

## **ITEM FOR FINANCE COMMITTEE**

### **CAPITAL WORKS RESERVE FUND**

### **HEAD 710 – COMPUTERISATION**

### **Water Supplies Department**

### **New Subhead “Implementation of the Customer Care and Billing System”**

Members are invited to approve a new commitment of \$253.1 million under Head 710 for implementing a computerised Customer Care and Billing System for the Water Supplies Department.

### **PROBLEM**

The existing Water Information and Billing System (WIS) has been in use for over 22 years. It cannot meet the present and future operational requirements of Water Supplies Department (WSD), nor can it support the desired level of customer service.

### **PROPOSAL**

2. The Director of Water Supplies (DWS), on the advice of the Director of Information Technology Services (DITS) and with the support of the Secretary for Works, proposes to replace the existing WIS with a new Customer Care and Billing System (CCBS) to provide an efficient and effective means to improve operational efficiency and customer service.

### **JUSTIFICATION**

#### **Current Situation**

3. WSD's main businesses are to provide a full supply to meet the demands of the territory and to provide efficient and effective services to water

/consumers .....

consumers. At present, WSD relies on the WIS for keeping some 2.3 million water accounts and billing them at regular intervals. The system has been in use since 1978 and was designed solely for billing purpose. It is a batch input and updating system and does not support real time customer service operations. The major limitations and deficiencies of the present mode of operation are as follows –

(a) Lack of integration

To cope with the increasing customer demands and volume of transactions, WSD has developed individual PC-based systems on a piece-meal basis to support the customer service operations such as handling applications for new water supply, taking up and giving up consumership, refund of deposit, management of service orders and maintenance of complaint and enquiry records. These systems are not connected with each other nor integrated with the WIS. This has led to considerable problems including repeated data entries, fragmentation of information, extensive manual intervention in data transfer and sharing, lengthy response time in processing enquiries and unsatisfactory management information reporting.

(b) Excessive manual records

Correspondence with customers on application for new water supply, change of consumership, dispute and complaint records and requests for customer service are kept in some 350 000 paper files. Storing, managing, updating and retrieval of data from such a huge volume of paper files require substantial manpower and space. In addition, the manual mode of operations constrains WSD's ability to improve operational efficiency.

(c) System limitations

The limitations of WIS include the absence of real time update functions, slow response time, operation not being user-friendly and insufficient access terminals. In addition, the WIS cannot accommodate

/additional .....

additional customer information such as telephone number, Chinese name and address, service request and complaint history. The design and the technical environment of the system impose great constraints and difficulties on further enhancement. This outdated system severely limits WSD's capability in meeting customer expectations as well as the present and future needs in the delivery of efficient customer services.

(d) Incompatibility with new system products

The outdated technology and the proprietary platform of the existing system make it very difficult to integrate with new systems.

(e) Maintenance problem

Given the aging system design, the WIS has become increasingly difficult and laborious to maintain.

### **The Proposed CCBS**

4. The proposed CCBS is an integrated system with some 400 workstations. The system will maintain a centralised database to provide system functions on billing, meter reading, customer contact management, electronic document management and service order management to support the day-to-day operation of the Customer Telephone Enquiry Centre, eight Customer Enquiry Centres, five Meter Reading Sub-offices and five Regional Offices of WSD. It will enable "one-stop shop" service to customers and on-line service through the Internet so that the customer service provided by the department is comparable to those of other utilities. It will also provide useful and timely information to the management for planning and decision-making, and will be able to interface with future WSD computer systems. A summary of major functions of the proposed system is set out at Enclosure 1.

Encl. 1

### **Anticipated Benefits**

#### ***Service Improvement***

5. The proposed system will bring about the following service improvements –

/(a) .....

- (a) With the support of electronic document management and the consolidated customer information under an integrated system, WSD will be able to provide “one-stop shop” service to its customers so that the customer service staff will be able to handle a majority of enquiries and service requests without the need to refer to other officers.
- (b) The billing process will be more efficient as the new system will be meter-reading driven and will be able to issue water bills as and when required.
- (c) The new system will have the flexibility to produce water bills that will meet the needs of individual customers e.g. consolidated bill for customers with more than one metered account. Both bill payment by customers and account keeping by WSD will be made easier.
- (d) The new system will be able to support interactive customer services through the Internet or over the telephone for billing, application for change of mailing address, application for meter test, enquiry of water accounts and making appointment for service orders and attendance to technical fault complaints.
- (e) The processing time in respect of key customer services such as taking up and giving up consumership, refund of deposit and reply to applications for metered supply to new building projects will be substantially reduced. For instance, the time required to process giving up of consumership will be shortened from eight days to within the same working day.

### *Cost Savings*

6. It is estimated that implementation of the proposed system will give rise to savings of \$47.8 million in 2004-05. This will rise to an annual saving of \$100.6 million starting from 2006-07, made up as follows –

/(a) .....

	\$ million	\$ million
(a) Realisable savings		87.7
(i) Staff savings in WSD (a total of 261 posts)	83.3	
(ii) Reduction in office space (about 500 m <sup>2</sup> )	2.0	
(iii) Maintenance cost for WIS at the Treasury	1.5	
(iv) Reduced requirement for stationery	0.9	
(b) Notional savings		12.9
(i) Operating cost of WIS (share of costs on central hardware, software licences, central communication equipment, support service for the various computer systems, other non-cash cost of depreciation, and central administrative overheads at the Treasury)	10.0	
(ii) Reduced requirement for office and storage space (a total of about 830 m <sup>2</sup> ) in various places	2.9	
		100.6
<b>Total annual savings</b>		<b>100.6</b>

7. The realisable savings of \$87.7 million will mainly come from the expected reduction of 261 staff through more integrated customer service operations, streamlining of work and office automation. The staff reduction will be achieved in phases over a period of three years, from 2004-05 to 2006-07. A breakdown of staff savings is at Enclosure 2. Through natural wastage, retraining and redeployment, there will be no forced redundancy as a result of the implementation of the CCBS.

Encl. 2

*/Cost-benefit .....*

*Cost-benefit Analysis*

- Encl. 3 8. A detailed cost-benefit analysis for the project is at Enclosure 3. The analysis shows that the proposed system will break even in 2010-11 i.e. seven years after commissioning. Thereafter, the annual savings of \$100.6 million will exceed the annual cost of \$42.9 million by \$57.7 million.

**FINANCIAL IMPLICATIONS***Non-recurrent Costs*

9. The estimated total non-recurrent costs of the proposed system are \$253.1 million, made up as follows –

	<b>2001-02</b> (\$ million)	<b>2002-03</b> (\$ million)	<b>2003-04</b> (\$ million)	<b>Total</b> (\$ million)
(a) Computer hardware, software and data communication equipment	-	39.4	85.5	124.9
(b) System development and implementation services (including site preparation and data conversion)	-	34.1	46.7	80.8
(c) Training	-	3.5	3.3	6.8
(d) Project team for system development and implementation	3.3	7.7	6.6	17.6
(e) Contingencies	<u>0.3</u>	<u>8.5</u>	<u>14.2</u>	<u>23.0</u>
<b>Total</b>	<b>3.6</b>	<b>93.2</b>	<b>156.3</b>	<b>253.1</b>

10. As regards paragraph 9(a), the estimated cost of \$124.9 million is for the acquisition of computer hardware, software, and networking equipment including some 400 workstations, servers, routers, hubs, database and system management tools.

11. As regards paragraph 9(b), the estimated cost of \$80.8 million is for engaging external service providers in developing and implementing the proposed system. The services will cover system set-up, application development, system testing, data conversion and site preparation including the installation of computer equipment, data ports and power points, and cabling work.

12. As regards paragraph 9(c), the estimated cost of \$6.8 million is for training of WSD staff in administering, maintaining and using the new system.

13. As regards paragraph 9(d), \$17.6 million is to meet the costs of a project team comprising 16 time-limited staff, required for tender preparation and evaluation, supervising and working with the external service providers to ensure the proposed system conforms to WSD's operational requirements, re-engineering the business process and training of end users. One of the 16 staff is the head of the project team to be pitched at directorate (D1) level. We will seek the creation of this directorate position for the development stage through the Establishment Subcommittee of the Finance Committee in the normal way.

14. As regards paragraph 9(e), the estimated cost of \$23 million represents a 10% contingency on the cost items set out in paragraphs 9(a) to (d).

### ***Recurrent Costs***

15. The estimated annually recurrent costs for maintaining and supporting the proposed system are as follows –

	<b>2003-04 (\$ million)</b>	<b>2004-05 onwards (\$ million)</b>
(a) Computer hardware, software and data communication equipment maintenance	1.6	27.8
(b) System support services	4.4	8.4
(c) Training	-	0.1

/(d) .....

	<b>2003-04</b> <b>(\$ million)</b>	<b>2004-05</b> <b>onwards</b> <b>(\$ million)</b>
(d) Staff for information technology (IT) management and system operation	1.1	6.6
<b>Total</b>	<b>7.1</b>	<b>42.9</b>

16. As regards paragraph 15(a), the annual expenditure of \$27.8 million is for the maintenance of hardware, software and communication network equipment, and the rental of communication lines.

17. As regards paragraph 15(b), the annual expenditure of \$8.4 million is for hiring of services to provide on-going system support and maintenance.

18. As regards paragraph 15(c), the annual expenditure of \$100,000 is for providing on-going training for WSD staff.

19. As regards paragraph 15(d), the annual expenditure of \$6.6 million is to meet the costs of eight additional staff for IT management and technical support, and 13 for system operation in support of customer services after business process re-engineering. Having regard to the magnitude of the project, it is considered imperative to strengthen the professional and management support at the directorate level and it is necessary for the IT team to be headed by a directorate officer who will also be responsible for the continuing development of IT in the department. The proposal for creation of the directorate post in 2004-05 will be submitted to the Establishment Subcommittee of the Finance Committee for consideration in due course.

### **Implications on the water charges**

20. This proposal will have no impact on fees. Implementation of the project will lead to net saving in recurrent costs.

### **Implementation Plan**

21. We estimate that the project will be completed by April 2004. The proposed implementation plan is as follows –

/(a) .....



Activities	Period	
	Target start date	Target completion date
(a) Tendering for the supply of hardware and software and the provision of implementation service	March 2001	April 2002
(b) System development and implementation	May 2002	January 2004
(c) Site preparation and cabling work	October 2002	October 2003
(d) System commissioning	February 2004	April 2004

## BACKGROUND INFORMATION

22. It is Government policy to take full advantage of IT in order to improve the efficiency, quality of service and cost-effectiveness of government departments. To meet WSD's longer-term operational requirements, DWS, with the assistance of DITS and consultants, completed in March 1999 a departmental Information Systems Strategy Study aimed at developing a strategic plan for the implementation of IT systems in WSD over the following five years. The Study concluded that the current IT situation in WSD was inadequate in supporting its business needs and recommended to accord priority to the development and implementation of the proposed CCBS. A feasibility study completed in March 2000 has confirmed the viability of the system. We plan to start development work in April 2001 for full implementation of the system by April 2004.

23. We consulted the Legislative Council Panel on Planning, Lands and Works on 5 February 2001. Members supported the implementation of the system.

**Summary of Major Functions of the Customer Care and Billing System**

The proposed Customer Care and Billing System will provide an integrated solution to support all the customer service related operations of a typical utility organisation. In summary, the functions of the new system include –

- (a) calculate charge for water consumption and issue water bills (facility is provided for issuing consolidated water bill for water consumption and other customer services such as fees for supply connection and reconnection, and meter test);
- (b) maintain meter reading records and allow downloading and up-loading of customer information and meter readings between the handheld computer and the main system automatically;
- (c) maintain customer information (some key information such as customer name and address will be maintained in bilingual forms);
- (d) keep record of payments;
- (e) maintain dispute and complaint records;
- (f) handle changes of customer details and termination of consumership;
- (g) provide on-line facility for data entry or enquiry;
- (h) maintain correspondence with customers in electronic form centrally with indexing and file tracking facilities;
- (i) process new water supply applications and handle water deposit;
- (j) assign routine and special meter reading route;
- (k) process refund of water deposit;
- (l) schedule and manage service orders;
- (m) generate management information and statistics;
- (n) provide on-line service to customers through the Internet; and
- (o) interface with the Trade Effluent Surcharge Billing System of Drainage Services Department for billing of Trade Effluent Surcharge.



**Staff Savings in Water Supplies Department  
(Breakdown by grade/rank and phased reduction plan)**

Staff savings arise through more integration of customer service operations, streamlining of processes, better scheduling of meter reading work, elimination of duplicated processes and certain manual work, and office automation.

Grade/Rank	Reduction in staff			Total
	2004-05	2005-06	2006-07	
(a) Civil service posts				
Assistant Waterworks Inspector	4	6	11	21
Senior Meter Reader	0	4	0	4
Meter Reader I	10	10	0	20
Meter Reader II	0	4	0	4
Technical Officer	1	2	0	3
Clerical Officer	19	19	3	41
Assistant Clerical Officer	22	23	11	56
Clerical Assistant	43	42	15	100
Sub-total for (a)	99	110	40	249
(b) Temporary staff	2	4	6	12
<b>Total [(a) + (b)]</b>	<b>101</b>	<b>114</b>	<b>46</b>	<b>261</b>



### Cost-Benefit Analysis of the Customer Care and Billing System

	(\$ million) – at 2000 prices												
	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14
<b>COST</b>													
Non-recurrent Expenditure (a)	3.6	93.2	156.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recurrent Expenditure (b)	0.0	0.0	7.1	42.9	42.9	42.9	42.9	42.9	42.9	42.9	42.9	42.9	42.9
<b>Total Cost (c = a + b)</b>	<b>3.6</b>	<b>93.2</b>	<b>163.4</b>	<b>42.9</b>	<b>42.9</b>	<b>42.9</b>	<b>42.9</b>	<b>42.9</b>	<b>42.9</b>	<b>42.9</b>	<b>42.9</b>	<b>42.9</b>	<b>42.9</b>
<b>SAVINGS</b>													
Realisable	0.0	0.0	0.0	35.7	73.3	87.7	87.7	87.7	87.7	87.7	87.7	87.7	87.7
Notional	0.0	0.0	0.0	12.1	12.7	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9
<b>Total Savings (d)</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>47.8</b>	<b>86.0</b>	<b>100.6</b>	<b>100.6</b>	<b>100.6</b>	<b>100.6</b>	<b>100.6</b>	<b>100.6</b>	<b>100.6</b>	<b>100.6</b>
<b>Net Savings (d - c)</b>	<b>-3.6</b>	<b>-93.2</b>	<b>-163.4</b>	<b>4.9</b>	<b>43.1</b>	<b>57.7</b>	<b>57.7</b>	<b>57.7</b>	<b>57.7</b>	<b>57.7</b>	<b>57.7</b>	<b>57.7</b>	<b>57.7</b>
Net Present Value (4%) <sup>1</sup>	-3.5	-86.2	-145.3	4.2	35.4	45.6	43.8	42.2	40.5	39.0	37.5	36.0	34.6
<b>Net Cumulative Savings (4%)</b>	<b>-3.5</b>	<b>-89.7</b>	<b>-235.0</b>	<b>-230.8</b>	<b>-195.4</b>	<b>-149.8</b>	<b>-106.0</b>	<b>-63.8</b>	<b>-23.3</b>	<b>15.7</b>	<b>53.2</b>	<b>89.2</b>	<b>123.8</b>

<sup>1</sup> A discount rate of 4% is adopted for the financial appraisal of a computer project where the cashflow expressed at constant prices.

