) *The 1997 tender exercise.* In this exercise, eight tenders were received. Despite the recognised need to employ multiple contractors, the contract was awarded to only one tenderer. Seven tenders were rejected because they did not fully meet the tender requirements. In terms of tender price, the successful tender was the third lowest. In response to Audit's enquiries, in August 2000, ITSD officers informed Audit that it was the ITSD's intention to employ two contractors. In the event, only one contractor was awarded the contract because there was only one complying tender. While the price of this tender was the third lowest before evaluation, it was the lowest (and the only) complying and qualified tender.

3.16 In response to Audit's enquiries, the ITSD commented in September 2000 that the daily rates of the ASA contract and the ITSA contract were the result of open tender selection. Open tendering offered the best competition environment where each tenderer must render the most competitive offer in order to win. The fact that there was only one qualified bid in those tender exercises only reflected the then prevailing market situation.

### **Competition at the assignment level**

3.17 As mentioned in paragraph 3.6(b) above, the ITSA contractor charged the ITSD for each assignment on the basis of two factors: (a) the daily staff rates specified in the contract; and (b) the estimated efforts to be spent for the assignment (Note 10). While the first factor (i.e. daily staff rates) can be subject to competition through open tenders at the contract level (see paragraph 3.15 above), the same cannot be applied to the second factor (i.e. the estimated efforts to be spent on future assignments). This is because details of future assignments, which are essential for the accurate estimation of manpower efforts, are not known at the time of tendering for the contract. Therefore, in order to achieve adequate price competition for each assignment (Note 11), competition at the assignment level among different ITSA contractors is necessary. However, so

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**Note 10:** *For the ASA contract, please see paragraph 3.6(a) above.*

**Note 11:** *In Audit's view, adequate price competition for an assignment can be achieved if there are a number of ITSA contractors and, after competition among these contractors, an assignment is awarded to the one who offers the lowest price quotation (i.e. contract daily staff rates ^ estimated efforts).*

far there has been no competition at the assignment level because since 1994 there has been only one ASA/ITSA contractor.

3.18 In the absence of competition at the assignment level, the ITSD had to rely either on the function point count (see paragraph 3.6(b) above), or the professional judgement of its officers, in assessing whether the estimated efforts proposed by the contractor are reasonable. Audit notes that, of the 78 ITSA assignments given under the ITSA contract (see Table 1 in paragraph 3.7 above), function point count was used only in 11 assignments (i.e. 14% — Note 12). For the remaining 67 ITSA assignments (i.e. 86%), which included an assignment valued at \$35 million, the ITSD had to rely on the professional judgement of its officers in assessing the contractor's estimated efforts.

3.19 In response to Audit's enquiries on the above findings, the ITSD gave the following comments in September 2000:

- (a) the ITSA is not a mandatory sourcing option for projects and is in effect subject also to the competition of other sourcing options. ITSD officers make conscious decision on choosing among ITSA and other means (including tendering) for any value of projects, having regard to the nature and constraints of the projects. The approval of each project, including the sourcing option selection, has to follow a schedule of delegated authority of different management levels commensurate with different value of projects;
- (b) the professional judgement made by ITSD officers is not on a single figure but on a total package of a mix of professional skills, experience and associated efforts required, tied to the production of each technical component and deliverable. Where there is an absence of tools like the function point technique for some types of work, ITSD officers exercise their professional judgement with due care and diligence, based on experience, on each element of an estimate. Professional judgement is always essential for ensuring value for money; and
- (c) the value of competition lies in the choices it offers, including not just price/cost advantages, but also other qualitative and technical advantages such as skills, specialties, and quality proposals and work packages. For professional IT services like IT-related work, quality and technical considerations are highly essential besides cost consideration. The ITSD also has to take into account the cost associated with competitive bidding to the Government and its impact on the overall cost.

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**Note 12:** *In terms of assignment values, only 21% (i.e. \$54 million out of a total of \$263 million) were assessed on the basis of function point counts.*

### **Audit observations on the need to increase competition**

3.20 Audit noted that, as at August 2000, the ITSD was in the process of preparing for another tender exercise with a view to increasing competition and employing more ITSA contractors (see paragraph 3.4 above). **In order to make this exercise successful, Audit considers that there is a need for the ITSD to explore ways and means to increase competition.**

3.21 At the assignment level, the ITSD has relied largely on the professional judgement of its officers in assessing the contractor's estimated efforts which, in turn, determine the contractor's charges for the assignments. Audit considers that adequate competition at the assignment level is necessary, because it will minimise the risk of the ITSA contractor's charges not being in line with the prevailing market conditions. This risk is high in the fluid IT market.

### **Audit recommendations on the need to increase competition**

3.22 **Audit has recommended that the Director of Information Technology Services should:**

- (a) **explore ways and means to increase competition; and**
- (b) **set up a mechanism for ensuring that there will be adequate competition among future ITSA contractors for each and every assignment.**

### **Response from the Administration**

3.23 The **Director of Information Technology Services** welcomes Audit's recommendations. He has said that:

- (a) the ITSD has all along recognised the value of competition and sought to introduce it in its contracting vehicles. In the 1996 ASA review, the ITSD decided to introduce competition at the assignment level under the ITSA by way of multiple contractors. However, the then market situation was such that only one bidder was qualified; and
- (b) the ITSD will make continued efforts to increase competition. As Audit mentioned in paragraph 3.4 above, it is the ITSD's aim to employ more contractors in the coming ITSA tender exercise. With multiple contractors, more competition at the assignment level will be possible. The ITSD will set up a mechanism for ensuring that there will be competition among future ITSA contractors for each and every assignment.

3.24 The **Secretary for the Treasury** has said that she supports the principle of increasing competition for the procurement of IT services through the ITSA, both at the term contract and individual assignment levels. The Finance Bureau will explore with the ITSD and the Government Supplies Department the implications of any competition-enhancing and value-for-money-enhancing proposals for the procurement of IT services.

### High-value assignments

3.25 Audit's analysis of the ASA and the ITSA assignments for the period December 1994 to March 2000 indicates that the values of assignments varied significantly, ranging from \$120,000 to \$35 million. Of the 123 assignments, 25 assignments were over \$5 million and, among these, 6 were over \$10 million. Table 3 below shows the results of Audit's analysis.

**Table 3**

**Assignments under the ASA and ITSA**

Value of assignments	ASA		ITSA		Total assignments			
	Number	Total value	Number	Total value	Number	Total value		
		(\$ million)		(\$ million)		(\$ million)		
Over \$10 million	3	54	3	66	<b>6</b>	<b>(5%)</b>	<b>120</b>	<b>(28%)</b>
\$5 million to \$10 million	8	53	11	66	<b>19</b>	<b>(15%)</b>	<b>119</b>	<b>(28%)</b>
Less than \$5 million, but over \$1 million	21	46	51	122	<b>72</b>	<b>(59%)</b>	<b>168</b>	<b>(40%)</b>
\$1 million or less	13	6	13	9	<b>26</b>	<b>(21%)</b>	<b>15</b>	<b>(4%)</b>
<b>Total</b>	<b>45</b>	<b>159</b>	<b>78</b>	<b>263</b>	<b>123</b>	<b>(100%)</b>	<b>422</b>	<b>(100%)</b>

Source: ITSD's records

## **Audit observations on high-value assignments**

3.26 Under the existing arrangement, some high-value projects have been assigned to the ASA/ITSA contractor without going through adequate market testing. **Audit has noted that, at present, no financial limit has been set for ASA/ITSA assignments to ensure that all high-value projects go through normal tender procedures to achieve adequate market testing.**

## **Audit recommendations on high-value assignments**

3.27 **Audit has recommended that the Secretary for the Treasury should, in consultation with the Director of Information Technology Services and the Director of Government Supplies:**

- (a) **set a financial limit for ITSA assignments (say, not more than \$5 million — Note 13) so that projects exceeding this limit will be subject to normal tender procedures; and**
- (b) **for projects exceeding the financial limit referred to in (a) above, in order to facilitate decision making, draw up guidelines to clearly define the exceptional circumstances (e.g. unforeseen work with extreme urgency) where the use of the ITSA may be considered.**

## **Response from the Administration**

3.28 The **Secretary for the Treasury** has said that she has an open mind on the audit recommendation on the setting of a financial limit for ITSA assignments. The Finance Bureau will explore with the ITSD and the Government Supplies Department the implications of this recommendation.

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**Note 13:** *Of the 123 ASA/ITSA assignments, 98 (i.e. 80%) had an assignment value below \$5 million. Therefore, setting a financial limit of \$5 million means that: (a) the majority of the assignments would still be made through the ITSA (i.e. the purpose of the ITSA would not be defeated); and (b) there would be greater price competition through normal tender procedures for those projects above the limit.*

## ITSD's support effort on ITSA assignments

3.29 ***Findings of the 1996 ASA review.*** The 1996 ASA review ascertained the ITSD's support effort on ASA assignments. For feasibility study and ISSS assignments, the ITSD's support effort, on average, was 29.5% of the contractor's manpower input. For system implementation/enhancement assignments, the average support effort was 14.6% of the contractor's manpower input. The ITSD's review report indicated that the support effort would be much reduced if proper measures were adopted to improve the quality of the contractor's services.

3.30 ***Resources estimation guidelines.*** The average support effort of 29.5% (for feasibility studies and ISSS) and 14.6% (for system implementation/enhancement), found in the ITSD's 1996 ASA review, were subsequently included, with minor adjustments, in the ITSD's Resources Estimation Guide as guidelines for the estimation of in-house support effort for ITSA assignments. According to the guidelines, 32.6% (for feasibility studies and ISSS) and 15.5% (for system implementation/enhancement) should be used for estimating in-house support effort.

3.31 ***ITSD's improvement measures.*** Following the recommendations of the ITSD's 1996 ASA review, the ITSD implemented a number of measures with a view to improving the quality of the contractor's services (see item (c) in Appendix A). These included the introduction of contract requirements to strengthen the contractor's quality assurance management, human resource management and programme management (Note 14).

3.32 ***Results of Audit's examination.*** Audit recently examined eight (i.e. 20%) of the 41 completed ITSA assignments (see paragraph 3.9 above) to ascertain the extent of ITSD's support effort on ITSA assignments (Note 15). In this exercise, Audit made use of the data in the ITSD's Project and Resource Management System (PRMS — see paragraph 6.7 below). Table 4 below shows the results of Audit's examination.

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**Note 14:** *The objective of programme management is to ensure that the planning, deployment and management of human resources under the ITSA will be organised in a coherent manner: (a) to meet the Government's diverse demands; and (b) to ensure the successful completion of all assignments.*

**Note 15:** *There were constraints in selecting projects for audit examination. This was because, for many projects, the ITSD's support effort on ITSA assignments was not readily identifiable in the PRMS data. For example, the ITSD's effort as recorded in the PRMS may include: (a) the ITSD's support effort on an ITSA assignment; and (b) the ITSD's effort spent on its own tasks relating to the project but outside the scope of the ITSA assignment. Under these constraints, Audit examined eight projects (i.e. 20% of the 41 completed projects).*

**Table 4**

**ITSD's support effort for ITSA assignments  
(as a percentage of the contractor's manpower input)**

	<b>ITSA assignments (Note)</b>	<b>Type of assignments</b>	<b>ITSD's support effort</b>	<b>Support effort for similar assignments in the ITSD's 1996 ASA review</b>
(a)	Replacement of the Customs Control System	SA&D and implementation	<b>25%</b>	<b>14.6%</b>
(b)	Review of the information systems strategy of the Rating and Valuation Department	ISSS review	<b>8%</b>	29.5%
(c)	Review of the information systems strategy of the Inland Revenue Department	ISSS review	<b>10%</b>	29.5%
(d)	Slope Maintenance Responsibility Information System of the Lands Department	Feasibility study	<b>15%</b>	29.5%
(e)	Fire Protection Information System	Feasibility study	<b>29%</b>	29.5%
(f)	Lotus Notes for Workgroup Management of the Environment Protection Department	Feasibility study	<b>32%</b>	<b>29.5%</b>
(g)	Procurement Management System Upgrade of the Government Supplies Department	Feasibility study	<b>32%</b>	<b>29.5%</b>
(h)	Strategic Human Resources Management Information System of the Government Supplies Department	Feasibility study	<b>37%</b>	<b>29.5%</b>

Source: ITSD's records

Note: The assignments were completed in 1998 and 1999.



3.33 Audit's examination indicated that:

- (a) the ITSD's support effort varied significantly between different assignments, ranging from 8% to 37% of the contractor's manpower input;
- (b) the support effort for an SA&D/implementation assignment (see item (a) of Table 4 above) was 25%, which was higher than the average support effort (i.e. 14.6%) for similar assignments found in the 1996 ASA review; and
- (c) of the remaining seven feasibility study/ISSS review assignments, three (see items (f) to (h) of Table 4 above) had support effort exceeding, and four (see items (b) to (e) of Table 4 above) had support effort lower than, the average level of 29.5% for similar assignments found in the 1996 ASA review. The average support effort of these seven assignments was about 21% of the contractor's manpower input.

#### **Audit observations on the ITSD's support effort on ITSA assignments**

3.34 *The need to ascertain and control support effort.* Audit's examination of the seven feasibility study and ISSS review assignments (Note 16) indicated that the average ITSD's support effort had dropped from 29.5% found in the ITSD's 1996 ASA review, to 21%. This represents a significant improvement indicating that the improvement measures recommended by the 1996 ASA review have been effective. Given the data constraints (see Note 15 in paragraph 3.32 above), Audit could only select a small number of assignments for examination. **Audit considers that there is a need for the ITSD to ascertain and control its support effort on all ITSA assignments.**

3.35 *The need for close monitoring.* As indicated in paragraph 3.3 above, it is the ITSD's objective to reduce the professional input and managerial resource burden of the ITSD's officers through delegation to the contractors' staff. **In line with this objective, Audit considers that there is a need for the ITSD to closely monitor, on an ongoing basis, the support effort of all ITSA assignments to ensure that it is no more than necessary.**

3.36 *The need to review guidelines.* According to the ITSD's Resources Estimation Guide, 32.6% (for feasibility studies and ISSS) and 15.5% (for system implementation/enhancement)

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**Note 16:** *With regard to SA&D/implementation assignments, Audit did not draw conclusion from the audit examination result because there was only one such assignment in the audit sample.*

should be used for estimating in-house support effort (see paragraph 3.30 above). **Audit considers that there is a need for the ITSD to revise the Guide to take into account the updated data on support effort.**

### **Audit recommendations on the ITSD's support effort on ITSA assignments**

**3.37 Audit has recommended that the Director of Information Technology Services should:**

- (a) ascertain the ITSD's support effort on all ITSA assignments;**
- (b) revise the Resources Estimation Guide to take into account the updated data on the ITSD's support effort; and**
- (c) closely monitor, on an ongoing basis, the ITSD's support effort on all ITSA assignments to ensure that the support effort is no more than necessary.**

### **Response from the Administration**

**3.38 The Director of Information Technology Services has accepted the audit recommendations. He has said that:**

- (a) he welcomes the audit findings that there has been a significant decrease in the ITSD's support effort on ITSA assignments, indicating that the improvement measures taken by the ITSD have been effective;**
- (b) as recommended by Audit, the ITSD will ascertain the extent of support effort on ITSA assignments. The Resources Estimation Guide will be revised when updated data are available; and**
- (c) the ITSD expects that, as a result of the ITSD's internal effort and, equally important, the maturing of the market and the upgrading of suppliers' capability, the support level may be further reduced. The ITSD will closely monitor the level of support effort spent to ensure that it is no more than necessary.**

## **The lack of provision for liquidated damages**

3.39 *Contract requirements.* Under the ITSA, the contractor is required to complete the assignments on time, within budget and to specification. The Notice of Assignment (see paragraph 3.6 above) issued by the ITSD to the contractor specifies the assignment commencement date and completion date. According to the ITSA contract, payments are made to the contractor by stages upon the acceptance of the deliverables. Ten per cent of the payment will be withheld at each stage until acceptance of the whole assignment. **However, in the contract, there is no provision for the ITSD to claim liquidated damages (LD) when there is a delay in the completion of the assignment.** In this connection, it is worth noting that the provision of LD is a standard condition in turnkey IT procurement contracts.

## **Audit recommendation on the provision for LD**

3.40 *Audit has recommended that the Director of Information Technology Services should consider including an LD clause in future ITSA contracts to compensate the Government for any loss resulting from contractors' delays and to deter undue delays in the completion of ITSA assignments.*

## **Response from the Administration**

3.41 The **Director of Information Technology Services** agrees to consider the audit recommendation. He has said that:

- (a) LD is only one of the penalty schemes against non-performance. The ITSD has all along adopted different types of incentives and penalty schemes for various contract arrangements, but considers that positive incentives would be more aligned with the partnership spirit of the ASA and ITSA; and
- (b) legal advice will be sought in determining the most appropriate schemes for future arrangements.

## **PART 4: OUTSOURCING IT ACTIVITIES ON A DEPARTMENTAL BASIS**

4.1 This PART examines the progress in outsourcing IT activities on a departmental basis (as distinct from outsourcing on a project-by-project basis).

### **Background**

4.2 *Departmental outsourcing.* Since the announcement in 1998 of the Government's strategy to vigorously outsource its IT activities, the ITSD has been assisting departments in outsourcing their IT activities in a manner that best meets their individual needs. One of the initiatives the ITSD has undertaken is to help departments outsource their IT activities on a departmental basis (departmental outsourcing).

4.3 *Implementation strategy.* In December 1998, the ITSD endorsed an implementation strategy for outsourcing. According to that strategy, the IT functions in a department that can be outsourced included application development and maintenance (ADM), network, helpdesk and data centre services. Among these IT functions, ADM should be outsourced as an integral unit and should be given the highest priority for outsourcing because they had the highest resource demands. It was also considered that the outsourcing of ADM should be arranged on a departmental basis.

4.4 *Implementation plan.* In December 1998, the ITSD also endorsed an implementation plan for departmental outsourcing. According to that plan, the first departmental outsourcing contract was to be awarded by the first quarter of 2000. In addition, the implementation plan included a timetable for various planned activities. In March 1999, the ITSD advised departments that it would assist them to determine the way forward for outsourcing their IT activities.

### **Progress of departmental outsourcing as at July 2000**

4.5 In July 2000, Audit examined the progress of departmental outsourcing. Table 5 below shows a summary of the progress.

**Table 5**

**Progress of departmental outsourcing**

<b>Planned activity</b>	<b>Audit observations on the position as at July 2000</b>
(a) Set up the Outsourcing Programme Office to advise and guide departments on outsourcing matters (Target: November 1998)	The Outsourcing Programme Office was in operation.
(b) Conduct follow-up discussions with eight departments (Note 1) on departmental outsourcing (Target: November 1998 to January 1999)	This was an ongoing process. Some of the eight departments had declined to pursue departmental outsourcing for the time being. Instead, other departments (e.g. the Intellectual Property Department and the Legal Aid Department) had joined in the pursuit.
(c) Conduct a business justification study (BJS) for outsourcing the Judiciary's (Note 2) IT activities (Target: March 1999)	<b>This was slightly behind schedule. The BJS was completed in April 1999.</b>
(d) Conduct a high-level study on the feasibility of outsourcing centrally all application maintenance work undertaken by the ITSD (Target: February 1999)	In January 1999, the ITSD conducted a high-level study and concluded that the outsourcing should be pursued on a departmental basis, instead of centrally.
(e) Develop standard tender documents and contracts on departmental outsourcing (Target: March 1999)	The tender documents and contracts for the outsourcing of the Judiciary's IT activities (which were prepared together with the Department of Justice) would provide a good reference for preparing similar tender documents and contracts for other departments.
(f) Conduct a BJS for outsourcing the Education Department (ED)'s IT activities (Target: July 1999)	<b>This was behind schedule. The BJS was completed in January 2000.</b>
(g) Award the outsourcing contract for the Judiciary (Target: March 2000)	<b>This was behind schedule. Tender evaluation was still in progress.</b>

Source: ITSD's records

Note 1: These departments included the Architectural Services Department, the Civil Engineering Department, the Drainage Services Department, the Highways Department, the Water Supplies Department, the Land Registry, the Planning Department and the ED.

Note 2: The Judiciary is the first department to undergo departmental outsourcing.

4.6 In response to Audit's enquiries, the ITSD gave the following comments in September 2000:

- (a) departmental outsourcing is an initiative of and owned by the respective bureaux and departments. The ITSD plays an advisory role and it has no direct control over the progress of implementation. The purpose of the ITSD's implementation plan for outsourcing is for resource planning rather than setting milestones; and
- (b) the plan of activities was prepared in November 1998, which represented its best estimates based on its understanding of the intentions of user departments known then. Regarding item (f) of Table 5 above, the draft BJS report was issued to the ED in June 1999. The ED subsequently revised its outsourcing approach having regard to its short and long term operational needs. Regarding item (g) of Table 5, the target for awarding the outsourcing contract for the Judiciary was revised in December 1999, with the Judiciary's agreement, to the third quarter of 2000.

#### **Audit observations and recommendations on departmental outsourcing**

4.7 The outsourcing of IT activities on a departmental basis is a new venture, and its successful implementation will depend on a number of factors. These include individual departments' willingness to accept the outsourcing approach and their capability in managing the outsourcing work.

4.8 Audit appreciates that the ITSD and user departments are approaching the issues with prudence, and that the original implementation plan, which was based on the ITSD's understanding in late 1998 of the intentions of user departments, may be over-optimistic. Audit also appreciates that the ITSD plays an advisory role only and that the implementation plan was for resource planning rather than setting milestones. In Audit's view, a pragmatic and updated implementation plan, albeit for resource planning only, is important because it helps ensure that the ITSD provides timely and adequate support to user departments in their pursuit of departmental outsourcing.

4.9 **Audit has *recommended* that the Director of Information Technology Services, as the Government's IT adviser, should:**

- (a) **in conjunction with the user departments, critically review and revise their plans for departmental outsourcing, taking into account the experience gained and the latest developments in various user departments; and**
- (b) **closely monitor the implementation progress and take all necessary support actions to help user departments implement their departmental outsourcing smoothly and efficiently in order to meet their target time schedules.**

## **Response from the Administration**

4.10 The **Director of Information Technology Services** agrees with the audit recommendations. He has said that:

- (a) the ITSD regularly monitors the progress of outsourcing. Progress reports are discussed at the ITSD's Internal Steering Group on the Use of IT within the Government. Action is being taken to update user departments' plans for departmental outsourcing, taking into account the latest developments; and
- (b) the ITSD will continue to assist user departments to ensure efficient and effective outsourcing.

4.11 The **Director of Education** has said that:

- (a) he is still in favour of outsourcing the ED's IT activities and believes this to be a viable solution to meet some of the ED's IT requirements; and
- (b) since the completion of the BJS report in mid-January 2000, the ED has critically examined this option and prudently adjusted the way forward on two separate occasions (one in March and the other in August 2000), having due regard to its changing short and long term operational needs and the latest organisational structure.

## **Cost reduction target**

4.12 In the 1998 Resource Allocation Exercise submission, the ITSD set a target of achieving a 5% cost reduction for the outsourcing of application maintenance. In that submission, however, it was stated that there would be a potential risk that the target might not be achievable by the external service providers in the market.

4.13 Upon Audit's enquiries, ITSD officers informed Audit in August 2000 that the 5% cost reduction target was set arbitrarily. They also informed Audit that, based on a preliminary market survey conducted in late 1998, the cost of outsourcing ADM work could be 25% higher than that of the in-house option. They expressed reservations about the achievement of the 5% cost reduction target and advised Audit that only the market could tell whether or not this target could be achieved.

## **Audit observations and recommendations on cost reduction target**

4.14 In the light of the ITSD officers' advice, Audit is concerned that the 5% cost reduction target may not be achieved, and that outsourcing may be more costly than the in-house option. Audit has noted that, as at July 2000, the Judiciary (as the first department to start departmental

outsourcing) was in the process of tender evaluation. Audit considers that there is a need to monitor closely the achievement of cost reduction in this exercise.

4.15 **Audit has recommended that the Director of Information Technology Services should:**

- (a) **in conjunction with the Judiciary (which is the first department to start departmental outsourcing), closely monitor the achievement of cost reduction; and**
- (b) **adjust the cost reduction target in the light of experience gained and set up a mechanism for the effective monitoring of future cost reduction achievements for all IT outsourcing departments.**

### **Response from the Administration**

4.16 The **Director of Information Technology Services** agrees in principle with the audit recommendations. He has said that:

- (a) whether or not there will be any cost reduction as well as adjustment to the cost reduction target will be subject to the market response; and
- (b) the ITSD and the Judiciary will closely monitor the outsourcing exercise with a view to achieving as much saving as possible.

4.17 The **Judiciary Administrator** has said that:

- (a) whether or not there will be any savings depends very much on the market situation. No doubt the ITSD will adjust the cost reduction target in accordance with such situation; and
- (b) the Judiciary and the ITSD will closely monitor the outsourcing exercise with a view to achieving as much saving as possible.

4.18 The **Director of Education** has said that:

- (a) he is grateful to Audit for conducting this audit study, and for pointing out the uncertainty of the achievement of the 5% cost reduction target and the possibility of additional cost required in pursuing the outsourcing option; and
- (b) the need to ensure value for money will continue to be his guiding principle in planning for the timing and scale of outsourcing.



## PART 5: MANPOWER PLANNING OF THE ITSD

5.1 This PART examines the ITSD's manpower planning and identifies scope for improvement.

### Background

5.2 *Manpower resources of the ITSD.* As at March 2000, the ITSD had 967 IT staff (including in-house and contract-in staff). Table 6 below shows the number of IT staff in the past three years.

Table 6

#### The number of IT staff in strength in the ITSD

As at March of	Number of in-house AP grade staff	Number of contract-in staff	Total IT staff (± % as compared with the previous year)
	(a)	(b)	(a) + (b)
1998	544	420	<b>964</b>
1999	594	440	<b>1,034 (+7%)</b>
2000	590	377	<b>967 (-6%)</b>

Source: ITSD's records

5.3 *Changing role of the ITSD.* With the adoption of a vigorous outsourcing strategy since April 1999 (see paragraphs 1.6 to 1.10 above), most of the new IT projects have been outsourced (Note 17). The ITSD has also been working on the outsourcing of application maintenance work on a departmental basis (see PART 4 above). In line with this strategy, the ITSD is changing its

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**Note 17:** Since April 1999, outsourcing has been the preferred option unless there are other overriding considerations (e.g. the ITSD wants to retain core skills and knowledge in particular IT aspects, or the projects are very critical and of a confidential nature). As a result, the Government's target of outsourcing two-thirds of its new projects by 2001 was achieved two years in advance (i.e. in 1999).

role from its traditional system delivery/maintenance role to that of a facilitator. As a facilitator, it helps departments enhance their capability in managing IT as part of their business. Furthermore, as indicated in paragraph 1.3 above, the ITSD has taken up new roles regarding IT infrastructure and standards (Programme 2) and IT in the community (Programme 3).

5.4 *Need for a comprehensive manpower plan.* With the changing role and the diminishing workload on system delivery and maintenance due to outsourcing, there is a need for the ITSD to conduct a comprehensive workload and manpower review to critically assess its manpower needs. Audit's recent review of the ITSD's manpower planning, however, indicated that there had been delays in the preparation of a comprehensive manpower plan (see paragraphs 5.5 to 5.9 below).

### **Delays in preparing manpower plan**

5.5 *ITSD recognises the need for a comprehensive manpower plan.* In April 1999, the ITSD produced a 3-year Human Resources Management (HRM) Strategy (Note 18). The Strategy addressed various human resource related issues such as the ITSD's culture, manpower planning, and staff training and development. The Strategy included a 3-year HRM Action Plan. In this Action Plan, the ITSD stated the need to anticipate future manpower requirements by a process of careful manpower planning, taking into account departmental objectives and staff movements. The ITSD set a target of May 1999 for producing a 3-year Manpower Plan. The 3-year Manpower Plan would be reviewed annually.

5.6 *Target of May 1999 not met.* In the event, the May 1999 target was not met. Instead of producing a comprehensive 3-year Manpower Plan, in June 1999, the ITSD assessed the impact of outsourcing the IT maintenance work of seven departments planned for the period 2000-01 to 2002-03. According to that assessment, of the 251 IT staff (131 in-house staff and 120 contract-in staff) involved in the maintenance work, 95 contract-in staff would become surplus during the three years and their services would be terminated as and when required.

5.7 *Revised target of early 2000 also not met.* In December 1999, the ITSD reviewed the progress and revised its target for producing the 3-year Manpower Plan to early 2000, pending an update of its current Departmental Plan for 1998 to 2001. Again, this target was not met.

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**Note 18:** *The HRM Strategy was produced as a deliverable from one of the initiatives of the ITSD's Change Programme which was under implementation during the period 1997 to 1999. The Change Programme aimed at implementing the recommendations of a consultancy review commissioned by the Finance Bureau in 1995 on the provision of IT services in the Government.*

5.8 ***The ITSD's comments.*** In response to Audit's enquiries, the ITSD gave the following comments in September 2000:

- (a) in the Departmental Plan for 1998 to 2001, one of the key issues to be addressed under human resource development was the impact brought about by outsourcing. While the Departmental Plan had already given a high level manpower projection over the coming three years, a 3-year detailed manpower planning focusing on the impact brought about by outsourcing was produced in June 1999 (see paragraph 5.6 above); and
- (b) it was planned to review the 3-year HRM Action Plan in early 2000. The review was to take into account major factors such as the experience of outsourcing and the business direction charted out in the Departmental Plan that would have an effect on the Action Plan. However, with the announcement by the Government in March 2000 of the "Containing the Size of the Civil Service" exercise, it was seen as inappropriate to pursue the review at that time. With the results of the exercise known and the completion of the new Departmental Plan for 2000-01 to 2002-03, the review of the HRM Action Plan was then ready to start.

#### **Audit observations on the ITSD's manpower planning**

5.9 Audit noted that the ITSD was ready to start the review of the HRM Action Plan (which would lead to the preparation of the 3-year Manpower Plan) in September 2000. Audit considers that, in preparing the 3-year Manpower Plan, there is a need for the ITSD to critically review its present and future workload and manpower needs to meet its objectives. This will provide the assurance that the ITSD's manpower resources are being efficiently and effectively utilised. **This assurance is important, particularly at a time when the ITSD is changing its role and facing a diminishing traditional workload.**

#### **Audit recommendations on the ITSD's manpower planning**

5.10 **To ensure that the ITSD's manpower resources are efficiently and effectively utilised, Audit has recommended that the Director of Information Technology Services should:**

- (a) **expedite action to prepare the 3-year Manpower Plan as soon as possible;**
- (b) **ensure that the Manpower Plan is supported by a comprehensive review of both the present and future workload, having regard to the ITSD's changing role and the diminishing traditional workload; and**

- (c) **as part of the manpower planning exercise, critically review whether the present pace of outsourcing is appropriate, taking into account the impact of outsourcing on the utilisation of in-house staff.**

### **Response from the Administration**

5.11 The **Director of Information Technology Services** welcomes the audit recommendations. He has said that:

- (a) manpower planning is an ongoing process. A comprehensive manpower plan will be prepared based on the finalised Departmental Plan for 2000 to 2003;
- (b) manpower planning at the branch level is being done at least annually covering the requirements for the next 12 months with due regard to the changes in workload; and
- (c) the impact of outsourcing on the ITSD's staffing resources has yet to be assessed properly, having regard to the pace of outsourcing and the advisory effort to be provided to the departments concerned. It has to be emphasised that, under the government-wide Enhanced Productivity Programme, some of the existing staffing resources have been redeployed to support the new initiatives and activities under Programmes 2 and 3 (see paragraph 1.3 above).

## **PART 6: MANPOWER CONTROL OF THE ITSD**

6.1 This PART examines the ITSD's mechanism for monitoring its manpower resources.

### **Background**

6.2 *The ITSD's work.* The ITSD supports bureaux and departments in development projects, ongoing maintenance work and non-project related work. Non-project related work includes common IT facilities support, general departmental support (Note 19) and IT advisory support. In addition, the ITSD supports the ITBB in providing IT infrastructure and standards, and in promoting the wider use of IT in the community.

### **Significant shift in manpower resources between activities**

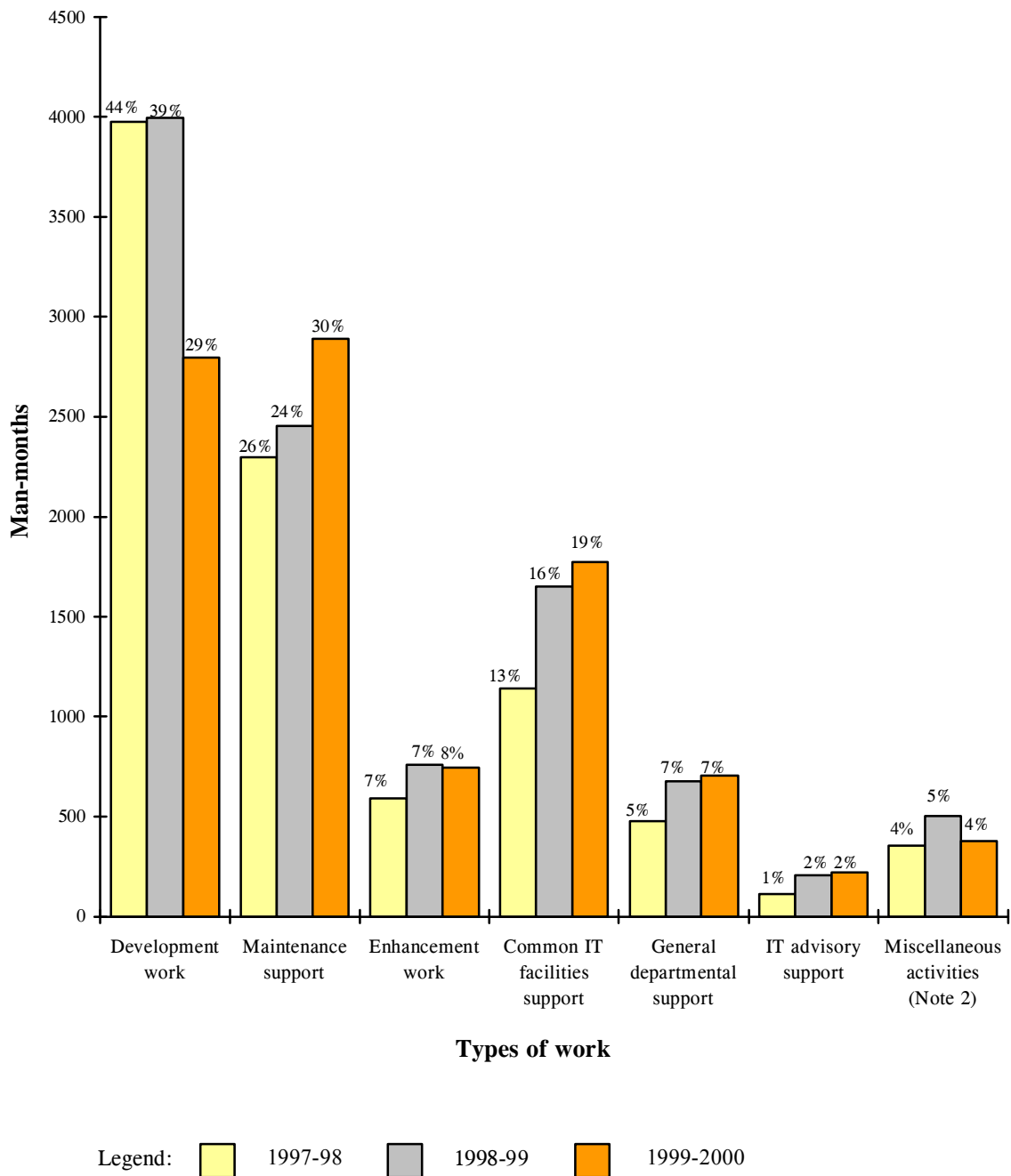
6.3 Figure 2 below shows the utilisation pattern of ITSD's manpower resources, including both in-house staff and contract-in staff, under Programme 1 (which accounted for some 90% of the ITSD's total IT manpower resources) for the three years 1997-98 to 1999-2000.

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**Note 19:** *Common IT facilities support refers to the provision of technical and operation support to facilities such as the Technical Services Support Centre and the Computer Bureau. General departmental support refers to the ongoing IT support provided to user departments.*

**Figure 2**

**Utilisation of manpower resources  
under Programme 1 — the use of IT in the Government**



Source: ITSD's PRMS

Note 1: The percentages shown above represent the percentages of resources utilised on the particular types of work for the year over the total resources utilised for Programme 1.

Note 2: These cover central IT procurement support, standard and methodology support and miscellaneous activities.

6.4 In line with the changing role of the ITSD, Figure 2 indicates that there has been a significant shift in manpower resources from development work to other activities. Further analysis of the utilisation pattern indicates that:

- (a) ***Development work.*** Manpower resources spent on development dropped from 4,000 man-months in 1997-98, by 1,200 man-months (i.e. 30%), to 2,800 man-months in 1999-2000; and
- (b) ***Other activities.*** The manpower resources spent on various other activities (i.e. maintenance support, common IT facilities, general departmental support and IT advisory support) increased from 4,000 man-months in 1997-98, by 1,600 man-months (i.e. 40%), to 5,600 man-months in 1999-2000.

6.5 ***ITSD's manpower budgetary control system.*** Given the ITSD's changing role and the diminishing traditional workload, it is important for the ITSD to closely monitor the utilisation of its manpower resources to ensure that they are being efficiently and effectively utilised. Audit's examination of the ITSD's monitoring mechanism indicates that there is scope for improvement in the ITSD's manpower budgetary control system.

### **ITSD's manpower control mechanism**

6.6 ***Framework for manpower resource allocation.*** The ITSD allocates manpower resources, covering both in-house staff and contract-in staff, at the branch level at least annually covering the requirements for the next twelve months. For non-recurrent projects, resources are allocated when project funding is approved. Resource utilisation under these projects is monitored according to the PRINCE methodology (Note 20). For recurrent maintenance work, the resource allocation is based on the estimates made in the approved funding submissions, having regard to the actual needs of the systems ultimately delivered.

6.7 ***Project and Resource Management System.*** The Project and Resource Management System (PRMS) was first developed as the Resources Allocation and Monitoring System (RAMS) in 1990 to record time effort data and to provide reports on staff utilisation analysis. The PRMS evolved from the RAMS in 1995 with additional HRM functions provided (such as staff training

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**Note 20:** *The PRINCE methodology stands for the Projects in Controlled Environments methodology. It is a structured set of procedures designed for managing IT projects and has been adopted, since 1994, as the ITSD's standard methodology for project management.*

and administration of contract-in staff). Under the PRMS, ITSD staff (including in-house staff and contract-in staff), up to the Systems Manager (SM) level, are required to submit monthly timesheets for recording in the PRMS.

### **Audit observations on the PRMS**

6.8 Audit has noted that, as a management tool for monitoring manpower resource utilisation, the PRMS has the following limitations:

- (a) although the ITSD has a framework for manpower resource allocation (see paragraph 6.6 above), the manpower estimates (or budgets) allocated for the various tasks or activities are not captured in the PRMS; and
- (b) the PRMS only captures manpower utilisation data up to the SM level. It does not capture data on Senior Systems Managers (SSMs) and above who account for about 8% of the ITSD's AP grade manpower resources.

### **Audit recommendations on the PRMS**

6.9 **To strengthen the ITSD's manpower budgetary control system, Audit has recommended that the Director of Information Technology Services should consider:**

- (a) **taking action to enhance the PRMS, so that it can capture manpower budget data and data on manpower utilisation for all IT staff (including SSM and above); and**
- (b) **using the PRMS for exceptional reporting. For example, where the actual manpower utilisation of a project has exceeded the budget, the PRMS should generate timely exceptional reports for the attention of the ITSD's senior management.**

### **Response from the Administration**

6.10 The **Director of Information Technology Services** agrees to consider the audit recommendations. He has said that:



- (a) at the time the PRMS was developed, there was no functional requirement for the system to support manpower budgeting. There was also no significant need to capture the resource utilisation of senior staff (i.e. SSM and above) as they were customarily involved in overall management across a number of functions and projects and the number of senior staff was small;
- (b) the recommendation to enhance the PRMS will be taken into consideration in the planned development of the Project Management System and the Enterprise Resource Planning System arising from the recently completed ITSD's Departmental IT Plan. Funding requests have been submitted in the context of the 2000 Resource Allocation Exercise for the projects to start in early 2001-02; and
- (c) regarding the significant shift in manpower resources between activities (see paragraph 6.4 above), the ITSD has been using contract-in staff as a buffer to cope with the fluctuating manpower demands of development work. With the increasing number of projects outsourced, the number of contract-in staff employed for project work has been significantly reduced. Furthermore, some in-house staff have been redeployed to undertake other new services in Programmes 2 and 3.

**Improvements identified in the ITSD's 1996 review of the pilot ASA**

<b>Areas for improvement in the pilot ASA</b>	<b>Improvements made in the current ITSA</b>
(a) Multiple contractors and open competition	Although the ITSD planned to appoint two contractors in the ITSA tender exercise, it transpired that only one tender met the ITSD's requirements. As a result, only one contractor was appointed.
(b) To link payment with deliverables	Payments are made to the contractor by stages upon acceptance of deliverables and/or progress, according to an approved schedule, with 10% of each stage payment withheld until acceptance of the whole assignment.
(c) Strengthened management structure for HRM, quality assurance and assignments	<p>The programme management service in the ITSA contract is provided by a structure of support in various functional areas with dedicated support personnel specified in the contract.</p> <p>The contractor is required to provide quality assurance reviews to individual project deliverables and project activities.</p> <p>The contractor is required to provide IT support services to his project teams, including technical support and methodologies support.</p>
(d) Establish a central administrative body in the ITSD	The ITSD has established a contract administration team, with dedicated staff, to monitor the ITSA-related work.

*Source: ITSD's records*

**Cost comparisons of the ASA/ITSA, contract-in staff and in-house staff options**

Cost element	ASA/ITSA Option		Contract-in staff Option		In-house staff Option	
	Year		Year		Year	
	1996	2000	1996	2000	1996	2000
<b>Development Effort (Note 1)</b>	\$36.88m	\$116.07m	\$24.66m	\$61.72m	\$25.80m	\$68.68m
<b>Contract Administration Effort</b>	—	\$2.03m	\$1.23m	\$2.86m	—	—
<b>Management Effort (Note 2)</b>	\$6.40m	\$13.59m	\$3.83m	\$10.47m	\$3.20m	\$13.01m
<b>Training Investment</b>	—	—	—	—	—	\$5.27m
<b>Administrative Overhead (Note 3)</b>	—	—	—	—	\$2.58m	\$6.87m
<b>Total Effort</b>	<u>\$43.28m</u>	<u>\$131.69m</u>	<u>\$29.72m</u>	<u>\$75.05m</u>	<u>\$31.58m</u>	<u>\$93.83m</u>
<b>Ratio for 1996</b>	<b>1.37</b>		<b>0.94</b>		<b>1.00</b>	
<b>Ratio for 2000</b>		<b>1.40</b>		<b>0.80</b>		<b>1.00</b>

*Source: ITSD's costing data prepared in 1996 and 2000, based on a hypothetical cost model*

*Note 1: It was assumed that the same development efforts, in terms of man-days, would be required for completing an assignment under different options.*

*Note 2: For the ASA option, the actual ITSD's support effort was used whereas for the ITSA option, the estimated support effort in the Resources Estimation Guide was used for the calculation. For the contract-in staff and in-house staff options, the management support effort for the SSM level was estimated to be 25% of the efforts spent by the contract project managers and SMs respectively.*

*Note 3: For the in-house staff option, a 10% was added on the development efforts to cover general administrative overhead.*

**Acronyms and abbreviations**

ADM	Application development and maintenance
AP	Analyst/Programmer
ASA	Assignment Service Arrangement
BJS	Business Justification Study
ED	Education Department
FPA	Function Point Analysis
HRM	Human Resources Management
ICAC	Independent Commission Against Corruption
ISSS	Information Systems Strategy Studies
IT	Information technology
ITBB	Information Technology and Broadcasting Bureau
ITSA	Information Technology Services Arrangement
ITSD	Information Technology Services Department
LD	Liquidated damages
PRINCE	Projects in Controlled Environments
PRMS	Project and Resource Management System
RAMS	Resources Allocation and Monitoring System
SA&D	System Analysis and Design
SM	Systems Manager
SSM	Senior Systems Manager