

## **ITEM FOR FINANCE COMMITTEE**

### **CAPITAL WORKS RESERVE FUND**

#### **HEAD 710 - COMPUTERISATION**

##### **Treasury**

#### **New Subhead “Replacement of the Government Financial Management Information System”**

Members are invited to approve a new commitment of \$268.9 million for replacing the Government Financial Management Information System.

### **PROBLEM**

The existing Government Financial Management Information System (GFMIS), which is built around the Ledger Accounting and Financial Information System (LAFIS), has been used by all bureaux and departments for almost 20 years. The vendor has indicated that it cannot guarantee support for LAFIS beyond 2007. In addition, the outdated software and limited functions of LAFIS cannot cope with the evolving financial and management information requirements of central and departmental users.

### **PROPOSAL**

2. The Director of Accounting Services (DAS), with the support of the Secretary for the Treasury and in consultation with the Director of Information Technology Services, proposes to replace the existing LAFIS-based GFMIS with an up-to-date system to mitigate the risk of the withdrawal of vendor support for the existing system and to ensure the delivery of continued and enhanced support and services to bureaux and departments to meet the evolving financial and management information requirements.

**/JUSTIFICATION .....**

## JUSTIFICATION

### Current Environment and Problems

3. The GFMIS is a group of computerised financial systems that support various accounting and financial management processes in the Government. It comprises systems which together cover all income and expenditure under the General Revenue Account and for projects funded under the Capital Works Reserve Fund and other Funds, in total handling consolidated revenue of \$175,543 million and consolidated expenditure of \$238,863 million for the year 2001-02<sup>1</sup>. It is built around LAFIS which is a computer-based financial information system running on a central mainframe in the Treasury. LAFIS was first introduced into the Government in 1983. As all the accounting transactions are updated to LAFIS, LAFIS can be regarded as the general ledger of the Government and is the platform for all financial management information used by managers and Controlling Officers. Its purpose is to keep the Government's accounts for which DAS is responsible, and to assist Controlling Officers and departmental managers in over 80 bureaux and departments to monitor and analyse their financial position by providing financial reports and on-line enquiry facilities for access to the information held in a central database.

4. Over the years, the Treasury has from time to time endeavoured to incorporate enhancements and add-on sub-systems to LAFIS to meet the increasing demand for the provision of quality and timely financial management information. The LAFIS software, however, is outdated and the proprietary platform of the existing mainframe computer system makes it difficult to interface efficiently with other systems and be further enhanced to cope with evolving user requirements. Operational efficiency is being compromised as a result of these system limitations.

5. In 2000, the Treasury undertook a review of the medium and long-term strategy of the GFMIS. Upon completion of the review, the Treasury was of the view that the existing GFMIS should be replaced and a new system rolled out by phases to all bureaux and departments before 2007. As concluded in the review, system replacement is essential because the continued use of the existing GFMIS places two key risks or constraints on the Government –

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<sup>1</sup> Figures quoted are provisional and are subject to auditing.

- (a) LAFIS is a very old product first designed in the early 1970s. Over the years, the number of LAFIS users worldwide has been reducing and the trend is likely to accelerate. Likewise, the system expertise and vendor support have been diminishing. The vendor has indicated to us that it cannot guarantee support for our system beyond 2007. As a result, the Treasury will find it increasingly difficult to obtain support from a source that has in-depth knowledge of the relevant technology. Staff of the Treasury do not have the expertise to take over the maintenance responsibility and on-going enhancements for the system modules and underlying computer programmes.
- (b) LAFIS is considered inadequate and inflexible by departmental users in a number of aspects, including –

(i) **Inflexibility in supporting departmental reporting needs**

The system is unable to accommodate changes to code structures and analysis requirements efficiently. Substantial effort is usually required to cope with changes such as cost centre reorganisation, restructuring of budget holders, transfer or merger of Heads and Subheads. Some departments need to revert to their own systems to supplement LAFIS as a result of such inflexibility. This often results in duplication of data input, manual intervention and cumbersome reconciliation at departmental level.

(ii) **Inflexibility in meeting future changes in financial management framework**

LAFIS has limited capability and flexibility to support future changes in the financial management framework such as the introduction of accrual accounting. There is no accrual functionality in LAFIS. The present limited requirements for accrual accounting, which are mainly for preparing cost analyses for charging and for Operating Accounts, are now dealt with by extracting data from LAFIS and other sources together with manual inputs and manipulation in spreadsheets. However, with the growing demand for accrual-based reporting for the Government as a whole as well as for departmental management, the provision of system functionality and automated processes for accrual accounting will become increasingly important.

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(iii) **Difficulty in leveraging widely-adopted open system standards to facilitate integration**

The system operates in a proprietary environment. This makes it very difficult for the Treasury to take full advantage of the widely-adopted architectural standards adopted by other systems at central and departmental levels to facilitate efficient system integration, such as data exchange between systems for commitment updating and fund checking.

### **The Proposed System**

6. In 2001, the Treasury undertook, with the help of a consultant, a feasibility study on the replacement of the existing LAFIS-based GFMIS, including an assessment on the system strategy and scope, and the resource implications. Based on the recommendations made by the consultant, we propose to implement a new GFMIS with the following major functions –

#### Core functions

- (a) recording and reporting of approved provisions;
- (b) recording and reporting of commitments;
- (c) processing of payments with fund checking;
- (d) recording and reporting of cash receipts and payments;
- (e) generating reports for budgetary control;
- (f) preparation of the annual accounts for individual Funds and the Consolidated Account on a cash basis;

#### Additional functions

- (g) automatic fund checking for all transactions;
- (h) integrated costing and management reporting;
- (i) recording and reporting of fixed assets; and
- (j) accrual accounting.

7. The core functions listed above are basic functions being performed by the existing general ledger and payment systems. The new GFMIS will provide an environment for these core functions to be performed more efficiently. The additional functions listed above will be introduced to improve the accounting and financial management processes in the Government.

8. The proposed new GFMIS is a centralised system operated by one computer bureau serving some 5,400 users in bureaux and departments. Users will access the system using personal computers with browser software and utilising the existing government networks. The system will consist of a General Ledger and a number of modules such as Accounts Payable, Fixed Assets, Costing and Management Reporting, and Bank Reconciliation, all of which will be closely integrated, thereby ensuring that information in the system is updated from a single input. For instance, fixed assets records will be updated as a result of an approval for payment for an asset.

9. With the adoption of open system architecture and standards, the new GFMIS will have the capability to interface efficiently with other systems of the Government, and to facilitate e-business across government systems. This is particularly important with respect to procurement systems under the auspices of Government Supplies Department (GSD). We will give very close attention to the interface of the new GFMIS and the GSD systems with a view to enhancing the integration between tendering, ordering and payment functions.

### **Anticipated Benefits**

10. The successful implementation of the new GFMIS will enable the Treasury and user bureaux and departments to achieve the following benefits –

(a) **Improving accounting and financial management processes**

The proposed system will bring about improved processes and enhanced functions, such as automated commitment creation and fund checking as well as automated and streamlined workflow to process financial transactions. We know of various software designs which will enhance efficiency and prompt process re-engineering in bureaux and departments. The likely magnitude of savings or efficiency gains will be identified when the detailed

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processes are mapped out after the software has been selected. We will assess the actual impact of these re-engineered processes on departmental workload and the extent of benefits that may be obtained in consultation with bureaux and departments.

(b) **Enhancing management information reporting**

Costing and management reporting will constitute an integral part of the proposed system which offers user-friendly functions for reporting, cost allocation and managing statistical data. The system will provide efficiently more comprehensive and more readily available financial management information to bureaux and departments to support informed decision making, evaluation and planning and to enhance cost-control and cost-effectiveness.

(c) **Providing accrual accounting with fixed assets functionality**

The proposed system will include the provision of accrual accounting functionality to meet the current and future demand for accrual-based reporting requirements mentioned in paragraph 5(b)(ii) above. In addition, the fixed assets functionality will support better tracking, utilisation and management of government assets.

(d) **Supporting e-Government initiatives**

The proposed system, which will be a web-based system operating in an open information technology (IT) environment, will enable the business sector to interact with the Government via the web, thereby increasing the efficiency of the interaction between the Government and the business sector (e.g. electronic transmission of remittance advices and vendor enquiries about outstanding invoices) and reducing the cost to the business sector.

### **Cost-benefit Analysis**

11. We estimate that the annual savings after the implementation of the new GFMIS will amount to \$18.0 million in 2006-07 and \$40.3 million starting from 2007-08, made up as follows –

**/Realisable .....**

		(\$ million)	
		2006-07	2007-08 onwards
<b>Realisable savings</b>			
(a)	Staff savings in Treasury (a reduction of 21 posts in 2006-07 and a further reduction of 11 posts in 2007-08)	7.3	14.2
(b)	Hardware and software maintenance of the existing general ledger and payment systems and mainframe computer	0.8	9.2
(c)	Reduced departmental expenses for computer terminals, printing and consumables	2.7	3.6
(d)	Reduction in office space	0.4	0.5
(e)	Operating cost of the Disaster Recovery Centre (DRC) of the Information Technology Services Department (ITSD)	-	3.0
	<b>Sub-total</b>	<b>11.2</b>	<b>30.5</b>
<b>Notional savings</b>			
(f)	Apportioned overhead costs of the Treasury's computer bureau and support service and ITSD's DRC service	2.6	4.4
(g)	Reduced requirement for office space in various places	0.8	2.0
	<b>Sub-total</b>	<b>3.4</b>	<b>6.4</b>
<b>Cost avoidance</b>			
(h)	Apportioned cost of the upgrade of the existing mainframe computer	3.4	3.4
	<b>Total</b>	<b>18.0</b>	<b>40.3</b>

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12. As regards paragraph 11(a) above, the estimated realisable savings will come from the anticipated reduction of 21 posts in the Treasury currently managing LAFIS and the existing payment system in 2006-07 after the implementation of the new GFMIS, followed by a further reduction of 11 posts in 2007-08 when the existing mainframe computer operating in a proprietary operating system will totally cease operation<sup>2</sup>. The reduction in posts is possible as the system and technical support for the new system will be outsourced. These amount to realisable savings of \$7.3 million in 2006-07 and \$14.2 million in 2007-08 and onwards. A breakdown of the staff savings is at Enclosure 1.

Encl. 1

13. As regards paragraphs 11(b) to (d) above, the estimated realisable savings of \$3.9 million in 2006-07 and \$13.3 million in 2007-08 and onwards will arise from the deletion of the hardware and software maintenance costs of the existing mainframe computer and existing systems running on it, as well as a reduction in the associated departmental expenses. The amounts also include savings in accommodation cost arising from the deletion of the existing LAFIS Operations Section.

14. As regards paragraph 11(e) above, the estimated realisable savings of \$3.0 million in 2007-08 and onwards will arise from the deletion of the operating cost of the DRC of the ITSD<sup>3</sup>.

15. As regards paragraphs 11(f) to (g) above, the estimated notional savings of \$3.4 million in 2006-07 and \$6.4 million in 2007-08 and onwards represent the exclusion of the apportioned overhead costs of the Treasury's computer bureau and support service and ITSD's DRC service, and the apportioned accommodation cost.

16. As regards paragraph 11(h) above, the estimated annual savings of \$3.4 million represent cost avoidance due to the elimination of the need for system upgrades which would otherwise be required to cope with the enhancement of the existing mainframe computer.

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<sup>2</sup> Apart from the LAFIS and the payment system, there are also other systems (e.g. Treasury Payroll System) running on the existing mainframe computer. The savings will be realised when all those systems now operating on the mainframe system have been migrated to another platform, which is targeted to be completed by 2007.

<sup>3</sup> The Treasury and the Hong Kong Police Force (HKPF) are the two departments that subscribe to the DRC service offered by ITSD. There will be realisable savings in ITSD when the two departments' systems now operating on the existing operating system have been migrated to another platform, which is targeted to be completed by 2006.



Encl. 2 17. A detailed cost-benefit analysis for the project is at Enclosure 2. For the purpose of the cost-benefit analysis, we have included periodic costs at Enclosure 2 for software upgrades and technology update anticipated in the period under comparison. We will seek funding approval for the periodic upgrades as required.

## FINANCIAL IMPLICATIONS

### Non-recurrent Costs

18. The estimated total non-recurrent costs of the proposed system are \$337.4 million (of which \$68.5 million will be met from existing resources), made up as follows –

	(\$ million)					
	2002-03	2003-04	2004-05	2005-06	2006-07	Total
(a) Hardware, software and network equipment	0.0	6.7	2.0	19.2	34.3	62.2
(b) System development and implementation services (including site preparation)	6.7	72.8	51.7	32.5	3.0	166.7
(c) Contract staff service	0.9	4.6	7.2	4.3	0.1	17.1
(d) Contingency	0.7	7.9	5.4	5.2	3.7	22.9
<b>Total non-recurrent funding requirement</b>	<b>8.3</b>	<b>92.0</b>	<b>66.3</b>	<b>61.2</b>	<b>41.1</b>	<b>268.9</b>

/\* (e) .....

	(\$ million)					
	2002-03	2003-04	2004-05	2005-06	2006-07	Total
* (e) Project team staff cost	13.2	13.2	13.2	13.2	3.1	55.9
* (f) Accommodation cost	0.0	3.6	3.6	3.6	1.8	12.6
<b>Total non-recurrent in-house costs</b>	<b>13.2</b>	<b>16.8</b>	<b>16.8</b>	<b>16.8</b>	<b>4.9</b>	<b>68.5</b>
<b>Total non-recurrent costs</b>	<b>21.5</b>	<b>108.8</b>	<b>83.1</b>	<b>78.0</b>	<b>46.0</b>	<b>337.4</b>

\* Items (e) and (f) will be met by the Treasury through redeployment of existing resources.

19. As regards paragraph 18(a) above, the estimated cost of \$62.2 million is for the acquisition of software licences and application development tools, personal computers and printers as well as the installation and set-up cost for upgrades of network connection and departmental network switches.

20. As regards paragraph 18(b) above, the estimated cost of \$166.7 million is for engaging external service providers to support the tendering exercise and to design, build, test and roll out the proposed system. The services will cover project management, system design and set-up, application development, system testing, training, system implementation and site preparation work in respect of the spaces for the development teams, application maintenance support team and helpdesk team.

21. As regards paragraph 18(c) above, the estimated cost of \$17.1 million is for engaging non-civil service contract staff with relevant system skills and experience to provide support to the project team (para. 23 below) in the tendering, design, build, test and roll out of the proposed system. It comprises 24 man-months of Senior Treasury Accountant, 58 man-months of

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Treasury Accountant, 123 man-months of Accounting Officer, 49 man-months of Senior Project Manager, 12 man-months of Project Manager and 19 man-months of System Analyst. In this connection, part of the budgeted resources for contract IT staff will be engaged in other assignments so as to release some in-house IT staff for the project.

22. As regards paragraph 18(d) above, the estimated cost of \$22.9 million represents a 10% contingency on the cost items set out in paragraphs 18(a) to (b) above.

23. As regards paragraph 18(e) above, the estimated cost of \$55.9 million represents 507 man-months of civil servants forming the project team involved in the tendering, design, build, test and roll out of the proposed system. The project team, to be headed by a Chief Treasury Accountant dedicated for the project, will comprise resources of 52 man-months of Chief Treasury Accountant, 152 man-months of Senior Treasury Accountant, 151 man-months of Treasury Accountant and 152 man-months of Accounting Officer. The Treasury will meet the staffing requirements by redeployment of existing resources currently engaged in the delivery of accounting and financial management services to departments and bureaux.

24. As regards paragraph 18(f) above, the estimated cost of \$12.6 million represents the cost of accommodation for the project team. The project team will be accommodated in government-owned premises identified for the project through internal re-allocation.

### **Recurrent Costs**

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

	(\$ million)				
	2003-04	2004-05	2005-06	2006-07	2007-08 onwards
(a) Maintenance of software and network equipment	1.3	2.4	5.9	12.7	12.7
(b) Outsourced services	8.7	27.4	36.5	36.5	34.8
<b>Total recurrent funding requirement</b>	<b>10.0</b>	<b>29.8</b>	<b>42.4</b>	<b>49.2</b>	<b>47.5</b>
* (c) Staff cost	2.0	2.0	2.0	2.0	2.0
* (d) Accommodation cost	0.1	0.1	0.1	0.1	0.1
<b>Total recurrent in-house costs</b>	<b>2.1</b>	<b>2.1</b>	<b>2.1</b>	<b>2.1</b>	<b>2.1</b>
<b>Total recurrent costs</b>	<b>12.1</b>	<b>31.9</b>	<b>44.5</b>	<b>51.3</b>	<b>49.6</b>

\* Items (c) and (d) will be met by the Treasury through redeployment of existing resources.

26. As regards paragraph 25(a) above, the annual expenditure of \$12.7 million is for the maintenance of software and network equipment, and the rental for departmental networks.

27. As regards paragraph 25(b) above, the annual expenditure of \$34.8 million is for outsourcing the hardware, on-going system and technical support services for application maintenance, helpdesk, data centre operations and system disaster recovery.

28. As regards paragraph 25(c) above, the estimated cost of \$2.0 million represents the staff cost of one Senior Treasury Accountant and one Project Manager who will be engaged on non-civil service contract terms to monitor and manage the contract with the contractor and, in particular, to monitor adherence to the service level agreements established with the contractor. The manpower requirements for this contract management team will be absorbed by the Treasury within existing resources.

29. As regards paragraph 25(d) above, the estimated cost of \$0.1 million represents the cost to accommodate the contract management team mentioned in paragraph 28 above, which will be housed in government-owned premises.

30. The periodic costs set out in Enclosure 2 include an amount of \$2.9 million for the provision of technology update of the personal computers and printers for bureaux and departments over the 11-year period. Other than this, the project will not give rise to additional financial implications for other government bureaux and departments.

### **Implementation Plan**

31. Subject to approval of funding, we plan to proceed with the tendering exercise immediately. We estimate that the project will be completed by mid-2006. The proposed implementation plan is as follows –

	<b>Activity</b>	<b>Expected completion date</b>
(a)	Tendering for the supply of hardware and software and the provision of implementation services	mid 2003
(b)	System design and development	late 2004
(c)	System implementation and first phase roll-out	April 2005
(d)	Second phase roll-out	April 2006

/CONSULTATION .....

**CONSULTATION WITH LEGISLATIVE COUNCIL PANEL ON FINANCIAL AFFAIRS**

32. On 6 May 2002, we consulted the Legislative Council Panel on Financial Affairs on the proposed replacement of the GFMIS. Members were generally supportive of the proposal and offered a number of suggestions on implementation. At Members' suggestion, we have considered the option of outsourcing the computer hardware and have decided to procure the necessary hardware capacity by outsourcing, instead of the original proposal for the Government to buy and own the hardware. We have accordingly reflected the revised financial implications in this paper. In brief, this change has led to a reduction of \$33.5 million in the estimated non-recurrent cost and an increase of \$5.0 million per year from 2005-06 onwards in the estimated recurrent cost. This increase in recurrent cost arises mainly from the charges for outsourced services, and will be offset over a period of time by reduction in periodic cost of technology update which will be taken up by the hardware supplier instead of the Government. As a result of the proposal to outsource the computer hardware, the net cumulative cost up to 2012-13 (Encl.2) has been reduced by \$13.9 million.

33. We have also considered Members' suggestion to make use of our tertiary institutions to design and develop the software systems for the new GFMIS. As suitable and proven products are readily available in the market, we consider it is more efficient and cost-effective to procure the required software (and hardware) through open tender. All suppliers, including local suppliers, will have equal opportunity to compete for the contract.

34. Bearing in mind the critical importance of the reliability and efficiency of the system, all bidders will be required to demonstrate ability and experience in catering for the operational needs of the GFMIS. We shall also stipulate appropriate safeguards for protection of the Government's legitimate intellectual property rights.

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**Staff Savings in Treasury**  
(Breakdown by rank and by year)

Grade/Rank	No. of officer	Annual staff cost (HK\$)	2006-07 (HK\$)	2007-08 onwards (HK\$)
<b>LAFIS Operation Services (Note 1)</b>				
Senior Accounting Officer	1	1,274,916	956,187	1,274,916
Accounting Officer I	1	819,804	614,853	819,804
Clerical Officer	2	956,664	717,498	956,664
Assistant Clerical Officer	3	1,037,520	778,140	1,037,520
Clerical Assistant	2	488,328	366,246	488,328
<b>Sub-total</b>	<b>9</b>		<b>3,432,924</b>	<b>4,577,232</b>
<b>System Development and Maintenance (Note 1)</b>				
Analyst/Programmer I	3	2,334,888	1,751,166	2,334,888
<b>Ancillary Machines Unit (Note 1)</b>				
Office Assistant	1	202,968	152,226	202,968
Workman II	1	164,220	123,165	164,220
<b>Sub-total</b>	<b>2</b>		<b>275,391</b>	<b>367,188</b>
<b>Data Control (Note 1)</b>				
Computer Operator I	1	431,952	323,964	431,952
Assistant Clerical Officer	2	691,680	518,760	691,680
Assistant Computer Operation Manager	1	857,112	642,834	857,112
Senior Computer Operator	-1	-633,924	-475,443	-633,924
<b>Sub-total</b>	<b>3</b>		<b>1,010,115</b>	<b>1,346,820</b>
<b>Data Preparation (Note 1)</b>				
Data Processor	4	1,120,416	840,312	1,120,416
<b>Computer Operations (Note 2)</b>				
Analyst/Programmer I	1	778,296	0	778,296
Computer Operator I	5	2,159,760	0	2,159,760
Computer Operator II	4	1,195,920	0	1,195,920
Assistant Clerical Officer	1	345,840	0	345,840
<b>Sub-total</b>	<b>11</b>		<b>0</b>	<b>4,479,816</b>
<b>Total Staff Savings</b>	<b>32</b>		<b>7,309,908</b>	<b>14,226,360</b>

Note 1: The estimated effective date for staff savings is 1 July 2006.

Note 2: The estimated effective date for staff savings is 1 April 2007.

**Cost-Benefit Analysis for Replacement of the Government Financial Management Information System**

	(\$ million) – at 2001 prices										
	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
<b>COST</b>											
Non-recurrent (a)	21.5	108.8	83.1	78.0	46.0	0	0	0	0	0	0
Recurrent (b)	0	12.1	31.9	44.5	51.3	49.6	49.6	49.6	49.6	49.6	49.6
Periodic (c)	0	0	0	0	0	7.4	0.7	1.7	0	7.4	0.4
<b>Total Cost (d = a + b + c)</b>	<b>21.5</b>	<b>120.9</b>	<b>115.0</b>	<b>122.5</b>	<b>97.3</b>	<b>57.0</b>	<b>50.3</b>	<b>51.3</b>	<b>49.6</b>	<b>57.0</b>	<b>50.0</b>
<b>SAVINGS</b>											
Realisable (e)	0	0	0	0	11.2	30.5	30.5	30.5	30.5	30.5	30.5
Cost Avoidance (f)	0	0	0	0	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Notional (g)	0	0	0	0	3.4	6.4	6.4	6.4	6.4	6.4	6.4
<b>Total Savings (h = e + f + g)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>18.0</b>	<b>40.3</b>	<b>40.3</b>	<b>40.3</b>	<b>40.3</b>	<b>40.3</b>	<b>40.3</b>
<b>Net Cost (d – h)</b>	<b>21.5</b>	<b>120.9</b>	<b>115.0</b>	<b>122.5</b>	<b>79.3</b>	<b>16.7</b>	<b>10.0</b>	<b>11.0</b>	<b>9.3</b>	<b>16.7</b>	<b>9.7</b>
<b>Net Cumulative Cost</b>	<b>21.5</b>	<b>142.4</b>	<b>257.4</b>	<b>379.9</b>	<b>459.2</b>	<b>475.9</b>	<b>485.9</b>	<b>496.9</b>	<b>506.2</b>	<b>522.9</b>	<b>532.6</b>