CHAPTER 8

THE GOVERNMENT OF THE
HONG KONG SPECIAL ADMINISTRATIVE REGION

LAND REGISTRY TRADING FUND

GOVERNMENT DEPARTMENT

Land Registry

Information technology projects,
staff productivity and central registration of
documents

Audit Commission
Hong Kong
10 October 1998

INFORMATION TECHNOLOGY PROJECTS, STAFF PRODUCTIVITY AND CENTRAL REGISTRATION OF DOCUMENTS

Contents

INFORMATION TECHNOLOGY PROJECTS, STAFF PRODUCTIVITY AND CENTRAL REGISTRATION OF DOCUMENTS

Summary and key findings

A.   **Introduction.**   Hong Kong operates a deeds registration system for the registration of property transactions under the Land Registration Ordinance (Cap. 128).   The Land Registry (LR)'s mission is to maintain an efficient and effective land registration system to facilitate the orderly conduct of land transactions.   To discharge its mission, the LR maintains up-to-date land registers and related land records under the Land Registration Ordinance and Regulations (paras. 1 and 2).

B.   **Vision of the LR.**   In 1997, the LR set the vision of establishing by 2001 a fully computerised and integrated land registration and search system that will offer convenient, speedy and cost-effective services.   This includes the introduction of a centralised registration and a "one-stop" search service, without geographical restrictions (para. 6).

C.   **Information technology (IT) development of the LR.**   Up to March 1998, the LR had spent a total of $320 million on three major IT projects, namely, the computerisation of New Territories (NT) land registers, the implementation of the Direct Access Services and the implementation of the Document Imaging System (paras. 13 to 20).

D.   **Audit review.**   Audit recently conducted a review to examine the performance of the LR to see if there is any scope for improvement. The review focused on the LR's staff productivity, its pursuit of central registration of documents and the management of IT projects. The review has found that:

   — the LR has consistently exceeded the financial targets and largely achieved the service level targets for key services provided to the public (paras. 25 to 27);

   — there had been a significant increase in staff productivity from late 1994 to September 1997.   However, the LR could not sustain the improved productivity and, since late 1997, the productivity has dropped significantly (paras. 29 and 30);

   — mainly due to the delay in the conduct of the request justification study, there was slippage in meeting the original target date of 1997 in the implementation of central registration (para. 62);

   — in one contract, the LR overestimated the conversion workload of NT land documents and failed to specify clearly the system

requirements (paras. 89 and 101); and

— the LR has not laid down formal procedures to conduct post-implementation reviews (PIRs) of IT projects (para. 108).

E.   **Audit recommendations.** Audit has recommended that the Land Registrar should:

— take vigorous actions to maintain a consistently high level of staff productivity. These include critically reviewing the staffing level having regard to the decreased workload and closely monitoring the mix of temporary and permanent staff (para. 37);

— closely monitor the implementation progress of central registration to avoid further slippage (para. 64);

— learn lessons from the LR's implementation of central registration and avoid similar delays in the implementation of future mission-critical IT projects (para. 65);

— in future procurements of IT services, conduct adequate research to ensure that the conversion workload in the tender specifications is realistic, and thoroughly examine the characteristics of the LR's workload requirements and state them clearly in the tender specifications (paras. 92 and 102); and

— draw up formal procedures to require the timely and proper conduct of PIRs for the LR's IT projects (para. 111).

F.   Audit has also recommended that the Secretary for the Treasury and the Director of Information Technology Services should, for the benefit of other trading fund departments and IT users, promulgate good practices in the management of IT projects. These include the need to: secure timely IT resources for mission-critical projects; estimate workload accurately when preparing tender specifications; state system requirements clearly in tender specifications; and conduct proper PIRs (paras. 76, 93, 103 and 112).

G.   **Response from the Administration.** The Land Registrar has generally supported the audit recommendations on improving staff productivity, monitoring the implementation progress of central registration, procurement of IT services and the conduct of PIRs. However, he does not agree that there has been slippage in the implementation of central registration (paras. 38, 66, 77, 104 and 113). The Secretary for the Treasury and the Director of Information Technology Services have accepted the audit recommendations (paras. 67, 78, 80, 105, 114 and 115).
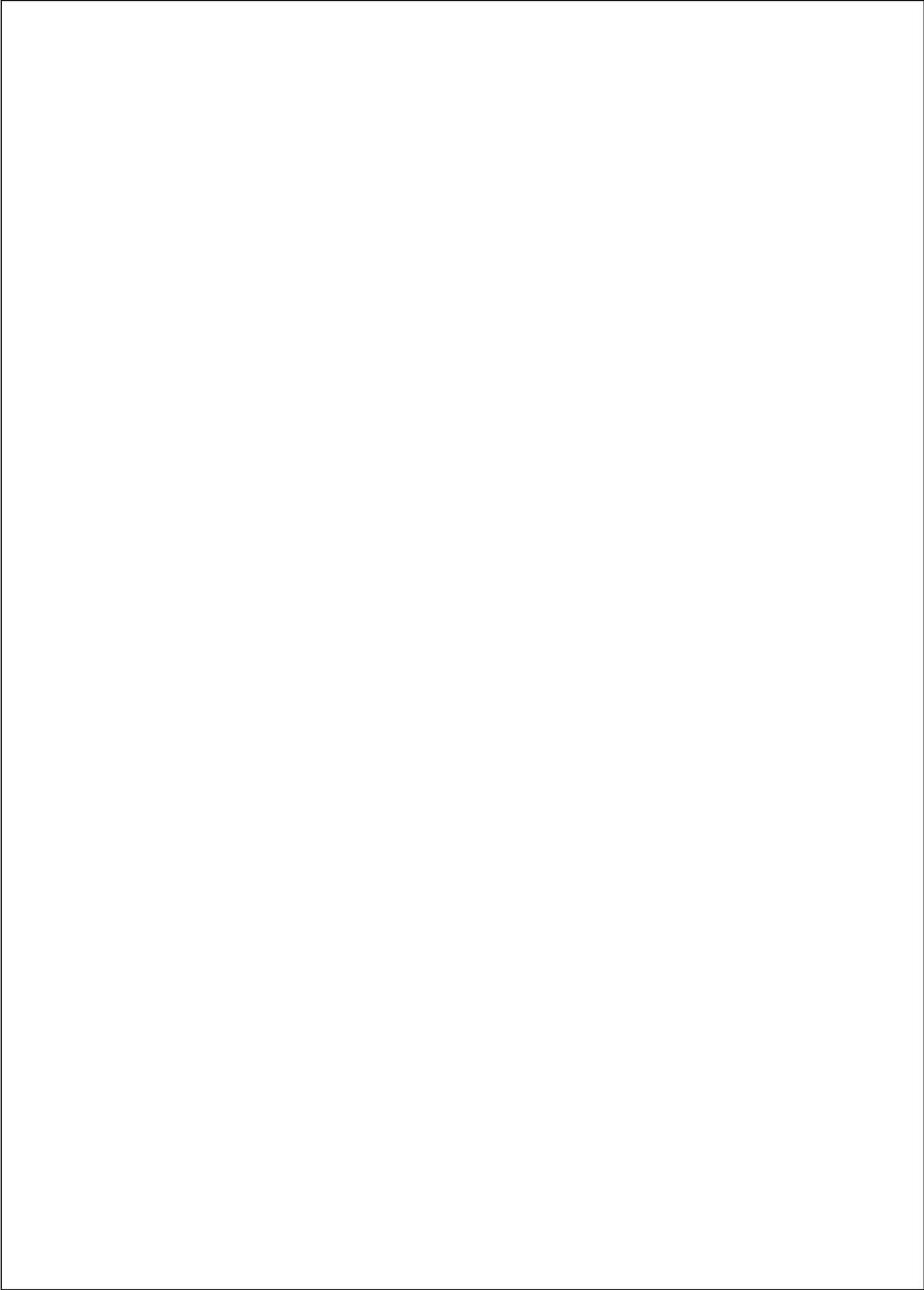
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INTRODUCTION

Land registration in Hong Kong

1.   Hong Kong operates a deeds registration system for the registration of property transactions under the Land Registration Ordinance (Cap. 128 — Note 1).   Under the deeds registration system, documents affecting land (Note 2) are registered with the Land Registry (LR).

2.   The LR's mission is to maintain an efficient and effective land registration system to facilitate the orderly conduct of land transactions. To discharge its mission, the LR maintains up-to-date land registers (Note 3) and related land records under the Land Registration Ordinance and Regulations. It performs the following functions:

  —   receiving land documents and their memorials (in a form prescribed by the Land Registrar);

  —   checking the registrability of the documents received in accordance with the provisions of the Ordinance and its Regulations;

  —   registering the documents;

  —   providing public access to the registers; and

  —   generating reports on title for government users.

Establishment of the LR Trading Fund

3.   The LR was established on 1 August 1993 as a trading fund government department under the Trading Funds Ordinance (Cap. 430).

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Note 1:   *The Land Registration Ordinance provides for the registration of deeds, conveyances, judgements and other instruments affecting real or immovable property, the keeping of Land Registry records, and other matters relating to land registration.*

Note 2:   *In general, a document affects land if it calls for or prevents a change of land title or itself creates an interest in land.*

Note 3:   *A land register maintains the ownership particulars of each property and any incumbrances registered against that property.*

It took over the land registration functions of the LR of the then Registrar General's Department.

4.   The Land Registrar is the General Manager of the LR Trading Fund. He is required to manage and control the trading fund in accordance with the requirements set out in the Trading Funds Ordinance. He is accountable to the Secretary for Planning, Environment and Lands and ultimately to the Financial Secretary, for the performance of the LR Trading Fund. A Framework Agreement is drawn up between the Secretary for Planning, Environment and Lands and the Land Registrar setting out the relationship between the two parties and specifying their respective roles and responsibilities. The Secretary for Planning, Environment and Lands is responsible for monitoring the performance of the LR Trading Fund.

Objectives and vision of the LR

5.   The objectives of the LR are to provide value-for-money services, to meet customer needs and to achieve financial and performance targets as specified in the LR's corporate and business plans.

6.   In 1997, the LR set the vision of establishing by 2001 a fully computerised and integrated land registration and search system that will offer convenient, speedy and cost-effective services.   This includes the introduction of a centralised registration and a " one-stop" search service without geographical restrictions.   The LR also proposed to move towards a land titles registration system (Note 4).

Corporate and Business Plans

7.   Under the Framework Agreement (see paragraph 4 above), the LR

Note 4:   *The present land registration system is a system of deeds registration (see paragraph 1 above). It is relatively efficient and reliable, but nevertheless lacks the practical advantages and certainty conferred by a land titles registration system which is being used in many other countries. Under the land titles registration system, once a person is registered on the Land Register as the owner, his title to the relevant land is confirmed. In fact, a Land Titles Bill, which would give legal effect to the land titles registration system, was introduced into the Legislative Council in November 1994. However, due to logistical reasons, the House Committee of the Legislative Council curtailed the examination of the Bill in July 1995 when the legislative session ended. The Bill will need to be re-introduced, if the land titles registration system is to be implemented.*

is required to submit annually a medium-range corporate plan and an annual business plan to the Secretary for the Treasury for approval. Starting from 1993-94, the LR has submitted combined corporate and business plans each year. Upon the Secretary for the Treasury's approval of the plans, the Secretary for Planning, Environment and Lands will authorise the LR to proceed with the plans. The plans form the basis on which the LR's performance is evaluated.

Key services provided by the LR

8.   Under the Trading Funds Ordinance, the LR is required to fund itself from the income generated from the services provided, achieve a reasonable return on the average net fixed assets (ANFA) employed and provide an efficient and effective operation that meets an appropriate standard of services. The major source of income of the LR is the fees for its services collected in accordance with the Schedule of the Land Registration Fees Regulations. In June 1996, substantial amendments were made to the fees structure to achieve full cost recovery and to minimise cross-subsidisation between different services so as to be in line with the "user pays" principle. Fees and charges are reviewed annually to ensure that the pricing objectives are met.

9.   The major services provided by the LR are:

   —   registration of land documents;

   —   search of land registers and records;

   —   supply of copies of land records; and

   —   certification of copies of land records.

10.   For the year 1997-98, the total income collected by the LR for providing the services amounted to $612 million, as shown in Figure 1 below.

Figure 1

**Income from various services
for the year ended 31 March 1998**
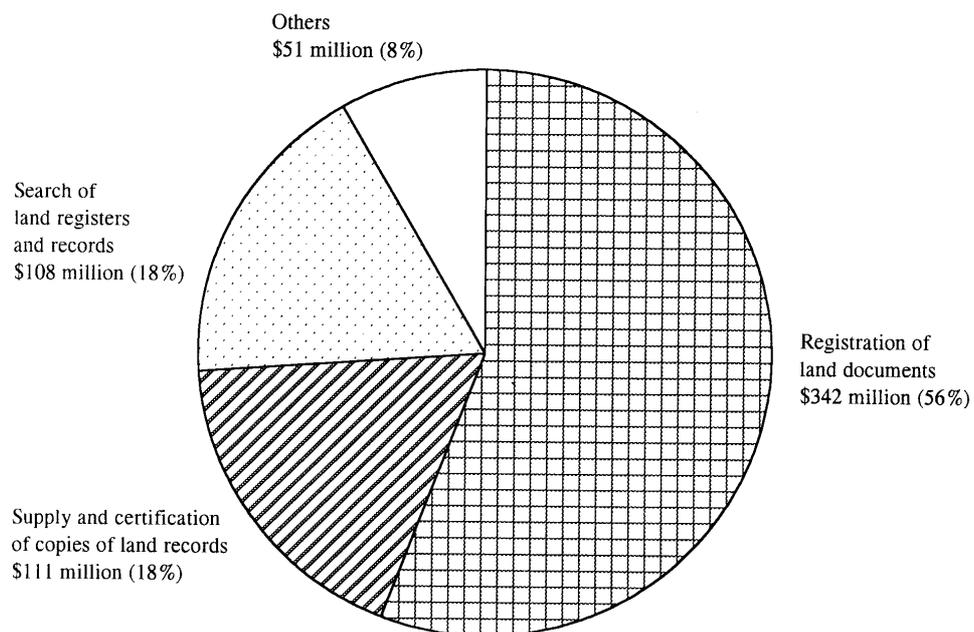
Others
$51 million (8%)

Search of
land registers
and records
$108 million (18%)

Registration of
land documents
$342 million (56%)

Supply and certification
of copies of land records
$111 million (18%)

Source: Land Registry records

11.   In 1997-98, the LR incurred a total recurrent expenditure of $388 million for the provision of the various services (see paragraph 9 above).   The $388 million can be apportioned among the various types of services as shown in Figure 2 below.

Figure 2

**Operational expenses of various services
for the year ended 31 March 1998**
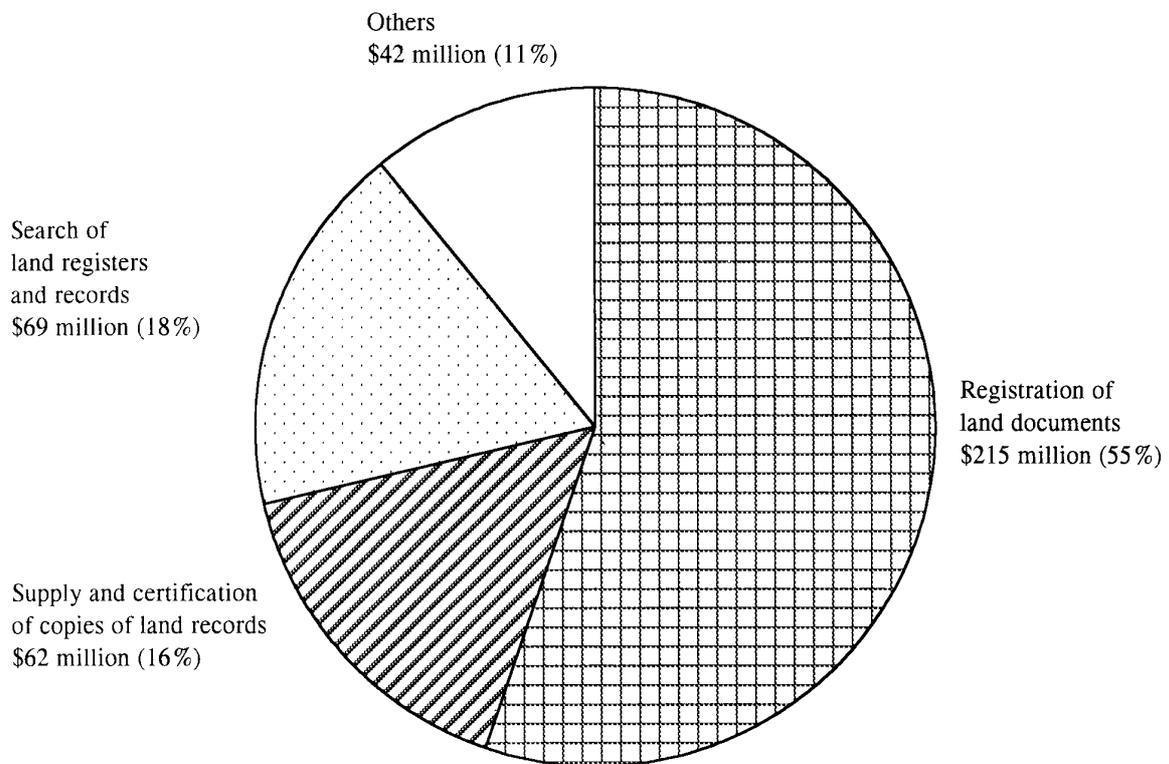
Others
$42 million (11%)

Search of
land registers
and records
$69 million (18%)

Registration of
land documents
$215 million (55%)

Supply and certification
of copies of land records
$62 million (16%)

Source: Land Registry records

12.   At present, the LR provides its services to customers through nine district land registries, comprising one Urban Land Registry (ULR) and eight New Territories Land Registries (NTLRs). The ULR is located at the Queensway Government Offices (QGO). The eight NTLRs are located in Tsuen Wan, Yuen Long, Shatin, Sai Kung, Tuen Mun, Tai Po, Fanling and QGO (Note 5). Land documents relating to properties in the urban area (Hong Kong Island, Kowloon and New Kowloon) are registered in the ULR. Land documents relating to properties in different districts of the New Territories (NT) are registered in the respective district land registries.

INFORMATION TECHNOLOGY DEVELOPMENT OF THE LR

Three major information technology projects

13.   The LR is committed to applying modern technology to provide the most efficient and cost-effective services to its customers. To discharge its mission, the LR has so far embarked on three major information technology (IT) projects. They are, namely:

—   the computerisation of NT land registers;

—   the implementation of the Direct Access Services (DAS); and

—   the implementation of the Document Imaging System (DIS).

14.   Up to 31 March 1998, the LR had spent a total of $320 million on the implementation of these projects, as follows:

	Project costs	Expenditure up to 31 March 1998
	($	($ million)

Note 5:   *The Islands Land Registry that provides services for properties in the outlying islands is located at the QGO.*

	million)	
Computerisation of NT land registers	128	128
DAS	8	8
DIS	260	184
Total	<u>**396**</u>	<u>**320**</u>

Source: Land Registry records

Computerisation of NT land registers

15.   The LR uses the computerised Land Registration System (LRS) for the handling of deeds registration and search of land registers. The LRS runs at the mainframe bureau of the Information Technology Services Department (ITSD). The urban LRS was developed by the ITSD before the LR Trading Fund was established. Conversion of urban land registers commenced in 1986 and was completed in 1991. As a result, since 1991, the urban land registers have been available in the computer format.

16.   In May 1994, the LR started on the computerisation of the NT land registers. The LRS for the NT was developed by adapting the urban LRS to meet the NTLRs' requirements. The computerisation of NT land registers was conducted in phases. The first phase, which began in May 1994 and covered the conversion of all the Town Lot land registers into computerised data on a district-by-district basis, was completed in August 1995. The second and final phase, which began in September 1995 and covered the conversion of all the land registers of Demarcation District and Survey District Lots (Note 6), was completed in April 1997. The urban LRS and NT LRS were combined to form one system in December 1995.

Implementation of the DAS

17.   The DAS is a computer network which provides its subscribers with on-line, direct land search facilities. DAS subscribers can access the computerised land registers and print copies of the land

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Note 6:   *At the turn of the 19th century, a survey of the privately owned land in the NT was made. These plots of land were then classified into Demarcation District and Survey District Lots and were numbered in sequence.*

records at their own offices. When the system was first launched in September 1994, access was only confined to the computerised urban land registers. As the NT land registers became computerised (see paragraphs 15 and 16 above), the subscribers were also given on-line access to computerised NT land registers. Starting from April 1997, DAS subscribers can have on-line access to all urban and NT land registers.

18.   Services provided to DAS subscribers include on-line search of the historical and current particulars of a property, on-line enquiries of the unposted (i.e. pending registration) memorial list, account enquiries and remote ordering for copies of land registers and documents. Subscribers can either collect copies of the imaged land documents at the LR's offices, or receive them by mail or by fax.

19.   By March 1998, the number of DAS subscribers had reached 551, and land searches under the DAS accounted for some 77% of the total search volume. The DAS has enabled the LR to provide better customer services and help reduce the LR's operating costs.

Implementation of the DIS

20.   The DIS was implemented in July 1996. Under the DIS, all registered land documents lodged on or after 1 July 1996 can be scanned and recorded onto optical disks as electronic images. Electronic images can then be retrieved and reproduced as hard copies at high speed. For land documents lodged before 1 July 1996, conversion was necessary. In July 1996, the LR started on the conversion of paper land documents in the NTLRs into electronic images. The job was completed in May 1997. Following that, in June 1997, the LR commenced the conversion of urban land documents, which were in microfilm format, into electronic images. The conversion exercise is expected to be completed by the end of 1998.

LR's IT development

21.   An overview of the LR's major IT systems is shown in Figure 3 below.

Figure 3

An overview of the LR's major IT systems

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                    ┌─────────────────┐
              ┌─────┤ Solicitors firms ├─────────────┐
              ┆     └─────────────────┘              ┆
              ┆                                       ┆
              ┆          ┌──────────────┐            ┆
              ┆          │     DAS      │            ┆
              ┆          │  Subscribers │            ┆
              ┆          └──────────────┘            ┆
Registered    ┆                ▲                     ┆   Memorials and
deeds         ┆                │  On-line access     ┆   deeds for
              ┆                │  of information     ┆   registration
              ┆                ▼                     ┆
              ┆          ┌──────────────┐            ┆
              ┆          │     DAS      │            ┆
              ┆          └──────────────┘            ┆
              ┆           ╱          ╲               ┆
              ┆          ╱            ╲  On-line retrieval
              ┆         ╱              ╲ of information
              ┆   ┌─────────┐      ┌─────────┐      ┆
              ┆   │   DIS   │◄────►│   LRS   │      ┆
              ┆   └─────────┘      └─────────┘      ┆
              ┆      ╱                   ╲          ┆
              ┆     ╱  Imaging of    Updating╲      ▼
  ┌──────────────┐   memorials and  of land   ┌──────────┐
  │   Central    │   registered deeds registers│ ULR or   │
  │ Imaging Centre│◄─────────────────────────│ NTLRs    │
  └──────────────┘   Memorials and            └──────────┘
                     registered deeds
                     for imaging
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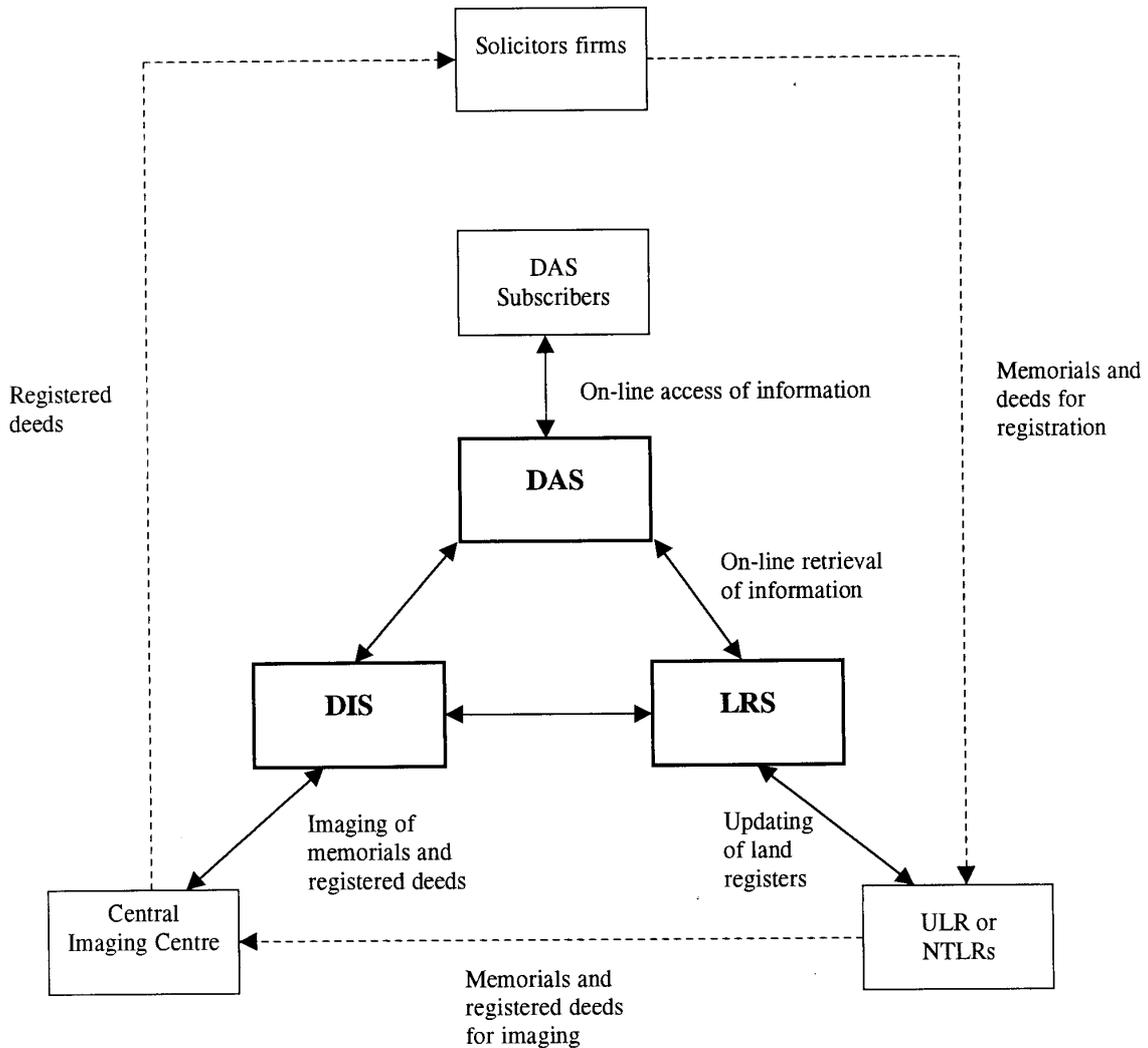
Legend: ---- ▶   document flow

         ───▶   computer processing

Source: Land Registry records

AUDIT REVIEW

Audit objectives and scope

22.   The LR has been operating as a trading fund government department for five years (see paragraph 3 above). It has also invested $320 million on IT (see paragraph 14 above). Audit has recently conducted a review to examine the performance of the LR to see if there is any scope for improvement. The audit focused on the following areas:

—   staff productivity;

—   the LR's pursuit of regionalisation and central registration which can bring about economies of scale; and

—   the management of IT projects.

Audit findings

23.   The audit has revealed that:

(a) the LR has consistently exceeded the 10% target rate in terms of financial return on the ANFA employed (see paragraphs 25 and 26 below);

(b) the LR has largely achieved the service level targets for key services provided to the public (see paragraph 27 below);

(c) there had been a significant increase in staff productivity from late 1994 to September 1997. However, the LR could not sustain the improved productivity and, since late 1997, the productivity has dropped significantly. Vigorous actions are needed to maintain a consistently high level of staff productivity (see paragraphs 28 to 36 below);

(d) since April 1998, the LR has set productivity standards for selected service areas to promote staff productivity and morale. The value of the productivity standards can be enhanced if the LR uses them for broader management purposes (see paragraphs 41 to 45 below);

(e) mainly due to the delay in the conduct of the request justification study (RJS), there was slippage in meeting the original target date of 1997 in the implementation of central registration (see paragraphs 48 to 63 below);

(f) the LR's efforts to work out a service level agreement with the ITSD have been unsuccessful. Without such an agreement, there is no assurance that IT resources are provided timely to meet the LR's needs (see paragraphs 68 to 74 below);

(g) in one contract, the LR overestimated the conversion workload and failed to specify clearly the system requirements. There are lessons to be learnt which can help improve the planning of future procurement contracts (see paragraphs 81 to 101 below); and

(h) the LR has not laid down formal procedures for post-implementation reviews (PIRs). As a result, PIRs have not been formally conducted for the LR's IT projects (see paragraphs 106 to 110 below).

PERFORMANCE OF THE LR

24.   The Corporate and Business Plans annually submitted by the LR (see paragraph 7 above) outline the financial targets and performance targets to be achieved for the current financial year and the four financial years that follow.

Financial targets

25.   In accordance with the provisions of the Trading Funds Ordinance, the LR is required to achieve a prescribed return, as determined by the Financial Secretary, on the ANFA employed (see paragraph 8 above). Currently, the prescribed rate is 10% a year.

26.   The LR has exceeded the target rate of 10% since 1994-95
(i.e. the first year with a full-year operation as a trading fund
department). The following financial returns on the ANFA employed
have been achieved:

Year	Financial return on the ANFA employed
1994-95	10.3 %
1995-96	14.7 %
1996-97	29.1 %
1997-98	37.3 %

Source: Land Registry records

Service level targets

27.   Each year, the LR sets out its performance pledges to be
achieved. The performance pledges relate mainly to the standards of
service delivery times for the various types of services provided
(see paragraph 9 above). For example, for the year 1997-98, the
service delivery time for the registration of land documents, a
major service provided by the LR, was set at 20 working days with a
target achievement rate of 97%. For the past four years (i.e. from
1994-95 to 1997-98), the target achievement rates set for the LR's
main services were largely achieved. Details are shown at Appendix
A.

STAFF PRODUCTIVITY

Improvement in staff productivity not sustained

28.   About 60% of the LR's operating costs are staff costs. Staff
productivity, therefore, is an important factor for evaluating the
performance of the LR. In order to ascertain the staff productivity
of the LR, Audit selected for examination the most significant
activity of the LR, namely, the registration of land documents,
which takes up 45% of the LR's operational staff resources.
Figures 4 and 5 below show the results of Audit's examination of
this activity for the period from April 1993 to March 1998.

Figure 4

**Staff productivity in terms of number of deeds
registered per man-day (from April 1993 to March 1998)**

Quarter ended

6/93 9/93 12/93 3/94 6/94 9/94 12/94 3/95 6/95 9/95 12/95 3/96 6/96 9/96 12/96 3/97 6/97 9/97 12/97 3/98

Data labels on chart: 10.79, 13.04, 12.22, 10.73, 11.65, 10.28, 8.08, 8.40, 9.78, 10.88, 9.49, 11.94, 12.15, 14.07, 14.06, 17.10, 16.25, 17.10, 14.17, 10.61

Average number of
deeds registered
per man-day
(Note)
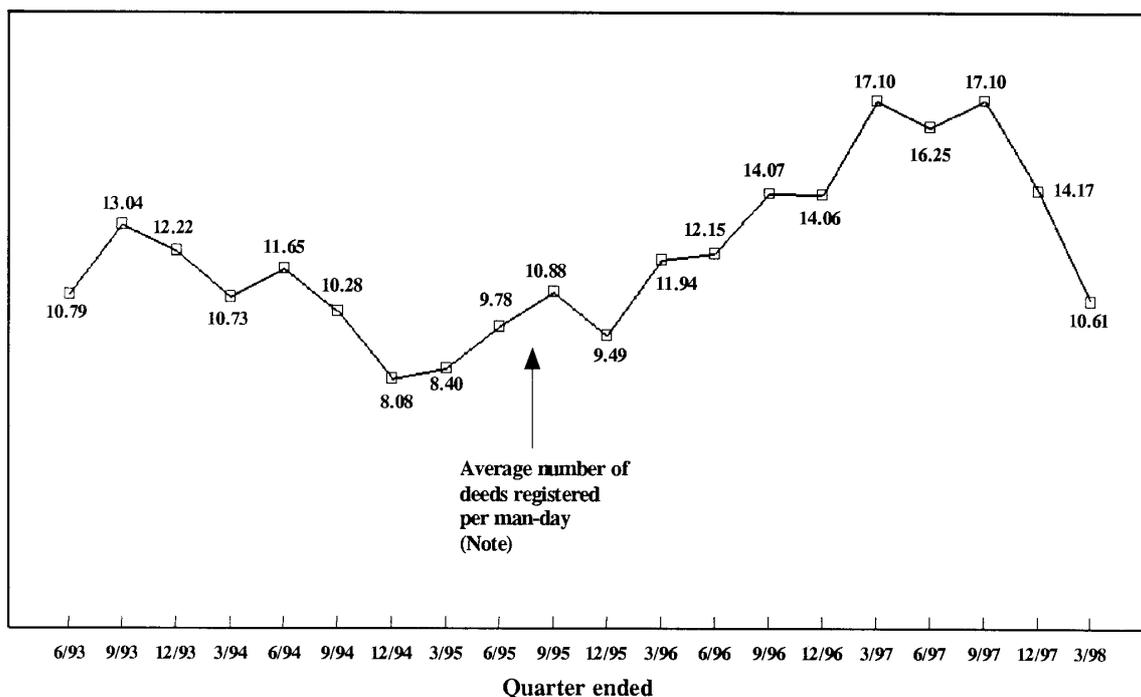
Source: *Land Registry's management statistics*

Note: *The following formula was used for calculating the number of deeds registered per man-day:*

$$\frac{\text{Number of deeds registered for the quarter}}{\text{Total number of man-days spent}}$$

(i)   *in calculating the number of man-days spent, overtime work was included and staff redeployment
was also taken into account;*

(ii)   *the total number of man-days spent included man-days spent on deeds lodgement, current deeds
registration, new deeds creation/registration and data processing work; and*

(iii)   *in calculating the number of man-days for the period from April 1993 to March 1997, Audit had to
apply an adjustment factor of 26% to take into account the number of man-days spent on deeds
registration by the Data Processing Section of the Urban Registration Division. This was because
the LR only started to maintain detailed records of the number of man-days spent on deeds
registration for the Data Processing Section in 1997-98. The adjustment factor of 26% was derived
from the number of man-days spent by the Section on deeds registration in 1997-98.*

Figure 5

**Number of deeds registered compared with number of staff
involved in registration work (from April 1993 to March 1998)**

Quarter ended
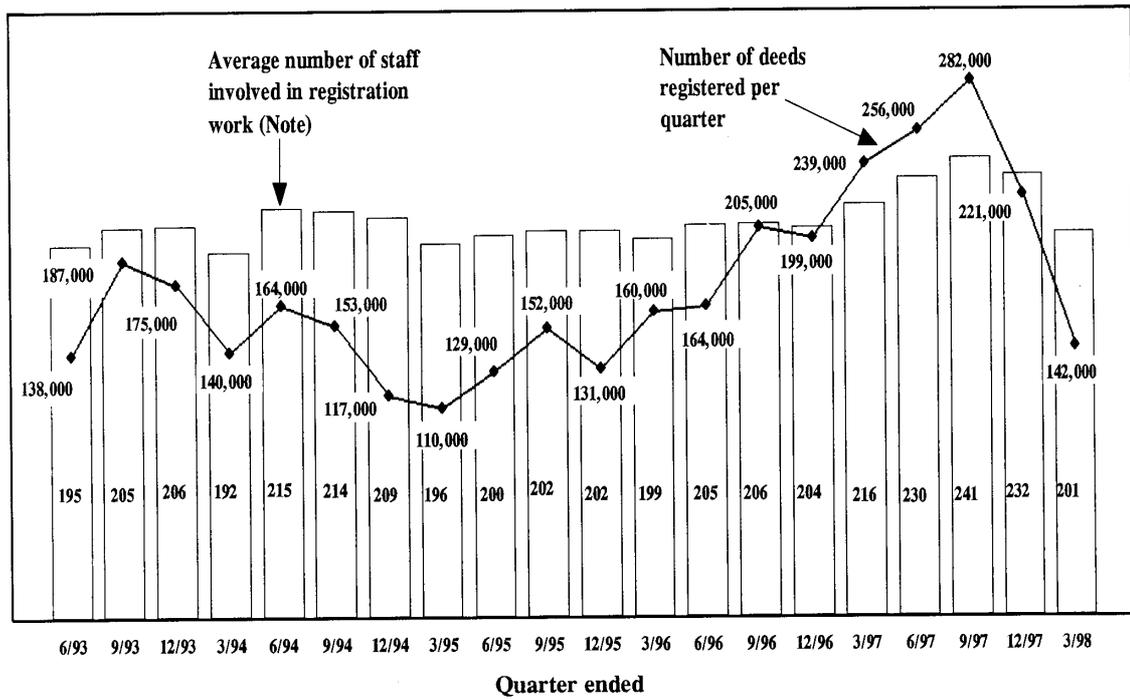
Source: Land Registry's management statistics

Note: In calculating the number of staff involved in registration work, overtime work was included and staff redeployment within the LR was also taken into account.

29.   From Figure 4 above, it can be seen that:

— ***Improvement in staff productivity.*** Staff productivity, in terms of the number of deeds registered per man-day, increased from 8.08 deeds per man-day in the quarter ending December 1994 (i.e. the lowest point) to 17.10 in the quarter ending September 1997 (i.e. the highest point). **There was an increase in productivity of 112%.** Audit's enquiries indicated that the increasing use of IT since 1994 (see paragraphs 13 to 21 above) was a contributing factor to the increased productivity; and

— ***Improvement in staff productivity not sustained.*** In late 1997, however, the improvement could not be sustained. Staff productivity dropped from 17.10 deeds per man-day in the quarter ending September 1997 to only 10.61 deeds per man-day in the quarter ending March 1998. **There was a decrease in productivity of 38%.**

Reason for not sustaining the improved staff productivity

30.   While the significant improvement in staff productivity from late 1994 to September 1997 is commendable, the fact that there has been a significant drop in staff productivity since September 1997 is a cause for concern. Audit's analysis indicated that the staff productivity had dropped significantly since late 1997 because the LR had not adequately adjusted its staff resources in line with the drop in workload. The analysis in Figure 5 above indicated that:

— ***Drop in workload.*** There was a significant drop in workload from 282,000 deeds in the quarter ending September 1997 to 142,000 deeds in the quarter ending March 1998 (i.e. by 50%);

— ***Staff resources inadequately adjusted.*** In contrast, the number of staff involved in registration work only decreased from 241 to 201 (i.e. by 17%) during the same period; and

— ***Drop in productivity***. **As a result, the staff productivity dropped by 38% during the period from September 1997 to March 1998 (see the last inset in paragraph 29 above).**

The need for a flexible staffing strategy

31.   One special feature of the business of the LR is that its
workload is determined largely by the performance of the property
market. Given the volatility of the property market in Hong Kong,
the workload of the LR fluctuates significantly. **Therefore, in
order to ensure that the work is processed in the most cost-
effective manner, there is a need for the LR to maintain a flexible
workforce and to adjust the size of its staff in line with the
fluctuations in workload.** The significant drop both in workload and
staff productivity since late 1997 is a case in point which
illustrates the importance of managing the LR's workforce with
flexibility.

Assurances by the LR

32.   The LR recognises the need for managing the workforce with
flexibility and adopts a staffing strategy of employing temporary
staff to supplement its permanent staff. In response to Audit's
enquiries in August 1998, the LR informed Audit that, in view of the
downturn of business since late 1997, it had taken a number of
measures to reduce staff costs across the LR (i.e. not confined to
the registration service which Audit selected for examination).
These measures included:

  —   reducing overtime work;

  —   not filling 25 vacant permanent posts;

  —   deleting four permanent posts and planning to delete another
      seven posts in the coming months;

  —   reducing the number of temporary staff from 121 for the
      quarter ending December 1997 to 77 for the quarter ending
      March 1998 (i.e. a 36% reduction); and

  —   redeploying staff to other areas of work which required
      additional resources.

33.   The LR also assured Audit that, in order to enhance the
flexibility in staff deployment, it had been working towards
reducing the number of permanent staff, and conscientiously
exploring the possibility of filling vacant permanent staff posts
with temporary staff. It had also been examining its manpower

resource requirement to see if the establishment could be reduced further. However, in order to avoid any adverse impact on staff morale, any deletion of permanent posts had to be planned carefully. The LR also said that it had to liaise with the Civil Service Bureau (CSB) of the Government Secretariat for the redeployment of any surplus general grade staff.

Audit observations on sustaining high level of staff productivity

34. Audit welcomes the significant improvement in staff productivity up to the quarter ending September 1997. **Audit considers that, having achieved a high level of productivity, it is important that it is sustained.** However, the record shows that the improved staff productivity has not been sustained. Since late 1997, staff productivity has dropped significantly in line with the decreasing workload.

35. Audit appreciates that the LR has taken various measures to reduce staff costs in response to the downturn in business since late 1997. Audit also supports the LR's staffing strategy of employing temporary staff to supplement its permanent staff, because it provides the LR with more flexibility to meet the challenge arising from the fluctuating workload. **However, judging from the audit analyses in paragraphs 29 and 30 above, Audit considers that the strategy needs to be applied more vigorously if the LR is to maintain a consistently high level of staff productivity.**

36. As at March 1998, the LR had a total of 636 permanent staff (89%) and 77 temporary staff (11%). Of the 636 permanent staff, 79% were clerical and supporting staff (i.e. general grades staff) who can be redeployed to other government departments. **Audit considers that the staffing level needs to be critically reviewed, having regard to the decreased workload. Audit also considers that, in order to maintain adequate flexibility in staff deployment and to deal with the fluctuating workload more cost-effectively, the LR needs to closely monitor the mix between permanent and temporary staff.**

Audit recommendations on sustaining high level of staff productivity

37. **Audit has *recommended* to the Land Registrar that he should take vigorous actions to maintain a consistently high level of staff productivity. In particular, the Land Registrar should:**

— **critically review the staffing level, having regard to the
   decreased workload;**

— **in order to ensure that adequate flexibility in staff
   deployment is maintained in line with the volatile property
   market, closely monitor the mix of temporary and permanent
   staff in the LR; and**

— **draw up an action plan to restore staff productivity to the
   September 1997 level as far as possible.**

Response from the Administration

38.   The **Land Registrar** has said that, while the audit
recommendations in paragraph 37 above are supportable, one should
not dismiss too easily the difficulties that the LR faces over
volatility in the property market. He has also said that:

— the audit recommendation concerning restoring productivity to
   the September 1997 level as far as possible (see the third
   inset of paragraph 37 above) would mainly require a return to
   the highly unusual and fluctuating levels of property market
   transactions that prevailed at that time.   This is, of
   course, beyond the LR's control;

— he cannot move clerical and supporting staff freely in and
   out of the LR. Apart from the need to discuss such movements
   with the CSB (which would have to consider a posting schedule
   for such staff *before* the CSB would agree to their release by
   the LR), it must be remembered that general and supporting
   staff in the LR received special training which was not given
   to similar staff in other non-trading fund departments. He
   would be most reluctant to lose such experienced staff, in
   whom the LR may have invested substantial time and money,
   just to sustain "productivity" during what may be a
   short-term reduction in service demand. On the return of
   such demand, he would need to approach the CSB again for
   additional general grades staff who, more than likely, would
   not have the training and experience of the staff that he had
   lost. Such new staff would require training and that would
   cost time and money too; and

— he must point out the negative effect on staff morale of
   having a "revolving-door" policy in relation to

" productivity" and work demand. However, as Audit has suggested in the first inset of paragraph 37 above, he will critically review the staffing levels again to see if some additional efficiencies can be achieved. There will, though, be further staff morale problems in the LR because there is already some concern amongst both the general grades and the Land Registration Officer grade over the staff savings envisaged in the strategic change plan which proposed central registration of land documents (see paragraphs 59 and 60 below). As the General Manager of a trading fund department which performs a critical service to the economy, and whose staff have to deal with literally many thousands of public enquiries *every day*, he would ignore such issues at his peril (Note 7) .

39. The **Secretary for the Civil Service** has said that he shares the Land Registrar's concern about the lead time required to accommodate the general grades staff affected. He has also said that the following practical constraints exist in absorbing the affected staff:

— there must be sufficient vacancies in other departments to accommodate the affected staff. The timing of phasing-out of the LR staff needs to be synchronised with that of the availability of those vacancies. Quite a number of departments are currently reviewing their clerical and secretarial staff complement and may propose trimming their existing establishment. This adds further pressure to the CSB in absorbing " surplus" staff;

— the CSB needs to arrange suitable postings for all affected staff having regard to their place of residence, work experience and career development needs;

— it is difficult to accommodate the affected Office Assistants as the entire grade is being phased out under the multi-skilling initiative launched in April this year and the CSB simply does not have any vacancies to carry them; and

Note 7: *Audit is pleased to note the Land Registrar's agreement to critically review the staffing levels again to see if some additional efficiencies can be achieved. Apart from the decreased workload, Audit appreciates that, in adjusting the staffing levels, the LR needs to take into account other factors such as staff morale, the effect of the loss of experienced staff on operational efficiency and the lead time for transferring out staff. Audit*

— given the substantial number of staff involved and the above constraints, the CSB must allow reasonable time to make the necessary arrangements to absorb the affected staff. Furthermore, from the staff relations point of view, it is desirable to stagger the timing of deletion of posts, particularly those in the promotion ranks, in order to minimise the impact. Therefore, the CSB needs to liaise closely with the LR in planning the timing and the pace of phasing out the affected staff.

40.   The **Secretary for Planning, Environment and Lands** has said that:

— the issue identified by Audit is not unique to the LR. Given the civil service system of postings, redeployment and demarcation of job responsibilities, there are constraints on the Land Registrar's ability to quickly adjust his staffing resources in response to changes in market demand for the LR's services; and

— he sympathises with the Land Registrar's predicament in sustaining productivity as the Land Registrar could not rapidly achieve downsizing in the way done by the private sector.

Productivity standards

41.   Since its establishment in 1993, the LR has repeatedly stated in its Corporate Plans the following commitment:

" To establish standard output per staff number for key activities to measure staff productivity."

42.   In April 1998, under a Performance Incentive Scheme (Note 8),

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also appreciates that dealing with such potential problems would require great care and management efforts.

Note 8:   *The Performance Incentive Scheme under implementation by the LR comprises four levels. Level One of the Scheme, launched in January 1997, involves the granting of awards-in-kind to staff for performance above the financial targets and service level targets (see paragraphs 25 to 27 above). Level Two of the Scheme, launched in April 1998, involves the rewarding of staff in operational divisions with good performance (e.g. meeting the productivity standards). Levels Three and Four have not yet been implemented.*

the LR set productivity standards for selected service areas for its operational divisions (see Appendix B). The productivity standards were set, basically, at a certain percentage (for 1998-99, at 2%) above the average output of the previous year. The purposes of the Scheme are to reinforce a performance-oriented service culture, to improve the quality of service to customers and to promote staff productivity and morale. The performance of the LR's divisions is collectively assessed against the standards. The staff in a division which meets the productivity standards will be awarded with non-cash rewards (e.g. supermarket/department stores gift coupons or dinners).

43. In response to Audit's enquiry, in August 1998, the LR informed Audit that these standards would be kept under continuous review and monitoring.

Audit observations on productivity standards

44. Audit supports the setting of productivity standards in April 1998 by the LR under the Performance Incentive Scheme as a means to promote staff productivity and morale. **However, Audit considers that the value of productivity standards can be enhanced, if the LR uses them for broader management purposes.** In particular, productivity standards can be used internally, as a management tool, for planning staff requirements and allocating work to staff. Externally, productivity standards can be used to enhance the LR's accountability to others (e.g. to the policy bureau, the Finance Bureau, customers and members of the public). This can be done by including the standards, together with the results actually achieved, in the LR's Corporate and Business Plans and Annual Reports. To facilitate the inclusion of productivity standards in these documents, the LR may need to develop key standards which measure productivity for the LR's key services on a whole-of-LR basis. In this regard, Audit notes that the existing standards only relate to selected processes within individual divisions.

45. **In addition, Audit considers that the standards need to be further developed so that they not only represent, as at present, the average output of the previous year marked up by a certain percentage, but represent the highest level of productivity achievable.** The LR may need to conduct a work study for this purpose.

Audit recommendations on productivity standards

46. **Audit has _recommended_ to the Land Registrar that he should consider using the productivity standards for broader management purposes. In particular, the Land Registrar should consider:**

— using productivity standards as a management tool for
   planning staff requirements and allocating work to staff;

— using productivity standards as a means to enhance the LR's
   accountability to the public and the parties concerned (e.g.
   to the policy bureau, the Finance Bureau and customers).
   This can be done by including key standards, together with
   the actual results achieved, in the LR's Corporate and
   Business Plans and Annual Reports;

— developing key standards which measure productivity for the
   LR's key services on a whole-of-LR basis; and

— developing standards which represent the highest level of
   productivity achievable.

Response from the Administration

47.   The **Land Registrar** has said that:

— he has some difficulty with the audit recommendation that the
   LR should develop productivity standards on a whole-of-LR
   basis (see the third inset of paragraph 46 above).   Apart
   from the department-wide 2% productivity gain incorporated in
   the Corporate Plans, it would be difficult to apply other
   measures to the district registry offices because the
   operations and structure of these offices differ (Note 9).
   In any case, it is envisaged that the registration function
   will be centralised in the not too distant future, so by the
   time the LR had such standards, they would be redundant; and

— he agrees with the audit recommendation that the LR should
   develop standards which represent the highest level of
   productivity achievable (see the last inset of paragraph 46
   above).   Given the fluctuations in the property market, this
   may not be too easy but he can see that it would be a useful

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Note 9:   *Using Figure 4 in paragraph 28 above as an illustration, Audit
has explained further to the Land Registrar about developing
productivity standards on a whole-of-LR basis to enhance external
accountability.   Figure 4 measures the productivity of a major
activity (i.e. registration) on a whole-of-LR basis.   It captures
productivity data across divisions/sections.   In Audit's view,
productivity standards developed along these lines would be useful
for enhancing external accountability.*

tool for measuring comparative performance. It would, of course, have to be used carefully. He cannot expect, even under the LR's very high standards, that staff will perform at maximum capacity 100% of the time. He must also build in capacity for dealing with surges in demand, especially if the LR is to meet its performance pledges.

REGIONALISATION AND CENTRAL REGISTRATION

Existing arrangements for registration and land search

48.   The two most significant services provided by the LR are the registration of land documents and the search of land records. Each of the district land registries provides land registration and land search services in respect of the properties in the district.

49.   Under the existing arrangements, the LR maintains nine district land registries, namely one ULR and eight NTLRs (see paragraph 12 above). Each registry maintains its own shroff office, receipt and dispatch team, data entry team and registration team for running the registry. As at 31 March 1998, the nine registries together engaged a total of some 450 staff and occupied a total office accommodation of 6,400 square metres. The total operating cost amounted to $194 million a year, detailed as follows:

	One ULR	Eight NTLRs	Total
Number of staff	263	187	450
Office accommodation	2,700 square metres	3,700 square metres	6,400 square metres
Annual operating costs	$107 million	$87 million	$194 million

Source: Land Registry records

The options of regionalisation and central registration

50.   Economies of scale can be achieved if the LR introduces:

— regionalisation (i.e. combining the eight NTLRs, on a regional basis, into a smaller number of registries); and

— central registration (i.e. one central registration office for processing land documents of all properties in the territory).

By introducing regionalisation and central registration, the LR can reduce the number of registries or scale down their sizes.

51. The LR recognises the importance of achieving economies of scale. Over the years, it has been pursuing first the option of regionalisation and, later, the option of central registration. A chronology of events outlining the LR's pursuit of these options is in paragraphs 52 to 56 below.
The LR's pursuit of regionalisation and central registration

52. In 1993, the LR first mentioned in its Corporate and Business Plans the option of regionalising the eight NTLRs in order to achieve economies of scale. It was stated that the option would achieve staff and accommodation savings. It could also improve management supervision, enhance the efficiency of the NT land registration functions and improve the services to the NT community as a whole. The LR indicated that regionalisation would be proceeded after consultation with users. In 1994, this option was mentioned again in the Corporate and Business Plans.

53. In 1995, the option of regionalisation was not mentioned in the Corporate and Business Plans. Instead, the LR considered another option, namely, central registration (see the second inset of paragraph 50 above). In May 1995, at a Senior Management Meeting of the LR chaired by the Land Registrar, it was decided that:

— **central registration should be introduced, once the LR had completed the computerisation of the NTLRs and the image conversion of NT land documents for the majority of the NTLRs (see paragraphs 16 and 20 above);**

— **central registration should be implemented in early 1997;** and

— one year after the implementation of central registration, the LR should review whether or not there was still a need to retain the existing eight NTLRs.

54.   In 1995, the LR stated in its Corporate and Business Plans that it would implement a central registration system as a new project. The LR stated in the Plans that, with the setting up of the central registration system, the existing land registration district boundaries would be removed. All deeds for registration would be handled at one central registration office. The existing NTLRs might be retained, depending on service demands, to provide territory-wide search services. The LR considered that with central registration, customers would enjoy greater convenience and better value-for-money service. The LR would benefit from economies of scale and greater flexibility in enhancing efficiency and improving services. The LR planned to introduce central registration after completing the computerisation of NTLRs and the DIS project.

55.   In 1996, the LR stated in the Corporate and Business Plans its intention to implement central registration in 1998 or early 1999. The total capital cost of this project was estimated to be $88 million.
56.   More recently, in 1998, the LR again mentioned central registration in its Corporate and Business Plans (Note 10). **The LR indicated that it planned to introduce central registration by mid-2001.**

Slippage in the implementation of central registration

57.   Although the LR originally planned to implement central registration in early 1997 (see the second inset of paragraph 53 above), there was slippage because the LR could not enhance/redevelop the existing LRS (see paragraph 15 above) on time to support the implementation of central registration. Table 1 below is a chronology of the relevant events.

Table 1

Chronology of events concerning the
implementation of a central registration system

(a)	**June 1995**	The LR requested the ITSD to commence the conduct of a request justification study (RJS) for implementing central registration as soon as possible. **The LR indicated that the target date for implementing central registration was mid-1997.**

Note 10:   *The " Corporate Plan 1997-98 to 2001-02 and Business Plan 1998-99" submitted by the LR in February 1998 refers.*

(b)	July 1995	The ITSD requested the LR to provide additional information to support its initial request. The ITSD indicated that the additional information could facilitate its consideration of whether a RJS was required or not.
(c)	January 1996	The ITSD informed the LR that for 1996-97, the ITSD's resources for conducting RJS had already been committed to various projects of other government departments. The RJS for the LR might need to be scheduled to be conducted at another time.
(d)	February 1996	The LR questioned the need for conducting the RJS, indicating that the implementation of central registration might only involve a relocation of offices and merging of the registration functions of the nine district registries. It did not envisage significant changes in work procedures.

Table 1 (Cont'd)

(e)	February 1996	The ITSD, in reply, said that in the absence of additional information, it was not able to advise whether a RJS was required or not.
(f)	April 1996	The LR submitted a formal initial request statement to the ITSD providing the additional information for the latter's consideration. The LR indicated that a RJS for the case might not be required.
(g)	May 1996	The ITSD advised the LR that, in this case, it considered that a RJS was necessary and the RJS would be conducted during the period from January to March 1997. Under such time frame, the ITSD envisaged that the central registration system would be available in December 1998.
(h)	December 1996	The LR objected to the ITSD's view that a RJS was required, on the grounds that the LR was a trading fund department and that central registration did not involve the development of a new computer system.

(i)	December 1996	The ITSD replied that it was advisable to start the project with a RJS in order to take into consideration the various factors that might affect the user requirements.
(j)	December 1996	On reconsideration, the LR agreed to the conduct of RJS and urged for its commencement as early as possible.
(k)	January 1997	The ITSD started on the RJS.
(l)	June 1997	The ITSD completed the RJS Report.
(m)	**July 1997**	**The LR accepted the RJS Report.**
(n)	August 1997	The ITSD urged the LR to proceed with the feasibility study of the project.

Source: Land Registry records

Strategic change study

58.   In August 1997, the LR decided at its Senior Management Meeting that it would not proceed with the conduct of the feasibility study as it was planning to conduct an in-house strategic change study. The need for a feasibility study would be decided after the strategic change study was completed.

59.   The objective of the strategic change study was to identify ways to improve the efficiency of the LR's operations and its services to the public. In March 1998, the LR produced a draft strategic change study report. **The draft report reconfirmed that the LR should implement central registration.** It also proposed that a system of land titles registration (see paragraph 6 above) should be implemented to replace the existing system of deeds registration. According to the draft report, the LR planned to apply two changes to its operations, namely central registration and land titles registration.   The LR expected that once these changes were implemented, the LR would become a world class registry.   The LR planned to have the changes implemented by **November 2001.**   To support the implementation of central registration and the introduction of a land titles registration system, the draft report indicated that, instead of enhancing/redeveloping the existing LRS, the LR would need to develop a new computer system at an estimated

cost of $119 million (Note 11). As at July 1998, the proposed strategic change plan was still under discussion among relevant parties, namely the LR, the Planning, Environment and Lands Bureau and the Finance Bureau of the Government Secretariat.

Benefits of central registration

60. According to the draft strategic change study report, the implementation of central registration, coupled with the re-designing of work procedures and downsizing of the NTLRs, will bring about substantial benefits to the LR. **These include a reduction of 71 staff (i.e. a reduction in staff costs of $23.6 million a year), and a reduction of 2,000 square metres of office accommodation (at an estimated annual cost of $13.8 million).**

Audit observations on the implementation of central registration

The need to avoid further slippage

61. Opportunities exist for the LR to achieve substantial savings through economies of scale. The LR recognised this opportunity as early as 1993, when the option of regionalisation was stated in its Corporate and Business Plans. In May 1995, the LR decided that central registration, which would benefit both the LR and the customers, should be implemented in 1997. However, there was slippage in its implementation and, in 1997, the LR decided to extend the scope of the central registration system and revised the implementation date to 2001. To date, the LR is still operating nine district registries and no significant savings have been achieved through economies of scale. **In view of the significant benefits both to the LR and the customers, Audit considers that the LR needs to closely monitor the progress of implementation of central registration in order to avoid further slippage.**

Lessons to be learnt

62. Audit noted that a main reason for the slippage was that the LR could not enhance/redevelop the existing LRS on time to support the implementation of central registration. In the Government, a

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Note 11: *Compared with the computer system envisaged in 1995, the scope of the central registration system was extended. Instead of examining the feasibility of adopting a single queue of memorial numbers, the extended scope would cover a comprehensive review of the registration system and supporting IT and physical infrastructure.*

computer project generally involves four development stages, namely the RJS, feasibility study, system analysis and design study, and system implementation. While the LR's target was to complete the project by mid-1997 (see item (a) in Table 1 above), in the event there was delay and only the RJS (i.e. the first stage of the project) had been completed by that time.

63.   The delay was caused by a number of factors. There were prolonged disputes between the LR and the ITSD over the need for conducting the RJS (see items (d), (e), (f) and (g) in Table 1 above). There were also delays by the LR in submitting initial project information to the ITSD for the purpose of the RJS (see items (a), (b), (e) and (f) in Table 1 above). Furthermore, the ITSD could not accord high priority to the LR due to competing demands for its services from other government departments, which also contributed to the slow progress in the conduct of the RJS (see items (c), (k) and (l) in Table 1 above). **Audit considers that, in order to avoid similar delays in the future, there are lessons to be learnt from this case concerning the management of IT projects.**

Audit recommendations on the implementation of central registration

64.   **Audit has *recommended* to the Land Registrar that he should closely monitor the implementation progress of central registration in order to avoid further slippage.**

65.   **In order to avoid similar delays in future mission-critical IT projects, lessons can be learnt from this case. Audit has *recommended* to the Land Registrar that he should:**

— **take urgent and vigorous action to resolve disputes with the ITSD over procedural matters;**

— **take prompt action to provide the ITSD with the necessary information of the project;**

— **secure the necessary IT resources from the ITSD at an early date for the timely implementation of the LR's IT projects; and**

— **if the ITSD cannot accord high priority to the LR's IT projects, and if the projects are mission-critical, consider the option of outsourcing at an early date to avoid slippage.**

Response from the Administration

66.   The **Land Registrar** has said that:

—   while he agrees that central registration must be closely
        monitored and will ensure that it is under close monitoring,
        there seem to be some differences between his and Audit's
        understanding of central registration;

—   there has been no slippage in this project. That is because
        the central registration system now being examined by the LR
        is different from the central registration project referred
        to in paragraph 57 above (Note 12).   In 1997, the LR
        substantially extended the scope of the project. Instead of
        examining the feasibility of adopting a simple single queue
        of memorial numbers, the extended scope would cover a
        comprehensive review of the registration system and
        supporting IT and physical infrastructure - the strategic
        change plan which the LR now has (see paragraph 59 above).
        This plan was embarked on over a year ago when the LR's
        operations were at full capacity.   Given the subsequent
        downturn in the property market and its effect on the LR's
        rate of return, it is as well that the LR began examining
        future efficiencies and improvements as early as it did.   He
        believes that in many companies in Hong Kong, it is only now,
        with the effects of the recession fully upon them, that they
        are reviewing their operations.   The LR on the other hand,
        moved early and moved quick;

Note 12:   *Audit understands that the central registration system now
                being considered by the LR (at an estimated cost of $119 million)
                is different in scope from the system then envisaged in 1995 and
                mentioned in paragraph 57 above (which was estimated to cost $88
                million).   However, Audit considers that it is a matter of fact
                that there was slippage in the implementation of the central
                registration system envisaged in 1995.   The original target for
                central registration was early 1997 (see the second inset of
                paragraph 53 above).   To date, central registration has still not
                been implemented and the LR is still operating nine district
                registries.   As pointed out in paragraphs 57, 62 and 63 above, the
                delay in the conduct of the RJS clearly contributed to the delay in
                the implementation of the central registration system, and there
                are lessons to be learnt from the delay.   Regarding the original
                target date of 1997, Audit notes the Land Registrar's explanation
                that the target was unrealistic, was set without a detailed study
                and was not supported by a proper action plan (see the last inset
                of paragraph 66 above).*

—   the present position is that policy approval for the strategic change plan has been given and public consultation will begin shortly (there have been delays here which are beyond the LR's control, i.e. getting onto the agenda of the committees of the Legislative Council). The LR has also begun to seek Expressions of Interest from interested parties to conduct an information systems strategic study; and

—   concerning the original target of implementing central registration in 1997, he considered that the target was unrealistic. It was set without a detailed study and was not supported by a proper action plan.

67.   Regarding the delay in the conduct of RJS for central registration, the **Director of Information Technology Services** has said that:

—   as indicated in Table 1 in paragraph 57 above, he received the request from the LR to conduct a RJS in June 1995. The ITSD requested the LR in July 1995 to provide additional information for it to consider whether a RJS was required or not. In April 1996, the ITSD received the initial request statement from the LR. The RJS was scheduled in January 1997 and was completed in June 1997; and

—   in 1997, the ITSD embarked on its Change Programme which includes the exploration of Business Process Re-engineering opportunities. As a result of this initiative, the ITSD has decided that future RJS will be integrated into the feasibility study. He considers that this should help shorten the lead time for system delivery.

PROVISION OF IT SERVICES

Existing arrangements unsatisfactory

68.   The LR spends about 10% of its operating costs on IT services. In 1997-98, it spent some $39 million on the services provided by the ITSD. This amount included $15 million (38%) on IT staff costs and $24 million (62%) on bureau operation services.

69.   The LR considers that the present arrangements of using the ITSD's services are not satisfactory because the LR cannot wholly own and control the operation of its systems. As the ITSD service team needs to support other government departments, it cannot always

accord high priority to the LR's requests. As a trading fund department, the LR enjoys greater autonomy in selecting its service suppliers. The fact that the LR has to compete with other government departments for IT services is not satisfactory. The LR considers that there is a need for a service level agreement (see paragraphs 71 and 72 below) to be drawn up with the ITSD.

Merits of a service level agreement

70.   Where a computer system is managed or maintained by another party, it is good practice to draw up a service level agreement to define the services to be provided and the associated measures of performance. The agreement will form the basis for monitoring the performance of the computer system in terms of availability, response times, number of transactions or other appropriate criteria meaningful to the user. The agreement will also set out the level of support to be provided to the users (e.g. training and help desks) by the service providers, and the procedures for proposing changes to the system.

The LR's attempt to draw up a service level agreement

71.   In early 1997, the LR and the ITSD considered that they should work out a service level agreement for the operation of the DIS (see paragraph 20 above).   The LR was concerned about the unclear definition of the ITSD project team's roles and responsibilities, of the support from the ITSD on evaluating the DIS contractor's performance and of the procedures for channelling the LR's requests for enhancement to the contractor.

72.   The LR considered that a service level agreement should be drawn up for the DIS in order to provide guidelines to the LR and the ITSD for the proper management of the DIS, and to define clearly each party's roles and responsibilities.   It was intended that, once a service level agreement was reached for the DIS, both parties would proceed to conclude a similar agreement on the other IT services provided.

73.   However, by March 1998, after several rounds of discussion between the LR and the ITSD, no agreement could be reached.   The departments held different views on the role the ITSD should play. While the LR was of the view that the ITSD should assume the full role of a system administrator (Note 13), the ITSD considered that its role was in assisting the LR in administering the system.   The ITSD also considered that it was not in a position to commit itself to the service standards proposed by the LR because it did not have the same degree of flexibility of a commercial firm.   As no agreement could be reached, the matter was held in abeyance.

Audit observations on the provision of IT services

74.   **Audit shares the LR's view that the existing arrangements, whereby IT services are provided by the ITSD without a service level agreement, are unsatisfactory.   Without such an agreement, the LR cannot monitor effectively the performance of the ITSD against agreed service standards, and the ITSD is not obliged to provide timely IT resources to meet the LR's needs.   This could jeopardise the timely implementation of the LR's mission-critical computer projects.   The delay in carrying out the RJS, mentioned in paragraph 62 above, is a case in point.**

Note 13:   *A system administrator is responsible for the design, control and management of the architecture and resources of a computer system.*

Audit recommendations on the provision of IT services

75.   **Audit has *recommended* to the Land Registrar that he should:**

   —   **continue to press the ITSD for a service level agreement for the provision of IT services to the LR;**

   —   **seek the assistance of the Secretary for the Treasury and the Secretary for Planning, Environment and Lands in order to secure a service level agreement with the ITSD at an early date; and**

   —   **if efforts to secure a service level agreement with the ITSD continue to be unsuccessful, consider other options of acquiring IT services (e.g. outsourcing).**

76.   **Audit has also *recommended* to the Secretary for the Treasury that she should, by issuing appropriate guidelines to the trading fund departments, promulgate the importance of securing timely IT resources for mission-critical projects.**

Response from the Administration

77.   In response to the audit recommendation in paragraph 75 above, the **Land Registrar** has said that:

   —   while he has some sympathy with the audit recommendation that he should press the ITSD for a service level agreement (see the first inset of paragraph 75 above), his experience to date indicates that this would be a redundant exercise. That explains why, as Audit also recommends in the third inset of paragraph 75 above, he has considered outsourcing which he has had in mind for some time and which has been included in the Expressions of Interest as mentioned in the third inset of paragraph 66 above; and

   —   he intends to appoint his own in-house Information Technology Manager. A paper to this effect is tentatively scheduled to be considered by the Establishment Subcommittee of the Finance Committee of the Legislative Council in its meeting in December 1998.

78.   The **Director of Information Technology Services** has said

that:

—   the ITSD's Computer Bureau has signed over thirty service
     level agreements with its other users. A similar service
     level agreement for the DIS has also been offered to the LR
     in 1997 for its consideration but an agreement has yet to be
     reached; and

—   the ITSD fully supports the audit recommendation, in the
     third inset of paragraph 75, that the LR should consider
     other options of acquiring IT services (e.g. outsourcing).
     Signing a service level agreement would not give the LR a
     higher priority over other government departments in
     obtaining resources from the ITSD. As a trading fund
     department, the LR has greater flexibility in employing
     external services as compared with other non-trading fund
     departments.

79.   The **Secretary for Planning, Environment and Lands** has said
that the problem relating to the LR's procurement of IT services is
not unique to the LR, but also applies to various extent to other
government departments. He considers that, prima facie, there may
be merit in permitting the LR to procure its IT services through
outsourcing.

80.   In response to the audit recommendation in paragraph 76
above, the **Secretary for the Treasury** has said that she has, via
Financial Circular No. 7/97 issued in February 1997, advised trading
fund departments and their policy bureaux to apply the principles of
the Circular, where applicable, in planning, monitoring and
evaluating their computer systems (Note 14**).** She will remind
trading fund departments to observe that Circular.

Note 14:   *Financial Circular No. 7/97 on the subject of government*
         computerisation specifies several areas where government
         departments should pay attention to at the planning stage of IT
         projects. It also specifies the mechanism for monitoring IT
         projects in order to complete the projects on time. According to
         the Circular, project steering committees should be set up to
         monitor the progress of the projects. The committees should, among
         other things, assess critically the staffing position and, if
         necessary, should act quickly to secure the necessary resources.

PROCUREMENT OF THE DIS

Contract for the supply of the DIS and conversion services

81.   As mentioned in paragraph 20 above, the LR implemented a DIS in 1996.   The development of the DIS started in 1994.   In November 1995,   on   the   recommendation   of   the   Central

Tender Board, the Secretary for the Treasury approved the award of the contract at an estimated value of $235 million. The contract awarded in December 1995 covered:

—   the supply of a document imaging system;

—   the provision of services for the conversion of the land documents of the eight NTLRs, which were in paper format, into electronic images; and

—   as an optional item, the provision of services for the conversion of the land documents of the ULR, which were in microfilm format, into electronic images.

The minimum committed volume

82.   According to the contract for the supply of the DIS, the conversion services for land documents comprised:

—   ***The conversion of paper land documents of the eight NTLRs.*** The LR estimated that 4.4 million of land documents, involving 96 million pages, would have to be converted. The price for each page was $0.975; and

—   ***The conversion of microfilm land documents of the ULR.*** This was an optional item. The LR estimated that 6.5 million land documents, involving 140 million pages, would have to be converted. The unit price was $0.375 (Note 15).

83.   **The contract also stipulated a minimum conversion workload of 80 million pages for NT documents. The contract further stipulated that " if the actual number of documents delivered by the LR is less than the minimum committed volume, the contractor reserves the right to charge the LR the total conversion charge based on the minimum committed volume at price as above" .**

Note 15:   *Through a contract variation in February 1997, the LR revised the minimum committed conversion volume for the ULR from the original estimated figure of 140 million to 70 million pages. The unit price was also revised to $0.37 per page after negotiations.*

Overestimation of the conversion workload

84.   Throughout the development of the DIS, the LR had assumed that there would be **22 pages** per memorial document. This basis was accepted by the LR's DIS Project Management Team (Note 16) in September 1994. On this basis, the conversion volume for the NTLRs was estimated to be 96 million pages (see the first inset of paragraph 82 above), and the minimum committed volume was set at 80 million pages (see paragraph 83 above).

85.   The conversion of the NT land documents began in July 1996 and was completed in May 1997. A total of 55.8 million pages were converted. There were on average only **14 pages** per land document. In other words, the conversion volume in the contract and the committed minimum volume had been grossly overestimated.

Settlement of claim by $13 million

86.   In June 1997, the contractor submitted a claim to the LR for $23.6 million, being the difference in service charges between the minimum committed volume of 80 million pages and the actual conversion volume of 55.8 million pages.

87.   The LR sought legal advice on the contractor's claim. The advice from the Department of Justice, given in December 1997 and May 1998, was that:

  —   the "minimum committed volume" clause was clear and unambiguous. It conferred on the contractor a contractual right to charge the Government for the total conversion services based on the "minimum committed volume";

  —   the Government did not have a defence to legal proceedings in respect of the claim under the contractual provision; and

  —   the contractor did not have to establish its actual loss or damage in order to succeed in its claim.

88.   The Department of Justice recommended that the LR should take earlier action to settle with the contractor on a sum that would be

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Note 16:   *The DIS Project Management Team, made up of members from the LR and the ITSD, reported to the DIS Project Steering Committee which oversaw the whole DIS project.*

acceptable to both parties in order to avoid incurring further legal costs. After several rounds of negotiation, the LR finally agreed with the contractor to settle the claim at a sum of $13 million. In May 1998, the Secretary for the Treasury approved the payment of $13 million as full settlement of all disputes and claims arising from the case. The payment was made on 29 June 1998.

Audit observations on conversion workload

89.   During the audit, Audit attempted to ascertain the reason for the overestimation of the conversion volume. Audit's scrutiny of the LR's records revealed that the assumption of 22 pages per document was apparently based on the results of a sampling exercise conducted in 1985. The sampling exercise was conducted for the purpose of estimating the staffing requirements for the Microfilm Section of the then Land Office of the Registrar General's Department. In that exercise, a sample of 1,500 land documents registered between 1982 and 1985 was taken. Audit's scrutiny of LR's records also revealed that land documents registered before 1981 (i.e. old documents), which were not covered by the 1985 sampling exercise, had on average about 8 pages only.

90.   In response to Audit's enquiry as to why a more comprehensive research was not conducted to assess accurately the conversion volume, in August 1998, the LR informed Audit that since the first land document was registered in the ULR in 1844 (or 1905 in the case of the NTLRs), the format of land documents had been changing. It was only upon the enactment of the Conveyancing and Property Ordinance (Cap. 219) in 1984 that the documents were generally standardised. In the circumstances, the research into the conversion volume would have to be very extensive. The time, effort and resources required would have been substantial. The LR also informed Audit that the contractor would most likely have charged a higher price, if a significantly lower conversion volume had been stated in the tender specifications in the first place.

91.   **Given that land documents have been registered in the ULR since 1844, Audit considers that the use of the 1985 sample results, which were obtained from a very limited sample size covering only a short period of time (i.e. 1982 to 1985), was inappropriate for the purpose of calculating the conversion workload for the DIS contract. As a result, the conversion workload was grossly overestimated and the Government had to pay $13 million to settle a claim from the contractor.**

Audit recommendations on conversion workload

92.   In order to avoid similar overestimation of workload in future procurements of IT services, Audit has *recommended* to the Land Registrar that he should conduct adequate research to ensure that the conversion workload in the tender specifications is realistic.

93.   Audit has also *recommended* to the Director of Information Technology Services that, in order to avoid significant claims by contractors in future, he should consider reminding all IT users of the importance of estimating the conversion workload as accurately as possible, when preparing tender specifications.

The need for scanning documents of varying paper sizes not clearly specified

94.   In the tender specifications for the procurement of the DIS, it was stated that " …. a typical image is …. of A4 size" and " land documents will in some cases (less than 1%) exceed A3 size .… " (Note 17). In his response to the tender, the contractor advised the LR that he would comply with these requirements and, in his workflow proposal submitted as a guideline in the future system design, he further indicated that any paper documents with sizes bigger than A4 size (Note 18) would need to be photocopied on A4 size paper before image-scanning. Both parties agreed to the conduct of a more thorough workflow analysis after the procurement contract was concluded. These provisions formed part of the procurement contract.

95.   In February 1996, after the DIS contract was awarded, the LR noted in the contractor's detailed workflow analysis that all incoming non-A4 size land documents had to be photocopied by the LR to convert them to A4 size before image-scanning. This was because the DIS could only process documents of A4 size.

96.   The LR considered such an arrangement not acceptable because some 80% of its incoming land documents were of foolscap size

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Note 17:   *An " A3 size" paper measures 420 millimetres by 297 millimetres.*

Note 18:   *An " A4 size" paper measures 210 millimetres by 297 millimetres.*

(Note 19). To reduce them to A4 size would create extra photocopying work.

97. In response to the LR's enquiry, the contractor said that:

— the tender documents issued by the LR indicated that a typical image was of A4 size. As a result, the proposed system and the workflow design for document preparation in the tender proposal were based on the assumption that all documents would be of A4 size. The workflow of the tender proposal also stated that the size of any document on paper larger than A4 size had to be reduced to A4 size by photocopying; and

— if the new requirement of the LR was such that the DIS had to be capable of handling documents of sizes between A4 and A3 without the need for additional photocopying, the system would have to be revised.

98. The LR was of the view that the system should be capable of scanning both foolscap size and A4 size papers. It considered that the workflow shown in the contractor's tender proposal (see the first inset of paragraph 97 above) served as a guideline only, and that the contractor had not highlighted in his response to the tender that:

— the system could not handle documents of non-A4 size; and

— there was a need to convert documents of non-A4 size to A4 size by photocopying.

99. The LR sought advice from the ITSD. **The ITSD considered that the requirement for scanning papers of varying sizes was not clearly stated in the tender specifications.** The LR finally accepted the contractor's proposed arrangement of making additional A4 size photocopies of incoming documents. This was because the alternative solution, which was to first scan papers of non-A4 size, and then to reduce the scanned images to A4 size for storage, had not been well tested at that time. To rectify the position, in October 1996, the LR amended the Land Registration Regulations under the Land Registration Ordinance which required all new incoming land

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Note 19: *A "foolscap size" paper measures 216 millimetres by 330 millimetres.*

documents lodged on or after 9 December 1996 for registration to be in A4 size (Note 20). However, the LR still had to make additional A4 size photocopies of those deeds received during the period from July to November 1996 (Note 21).

100.   The need to make additional A4 size photocopies during the affected period created extra workload as some six million pages of land documents (Note 22) had to be photocopied. This disrupted the smooth operation of the LR and adversely affected its performance. As a result, in 1996-97 (i.e. the year in which the additional photocopying work was carried out), the LR could only meet its performance standard of completing registration within 20 working days for 78% of the incoming deeds, compared with more than 95% in the other years (see Appendix A).

Audit observations on unclear tender specifications

101.   **The LR did not specify clearly in the tender specifications the need for scanning documents of varying paper sizes. As a result, the LR has not acquired the most appropriate imaging system which serves its original purpose. Additional workload was created, additional cost was incurred and the LR's operation was disrupted.**

Audit recommendations on tender specifications

102.   **Audit has *recommended* to the Land Registrar that, in order to avoid unnecessary work arising from unclear specifications in future procurement contracts, he should thoroughly examine the characteristics of the LR's workload requirements and state them clearly in the tender specifications.**

103.   **Audit has also *recommended* to the Director of Information Technology Services that he should consider reminding all IT users of the importance of stating clearly their requirements in the**

Note 20:   *Before the regulations were amended, a document submitted for registration could be on paper of A4 size or foolscap size.*

Note 21:   *As advised by the LR and in line with the contractual terms, the contractor was responsible for the image conversion of all deeds that were kept by the LR before the operation of the DIS i.e. before July 1996. This included those deeds that were not in A4 size.*

Note 22:   *About 345,000 deeds were registered during the period from July 1996 to November 1996. Assuming that 80% of them were of foolscap size and each deed contains 22 pages, some six million pages (22 pages x 345,000 x 80% = 6,072,000 pages) had to be photocopied to A4 size.*

tender specifications when procuring IT systems.

Response from the Administration

104.   In response to the audit recommendations in paragraphs 92 and 102 above, the **Land Registrar** has said that:

— regarding the claim by the contractor (see paragraphs 86 to 88 above), given the legal advice that the LR was in a weak position to dispute the contract, the settlement of claim by $13 million may be considered a very favourable outcome. Some $10.6 million of the original claim of $23.6 million from the contractor (see paragraph 86 above), plus legal expenses, were avoided. It was only achieved after he had refused to pay what the contractor considered to be the LR's full liability under the contract, and after substantial and vigorous discussions between the parties (one of whom threatened court proceedings against the LR) to reach a compromise; and

— regarding the audit recommendations on conversion workload and tender specifications (see paragraphs 92 and 102 above), he recognises the importance of a thorough study in planning new IT systems and therefore proposes to conduct an information systems strategy study before implementing central registration.

105.   In response to the audit recommendations in paragraphs 93 and 103 above, the **Director of Information Technology Services** has said that:

— the ITSD has always stressed the importance of accurately estimating the conversion workload to its users. Regarding the audit observations on conversion workload (see paragraph 89 above), the issue of conversion workload was actually raised in the fourth DIS Project Steering Committee meeting held on 2 November 1995. At that meeting, members of the Committee noted the minimum committed volume and the LR expressed the view that the minimum commitment could be met; and

— he agrees with the audit recommendations in paragraphs 93 and 103 that any workload characteristics or user requirements should be clearly stated in the tender specifications. The ITSD will continue to remind all IT users of the importance of stating their requirements clearly based on their business knowledge when procuring IT systems.

POST-IMPLEMENTATION REVIEW OF THE LR'S IT PROJECTS

The Government's procedures

106.   In the Government, there is a system of post-implementation

review (PIR) for evaluating the results of IT projects. The purpose
of the PIRs is to ensure that the IT investment achieves its

intended objectives in a timely and cost-effective manner. The Government adopts a two-tier approach for the conduct of PIRs, as follows:

— **_First tier_**. Six months after the live run of an IT system, the user department is required to complete a post-implementation departmental return (PIDR) in consultation with the ITSD. The PIDR is a simplified PIR and covers four major areas, namely the extent to which the system has achieved its agreed objectives, the utilisation of funds, the realisation of benefits envisaged and the progress of implementation; and

— **_Second tier_**. On receipt of the PIDR, the ITSD will consolidate the findings and, in consultation with the Finance Bureau, identify the need for the conduct of a PIR. The conduct of a PIR is on a selective basis. In cases where the PIDR demonstrates that a PIR may be necessary, the ITSD will consult the Government's Computer Strategy Group (Note 23) which will decide whether a PIR should be conducted.

The LR has not laid down formal procedures for PIRs

107.   According to Financial Circular No. 7/97 issued in February 1997, the Government's procedures for IT projects are not applicable to trading funds. Nevertheless, the Circular indicates that trading fund departments, as part of the Government, should apply the principles of the Government's procedures, where applicable, in the planning, monitoring and evaluation of their IT projects.

108.   Audit noted that, up to July 1998, the LR had not established formal procedures to require the conduct of PIRs. As a result, the LR did not conduct any formal PIRs for its IT projects. Table 2 below shows the position, up to July 1998, of the LR's three major IT projects.

Note 23: *The Government's Computer Strategy Group is tasked to advise the Government in formulating service-wide IT policies and strategies, prioritise computerisation projects for funding purposes and monitor the overall IT expenditure of the Government.*

Table 2

Position of the three major IT projects up to July 1998

Project	Position up to July 1998
Computerisation of NT land registers – approved project cost $128 million (see paragraphs 15 and 16 above)	The project was completed in April 1997 at a total cost of $128 million. **However, no formal PIDR or PIR had been conducted.**
Implementation of the DAS – approved project cost $8 million (see paragraphs 17 to 19 above)	The project, which cost $8 million, had been implemented since September 1994. **No formal PIDR or PIR had been conducted.** In July 1997, the LR considered the renewal of its contract with the DAS network supplier. The Deputy Registry Manager of the LR reported to the Land Registrar that " …the workload of the Computer Search Section has greatly decreased due to the gradual shift of searches from counter to DAS. The decrease in workload enabled the Computer Search Section to delete 31 posts in the past 3 years…a saving of more than $31 million was achieved…" . **In Audit's view, this brief reference to the benefits achieved did not constitute a proper PIDR or PIR.** A proper PIDR or PIR would require, for example, measuring the actual use of DAS and staff savings, against the expected use and savings originally quoted as justifications for the project.
Implementation of the DIS – approved project cost $260 million (see paragraph 20 above)	The LR completed the two major phases of the project, namely the operation of DIS and the image conversion of the NTLRs in July 1996 and May 1997 respectively at a total cost of $159 million. **However, no formal PIDR or PIR had been conducted.** In June 1997, the LR extended the scope of the project to cover the image conversion of the ULR which was expected to be completed in December 1998. **In Audit's view, a timely conduct of a PIR after the DIS was in operation, or after completing the image conversion of the NTLRs, might help identify areas for improvement for the image conversion of the ULR.**

Source: Land Registry records

The LR's comments in response to Audit's enquiries

109. In response to Audit's enquiry, in August 1998, the LR informed Audit that:

— as a trading fund department, the LR should have the flexibility to determine the approach and timing of conducting PIRs;

— although there were no formal PIR reports, the LR had always monitored its IT projects to ensure that benefits were reaped (e.g. deletion of posts and termination of leases); and

— with regard to the DIS, the image conversion of the ULR was still in progress. In the LR's view, it would be premature at this stage to evaluate the full benefits of the project. Any observations and lessons learnt during the NT exercise had already been taken into consideration in preparing for the conversion of the ULR. For example, the minimum committed volume for the conversion of the ULR was reduced from 140 million pages to 70 million pages (see Note 15 in paragraph 82 above).

Audit observations on the need for PIRs

110. **Given the significant investment in IT by the LR (i.e. about $320 million up to March 1998), Audit considers that the LR needs to draw up procedures for conducting formal and properly documented PIRs. Without formal PIRs, there is no assurance that the results of IT projects are adequately evaluated. There is also no assurance that lessons are learnt on a timely basis, and that the lessons learnt are properly documented for future reference.**

Audit recommendations on the need for PIRs

111. **Audit has *recommended* to the Land Registrar that he should draw up formal procedures:**

— **for conducting timely and proper PIRs for the LR's IT projects; and**

— **for properly documenting the PIRs.**

112**.   Audit has also *recommended* to the Secretary for the Treasury
that she should, by issuing appropriate guidelines, promulgate the
importance of conducting proper PIRs by trading fund departments for
their IT projects.**

Response from the Administration

113.   The **Land Registrar** has said that, while government procedures
for conducting PIRs are not applicable to trading fund departments,
he will nevertheless review their merit in addition to his current
measures for evaluating the effectiveness of IT projects.

114.   The **Director of Information Technology Services** has said that
he agrees entirely with the audit recommendation that trading fund
departments should also establish procedures to ensure timely and
proper conduct of PIRs.

115.   Regarding the audit recommendation in paragraph 112 above,
the **Secretary for the Treasury** has said that Financial Circular No.
7/97 issued in February 1997 already advised trading fund
departments and their policy bureaux to apply the principles of the
Circular, where applicable, in planning, monitoring and evaluating
their computer systems. These include the requirement for user
departments to complete PIDRs and to conduct PIRs (see paragraph 106
above). She will remind trading fund departments to observe that
Circular.

The LR's actual achievement against
the service target from 1994-95 to 1997-98

Service	1994-95 (Note 1)	1995-96	1996-97	1997-98
Registration of land documents	**22 working days** (Actual: 95.6%)	**20 working days** (Target: 95%) (Actual: 97.6%)	**20 working days** (Target: 97%) (Actual: 78.3%) (Note 2)	**20 working days** (Target: 97%) (Actual: 99.8%)
Search of land registers and records	**30 minutes** (Actual: 100%)	**25 minutes** (Target: 95%) (Actual: 96.6%)	**25 minutes** (Target: 97%) (Actual: 100%)	**25 minutes** (Target: 97%) (Actual: 100%)
Supply of copies of land records	**30 minutes** (Actual: 100%)	**25 minutes** (Target: 95%) (Actual: 97.5%)	**25 minutes** (Target: 97%) (Actual: 97.6%)	**25 minutes** (Target: 97%) (Actual: 100%)
Certification of copies of land records	**6 working days** (Actual: 99.9%)	**5 working days** (Target: 95%) (Actual: 97.6%)	**5 working days** (Target: 97%) (Actual: 93.4%)	**3 to 5 working days** (Target: 97%) (Actual: 100%)

Legend: *Figures in parenthesis denote target or actual % of transactions meeting the service performance pledge.*

Source: *Land Registry records*

Note 1: *No target percentages were set for 1994-95.*

Note 2: *The performance for 1996-97 dropped because of the need to make additional photocopies of the incoming deeds for conversion to A4 size (see paragraph 100 above).*

Productivity standards set under the Performance Incentive Scheme

Operational division	Key service area	Productivity standard set for 1998-99 (Note)
Urban Registration Division	Registration of current deeds	2% above the average output of 54 current deeds per staff man-day
Search and Technical Services Division	Provision of counter search services on computerised land registers	2% above the average output of 55 searches of computerised land registers per staff man-day
Search and Technical Services Division	Provision of counter search services on microfilmed/ imaged copies (excluding certified copies)	2% above the average output of 60 sets of microfilmed/imaged copies per staff man-day
NT Division	Registration of deeds	2% above the average output of 63 deeds per staff man-day
NT Division	Provision of counter search services on computerised land registers	2% above the average output of 117 searches of computerised land registers per staff man-day
NT Division	Provision of counter search services on imaged copies/ photocopies (excluding certified copies)	2% above the average output of 71 sets of imaged copies/photocopies per staff man-day

Source: LR Performance Incentive Scheme Progress Reports

Note: In calculating the average output, the LR used the following formula:

$$\frac{Actual\ output\ produced\ by\ the\ particular\ measure\ group/Division}{Staff\ man\text{-}days\ spent\ by\ the\ particular\ measure\ group/Division}$$

Take deeds registration as an example:

(i) the actual output referred to the actual number of deeds that were processed by the Current Registration Section of the Urban Registration Division and NT Division in 1997; and

(ii)only the staff man-days spent on current deeds registration were included i.e. man-days spent on deeds lodgement, new deeds creation/registration and data processing work were not included.

Acronyms and abbreviations

ANFA	Average net fixed assets
CSB	Civil Service Bureau
DAS	Direct Access Services
DIS	Document Imaging System
IT	Information technology
ITSD	Information Technology Services Department
LR	Land Registry
LRS	Land Registration System
NT	New Territories
NTLR	New Territories Land Registry
PIDR	Post-implementation Departmental Return
PIR	Post-implementation Review
QGO	Queensway Government Offices
RJS	Request justification study
ULR	Urban Land Registry