For meeting
on 15 June 2000

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LegCo Panel on Financial Affairs

**The Second Five-year Information Systems Strategy Plan of the
Inland Revenue Department**

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INTRODUCTION

       This paper seeks Members' views on the Inland Revenue Department (IRD)'s second five-year Information Systems Strategy (ISS) plan covering the period from 1999-2000 to 2003-04; and the Department's proposal to implement three of the twelve projects in this plan within the current financial year. These three projects are, namely, the (a) System Infrastructure Enhancement (SIE) Project; (b) Data Management Enhancement (DME) Project; and (c) Assess First Audit Later (AFAL) Phase I Project.

BACKGROUND

2.   Subsequent to the completion of the first five-year ISS plan in 1996-97, IRD conducted a review on the ISS in July 1998, which was completed in March 1999. As a result, IRD has formulated another five-year ISS plan covering the period from 1999-2000 to 2003-2004. This second ISS plan comprises two infrastructure projects and ten application projects. The details are at **Annex A** and the schedule of implementation is at **Annex B**.

3.   With the exception of one application system project, namely, the Application System Enhancement project, which is being implemented, the implementation of the remaining eleven projects hinges on the results of the relevant feasibility studies. Feasibility studies for five of these projects have been completed. They comprise two infrastructure projects and three application system projects, as follows:

a) Infrastructure Projects:

- System Infrastructure Enhancement
- Data Management Enhancement.

b) Application Projects:

- AFAL System
- Electronic Lodgement Services through telephone
- Interactive Taxpayer Enquiry Service through telephone

Subject to the results of the feasibility studies, the remaining application projects will be implemented in due course.

4.   IRD plans to implement the ISS projects by phases.

JUSTIFICATIONS FOR AN ISS PLAN

5.   IRD's existing computer system and data infrastructure was installed in 1993 to support the implementation of the last ISS Plan and the associated processing requirements during the period from 1992-93 to 1996-97. It can no longer support the Department's information processing needs arising from changes in the technological environments, business needs and workload. To enable IRD to implement its new business initiatives and fulfil its obligations under the Electronic Transactions Ordinance, the existing infrastructure requires major enhancements to cope with the additional processing requirements so arisen. These new business initiatives and obligations include the following:

(a) electronic lodgment of tax returns and notifications;

(b) automation of screening of tax returns for assessment;

(c) electronic submission of information;

(d) automation of software asset management;

(e) upgrading of the current internal mail system to a confidential mail system;

(f) enhancement of Information Technology security management;

(g) facilitation of tax audit and investigation;

(h) promotion of tax compliance; and

(i) building a more paperless working environment.

SPECIFIC ISS PROJECTS READY FOR IMPLEMENTATION

Two Infrastructure Projects

6.   The System Infrastructure Enhancement (SIE) and Data Management Enhancement (DME) projects are infrastructure projects. They aim ***to put in place a capable and reliable network with the necessary hardware and software to cope with IRD's latest Information Technology needs and enable it to implement various application projects afterwards***. They seek to address the deficiencies of the existing infrastructure and to lay the requisite foundation for future expansion.

System Infrastructure Enhancement (SIE) Project

7.   The SIE Project has the following components:

(a) Network Upgrade

The existing network is unable to support the required increase in the number of workstations, multi-media applications, and increased external communication with other Government departments and the public. In addition, the network security and resilience are considered inadequate. This project component seeks to enhance the capability, performance, resilience, security level, and external communications links of the network, so that it can cope with the above increased requirement.

(b) Internet/Intranet

Under the Electronic Transactions Ordinance, IRD is obliged to allow electronic submission of information through Internet. However, the existing system cannot provide the necessary integration between the Internet and internal e-mail system for this purpose. Besides, the existing e-mail system, which is being phased out, cannot support confidential mail. There is also a need to set up an Intranet to facilitate internal dissemination and sharing of information. This project component seeks to streamline the processing of electronic information submitted through Internet, to replace the existing e-mail system with one which can support confidential mail, and to set up an Intranet in IRD.

(c) Infrastructure and Computing Support

IRD's daily operations rely heavily on Information Technology (IT) systems. There are however insufficient tools to facilitate proactive monitoring of the IT systems. Technical support for desktop computing is also inadequate. This project component seeks to provide integrated tools to strengthen the monitoring of IT systems, to implement a help-desk system providing a single point-of-contact for all IT related issues and to automate daily system administration functions.

(d) Personal Computer (PC)/Server Upgrade

Most of the PCs are 486-based with only 16 MB memory and Windows 3.1 is still used as the desktop operating system. This inhibits the use of new application software necessary to implement the various application system projects and to support IRD to carry out its new initiatives and obligations. Besides, it is becoming more and more difficult to obtain technical support services for these outdated products. This project component seeks to upgrade the PCs and servers with additional processing power and capability, and to install additional PCs to meet the increasing demand for access to application systems.

(e) Mainframe and Mid-range Upgrade

The Central Processing Unit (CPU), memory and storage spaces of the existing mainframe computer cannot cope with the projected processing requirement by December 2000. This project component seeks to replace the CPU of the mainframe computer and to install additional memory and storage spaces. Besides, it will install new mid-range computers to support the implementation of the AFAL System.

(f) Enhancement of Output Printing

Output documents produced by IRD such as notices of tax assessments to taxpayers may consist of two or more pages in different formats. However, since the existing printer can only print documents of the same format in one batch, multi-page documents have to be printed separately, and collation of different pages of the same document has to be performed manually. This project component seeks to install new printers capable of supporting cut-sheet, form overlay and multi-page document printing. In addition, a new enveloping system with collating, folding and multiple insertions of varying size capabilities will be provided.

(g) Chinese Processing

The existing Chinese processing system implemented in 1993 is different from the recent Government's direction on standard Chinese character set and common Chinese interface. This project component seeks to enhance the existing Chinese processing system in accordance with this directive, so as to facilitate data exchange with other Government departments and the public.

Data Management Enhancement (DME) Project

8.   The DME Project, on the other hand, enhances the following aspects of the data infrastructure:

(a) Corporate Data Model

A corporate-wide model of all the IRD's operational data structures on

the mainframe, mid-range and PC platforms is not available at present. This hinders the responsiveness of the existing system to management information requests and development needs. This project component seeks to establish a Corporate Data Model for a consolidated view of the IRD's department-wide data structure, in order to facilitate the provision of management information as well as application system development and maintenance.

(b) Database Management System

The existing database management system (DBMS) of the mainframe computer is suffering from a number of limitations. Because of its proprietary design, it hinders the use of commercial off-the-shelf packages and its integration with other database systems. In addition, due to the limited number of local installations using this DBMS now, it has become increasingly difficult to recruit individuals with DBMS expertise for system development and maintenance purposes. This project component seeks to establish a new database management system platform which operates in an open system environment; allows the use of flexible and function-rich tools for database design and development as well as handling end-user queries; and facilitates effective interchange with other database systems. This is essential to the implementation of the other ISS application projects.

Application Project: AFAL (Assess First Audit Later) System Phase I Project

9.	This application project seeks to put in place the AFAL system which will replace the existing manual system of screening tax returns for further assessment and selecting cases for audit purposes. With the AFAL system, both the screening of tax returns for simple assessment of Salaries Tax, Property Tax and Profits Tax, as well as the selection of cases for post-assessment Desk Audit can be done automatically according to different pre-set criteria. It will hence constitute a useful means of measuring tax compliance and promoting voluntary compliance. The ultimate objective of the AFAL System is to allow IRD to concentrate its professional efforts mainly on tax audit

instead of tax assessment.

10.		The System will be implemented in two phases. Phase I will establish the basic functions for tax return screening, automatic tax assessment, tax audits and measurement of tax compliance. It will provide the necessary foundation for Phase II, which IRD plans to introduce three years later. Phase II aims at providing more sophisticated selection methods for field audit, investigation and compliance measurement.

BENEFITS OF THE ABOVE THREE SPECIFIC PROJECTS

Improvement in services

11.		The successful implementation of the two infrastructure projects will enable the Department to achieve the following benefits (as itemised in paragraph 5 above):

(a) To provide for electronic lodgment of tax returns and notifications; and submission of information through electronic means. The public will be provided with an additional means of lodging tax returns and notifications at a time and place convenient to them. Much travelling time and costs (as well as postage costs) will be saved for those who choose to lodge tax returns in person or by post at present. Acknowledgement of receipt will be made quicker through electronic means. Insofar as IRD is concerned, handling costs will be reduced. Electronic lodgment is an environmentally-friendly way of submitting information. It can significantly reduce the use of paper. Data accuracy will be enhanced through computer checking. Because data are captured directly, data processing can be done at a faster pace.

(b) To automate screening of tax returns for assessment. Currently, screening of tax returns is performed manually. On receipt of tax returns, Assistant Taxation Officers (ATOs) have to perform screening to identify simple cases for direct assessment. After screening, ATOs have to transcribe the data as they appear in the return onto an input form for subsequent data-inputting by data processors. As a result of automation, manpower resources (29 Assistant Taxation Officers) currently deployed

in the screening and transcription processes can be saved.

(c) To automate software asset management. This has the obvious advantage of protecting intellectual property and combating piracy through enhanced control over software acquisition and inventory. It can also facilitate the maintenance of an accurate and up-to-date inventory list of software.

(d) To upgrade the internal mail system to a confidential mail system. The upgrading will provide for strong encryption and digital signature features in transmission of confidential information. It will significantly enhance the efficiency of transmitting confidential information, which can be done instantly through electronic means.

(e) To enhance IT security management. This will prevent unauthorised access, interception and hacking; protect IRD's network from computer virus attack and provide security logging and audit trail;

(f) To promote tax compliance.   A more sophisticated computer system can facilitate the provision of better taxpayer services and education, and improve the effectiveness of IRD's enforcement efforts. These will in turn be conducive to promoting voluntary tax compliance in the longer run; and

(g) To build a more paperless environment. With the extensive use of the electronic medium, IRD's operational efficiency will be improved. As a result, the processing of requests, objections and complaints from taxpayers will be expedited.

12.　　　　With the implementation of the AFAL Phase I project, both the screening of tax returns for assessment of Salaries Tax, Property Tax and Profits Tax, and the selection of cases for post-assessment Desk Audit can be done automatically according to different pre-set criteria. It will improve the effectiveness of field audits as a result of more efficient and more sophisticated methods for case selection. Currently, cases are selected for field audit manually. It will also enable IRD to concentrate its professional manpower resources on tax audit and investigation.

Cost savings

13.   The implementation of the two infrastructure projects will bring about notional savings of $46.7 million. They represent the cost which would otherwise have to be incurred for the sake of overcoming the system deficiencies, handling the increasing workload and meeting the obligations arising from the recent Government initiatives, even without the five-year ISS plan in question.

14.   Upon successful implementation of the two infrastructure projects and the AFAL System Phase I Project, realisable savings of $8.8 million a year will be achieved. These savings will come from the anticipated staff reduction in IRD as a result of automation in tax return screening and assessment processes.

Increase in tax revenue

15.   Based on current indications, IRD estimates that there will be an increase equivalent to about 1% of the 1999-2000 actual tax revenue from field audit cases during the initial implementation years of Phase I of AFAL System, which can be translated into an estimated benefit of $10 million annually. IRD also estimates that, in the longer term, with the full implementation of both the AFAL Phase I System and the Document Management System (one of the application projects being developed in the ISS plan), the consequential business process reengineering within IRD, and the improvement in taxpayer education, IRD should be able to deploy its staff to form an additional field audit team comprising 9 Assessor Grade officers by the year 2003-2004. With this additional team, IRD should be able to investigate 100 additional cases, generating around $85 million in additional tax revenue (in terms of back taxes recovered and penalties) on a yearly basis. We estimate that 50% of this additional revenue is attributable to the three ISS Projects ready for implementation.

COST

16.   The total implementation cost of the entire ISS plan is estimated

to be about $245 million, made up of $218 million in non-recurrent expenditure and $27 million non-recurrent staff cost. Of this $245 million, $119 million is required for the implementation of the above three ISS Projects.

17.   Taking both the cost and benefits into account, IRD estimates that the entire ISS plan will break even in 2004-05, i.e. within one year upon completion of the whole plan.

THE WAY FORWARD

18.   Subject to any comments which Members may have, we will submit the proposal to the Finance Committee of the Legislative Council on 23 June for approval of funding for the three specific projects which are ready for implementation. We will separately seek funding for the other two application projects for which feasibility studies have also been completed through CWRF Head 710- Computerisation Subhead A007GX. IRD will continue with feasibility studies on the remaining application projects and seek funding as and when appropriate.

Finance Bureau
June 2000

Brief description of the 12 Projects under the second five-year
Information Systems Strategy plan
of the Inland Revenue Department

1. System Infrastructure Enhancement

The project aims to upgrade Inland Revenue Department (IRD)'s mainframe and mid-range computers, enhance the workstation network, replace the personal computers, install an Intranet within IRD, enhance the output printing and document finishing system, improve the functionality for Chinese processing and strengthen the infrastructure and computing support. The enhanced infrastructure will provide convenient means of information access both internally and by the public, and facilitate the business transactions with IRD through electronic means. It will also meet the processing needs of increasing data throughput and enhance the Information Technology (IT) security management.

2. Data Management Enhancement

The project aims to enhance the data management aspects of the IT infrastructure. The enhanced data management infrastructure will alleviate some existing limitations of the database management system such as inflexibility and complication in integration with other software products and the difficulties in sourcing expertise for on-going support. The project will establish a Corporate Data Model for a consolidated view of IRD's department-wide data structure, in order to facilitate the provision of management information as well as application system development and maintenance. It also seeks to establish a new database management system platform which operates in an open system environment and facilitates effective interchange of data with other database systems.

3. Assess First and Audit Later System

The project intends to establish a computer system to screen and select tax returns for automatic assessment based on pre-defined criteria. The selected returns will then be processed by the tax systems, which will determine the tax assessment and issue assessment notices. Returns suspended from automatic assessment will be staged for review and examination by assessing officers before the assessment is determined.

After tax assessment, a post-assessment desk audit needs to be performed to verify the return data and the tax assessment. The computer will select cases for post-assessment desk audit based on pre-defined criteria stored in the system. The system will facilitate the case selection process for field audit and allow risk analysis to highlight cases or trade categories with high risk of revenue loss. It will also streamline IRD's workflow and significantly reduce manual screening and assessment efforts, and allow IRD to maximise its resources allocated to potential areas of non-compliance.

4. Document Management System

The project enables IRD to convert paper documents into digitised images and allows rapid and concurrent access to these images. To cater for future business and technical needs, this project will provide a generic core system that is able to handle images as well as other commonly used file formats such as electronically received data and fax. This project will eliminate the manual efforts required to handle and track paper documents and will significantly reduce storage space for these documents.

5. Workflow Management System

The project aims to automate the distribution of tasks, control and monitor the flow of work. This will allow IRD to effectively track and monitor case actions to ensure that performance pledge targets are met. Processing of cases, including routing of document images and

electronically received data, can also be facilitated through interface to the Document Management System. The Workflow Management System will control, distribute and track taxpayer enquiries, complaints and objections received in writing, by telephone or other means. It will improve the overall responsiveness of IRD to requests from the public. Timely information on case status from inception to completion will be available for review and action. Management and alert reports will be available to evaluate business practices such as resource alignment and performance pledge achievement.

6. Strategic Planning Support System

The project will provide a system to collect data from various applications and analyse data for decision-making. It will establish a data warehouse containing an integrated department-wide data and minimise the impact of information enquiries on the performance of operational systems. With this system, IRD can improve the responsiveness to requests for analytical information, projections and what-if analyses for strategic planning. It will also provide more timely and accurate information to facilitate management decisions, and reduce piece-meal system development and support efforts.

7. Electronic Lodgment Services

The project will provide taxpayers with the capability of submitting tax returns, applications and notifications through electronic means. Access to IRD will be provided through Internet and kiosks provided by Electronic Service Delivery as well as telephone. The system will acknowledge receipt, validate returns, verify the identity of the taxpayer and reject returns if they are incomplete. It will interface with the Document Management System to provide storage and retrieval capability for electronically received return, application and notification data. As a result, it will reduce IRD's staff resources by reducing manual efforts in handling returns, applications and notifications. The public will have a more convenient method to file their tax returns.

8. Interactive Taxpayer Enquiry Service

The project aims to enhance interactive taxpayer enquiry service. In addition to automatically answering general enquiries, it seeks to provide secured access to selected taxpayer-specific information without manual intervention by IRD staff. Taxpayers will be able to enquire about the status of their tax returns, tax assessment, payment and refund, account balance and the position of their Electronic Tax Reserve Certificates through this interactive enquiry system.. Besides, taxpayers will be able to request certain documents, including duplicate returns and notices, tax statement and confirmation of tax payment. The means of enquiry will be extended to kiosks and Internet through the service provided by Electronic Service Delivery. Management statistics will be provided for analysis of the types of enquiries received, types of documents requested, average enquiry time, etc. This system will provide an efficient one-stop service for the public to make enquiries and requests for specific tax documents 24 hours a day.

9. Customer Service Support System

The project intends to enhance the operation of the IRD Enquiry Service Centre (ESC) through the application of Call Centre Technology. Additional information, such as images of tax return and correspondence, will be made available on the computer to the ESC staff by interfacing to the Document Management System. Access will be provided to related systems to obtain general tax information, taxpayer information as well as status of written enquiries, complaints and objections. Should the enquiry be made on information that the ESC cannot provide, the enquiry will be routed to the appropriate unit with case information. The streamlined customer service, through this Customer Service Support System, will improve the quality of taxpayer services and enhance the productivity and image of IRD.

10. Business Registration Processing

The project provides electronic access to certain business registration

services. It will allow submission of applications for new business registrations, updates of business particulars, applications for copies of extracts of the Business Register, including certified true copies, and access to the open index search for business registration numbers electronically through Electronic Service Delivery (ESD) by means of Internet and kiosk. ESD will also enable the Department to accept fee payments via electronic means. Uncertified extracts of the Business Register will be issued to the applicant electronically. With this system, manual processing will be reduced. Businesses will benefit from this convenient means of access and reduced time needed for handling business registration matters.

11. Property Stamping

The project aims to allow electronic submission of the application form for stamping to IRD, handle payment of stamp duty and electronic stamping, issue of electronic receipt, and return the stamped form to solicitors. It will also enable the dissemination of property transaction information to Rating and Valuation Department (RVD), Land Registry and the Housing Bureau. To provide an integrated system for handling stamp duty, this project will also incorporate the existing stamp duty related functions of issuing stamp duty assessments, taking recovery actions on the defaulters and generate statistics on transfer of property ownership. With this project, the turnaround time for stamping will be reduced considerably. It will streamline the operation of IRD and RVD. It will also ensure a more timely updating of property ownership records.

12. Application System Enhancement

The project aims to clear some 50 outstanding enhancement items which have been withheld due to the devotion of available resources to the Year 2000 Compliance Project. These enhancement items would address operational needs. Among these enhancement items are the computerisation of the issue of compound penalty demand notes, direct capturing of cashed cheque details, printing of Composite Tax returns in monolingual format, printing of Chinese address in various computer

outputs, and provision of more reports for management and control purposes. The project will also enhance the Cash Receipting System, which was developed in early 1980s, to provide for a more efficient and integrated process for capturing payments received through various channels, including electronic payment.

Implementation Plan of ISS Projects

Programme/Project	1999/00	2000/01	2001/02	2002/03	2003/04
Infrastructure Projects					
System Infrastructure Enhancement	TS	Impl.			
Data Management Enhancement	TS	Impl.			
Application Projects					
Progress Management & Strategic Planning					
Document Management System		FS	SA&I-1	SA&I-2	
Workflow Management System				FS	SA&I
Strategic Planning Support System			FS	SA&I	
Assessment Processing					
AFAL System	BPR FS-1	SA&I-1		FS-2	SA&I-2
Public Services					
Electronic Lodgement Services	FS	SA&I-1	SA&I-2		
Interactive Taxpayer Enquiry Service		SA&I			
Customer Service Support System		FS	SA&I		
Business Registration Processing		SA&I-1	SA&I-2		
Property Stamping				SA&I-1 BPR FS	SA&I-2
Operation Improvement					
Application System Enhancement	SA&I				

Legend:

BPR   - Business Process Re-engineering
FS   - Feasibility Study
Impl   - Implementation
SA & I - System Analysis & Implementation
TS   - Technical Study