For discussion **FCR(2003-04)23**
on 13 June 2003

ITEM FOR FINANCE COMMITTEE

CAPITAL WORKS RESERVE FUND
HEAD 710 - COMPUTERISATION
Government Secretariat : Commerce, Industry and Technology Bureau
Subhead A008XV Electronic data interchange system

Members are invited to approve an increase in commitment from $392,222,000 by $62,947,000 to $455,169,000 under Subhead A008XV Electronic data interchange system for enhancement of the back-end computer system for processing cargo manifests.

PROBLEM

The benefits of electronic submission of cargo manifest cannot be fully realised without automation of the back-end processes performed by government departments.

PROPOSAL

2. The Secretary for Commerce, Industry and Technology proposes to enhance the back-end computer system for processing cargo manifests.

JUSTIFICATION

Electronic Submission of Cargo Manifests

3. The system for electronic submission of cargo manifests (EMAN system) commenced operation on 11 April 2003. It enables cargo carriers (except the road mode of transport) to submit manifests electronically to government departments via a private sector front-end service provider, thus obviating the need to deliver three sets of paper manifests at different times to Customs and Excise Department (C&ED), Census and Statistics Department (C&SD) and Trade and Industry Department (TID). This has resulted in cost savings and improved efficiency for traders.

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4. To support electronic submission of cargo manifests, Government has developed a back-end computer system which comprises gateway, database, application servers and client workstations, and which interfaces with the front-end service provider.

Proposed Enhancement of the EMAN system

5. While the existing EMAN system enables carriers to submit cargo manifests electronically to Government via a service provider, a considerable number of back-end post-submission processes are still performed manually by the concerned government departments through unconnected computer systems. Encl. 1 Enclosure 1 sets out the back-end processes performed by C&ED, C&SD, and TID.

6. A business process re-engineering study and a technical feasibility study have been conducted to identify ways to streamline, automate and integrate the processes and systems relating to cargo clearance and manifest processing. Based on the findings of these studies, we propose to enhance the EMAN system and to integrate it with some 15 other systems[1]. Specifically, we will -

For law enforcement by C&ED

(a) standardise the format of cargo examination reports for different modes of cargo transport, and integrate the information in a common database under the EMAN system to improve efficiency in risk profiling and intelligence analysis for customs clearance purposes;

(b) build an interface with C&ED's intelligence system to facilitate better risk management;

(c) establish links between the trader information database in the EMAN system and other systems (e.g. Inland Revenue Department's business registration system and telephone companies' public enquiry system) to streamline the process of verifying traders' information;

/(d) .....

[1] Including the Customs Control System, Dutiable Commodities Permit System, Air Cargo Clearance System, and Intelligence Bureau System of C&ED; Shipping and Cargo Statistics System of C&SD; Restrained Textiles Export Licence (RTEL) System, Textiles Trader Registration Scheme (TTRS) System, Import and Export (Strategic Commodities) Classification and Licensing System, Transhipment Cargo Exemption System, and Air Transhipment Cargo Exemption System of TID; Vessel Traffic Management System and River Trade Cargo Vessel Port Formality System of Marine Department; Business Registration System of Inland Revenue Department; Trade Declaration System, and interfaces with telephone companies and transportation agencies etc. As textiles quotas will be removed in 2005, we will decide in 2004 whether there is a need to retain some form of textiles control from 2005 and the implications for the RTEL and TTRS systems. When we implement the proposed project, we will take these developments into account.

(d) build interfaces with the dutiable commodities system, strategic commodities system and trade declaration system to facilitate electronic referrals of cases which require investigation;

(e) enable remote access by front-line staff to the central database of the EMAN system to facilitate law enforcement;

For trade declaration processing and statistical analysis by C&SD

(f) build interfaces with the trade declaration system to enable automatic matching of manifest and trade declaration data[2] for identifying discrepancies;

(g) provide better support in following up cases of non-lodgement of trade declarations and manifests;

(h) automate the capturing of transhipment cargo data and classification of cargo data for compilation of statistics;

For licensing control by TID

(i) build interfaces with other licensing/notification systems to automate matching of manifest and licence/notification data;

(j) enhance the systems concerned to automate the process of verifying declared transhipments and consignments exempted from licensing requirements;

For common use by C&ED, C&SD, and TID

(k) enhance the capability of the EMAN system in generating management information reports and assigning jobs; and

(l) provide additional facilities for communication between user departments and the traders and carriers concerned.

/**Anticipated** .....

[2] C&SD received about 605 000 cargo manifests and 10 900 000 trade declarations (both excluding road mode) in 2002.

Anticipated Benefits

7. The proposed project is a crucial element in Government's overall strategy to improve cargo clearance and foster Hong Kong's competitiveness in logistics development. The project will -

(a) provide a platform for further facilitation relating to customs clearance of inter-modal cargo. The database to be created can be extended through a scalable design to support road mode manifest and other new e-trade initiatives[3]; and

(b) foster the overall competitiveness of Hong Kong. The global trend[4] is to computerise document processing. Singapore has already fully automated its manifest processing and the Mainland of China is moving in this direction. The project is instrumental to Hong Kong's continued development as an international trading centre and logistics hub.

8. In addition, the project will bring the following benefits to the trading community without any extra charge -

(a) reduced disruption to legitimate trade. C&ED, with a more integrated and efficient computerised screening system, will adopt a more targeted enforcement approach based on intelligence analysis. Enforcement action will be focused on high-risk consignments, resulting in a reduction in inspection and disruption of legitimate trade[5];

/(b) .....

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[3] A consultancy study on an Integrated Government e-Trade System recommends that manifest data captured by the EMAN system should be accessed/shared by other departments for better licensing control. These departments include C&ED; C&SD; TID; Agriculture, Fisheries and Conservation Department; Department of Health; Food and Environmental Hygiene Department; Office of the Telecommunications Authority; Civil Engineering Department; Environmental Protection Department; Marine Department; Hong Kong Police Force; and Immigration Department. Such integration will not be possible if the proposed project is not implemented.

[4] The Kyoto Convention issued by the World Customs Organisation states that in the 21st century, Customs must adopt electronic commerce systems (including Electronic Data Interchange) to handle the increase in electronic transactions for trading and customs purposes, which is already between one-third and one half of all international trade today.

[5] At present, the time required for Customs inspection ranges from 20 minutes to four hours for a 40-foot container (excluding the usual three to five days during which shippers hold the containers for inspection). The average time for Customs inspection is three hours for each river trade vessel, and 30 minutes for each rail cargo wagon.

(b) faster Customs clearance. Improved access to cargo data through mobile devices by front-line staff at locations without Customs back-up office will facilitate cargo clearance and shorten cargo inspection time at these locations (e.g., by one-third for river trade vessels);

(c) more timely reminders to traders to lodge trade declarations. The processing time for trade declarations will be reduced from 2.6 months to less than one month. C&SD will be able to issue reminders or requests for clarification to traders earlier, thereby helping them reduce penalties payable[6] and avoid the inconvenience in searching old records;

(d) more timely processing of manifests and licences. With faster and more efficient checking of manifests against licences and notifications through automation, carriers will be notified much earlier of any discrepancies identified. This will again reduce traders' inconvenience, time and effort in retrieving old records; and

(e) other benefits such as compilation of tailor-made user guides for traders who repeat similar errors in making submissions, and the provision of additional facilities for communications between traders and user departments.

9. The project will also bring about more effective customs and trade control by C&ED and TID as well as more efficient trade statistics compilation by C&SD through improved intelligence and more efficient verification of data across various systems. It will also help realise the full benefits of the EMAN system. For example, for back-end processing, currently the departments concerned still need to print the electronic manifests into hardcopies[7] for manual matching purposes. This is at odds with the international trend[8], time-consuming, wasteful of storage space and environmentally unfriendly. Deferring the project would mean continuation of the inefficient work procedures.

/Cost .....

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[6] Under the Import and Export Ordinance, traders are required to lodge trade declarations within 14 days after importing or exporting a consignment. A penalty is imposed for failure to do so and/or submission of incorrect value of the consignment. The fine is imposed on a sliding scale, i.e. the longer the period of non-lodgement, the heavier the penalty.

[7] About 10 million pages at a cost of about $0.8 million per annum

[8] The Asia-Pacific Economic Cooperation (APEC) decided in 1998 that member economies should endeavour to reduce or eliminate the requirement for paper documents needed for customs processing; and aim to achieve "paperless trading" (for trade in goods) by 2005 for developed economies and 2010 for developing economies.

Cost and Benefits Analysis

10. A summary of the benefits expected and a detailed cost and benefit analysis are at Enclosures 2 and 3 respectively. The proposed project will incur a total cost of $6.7 million in 2003-04, $48.7 million in 2004-05, $17.7 million in 2005-06 (including a recurrent staff cost of $1.2 million to be absorbed by the departments), and $11.4 million per annum from 2006-07 onwards (including a recurrent staff cost of $1.2 million to be absorbed by the departments).

Encls. 2 & 3

11. On the other hand, the project will result in annual savings of $21 million in 2005-06 rising to $23.1 million in a full year from 2007-08 onwards, comprising -

(a) $10.4 million in realisable savings immediately after the commission of the project in 2005-06 rising to $11.3 million in a full year, resulting mainly from the deletion of 31 posts in the three user departments; and

(b) $10.6 million in notional savings immediately after the commission of the project in 2005-06 rising to $11.8 million in a full year, mainly in the form of efficiency gain (i.e. achieving the same output with less resources) and avoidance of cost (i.e. using the same resources to do more work). It is not possible to realise these savings because staff in different grades and ranks working on shifts at multiple locations are involved. Nonetheless, these notional savings will enable the concerned departments to handle the increasing volume of manifests and trade declarations[9], and to undertake more cargo screening and investigations with existing resources.

12. In addition, the project should bring about an increase in revenue at $0.8 million a year as a result of better detection of non-lodgement of trade declarations and import and export statements for dutiable commodities.

13. We expect to achieve break-even in 2010-2011, i.e. the fifth year of full implementation. This is in line with the timeframes for other system enhancement projects. Excluding the recurrent staff cost which is to be absorbed from within the departments' existing resources, the realisable savings will exceed the recurrent expenditure by $1.4 million in 2005-06, i.e. the first year of system operation, and by $1.1 million annually from 2006-07 onwards.

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[9] The number of manifests increased from 495 000 in 1996 to 605 000 in 2002 (i.e. on average by 18 300 per year); and the number of trade declarations increased from 9 300 000 to 10 900 000 (i.e. on average 266 700 per year) in the same period.

FINANCIAL IMPLICATIONS

Non-recurrent costs

14. We estimate that the proposed project will require a non-recurrent expenditure of $62,947,000 over three years from 2003-04 to 2005-06. A detailed breakdown is as follows -

	2003-04 $'000	2004-05 $'000	2005-06 $'000	Total $'000
(a) Hardware and software	-	25,666	-	25,666
(b) Implementation service	4,487	13,612	6,100	24,199
(c) Site preparation	49	2,622	65	2,736
(d) Communication service	-	1,051	480	1,531
(e) Training	-	126	-	126
(f) Consumables	247	740	244	1,231
(g) Contract staff	1,952	4,837	669	7,458
Total	6,735	48,654	7,558	62,947

15. As regards paragraph 14(a) above, the estimated cost of $25,666,000 is for acquiring hardware and software. Hardware items consist of network equipment, servers, workstations and printers. Software items consist of system software for servers, workstations and database, as well as application software for the enhanced system.

16. As regards paragraph 14(b) above, the estimated cost of $24,199,000 is for acquiring services in system analysis, design, installation, integration, nursing and interfacing, as well as in programme development.

17. As regards paragraph 14(c) above, the estimated cost of $2,736,000 is for installing conduits and power sockets, cabling work at data centres, interface with external parties and offices of user departments, as well as managing facilities for system nursing.

18. As regards paragraph 14(d) above, the estimated cost of $1,531,000 is for installing and upgrading data communication lines among the various systems.

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19. As regards paragraph 14(e) above, the estimated cost of $126,000 is for training users how to use the enhanced system.

20. As regards paragraph 14(f) above, the estimated cost of $1,231,000 is for purchasing backup tapes, printer toners, printing paper and other stationery during system implementation.

21. As regards paragraph 14(g) above, the estimated cost of $7,458,000 is for engaging contract staff by the three user departments and Information Technology Services Department (ITSD) to assist in preparing and evaluating tender, monitoring and coordinating system design, implementation, user acceptance testing and system nursing.

22. Staffing input from the departments concerned will be insignificant and any additional resources that may be required will be absorbed from within the departments' existing resources.

Recurrent costs

23. We estimate that the proposed project will incur the following recurrent costs -

		2005-06 $'000	**2006-07 onwards $'000**
(a) Hardware and software maintenance		2,542	2,542
(b) Ongoing support		3,307	3,968
(c) Facility management		703	843
(d) Communication service		1,390	1,668
(e) Consumables		299	359
(f) Contract staff		697	812
	Sub-total	8,938	10,192
(g) Staff cost		1,210	1,239
	Sub-total	1,210	1,239
Total		10,148	11,431

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24. As regards paragraph 23(a) above, the annual expenditure of $2,542,000 is for covering the maintenance cost of computer hardware, as well as licence fee and maintenance cost for the system and database software.

25. As regards paragraph 23(b) above, the annual expenditure of $3,968,000 is for providing ongoing technical support to the enhanced system and interfaces with other systems.

26. As regards paragraph 23(c) above, the annual expenditure of $843,000 is for renting a site in addition to the existing data centres for accommodating the additional hardware.

27. As regards paragraph 23(d) above, the annual expenditure of $1,668,000 is for covering the rental cost for new and upgraded communication lines.

28. As regards paragraph 23(e) above, the annual expenditure of $359,000 is for purchasing consumables such as backup tapes, printer toners and printing paper.

29. As regards paragraph 23(f) above, the annual expenditure of $812,000 is for engaging contract staff by C&ED and ITSD to support the operation of the enhanced system.

30. As regards paragraph 23(g) above, the annual expenditure of $1,239,000 is the recurrent staff cost for 12 man-months of an Inspector of Customs and Excise, 8.4 man-months of a Statistical Officer II, and 1.2 man-months of a Senior Systems Manager. The costs will be absorbed by C&ED, C&SD and ITSD from within their resources.

/**IMPLEMENTATION** .....

IMPLEMENTATION PLAN

31. Subject to Members' approval, we plan to commission the project in July 2003, and complete implementation in 21 months, according to the following schedule -

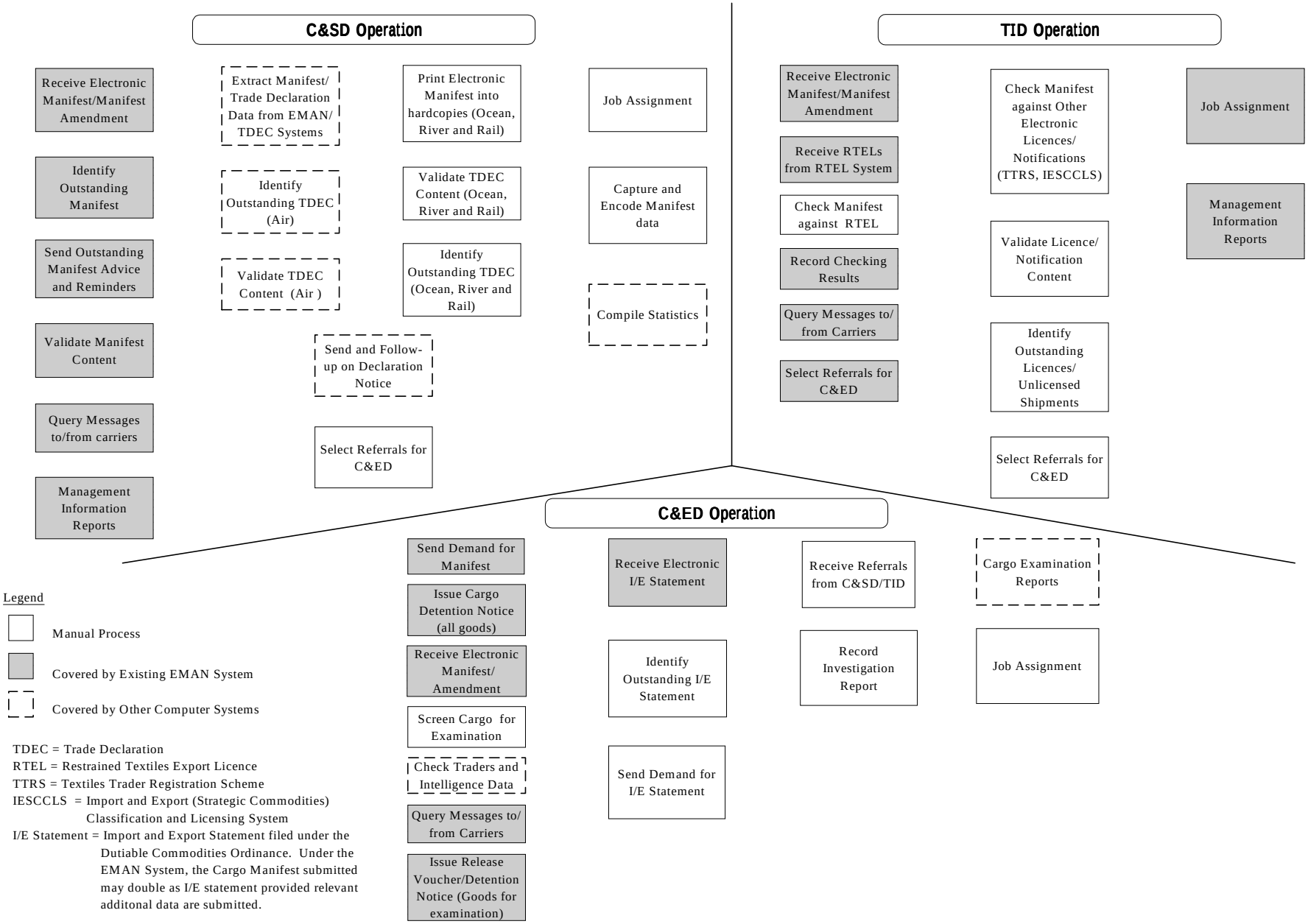
	Activity	Expected completion date
(a)	Acquisition of implementation services	December 2003
(b)	System analysis and design	March 2004
(c)	System development	November 2004
(d)	Joint tests and trial run	March 2005
(e)	Roll-out	April 2005

CONSULTATION WITH LEGISLATIVE COUNCIL PANEL

32. The Legislative Council Panel on Commerce and Industry was consulted on the proposed project on 10 March 2003 and 12 May 2003. Members supported the proposed project. In response to Panel Members' suggestion and following a review, we have decided to shorten the implementation period from 25 months to 21 months.

Commerce, Industry and Technology Bureau
June 2003

Existing back-end processes by C&ED, C&SD and TID in relation to the processing of cargo manifest



TDEC = Trade Declaration
RTEL = Restrained Textiles Export Licence
TTRS = Textiles Trader Registration Scheme
IESCCLS = Import and Export (Strategic Commodities) Classification and Licensing System
I/E Statement = Import and Export Statement filed under the Dutiable Commodities Ordinance. Under the EMAN System, the Cargo Manifest submitted may double as I/E statement provided relevant additonal data are submitted.

Enclosure 2 to FCR(2003-04)23

Summary of benefits expected from the enhancement of the Government back-end computer system for processing cargo manifests (from 2007-08 onwards)

I. Realisable savings

		$'000
Staff cost savings		
Department	*No. and rank of posts to be deleted*	*Savings in full annual average staff cost*
• C&ED	1 CusO, 2 ACO, 1 CA	1,252
• C&SD	19 ACO, 4 CA	7,536
• TID	4 ACO	1,378
	Sub-total	**10,166**
Other savings		
Savings in paper and printing, system maintenance and communication lines costs		1,158
	Total	**11,324**

II. Notional savings (comprising efficiency gains and avoidance of cost for taking up more work)

$'000				
Depart-ment	**Staff cost savings**		**Savings in accom-modation cost**	**Savings in system maintenance cost**
C&ED	Total 15.87 man-years scattered in 12 formations involving AS, SI, Insp, SCusO, CusO, STCO, TCO, ATCO, EOII, CO, ACO, CA, Workman II	9,390	112	-
C&SD	Total 2.23 man-years scattered in three teams involving API, APII, CO, ACO, CA, Workman II	884	595	121

$'000				
Depart-ment	**Staff cost savings**		**Savings in accom-modation cost**	**Savings in system maintenance cost**
TID	Total 1.27 man-years involving ATOI, SCO, CO, ACO, CA	617	74	-
	Sub-total	**10,891**	**781**	**121**
	Total	**11,793**		

III. Increase in revenue

	$'000
Increase in penalty receipts due to better detection of non-lodgment of trade declarations or import and export statements for dutiable commodities	**790**

Legend

AS = Assistant Superintendent of Customs and Excise
SI = Senior Inspector of Customs and Excise
Insp = Inspector of Customs and Excise
SCusO = Senior Customs Officer
CusO = Customs officer
EOII = Executive Officer II
STCO = Senior Trade Controls Officer Officer
TCO = Trade Controls Officer
ATCO = Assistant Trade Controls
API = Analyst/Programmer I
APII = Analyst/Programmer II
ATOI = Assistant Trade Officer I
SCO = Senior Clerical officer
CO = Clerical officer
ACO = Assistant Clerical Officer
CA = Clerical assistant

Cost-benefit analysis of the proposed EMAN enhancement project (at 2002-03 price level)

	2003-04 $'000	2004-05 $'000	2005-06 $'000	2006-07 $'000	2007-08 $'000	2008-09 $'000	2009-10 $'000	2010-11 $'000
COSTS								
Non-recurrent cost								
Expenditure	6,735	48,654	7,558	–	–	–	–	–
Staff	–	–	–	–	–	–	–	–
Sub-total	**6,735**	**48,654**	**7,558**	–	–	–	–	–
Recurrent cost								
Expenditure	–	–	8,938	10,192	10,192	10,192	10,192	10,192
Staff *	–	–	1,210*	1,239*	1,239*	1,239*	1,239*	1,239*
Sub-total	**–**	**–**	**10,148**	**11,431**	**11,431**	**11,431**	**11,431**	**11,431**
Total	**6,735**	**48,654**	**17,706**	**11,431**	**11,431**	**11,431**	**11,431**	**11,431**
BENEFITS								
Realisable Savings	–	–	10,381	11,324	11,324	11,324	11,324	11,324
Notional Savings	–	–	10,602	11,566	11,793	11,793	11,793	11,793
Revenue	–	–	724	790	790	790	790	790
Total	–	–	**21,707**	**23,680**	**23,907**	**23,907**	**23,907**	**23,907**
Net Benefits	**(6,735)**	**(48,654)**	**4,001**	**12,249**	**12,476**	**12,476**	**12,476**	**12,476**
Net Cumulative Benefits	**(6,735)**	**(55,389)**	**(51,388)**	**(39,139)**	**(26,663)**	**(14,187)**	**(1,711)**	**10,765**

* To be absorbed by the departments concerned.