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An Evaluation of the Commonwealth Secretariat Debt
Recording and Management System Project in Sri
Lanka - Evaluation Study No.12

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SECTION A: INTRODUCTION AND BACKGROUND

1. Five years ago Lord Lever and his Group of Experts in their 1984 Report to Commonwealth Finance Ministers, The Debt Crisis and the World Economy, warned that 'the world's financial safety is balanced on a knife edge'. The problems highlighted in the Lever Report have still not been adequately addressed and continue to be critical.

2. In response to concerns expressed by Commonwealth Finance Ministers at successive meetings, the Secretary-General of the Commonwealth Secretariat offered the assistance of the Commonwealth Fund for Technical Cooperation (CFTC) in the broad area of balance of payments and financial management, including the formulation of borrowing strategies, the mobilization and negotiation of external loans and agreements for specific projects and programmes, debt management, and budget management. Further consultations with Commonwealth Governments indicated that debt management was a priority area. Within the Secretariat the Technical Assistance Group (TAG) of CFTC was mandated to build up the capability to deliver this assistance, and accordingly put together a package of advisory services on external debt management. TAG also found it necessary to develop in-house the Secretariat's own computer software, Commonwealth Secretariat Debt Recording and Management System (CS-DRMS), as an essential component of the package. The International Development Research Centre (IDRC), through its Information Services Division provided both financial support and technical advice in the initial development of the software.

Following the development of CS-DRMS, IDRC, also supported the installation of CS-DRMS in Sri Lanka by way of a pilot project. CFTC through the General Technical Assistance (GTA) Division has provided the services of long-term experts to serve as Resident Advisers to assist in the implementation of the Debt Recording and Management System (DRMS) projects.

3. TAG's Advisory Services on External Debt Management, including the supply of CS-DRMS, were first provided to Sri Lanka and Grenada. CS-DRMS was installed in Sri Lanka in September 1985, and in Grenada in November 1985. The projects in these two countries helped TAG considerably to refine and enhance the software to meet more fully the user requirements, and also to streamline its own procedures and approaches to a debt management project. TAG's assistance in this area has now been sought by 30 countries in the Commonwealth; requests have also been received for TAG's assistance in the implementation of DRMS projects from non-Commonwealth countries, and these are under discussion.

4. The evaluation of the Sri Lanka DRMS project is one of a series of in-depth studies undertaken by CFTC in order to learn lessons from project experience across the range of its divisions. The Study has been undertaken in co-operation with IDRC. Each in-depth study seeks to draw lessons which might shape future policy and practical arrangements for provision of assistance, and to identify any difficulties and constraints in the execution of the projects. The overall objectives of the Government in seeking assistance and how the project enhanced and achieved these objectives are assessed. The evaluation also entails examining the

efficiency, effectiveness and impact of inputs provided. The evaluation accordingly assists in ascertaining:

- (i) whether the project achieved what it set out to achieve;
- (ii) whether the implementation was effective in terms of resources utilised and benefits generated or expected to be generated in the short and long term; and
- (iii) the major constraints which affected both the management and execution of the project and the results achieved.

5. Terms of Reference for the study setting out its objectives and scope for investigation are shown in Appendix I.

6. The Evaluation Team comprised Dr A Jennings (Chief Evaluation Officer, CFTC), Mr Alfred Gilman (Director, Computer Services, African Development Bank), Professor Keith Hay (President, Econolynx International Limited). Due to the prevailing political situation it was not possible for the Evaluation Team to visit Sri Lanka and the findings of this study must accordingly be qualified. Extensive discussions were however held over two days in Singapore with two key project officials from Sri Lanka - Mrs D. De Silva (Assistant Director, External Debt Management Unit, Ministry of Finance) and Mr T.S. N. Fernando (Superintendent, Public Debt Department, Central Bank of Sri Lanka). Discussions were also held in Singapore with IDRC officials.

7. The willingness of these officials to make their time generously available, and to share information and views, was greatly appreciated. Thanks are also due to the officials of CFTC and especially the Technical Assistance Group for their assistance. A list of officials interviewed by the evaluation team is shown in Appendix II.

SECTION B: DRMS SYSTEM AND SYSTEM SUPPORT

B-1 Background

8. When the Commonwealth Secretary-General took the decision to establish a programme of Advisory Services on External Debt Management within TAG, consultations were necessary to define the nature of the assistance and the most appropriate manner in which it should be delivered. Consultations with governments, other concerned international agencies, and commercial financial institutions, led TAG to the decision that a distinctive approach was required for the development of a programme of assistance on debt management. It was also recognised that TAG needed to develop a computer software that would best meet the requirements of member countries.

9. The development of the CS-DRMS software was also the first significant information systems project to be undertaken by the Commonwealth Secretariat. There were not information systems specialists on staff and TAG was inexperienced in the development of software, although computers were used for financial modelling in TAG before the DRMS programme began.

10. Thus initially TAG had to depend on external resources

for advice and assistance in the development of software, which task was further complicated by the evolving needs of debt management issues.

11. Thus viewed in the context of an evolving systems requirement in a pioneering field, the development of CS-DRMS is considered to have been a success and relatively cost effective.

12. The evaluation study found that the judgement of the TAG management to develop a user friendly software based on a micro-computer and to avoid the use of more sophisticated and complex hardware and to insist on what they saw to be a more appropriate technology, has been fully vindicated by the events. In particular the high degree of local involvement, commitment and sustainability of the project may in large part be attributable to having made the right decision on the technology used.

B-2 Technical System Description

13. The CS-DRMS is a micro-computer based software designed and developed to assist small to medium sized countries manage their external debt. It was capable of operating on a wide variety of micro-computers (IBM PC XT, IBM PC AT and fully compatible machines) which are available and supported in most developing countries at a relatively modest price. It has been developed under the INFORMIX data base management system environment and uses the PERFORM product for screen handling, the ACE product for writing output reports and the INFORMER product for query requests of the database. The main processing programmes are written in the programming language

"C" which interfaces with INFORMIX. The system has been developed to run in a single user MS-DOS and a multi-user UNIX environment.

14. A more complete description of the hardware/software environment is provided in Appendix III and an indication of the size and complexity of the CS-DRMS software is provided in Appendix IV. It is considered that for a micro-computer DOS based application, CS-DRMS is complex and sophisticated and it is approaching the capacity limits of the hardware/software environment on which it was developed and for which it was designed to operate, and measures are currently being undertaken by TAG to overcome these limits.

15. In general the CS-DRMS software has followed modern software design principles and it is considered to be well designed and generally user friendly. It is a menu driven system which provides users with an easy to follow path between the various operations and routines. During data entry a number of data validations on a field basis and on a cross field basis are performed which eliminates routine errors.

16. The CS-DRMS provides the following capabilities:

- (a) Loans and Grants
 - to store a complete inventory of all loans and grants and the basic details of these agreements.
 - to forecast disbursement and debt service payments individually and in aggregate.
 - to identify loans where debt service payments, covering principal repayments, interest,

- commitment fees, service and other charges.
- to produce a complement of standard management reports.
- to monitor loan and grant utilization and indicate delays in the effectiveness of the agreement, disbursements and reimbursements.

(b) Management Tools

- to provide information and reports by group or class of loans.
- to capture exchange rate gains and losses on multi-currency loans.
- to permit sensitivity analysis on the basis of variations in interest and/or exchange rates.
- to test impact on debt service of new borrowing levels based on different assumptions regarding currencies and repayment terms.
- to evaluate loan refinancing and rescheduling proposals.
- to include exogenous economic data to project economic indicators.

17. The use of these facilities is well described in the "Guide to DS-DRHS" and the "CS-DRHS Reference Manual". These manuals are written in a clear, easy to read manner and adequately explain most questions that arise during use of the software. There are additional online held features which provide information on individual data elements to assist the user in entering and interpreting data. The quality of the documentation and general ease of its use is considered to be an area of strength of the CS-DRHS.

B-3 System Improvements

18. A number of minor areas where user friendliness and ease of the system could have been improved were noted. For example, the menu structure is well designed but for the experienced user it is frequently more convenient to go directly to the required function rather than pass through several menu screens. Menu driven systems frequently have a "command line" function which permits the user to designate the function directly. This approach should be considered for CS-DRMS and will be more important under the multi-user version where response time may become an issue.

19. While there are some limited HELP facilities incorporated into the software, most modern online software have a more extensive HELP function where detailed information can be accessible during processing by pressing the "HELP" key. Once the user has finished reading the explanation he/she can return and continue processing at the point where the HELP facility was accessed.

20. An important design consideration is complete consistency in use of function keys, key words, standard keys and operating procedures throughout the software. While CS-DRMS is generally strong in this respect there are areas of potential confusion which should be corrected in future versions. For example, in certain functions the <esc> key is used to execute where as the <return> key is used for this purpose in other parts of the software. In certain functions namely menus, rules and regulations, "Q" means "quit" when in perform screens it means "query".

21. It is recommended that a detailed review be made to identify other instances of inconsistencies and they be corrected in future versions.

22. The error messages generated by the CS-DRMS system are not as easy to understand as is desirable. It is recommended that a review of these messages be undertaken and a revised set of error messages be prepared. The explanation could be more complete and include examples of the type of action which would cause the error. This is being examined for inclusion in the next version.

23. On a number of output reports it was noted that numbers were printed without full punctuation. This is due to the size of the page and the amount of information required on it. Readability will be substantially improved with punctuation and should be provided wherever possible.

24. As mentioned earlier it is considered that the systems analysis and design is fundamentally sound and has adhered to a modern systems development methodology. However the programming approach did not conform with generally accepted structured programming standards. A review of the "C" language programmes indicates that they are poorly documented, they have not been developed in a modular fashion, the naming conventions are not consistent and descriptive, and the code is difficult to read and understand. Each programming language has its own requirements to promote efficiency programmes, reduce errors and facilitate on-going maintenance. It appears that many standard "C" programming techniques have not been followed.

25. The ability to maintain and enhance the capabilities of CS-DRMS has been rendered significantly more time consuming, complex and prone to errors than would have been the case if structured programming standards had been established at the outset and rigorously followed throughout the programming phase of the project.

26. The deficiencies listed above have been recognised and it is understood that a major effort is currently underway to correct this weakness in future releases of the software.

27. While some effort has been made to establish programming standards this is not complete due to time constraints. It is recommended that a formal structured programming standards manual be developed and all future programming adhere to these standards. This manual should include definition of techniques to be used in "C" language programming and any additional programming languages in use, such as PERFORM, ACE, 4GL, amongst others.

28. The CS-DRMS System Maintenance manual is generally well written and easy to understand, and it provides appropriate information on general systems installation and maintenance. The sections on system back-up procedures, recovery from errors and systems failure are particularly important to the successful operation of CS-DRMS (or any other micro-computer based application). The procedures are generally comprehensive, however there is one small additional step which is recommended be added to the back-up cycle. The possibility exists that the interface between the disk and the CPU, or the streamer tape and the CPU, or the diskette

drive and the CPU could be defective. If this were to occur then it would be possible that the data written onto the back-up medium, be that streamer tape or diskette, could be erroneously recorded even though the back-up programme appeared to have executed correctly. To guard against the possibility it is recommended that an additional step be added whereby a programme will be executed which compares what is backed-up with the disk version to ensure these two copies are identical. This "compare" programme could be run as part of the weekly back-up procedure.

29. In Sri Lanka they have implemented the procedures successfully and to date they have not experienced any loss of data. They have installed an uninterruptable power supply (UPS) to protect the software against disruption in electrical power and variations in voltage and frequency levels. Most recently, it appears that the battery of the UPS has developed problems. Steps should be taken to correct this situation as a matter of priority to ensure against possible corruption of the database.

30. The two micro-computer systems in the Central Bank and Ministry of Finance are covered by maintenance contracts and this arrangement has proven to be satisfactory. However it is noted the equipment has been procured from four different companies and thus it has been necessary to establish four separate maintenance contracts. It would have been preferable to have a uniform complement of equipment, and to procure equipment which can be maintained locally, if at all possible, and for all CS-DRMS sites in a country to have compatible equipment.

31. It was reported that the monthly processing run in Sri Lanka requires 36 hours to complete. This is considered to be excessively long and corrective action should be taken. TAG staff indicate that the long processing time was as a result of a system error, which has recently been corrected. It is estimated that in the future the time to process the monthly run would be reduced to approximately 9 hours.

32. It is considered that 9 hours is still extremely long processing time for an important application such as CS-DRMS and it is noted that steps are being taken to reduce this in the next version. Unless this can be done through the software, it is recommended that consideration be given to replacing the current disks with modern disks which access data approximately three times faster and while also adding a "turbo" processing board to improve basic processing speed. If funds are available it would be desirable to procure a new high performance system with increased processing speed and higher volume and better performance disks.

33. The operational and maintenance procedures recommended in the CS-DRMS documentation have been accepted and are being applied in the Sri Lankan operation. The computer systems have been installed in an air conditioned environment and the systems are protected against power fluctuations and outages by an uninterruptable power supply (UPS). The file back-up procedures are followed every day where changes have been made to the database. The back-up copies are stored in a fire proof vault.

34. The EDMU has two computer systems; one IBM PC AT with 40 megabytes of disc (20 + 20) and a printer, one Commodore PC AT compatible with 40 megabytes of disc (20 + 20) and a printer. The Central Bank of Sri Lanka CS-DRMS uses an IBM PS/2 model 60. This diversity of equipment has presented some operational and administrative inconveniences.

35. Firstly as the printers and micro-computers are from different suppliers it has been necessary to establish four separate maintenance agreements. Secondly problems are being experienced in the transfer of data between the EDMU system and the PS/2 model 60 at the Central Bank. It appears that the external 5 1/2 inch drive procured for the PS/2-model 60 is not fully compatible with the diskette drive of the IBM PC AT.

36. The IBM PC AT was equipped with a tape streamer which was to be used for backing up of CS-DRMS data. However it is not supported in Sri Lanka and it has been out of operation for approximately two years. The back-ups are done on diskette and the procedure requires less than 30 minutes.

37. However the equipment, with the exception of the tape streamer, has performed reliably with the only serious problem to date being a disk which had to be replaced. The routine maintenance contracts appears to be providing the level of service which is necessary to ensure minimum disruption to system availability.

38. As briefly mentioned under the section on technical

assistance, TAG has established a solid central system support infrastructure from London which includes a "HOT LINE" service and a general system maintenance service for less time critical issues.

39. The HOT LINE may be accessed by telephone or telex and TAG has established a standard problem recording and reporting mechanism which documents and time stamps all reported problems and includes an explanation of the corrective action which was taken. A review of the records indicate that up-to-date information is maintained for each installation including hardware and software configuration and a history of the request submitted and the status of the solution. The service has been used extensively and successfully by Sri Lanka. It is considered that the ongoing support which has been provided has been rapid and generally of high quality. It has made a major contribution to the successful installation and operation of CS-DRMS in Sri Lanka.

B-4 Future Development

40. As world financial markets are dynamic the debt management issues which will face developing countries will also change. It is therefore desirable that the CS-DRMS software continue to evolve if it is to play an important role in debt management. A number of areas have already been identified where improvements and/or enhancements to the CS-DRMS are required and work is in progress. These are:

- to efficiently and rapidly deal with aggregate data on a multi-currency basis;

- to determine the impact on debt service of changes in interest rates and exchange rates;
- to efficiently handle Supplier Credits;
- to efficiently handle Syndicated Loans;
- to calculate the effective cost of borrowing for loans;
- to process on-lending to parastatal organisations;
- to include various interest and currency options;
- to process currency and interest swap operations;
- and
- to interface with external systems/economic models.

SECTION C: LEGAL FRAMEWORK AND INSTITUTIONAL ARRANGEMENTS

C-1 Lessons Learnt from the Experience of Sri Lanka for the Legal and Institutional Framework of DRMS

41. The Sri Lanka DRMS project began in 1983 on the basis of discussions between the Ministry of Finance and Planning and TAG. At that time Sri Lanka had over 400 public sector external loans and more than 200 grants from external agencies. Sri Lanka had a loan portfolio which was diverse and representative of different categories and types of loans. The medium sized portfolio provided a good basis for the development of the software and the scope of DRMS projects which could be applied for smaller and larger countries.

42. In developing the methodology for DRMS projects TAG recognised early on the need for appropriate institutional arrangements for contracting, monitoring and managing external debt and for ensuring that the data required for

this purpose is available. To meet these objectives a number of institutional arrangements were suggested. These can be summarised as follows:

- (i) The External Resources Department (ERD) should be responsible for compiling data on grants, and loans from all sources.
- (ii) ERD was urged to actively liaise with the Central Bank for data collection, in particular the Public Debt Department (PDD) for government loans and the Exchange Control Department (ECD) for private and corporation loans.
- (iii) The "Aid Utilization and Debt Management Unit", later named the External Debt Monitoring Unit (EDMU) - the location for the DRMS project - should be part of ERD and therefore inside the Ministry of Finance and Planning as it was necessary for this Unit to be involved in the loan cycle.
- (iv) The use of the Central Bank's IBM 4331 mainframe with new terminals where required in the Ministry of Finance and Planning was identified for operating a computerised debt management system. The final recommendation could only have been made when the system design had been completed.
- (v) It was imperative that the EDMU be headed by a senior government official - preferably of Director rank - who would be able to exercise leverage to build up and operate

a debt database. Such a person should have economics training with knowledge of balance of payments methodology and financial transactions.

- (vi) The need for a resident adviser to implement the DRMS system was foreseen.

43. The early TAG mission rigorously specified the requirements for the successful implementation of a DRMS project in terms of legal framework and institutional arrangements. For the most part these initial recommendations were precise and accurate, even though it was recognised that there would be problems with compiling some data. Information on grants was not readily available because all donors did not send notices to External Resources Department. Similarly private sector borrowers did not readily make available all loan details to the Exchange Control Department. Therefore the initial focus was correctly identified as being the public sector debt. Moreover TAG soon recognised that the Central Bank IBM mainframe computer was relatively expensive and would not be readily available in many developing countries and thus would not be appropriate for the development of software. It was decided that this should instead be done on an IBM PC XT or compatible micro-computer which would provide a low cost hardware option to developing countries.

44. This was a second decision, but in the case of Sri Lanka where very few micros were in government use by 1983 as in other developing countries, it had major implications for staffing and training.

45. Unfortunately during the project implementation, there were a number of significant deviations from TAG's original recommended approach for Sri Lanka. These are as follows:

- (i) The External Debt Management Unit (EDMU) which was responsible for the DRMS project, although set up as a new unit in ERD, did not become an integral part of it. In the early days of EDMU, it was physically removed from ERD, though this was subsequently rectified. Experience has shown that with EDMU operating in an isolated stand alone manner the overall effectiveness of the DRMS methodology was seriously compromised. Even at the time of evaluation it appeared that EDMU work was being attributed a very low priority by ERD and its principle function apparently is to provide statistical reports for the Central Bank. Quite recently, there has been a suggestion to move DRMS from ERD to the Central Bank.
- (ii) For the most part the institutional arrangements suggested originally by TAG were not accepted by the Sri Lankan authorities. New procedures for data collection were set up which proved less than fully effective and the joint nature of the project between the Ministry and Central Bank was ignored, with most activities shifted to the Ministry.
- (iii) The first EDMU director was a former Central

Bank staff member, who while having some knowledge of loans unfortunately demonstrated little interest in the computer aspects of the project or in assembly of the loan inventory. "Furthermore the relationship with ERD, the custodian of most loan information, was not harmonious".

- (iv) The staff assigned to the CS-dRMS operations were initially unfamiliar with interpretation of loan agreements and had no experience in using computers. In addition the junior staff also were assigned from the Department of Census and Statistics had little knowledge of economics or accounts and they had inadequate English language capacity to understand the loan agreements (which were in English).
- (v) A senior programmer/systems analyst from the Central Bank, had been assigned to the DRMS project to ensure there would be highly qualified technical support in Sri Lanka. He was sent on mission to London to assist in the systems analysis and design of CS-DRMS, and he participated in the initial training programme in London as well. Both of these missions were funded by IDRC. Unfortunately, because the project became centred in the Ministry of Finance and Planning instead of being a joint project with the Central Bank, this trained programmer/analyst was assigned to other duties and was not used to support the project as originally envisaged. This

would be an example of poor utilization of technical assistance funds.

- (vi) Sri Lanka decided not to use a Resident Adviser for the Project. Such an adviser could perhaps have assisted in the speedier implementation of the project.

46. The changes in institutional arrangements from those originally recommended by TAG and agreed to by the Government of Sri Lanka had a bearing, sometimes adverse, on the implementation of the project. It has to be recognised that these arrangements are essentially dependant on the organisational and administrative arrangements within each government and therefore this component of DRMS projects would present difficulties to TAG. The isolation of EDMU, the fact that the project was not implemented jointly between the Ministry and the Central Bank, the government's decision not to appoint a Resident Adviser contributed to delays in project implementation. It required considerable support from TAG and over five years 17 missions were mounted. However, not all of them could be directly related to the Sri Lanka project and would have been required for the software development and testing wherever it was done.

47. A consideration of factors conducive to an appropriate legal and institutional environment for DRMS is presented in Appendix V.

SECTION D: TECHNICAL ASSISTANCE

D-1 Inventory of the Technical Assistance Provided

48. The Technical Advisory Group offers Advisory Services on

External Debt Management under which programme the following assistance was provided to Sri Lanka:

advice on appropriate institutional arrangements for the setting up of an aid utilization and debt management system in the country;

assistance in the compilation of a detailed inventory on all external loans and grants;

assistance in the compilation of data on all external loans and grants in CS-DRMS; and

the use of the software for the management of Sri Lanka's external debt.

49. At a more detailed level TAG has defined a fifteen stage project cycle to address the above areas and the implementation of the DRMS project. These phases are defined in Appendix VI and they were generally followed during the Sri Lankan project.

50. It is important to note that at the time TAG undertook the debt management project in Sri Lanka there was neither a time tested approach nor had a computer based system been developed. Thus it was to be expected that substantially greater resources would have to be devoted to this pilot project.

51. In summary TAG has provided technical assistance in the following areas:

(a) Setting up of institutional arrangements for

the establishment of an effective aid monitoring and debt management system.

A detailed report was prepared by TAG and submitted to the Sri Lankan authorities for their consideration and action. The report addressed the institutional arrangements, the legal and administrative regulations and procedures, and the staffing and training requirements.

- (b) Compilation of the inventory on external debt and detailed debt data.

While the actual tasks of data preparation and entry into the CS-DRMS database were performed by Sri Lankan staff technical assistance was provided in the interpretation of loan agreements, in preparing the data entry sheets required for the CS-DRMS database, inputting the data and in verifying the accuracy and completeness of the data.

- (c) Provision and installation of CS-DRMS Software

A fundamentally important component of TAG's Advisory Services on External Debt Management is the CS-DRMS software. It is fair to say that the early versions of

CS-DRMS did not accommodate all the practical complexities of loan administration as it now does. Newer versions incorporated additional features and corrected "bugs" of earlier versions. This is true of all software packages.

The CS-DRMS software system has been installed at two locations in Sri Lanka, the External Debt Management Unit (EDMU) of the Ministry of Finance and in the Public Debt Department of the Central Bank. Assistance was provided by TAG during the physical installation and the initial operation of the system in Sri Lanka.

(d) CS-DRMS Computer System Support

The CS-DRMS technical support is provided from TAG in London. There is a "Hot Line" service which can be contacted via the telephone and telex to address urgent problems. In addition a regular systems support programme is provided to address less time critical requirements such as enhancements, improvements, additional reports, and processing of difficult loans. These back-up support services have been effective in meeting the needs of Sri Lanka. These services have been

used extensively and effectively by Sri Lanka officials throughout the project.

(e) Analysis and Managerial use of Debt Database

TAG provided assistance in the analysis of the data base using the software and reports generated by it. The purpose was to make the government aware of the capabilities of the software and the users to which it could be put for the management of debt. These were presented in a report to the Government in March 1983.

D-2 Staff and Training

49. Responsibility for the installation and operation of the debt management system rests with the External Debt Management Unit which now reports to the Director of the External Resources Department. There are currently eight (8) staff assigned to EDHU: the Director, a Deputy Director and three Assistant Directors, three officers and one support staff.

53. In determining the composition of staff which is required to successfully administer a debt management unit it is important to note there are two fundamentally different aspects of DRMS projects.

54. Firstly there is the data preparation, data entry, operation of the computerised CS-DRMS software, production of

standard reports, preparation of specialised reports and general maintenance of the debt management system. Secondly there is the aspect which relates to the utilization of the reports, analyses of the data, identification of potential options to improve the debt situation of the country, and drafting proposed debt policies.

55. Staff qualifications and experience to effectively perform these responsibilities are different. Staff members working on the first aspect of the system ideally should have academic qualifications in accounting, commerce, financial analysis or similar fields with some work experience in loan administration, accounting, commercial banking, auditing, commercial contracting or related fields. An introductory knowledge of computers and their application is highly desirable although specialised knowledge of programming and systems is not required.

56. Satisfactory performance of the second aspect of the system requires substantially greater technical qualifications and practical work experience in the area of financial analysis and capital markets. The staff should have highly developed analytical skills which will normally be obtained through post graduate studies in economics, financial analysis, statistical methods, and years of practical experience in the area of international finance. The staff should have up-to-date knowledge of the international money markets and a detailed knowledge of Sri Lanka's debt situation. A familiarity with computerised statistical/econometric packages would be desirable.

57. In the case of Sri Lanka the staff who were originally assigned to the project did not have the requisite academic qualifications or work experience to make them immediately productive. However, the staff were intelligent and well motivated and although their training required substantial time and resources they have now attained a satisfactory level of competence relating to the first aspects of operating the CS-DRMS software. Although there appears to be a need to ensure greater quality control on the data the operational aspects of the CS-DRMS appears to be functioning satisfactorily.

58. In establishing the debt management unit it should ideally be headed by a senior technical manager who has wide experience and competence in debt management, academic qualifications in economics, accounting, finance or a closely related field, current knowledge of international financial markets and experience in the use of modern computerised analytical tools for financial management. The senior technical manager should also have experience in the supervision of staff and general administration.

59. Ideally, he/she should be supported by a senior professional officer, with substantial experience in loan administration in government or a commercial financial institution. The most appropriate academic qualifications would be in accounting, finance or related field. Work experience should include exposure to computer systems and the establishment of administrative procedures. This official would supervise the daily operations related to the interface with units, the preparation and entry of data, the running of

the CS-DRMS software and hardware, and the distribution of routine reports and documents. The official would assist the Director in the analysis of the data. The current incumbent, satisfactorily meets these requirements.

60. To support the daily operation of the CS-DRMS system for a country with a debt portfolio the size of Sri Lanka's there should be 2-3 officers at the intermediate professional level. Ideally they should be university graduates in accounting, commerce, finance, statistics, computer science or a similar field. In recruiting these officers efforts should be made to have a complement of these different backgrounds. At least one officer should have formal training in computer science and one in accounting, commerce or finance. It is desirable that they have an understanding and practical work experience in loan administration in government or a commercial financial institution. It is desirable that these officers also have some experience in the use of computer based systems.

61. As the loan and grant agreements are in English, a prerequisite for all staff working in the debt unit should be a strong capacity in english to facilitate the interpretation of the complex technical loan and grant agreements. Since none of the staff recruited for the EDNU met these basic qualifications at the time of their appointment their initial progress was limited and the quality of the data collected was poor. However during the intervening years of practical on-the-job experience, and with a substantial amount of technical assistance provided by TAG the EDNU staff at both the officer and the additional director level have attained a

satisfactory degree of competence.

62. The senior level direction which will be required to realise the full potential of the CS-DRMS does not yet appear to be available in the EDMU. As a result it does not appear that CS-DRMS is currently being actively used in Sri Lanka to analyse the various financial opportunities which are available in managing their debt or in the formulation of debt policy, and a debt management strategy.

63. At the time the CS-DRMS methodology was initially being installed in Sri Lanka a well structured and comprehensive training programme had yet to be developed. None the less a major effort was devoted to providing the Sri Lankan officials with a detailed understanding of the system and an initial training approach and programme was developed as part of this project.

64. The following training activities were undertaken during project implementation:

- (a) Mr N H Jayasekera, a Senior Programmer/Systems Analyst from the Central Bank, had been designated as the systems specialist to be assigned to the EDMU. To ensure that detailed technical knowledge of the CS-DRMS software would be available locally once the system was installed, Mr Jayasekera was attached to the TAG project team to participate in the systems design of the CS-DRMS software. He spent three months in London on this

- activity starting in March 1984.
- (b) TAG designed a five week training programme, in London to cover the essential components of the CS-DRMS software. Two Sri Lankan officials, Mrs de Silva and Mr Jayasekera, attended this intensive training programme during July-August 1985, in preparation for the installation of the system in Sri Lanka.
 - (c) The most difficult activity in the compilation of an accurate and complete database is the interpretation of a variety of loan and grant agreements and the extraction of the relevant data. Following the software installation in September 1985, a three week course on loan interpretation, and the use of CS-DRMS and its maintenance was held in Sri Lanka. Further, on-the-job training have been provided by inviting TAG missions.
 - (d) Mrs de Silva participated in a three week course in London in August 1987 on writing customised CS-DRMS reports using the ACE report writing facility of INFORMIX. At the same time she was trained in using version 4.0 of the CS-DRMS software.
 - (e) There has been a total of 17 missions to Sri Lanka to date in support of the CS-DRMS installation and there has been a combination of formal and informal training conducted during most of

these visits, which have occurred at the various stages of the project cycle.

65. While the approach to training and the course content was being developed while the Sri Lanka DRHS project was being implemented, the overall training provided to the Sri Lankan staff was satisfactory.

66. The content and emphasis of the initial training programme required fine tuning, consequently there was a need for a higher level of individual specialised training during the Sri Lankan project than should normally have been necessary. The training was further complicated because the staff assigned to the project did not have the desirable prerequisite knowledge in loan interpretation and administration; nor any exposure to computers. The benefits of the training given to the Senior Programme/System Analyst were lost because Mr Jayasekera did not continue to work with the project.

67. The first five week training programme conducted before the Sri Lanka and Grenada installations was used to develop and test the course curriculum and the appropriate mix between computer principles and loan related matters. This course helped to identify the training material that would be required for future training courses. Consultants were engaged to work with TAG staff to produce the necessary training material as well as user and technical documentation. Substantially improved documents are now available in these areas.

68. The fundamental documents used by EDIU in the daily operation of CS-DRMS are:

- Guide to CS-DRMS
- CS-DRMS Version 4.0 System Maintenance Manual
- CS-DRMS Reference Manual
- Instructions for filling in Data Entry Sheets and Data Entry Sheets
- CS-DRMS Reports Manual

69. These documents have been prepared in an easy to read format and they provide detailed information on the various functions of CS-DRMS. They are considered to be of good quality and adequate to respond to most operational situations.

70. However experience has demonstrated that the most difficult area of CS-DRMS relates to the accurate interpretation of loan and grant agreements. Consequently consideration should be given to preparing a more detailed manual on the interpretation of the various types of loans and grants which are likely to be encountered. The manual should include detailed examples of both standard and complex cases, which have proven to be difficult to interpret, and include step by step instructions as to how they should be entered into and processed by CS-DRMS. The manual should include a practical detailed account of creditor practices likely to be encountered. This manual would be a key reference source when processing new loan and grant agreements.

71. As a result of the Sri Lankan experience, major

improvements have been made in both training methodology and training materials which have benefited all subsequent installations.

Resident Adviser in Sri Lanka

72. A resident adviser was not accepted by Sri Lanka for the DRMS project although this was originally recommended by TAG. This proved to be an unfortunate decision in that it lengthened the period of project implementation. The continual up-grading of CS-DRMS through the release of four major revisions and several minor revisions during a four year period would have been more easily absorbed by the Sri Lankan team if a resident adviser had been in place. Also, the large number of missions from TAG to Sri Lanka could have been reduced.

73. The resident adviser could have assisted in up-grading the quality of data and in promoting the wider use of the CS-DRMS output for policy analysis. But for all that, the Sri Lankan CS-DRMS installation is today "home grown", and the national team has considerable "hand-on" experience. As a result, there is a greater chance of the project's sustainability in the long-run.

SECTION E: THE USERS OF THE DRMS

E-1 Reports on Debt Management

74. At the present time there are approximately 150 reports incorporated in the CS-DRMS software and these are standard for every installation. The current menu of reports can be classified under four main headings. For convenience these can be summarised as follows:

1. Financial Statistics and Dynamics

- individual loan specification, public and private
- individual grant specifications
- aggregates of existing loans and grants
- on-lending by government
- counterpart funds
- utilization rates and draw-downs
- pre-payments and arrears
- monitoring and audit
- exchange rate adjustments
- interest rate adjustments
- multicurrency effects
- multilender effects
- exchange rate gains and losses
- external debt projections
- domestic debt projections
- total debt service projections
- financial rescheduling
- portfolio management
- aid pipeline

2. Fund Supply and Demand

- provision of funds
- lenders and donors
- terms and conditions, lenders and donors
- uses of funds, economic sectors

3. Other Data

- economic aggregates
- principal ratios

4. Report Forms

- IIF Tables

- World Bank Forms 1 and 2
- Monthly, quarterly and annual bulletins

75. This wide array of information has many uses. Indeed, it is clear that the applications of the CS-DRMS system to a national inventory of debt and grant information can revolutionize this sector from a manual, paper-based, laggard supplier of information to a just-in-time data response system. One of the softest areas of economic information management is thereby transformed into one of the most concrete and specific. Time consuming and error-prone hand calculations are replaced by computer precision, and guesswork gives way to accurate forecasts. World Bank and IMF report requirements can be fulfilled in a timely fashion. Indeed, it is notable that one of the least satisfactory areas of national accounts and balance of payments reporting is transformed by CS-DRMS into one of the most reliable. There are strong grounds for believing that the data generated in CS-DRMS reports are often more robust than the GDP, investment, consumption and international trade data. Their advent points to requirements to improve these other economic data.

76. The reports which could be classified as "Financial Statistics" give the base-line data on loans and grants (where available) at both the individual and aggregate transactions level. These are the "recording" results of CS-DRMS which allow the client to regularise its loan and grant inventory and inspect its on-going characteristics with ease. Of substantial importance is the tracking of utilization, drawdowns, pre-payments and arrears. On-lent arrears can be

identified and collected by using CS-DRMS.

77. Of more complexity, are the potential losses and gains involved with payments on multicurrency loans. Without CS-DRMS, the tracking of exchange rate effects on these loans would be very labour-intensive and probably not entirely understood. As part of management understanding of the implications of multicurrency loans, CS-DRMS has been valuable in highlighting gains and losses arising from exchange rate adjustments.

78. For those reports which could be classified under "Financial Dynamics" there is still considerable scope for developing the software package. While the projections are very useful, more "what if" options are required. More parameter driven forecast models and simulations are required if high level portfolio planning, exchange management, and debt restructuring is to be undertaken with the assistance of scenarios generated by CS-DRMS.

79. The other three headings - "Fund Supply and Demand", "Other Data" and "Report Forms" appear to be quite adequate. There is still scope for expanding the information on credits terms and conditions for grants as more of these data are entered into CS-DRMS. It is not a sound idea to develop CS-DRMS into a complete macro-economic forecasting model. Instead, CS-DRMS should interface with external databases when a user wishes to run economy-wide analyses incorporating loan and grant data for CS-DRMS. This is presently the approach adopted by TAG.

80. There is a general issue of CS-DRMS output not meeting the needs of government accounting. TAG should decide whether to invest in an interface software package to meet these requirements, or continue to take the position that CS-DRMS cannot be used for accounting purposes.

E-2 Users of DRMS Reports

81. There is scope for the wider use of CS-DRMS reports in Sri Lanka. Better cooperation between the Finance Ministry and Central Bank promises to expand the scope of report use. It should also be recognised that it is still early in the operations of DRMS, the coverage of the system excludes grants, all information on private loans has not yet been obtained. Nevertheless the impact of DRMS reports is potentially high.

82. The following is a list of the potential users of the CS-DRMS Reports:

- (i) Economic Affairs Division, Ministry of Finance
- (ii) Budget Division, Ministry of Finance
- (iii) Accounts and Payments Division, Ministry of Finance
- (iv) External Resource Department
- (v) Department of Central and Statistics Office
- (vi) Public Debt Department, Central Bank
- (vii) Development Banks (on-lending operations)
- (viii) Exchange Control Department, Central Bank
- (ix) Line Ministries (Disbursement Information)
- (x) Corporations (loan management drawdowns, disbursements, service, repayments and arrears)

- (xi) Multilateral financial institutions
(IMF, World Bank, regional development
banks)
- (xii) Commercial lenders (non-confidential reports)
- (xiii) Paris Club Meetings (not required by Sri
Lanka)
- (xiv) Consultative Aid Group Meetings

83. The CS-DRMS software can capture and analyse data on external and domestic loans and grants. All external loans have been entered though opportunities for improving the quality of data are being continually availed of. Grant information has been largely collected and entered while domestic debt has not been collected as yet. Where the data has been entered, precise and up-to-date reports can be obtained for management purposes. Thus Sri Lanka CS-DRMS can be effectively used for external debt.

84. The DRMS system can provide a basic analysis of each existing loan. With these results it is possible to review the inventory and identify those loans that (a) were contracted at high interest rates (or on other poor terms), and/or (b) were contracted in currencies which have appreciated resulting in significant exchange rate losses. From such an analysis, it is possible to identify loans which could be refinanced on improved terms. This has not been done in Sri Lanka as yet. TAG is advising countries on how this could be done and it is understood that Sri Lanka has asked TAG to assist in this regard.

85. Whilst recognising that the DRMS projects are useful for policy purposes, some additional inputs could enhance the

effectiveness of these projects such as:

- (i) more advanced training in debt negotiations, financial markets, conditionalities, analysis of risk, etc.;
- (ii) developing the analytical and report writing skills among high level users of DRMS, so that they can use the system to support skills gained from (1) above;
- (iii) establishing regional "user groups" for exchange of ideas and knowledge on basic and advanced uses of DRMS projects (meetings once a year);
- (iv) applying DRMS software to cope with a wide range of cash and kind grants, plus evaluating grants to third parties used in the client country; and
- (v) enhancing management tools to allow simulation for a broad range of debt management options.

86. With these additional steps it is believed that the programme of technical assistance on debt management of which CS-DRMS is the keystone - can be used even more in all aspects of debt management.

SECTION F: OTHER EXTERNAL INPUTS

87. There have been important contributions made to DRMS projects by agencies other than IDRC and CFTC. Among those involved, the United Nations Development Programme (UNDP) has been the most prominent. It is understood by operators of DRMS systems, that the UNDP will usually look favourably upon applications for technical assistance in the form of advisers

or hardware, although the costs would be drawn down against the country IPF. The UNDP sponsored an 13 country mission in late 1988 to review the success/usefulness of computerised debt management systems. This three person mission included an officer from IDRC who had contributed to the original design specifications of CS-DRMS. The report of the mission is expected shortly.

88. The World Bank requires that debtor countries provide the Bank data for its Debtor Reporting System (DRS) in Forms 1 and 2 designed for this purpose. The World Bank sent a mission to Sri Lanka to reconcile difference between the data in DRMS and that in DRS. This mission has highlighted the need for similar reconciliations in other DRMS projects.

89. There have been some other contributions to the X operations of DRMS. The Central Bank has recently purchased its own IBM PS-2/60 for use in the DRMS project. There is considerable scope for wider support to DRMS from donor agencies. A number of bilateral aid agencies such as SIDA, CIDA, USAID, and ADAB could be tapped for a long-term support and training programmes set up on a regional basis to service DRMS installations. The expected UNDP report on computerised debt management systems is also likely to trigger off further opportunities for TAG to work directly with that agency and UNCTAD. Training would seem to be the best avenue for cooperation, since software development is now too particularised for there to be extensive sharing in software related activities.

SECTION G: COMPARISON OF COSTS AND BENEFITS

90. Given the nature of this technical assistance it would be difficult to carry out a detailed ex-post cost-benefit analysis. However it is possible to make some approximate estimates.

91. An analysis of expenditures incurred by TAG for the DRMS project in Sri Lanka shows a cumulative total to June 1983 of £154,960, (including an allowance for overheads). Each country requirement with respect to DRMS varies, but the Sri Lanka experience seems to be in line with its pioneering status, (see Appendix VIII). The cumulative expenditure incurred by TAG on the development of the CS-DRMS software is estimated to be £554,025 up to June 1988. The cumulative expenditure on the development of CS-DRMS, and country specific expenditures by TAG related to some 30 countries, amounts to approximately £1.5 million, spread over the period post 1983. The IDRC also allocated approximately £43,000 to the development of CS-DRMS. To date DRMS projects have been implemented free of charge. It is recommended that consideration be given to the possibility of each country paying a share of the training costs. Where advisory services have resulted in a reduction in debt service payments, countries should be required to share in the cost of these services.

92. Although the DRMS projects were implemented as 'free goods' inevitably each country incurs local costs. In the case of Sri Lanka it is estimated that local costs incurred by the government were R546,000. The benefits of the project are not easily measurable in terms of money, but there is

likely to be a substantially favourable Benefit-Cost Ratio. It is recommended that TAG makes each country aware of the costs of each project and therefore of the need to obtain the maximum benefit from it.

SECTION H: CONCLUSIONS AND RECOMMENDATIONS

- A 'before and after', and 'with and without' evaluation of the application of DRMS to the inventory of debt and grant information in Sri Lanka would conclude that its introduction to Sri Lanka by TAG has revolutionised this sector from a manual, ledger-based, laggard supplier of information to a response system at the appropriate time.

It is transforming one of the softest areas of information management into one of the most concrete and specific for informed decision-making.

Time consuming and error-prone hand calculations have been, and are being, replaced by computer precision.

Similarly the data-base for making accurate forecasts is greatly improved.

- The fundamental objectives of the project have been attained. As a result of the technical assistance there is now an administrative infrastructure in place which ensures the systematic collection, recording, monitoring and reporting on loans and grants in Sri Lanka. The DRMS project is

operational and a competent and well-trained staff is in place which is capable of maintaining the database. The system contains relatively complete and accurate data on all private and public debt and on approximately 90 per cent of the grants.

- From the perspective of managing the overall macro-economic implications of loans and grants, there is still considerably more to be done in terms of more training in debt management and the use of the software for this purpose. To make full use of the system, the following are recommended:

- (i) more advanced training in debt negotiations, financial markets, conditionalities, analysis of risk, etc.;
- (ii) developing the analytical and report writing skills among high level users of DRMS, so that they can use the system to support skills gained from (i) above;
- (iii) establishing regional "user groups" for exchange of ideas and knowledge on basic and advanced uses of DRMS projects (meetings once a year);
- (iv) applying DRMS software to cope with a wide range of cash and kind grants, plus evaluating grants to third parties used in the client country; and
- (v) enhancing management tools to allow simulation for a broad range of debt management options.

- The system is being used to produce routine debt

management reports used primarily by the Central Bank of Sri Lanka and to a lesser extent by the Ministry of Finance and Planning. The reports from the system are being used in dealings with external agencies such as the World Bank, the IIF, the Asian Development Bank and bilateral assistance institutions. The output from the systems is also used for the annual Aid Group meetings in Paris.

- The Sri Lankan project has provided TAG the opportunity to develop and perfect a methodology for debt management, to test and improve the CS-DRMS software and related training material, and to enhance its capability to deliver technical assistance in debt management.

- To assess the adequacy and impact of the technical assistance on the Sri Lankan project it is important to understand the context under which the project was undertaken. With hindsight it is clear that substantial improvements and greater efficiency and economy would have been possible, and in fact have been introduced in subsequent projects. However at the time the Sri Lankan project was undertaken the serious debt situation of many developing countries had only recently been recognised internationally and the methodology for addressing these issues were yet evolving.

- Sri Lanka was used as a pilot site for the development and testing of a prototype debt management methodology and the CS-DRMS software.

The importance of providing training in all aspects of loan administration and the need for reconciling data from different sources of providing documentation from different sources was not fully appreciated at the time. The initial version of CS-DRMS supplied to Sri Lanka was subsequently enhanced in response to new requirements. CS-DRMS has now been substantially improved and the approach to implementing DRMS projects has been refined.

- Under the circumstances it is felt that the level of technical assistance was justified and necessary during the initial installations. However it is felt that this could have been reduced if the following had occurred:

- TAG had an established internal information systems group to direct the development and implementation of DRMS projects at the outset;
- more time had been devoted to the analysis, design and development of the CS-DRMS software;
- more extensive testing of the software had been conducted prior to installation in Sri Lanka;
- the training materials had been produced at an earlier stage and included comprehensive case studies of the various types of loan and grant agreements which are likely to be encountered, and on

- creditor practices;
- greater priority had been attributed in the training programme to the complexities of loan interpretation and creditors practices, and less emphasis had been placed on computer related concepts such as programming in the C computer language;
 - the number or releases of the CS-DRMS software had been limited to one update per year;
 - greater emphasis had been devoted to planning the data preparation, data verification and data capture activities. This would have involved an analysis of the data flows of loan and grant documents, their completeness, and the establishment of a procedure to handle difficulties such as missing or incomplete documents etc. A task force approach to the constitution of the historical data base could have been employed.
 - the institutional arrangements and organisational structure recommended by TAG had been accepted by the Sri Lankan authorities and closer collaboration between the Division in the Ministry and Central Bank had been established at an earlier date;
 - the qualifications and experience of the

- Sri Lankan staff assigned to the project were more closely related to the requirements of the debt management unit.
- the Senior Programmer/Systems Analyst had remained with the project following the major investment in training which was made on him to assist with the installation and subsequent local support;
 - the appointment of a resident adviser had been accepted.

The evaluation study suggests a set of institutional arrangements for consideration by TAG in the implementation of future DRMS projects (See Appendix V). The changes in the institutional arrangements from those originally conceived by TAG and agreed to by the Government of Sri Lanka resulted in delays in project implementation.

- The training programme offered in London has undergone substantial improvement by TAG in quality and content. It is recommended that a manual should be drawn up on the interpretation of the various types of loans and grants likely to be encountered, and on creditor practices which can be used as a reference document to resolve difficulties which occur during daily operations.
- There is no ideal approach to the use of resident advisers. The role of the Resident Adviser is examined in the recognition that debt management is an intricate and important field. Three alternative

uses of resident advisers, external advice and local resources are examined from a wide range of possible options (see Table I Appendix VII), and the 'slow-track' approach is seen to be close to the experience of Sri Lanka (Option Z). In general the evaluation team considers that the use of a Resident Adviser in combination with the task force approach for the constitution of the data base offers the best option to ensure the success of the project.

- The development of the CS-DRMS, in the context of an evolving systems requirement in a pioneering field, is considered to have been successful, well-designed and generally user friendly. It is approaching the capacity limits of the DOS hardware/software environment for which it was designed to operate. Recommendations are made in a number of areas where user friendliness and ease of use of the software could be improved, and areas of potential confusion avoided. The on-going support provided by TAG has been generally of a high quality and had contributed to the success of the installation. The management tools are seen as rather limited, and these limitations have been identified and acted on.
- Each country's debt management requirements are different, but the costs of the Sri Lanka project seem to be in line with its status as a pioneering country in the development of CS-DRMS. To date the

system has been provided by TAG free of charge. It is recommended that consideration be given to the possibility of the country paying an increasing share of its training costs. Where advisory services have resulted in a reduction of debt service payments countries should be required to share the cost of these services.

- The benefits of the project are not easily measurable in terms of money, but even if only the gains from collection of arrears, and refinancing are weighed against the cumulative costs to the Government of Sri Lanka, TAG and IDRC, there is a substantially favourable Benefit-Cost Ratio. It is recommended that TAG makes each country more aware of the costs of each project and therefore of the need to obtain the maximum benefit from it.

- Given the serious debt problems facing many countries in the Commonwealth, and outside, there is a manifest need for the adoption of a proven debt management methodology such as the DRMS projects. CS-DRMS has proven itself as an appropriate technology, cost-effective, and sustainable, in the case of Sri Lanka. The budget of TAG and the staff are under increasing pressure as the project evolves from debt recording to advice on debt and financial management. If the economic success and political goodwill resulting from the projects are to be sustained, fundamental issues as to its future financing and organisation

need to be addressed.

TERMS OF REFERENCE FOR THE EVALUATION STUDYObjectives of the Evaluation

- (i) to review the efficiency and effectiveness of technical assistance, including training, provided, and to assess whether they were adequate to meet the project objectives;
- (ii) to assess the impact of the project by examining the contributions of TAG's advice, and of CS-DRMS in the recording, monitoring and management of debt. This should involve the examination of the impact of the project in the macro environment in PNG with particular attention to the contribution of the project to refinancing;
- (iii) to review the implementation of the projects and to identify the problems and constraints;
- (iv) to draw lessons at each stage of the project cycle for future projects dealing with Debt Recording and Management.

Evaluation Issues

- A. Institutional Arrangements and Legal Framework
 - A.1 To review the institutional arrangements/linkages for the management of the projects, and maintenance of the System.
 - A.2 To identify the extent to which appropriate institutional arrangements/linkages and legal frameworks are important for the successful implementation of debt management projects, and for the functioning of CS-DRMS.
 - A.3 To assess the focus on this aspect, and whether there were any steps that should have been taken to ensure that the institutional arrangements recommended were in place?

B. Technical Assistance

- B.1 To prepare an inventory of the technical assistance provided, covering all stages of the project cycle.
- B.2 To assess the adequacy of this assistance in meeting the objectives of the project.

C. Training

- C.1 To review the training provided both on site and in London at the different stages of the project cycle.
- C.2 To review the training provided after the completion of data entry.
- C.3 To assess the adequacy and ease of use of CS-DRMS documentation and training materials.

D. Staff

- D.1 To review and advise on the optimum level and qualification of the counterpart, technical and support staff engaged on the projects.
- D.2 To assess their familiarity with the facilities of the system.
- D.3 To advise on the need for further upgrading of skills.

E. System and System Support Issues

- E.1 To examine the data collection, data input and audit procedures and comment on their efficiency. In particular, to review the procedures followed in PNG for data collection and input.
- E.2 To assess the ease of use of the system and its adequacy for data capture, processing and retrieval.
- E.3 To review the adequacy of the reports generated by the system for monitoring and managing debt, and for reporting on debt.
- E.4 To review whether the system has adequately replaced manual procedures for debt recording, monitoring and reporting.
- E.5 To identify problems, if any, in the system.
- E.6 To assess responsiveness to user needs in terms of modifications to the system.

- E.7 To review the systems support provided from London.
- E.8 To identify whether further improvements are necessary to the system to meet the requirements.

F. Users

- F.1 To identify the existing and potential Users of the System and System generated reports and assess the extent to which their requirements are met.
- F.2 To assess the extent to which the System has contributed to improved management of debt, both external and domestic, and loans given by government.
- F.3 To assess the extent to which the System is used for monitoring the flow of grants.
- F.4 To assess the successful use of the System in policy formulation and debt negotiations.
- F.5 To assess the extent to which the System helps in meeting the accounting requirements of the users.
- F.6 To assess the capabilities and user friendliness of the System as a tool in debt management.

G. Other External Inputs

To assess the contribution made by the external agencies and advise on areas of co-operation with other agencies.

OFFICIALS INTERVIEWED BY THE EVALUATION TEAM1. TECHNICAL ASSISTANCE GROUPProgramme Leader

- Mr S Sundar
Special Adviser (International Finance)

Other Staff Members

Economists

- Mr N Kappagoda
Director
- Dr R Kumar
Special Adviser (Economic)
- Ms A Johnson
Chief Project Officer (Economic)

Systems

- Ms J Crowley
Chief Project Officer
(System Development Management)
- Ms A McGlone
Project Officer (Economic Computing)
- Mr T Farnum
Project Officer (Systems Analysis)

2. IDRC Officials interviewed in Singapore on 25 November 1988

- Dr Jingjai Manchanlash
Regional Director, ASRO, IDRC
- Dr Clive Wing
Program Officer, IDRC, New Delhi

3.. Sri Lankan Officials interviewed in Singapore on 24 and 24 November 1988

- Mrs D De Silva
External Debt Management Unit
Ministry of Finance
- Mr T S N Fernando
Department of Public Debt
Central Bank of Sri Lanka

HARDWARE AND PROPRIETARY SOFTWAREREQUIREMENTS FOR CS-DRMSHardware

- (1) An enhanced IBM PC XT system unit, on IBM PC AT, or compatible machine* including:
 - 512 KB RAM
 - 30 MB Hard Disk with disk drive adapter
 - 1.2 MB floppy disk drive
 - Diskette drive adapter
 - keyboard
 - Line cord
 - IBM Monochrome display
 - Asynchronous Communications Adapter
- (2) Mono Display/Printer Adapter
- (3) 80287 Maths Coprocessor
- (4) Printer 136 (132) columns
80 - 200 cps dot matrix parallel
printer with cable and tractor feed

- (5) Tape Streamer (see below)
- (6) Voltage Stabiliser
- (7) Initial supply of diskettes, printer ribbons and paper, back up tapes and quality parts.

The tape streamer that is supported and used by the Technical Assistance Group is the Cristie TS1000. Wherever feasible TAG recommends the use of this tape streamer for two reasons.

- (i) The batch files for backing up and restoring in CS-DRMS have been written for the TS1000 software.
- (ii) Data can be sent on tape to TAG for checking whenever necessary.

Should a country wish to purchase a tape streamer locally for the activity it is necessary to ensure that

- (i) the tape streamer is compatible with the computer dedicated to the project.
- (ii) the storage capacity of the a tape streamer is at least the size of the hard disk.
- (iii) other CS-DRMS sites in the country (if any) use the same type of tape streamer to facilitate data transfer.

Software

- (1) INFORMIX
- (2) PC DOS version 3.0 (or higher) or XENIX 5.2
- (3) IBM Professional Editor or similar Text Editor package.

TABLE A-4

Hardware on which CS-DRMS has been Tested

Computer - Make and Model	Result of Test
<u>Under DOS</u>	
Amstrad 1512	Successful
Apricot XEN	Problems - not recommended
Compaq 386	Successful
Compaq Deskpro	Successful
Compaq Plus	Successful
Honeywell AP	Successful
Honeywell XP	Successful
IBM Enhanced AT - (a) & (b)	Successful
IBM Enhanced XT - (a)	Successful

ICL PC Quatro	Unsuccessful
ITT XTRA XP	Successful
NCR PC 4I - (c)	Successful
NCR PC6 - (c)	Successful
NCR PC8 - (c)	Successful
Olivetti M24	Successful
Olivetti M28 - (d)	Successful
SHIVA PC	Successful
Sperry PC IT - (a)	Successful
Tandon PCA (AT Compatible)	Successful
Televideo AT 101 - (a)	Successful
Toshiba Portable	Successful
TURBO - 88	Successful
TURBO - 88 PC	Successful
Victor (Other)	Unsuccessful
Victor VPC	Successful

Under XENIX

NCR Minitower XP	Successful
Sperry PC IT	Successful
(a) Tested with Cipher Tape Streamer	Successful
(b) Tested with Cristie Tape Streamer and Card	Successful
(c) Tested with Cristie Tape Streamer	Successful
(d) Tested with Tallgrass Tape Streamer	Successful

CS-DRMS BASIC SYSTEM PARAMETERS

To provide an indication of the size and complexity of the CS-DRMS system the following indicative parameters are provided:

Lines of "c" language code	50,313 (approx)
Lines of ACE code:	39,300 (approx)
Number of menu screens:	60
Number of PERFORM screens:	35
Number of data files:	23
Number of data elements:	300
Number of tables:	10
Number of programme files:	14
Number of batch programs:	30

CONSIDERATION OF FACTORS CONDUCTIVE TO AN APPROPRIATE LEGAL AND INSTITUTIONAL ENVIRONMENT FOR DRMS

Legal Framework

The following issues are examined as part of TAG's initial assessment of the legal and institutional framework for debt management:

~~who has the mandate to negotiate and administer the applicant states internal and external public debt and will this agency be signatory to the DRMS licensing agreement;~~

- (ii) can the agency with the mandate for the management of the country's public debt require that all other debt (and grant) information not under its direct control be channelled through it, and
- (iii) does the DRMS licensing agreement adequately protect TAG from unplanned and inappropriate use of DRMS by local users;

The prestige and credibility of the Commonwealth Secretariat have facilitated TAG negotiations with key agencies in those countries requesting DRMS installations. Consequently items (i) and (iii) above can usually be satisfied readily, but there may not be such a firm positive answer to (ii) above, since this involves the national legal framework and local institutional linkages.

Institutional Arrangements

In many countries there is a longstanding question in macro-economic management concerning the division of powers between the Minister of Finance and The Central Bank. It is generally agreed that finance ministers - as elected officers - have ultimate responsibility for the conduct of macro-economic

policies, and therefore the central bank should be answerable to this minister. However, it is also general practice that the finance minister has the principle responsibility for fiscal policy whereas the Governor of the Central Bank is concerned with monetary policy. While academically arguments can be made for independence of fiscal and monetary policy in an open economy, the practical experience indicates they are closely linked by the macro budget constraint identity. Any fiscal policy which results in government deficit financing through the issue of domestic or external debt has monetary consequences, to a greater or lesser degree.

There is a spectrum of monetary implications arising from the issue of new debt. In the case where new government debt is wholly absorbed by domestic savers, the impacts may be relatively modest working through wealth effects on the national demand for money. In such circumstances the central bank may not be overly concerned about the short or long-term implications of debt management. However at the other extreme there may be a limited market for new government debt at home or abroad.

On the home front, this can cause the finance ministry to require the central bank to support the price of its debt in the domestic market, thereby effectively monetising it. This action leads rapidly to the impairment of the Central Bank's ability to control the rate of growth of the money supply, speed of inflation, nominal interest rates, and the exchange value of the local currency, - a situation familiar in a number of Latin American and African countries.

If the finance ministry attempts to place new debt in external hands in these circumstances it will be subject to adverse commercial terms which will have negative medium term

implications for external debt service.** Once more the central bank will find that its ability to manage interest rates is impaired and that foreign exchange reserves are considerably affected.

In the former case, the interaction between financing a government deficit and monetary policy should be modest, but in the latter case deficit finance may actually dictate monetary policy.

There is always a concern that steadily growing deficit funding requirements will undermine the effectiveness of monetary policy and the autonomy of the central bank. For reasons such as these it is important that the installation of a DRMS system be fully supported by both the finance ministry and the central bank from the beginning of the project. Central bank reluctance to become involved in a DRMS project may be based on, (i) the lack of a national debt management committee which requires the ministry of finance and central bank to work together on debt issues; (ii) key bank personnel who were not aware of the benefits of the project; (iii) key bank personnel who do not support a DRMS installation because it would possibly involve the bank in divulging confidential information on private sector loans; (iv) key bank personnel who see DRMS as a threat to their knowledge and control over foreign exchange management; (v) a lack of person years available for allocation to the DRMS project; and (vi) no skilled personnel available (or who could be sent for training) to set up the DRMS system in the central bank. It should however be noted that in at least ^{five} four countries the DRMS is in the Central Bank.

** If the government approaches multilateral funding agencies for financing support in these circumstances it may receive concessional loans, but the degree of conditionality is likely to be high and focus on requirements to reduce the monetary impact of the fiscal deficit.

It should be noted that central banks are generally prestigious institutions which enjoy benefits not always available to other civil servants such as: modern air-conditioned offices, up-to-date computer systems, and higher staff salaries. Thus it is not a resources constraint that has caused these banks to be laggards in CS-DRMS installations. It has more often been a combination of managerial scepticism and concern to maintain institutional independence in debt policy that has kept the banks aloof in the early stages.

On the finance ministry side, there are also a number of concerns about installation of the CS-DRMS system. Assuming that key personnel in the ministry support adoption of the system, then what scope should it have, ideally? In order to gain the broadest benefits from improved data organization, forecast capabilities, report writing, balance of payments analyses and input into finance ministry decision-making, the DRMS system should cover all forms of external and domestic debt, plus aid flows. In practice, this has turned out to be very difficult to achieve. The most readily available loan agreements refer to (i) domestic and external debt of the national government (ii) domestic and external debt guaranteed by the national government; (iii) domestic and external debt of parastatal institutions; and (iv) on-lendings by the national government. It has proven more difficult to obtain information on the following: (v) debt of sub-national governments; (vi) private sector external debt; and (vii) aid inflows. Indeed, there may be unknown recording deficiencies in both the parastatal debt and on-lendings (iii) and (iv) above. For the ministry of finance to record data under headings (i) to (iv) above as a minimum, the CS-DRMS project must be situated astride the main information flows on loan transactions, claims, drawdowns, servicing and repayments.

To achieve this information clearing-house role, the DRMS system must be in the mainstream of loan management operations in the finance ministry. It should not be a self-contained stand-alone unit set off from the day-to-day activities of the ministry, or it may be easily forgotten, its inputs ascribed a low priority, and its reports finding few clients. Under optimal circumstances, DRMS would be installed in a division of the

finance ministry that managed both loans and aid so that there would be a clear and early mandate to bring all external grant transactions onto the DRMS system.

Provided that the finance ministry has set up its DRMS system in a pivotal position within its own institutional framework, then familiar concerns regarding resource availability together with the commitment, skills and training of staff to operate DRMS arise. The effectiveness of DRMS is very sensitive to decisions about who directs it and who operates it. Two major problems have arisen: first, divisions within the finance ministry have been reorganized subsequent to DRMS being installed, resulting in certain information - such as grant flows, aid management, and project implementation - being removed from ready access; and second, trained personnel have been rotated away from the DRMS project. Reorganization and rotation that are not sensitive to the required institutional environment for timely operation of DRMS can be - and have been - costly to the operation of the system.

Appropriate Environment

In light of the foregoing, it can be argued that correct institutional arrangements and an environment conducive to comprehensive information flows on debt and aid are mandatory to the short and medium term success of a DRMS installation. In the best circumstances, there should be:

- (i) almost simultaneous start-up of DRMS projects at both finance ministry and central bank, using agreed upon compatible computer hardware; and an agreed upon custodian of the centralised database which integrates data from each agency.
- (ii) a national debt management committee that supports and is serviced by inputs from both finance ministry and central bank and which in turn coordinates their data sourcing and reporting efforts;

- (iii) a clear division of responsibilities between the finance ministry and central bank, such that the former deals with national government debt and the latter with private sector and parastatal debt;
- (iv) establishment of a task force with overall responsibility for the constitution of a comprehensive historical database on public debt and grants. The task force should have clear terms of reference, a project plan and sufficient human resources which will permit the completion of its work in 6-9 months. The staff of the task force could be comprised of internal resources of the Ministry of Finance and Central Bank, or external resources of a combination of both;
- (v) well defined channels through, which DRMS reports from both finance ministry and central bank can move onto the desks of macro-economic policy makers.
- (vi) a clear specification concerning functional responsibilities with respect to initial loan and grant negotiating, loan renegotiations, and refinancing initiatives; and
- (vii) a clear commitment to the use of CS-DRMS for debt management, without the expectation that the system should also respond to detailed accounting requirements.

Given the large number of applicant countries becoming involved with DRMS, the successful installation of the system in widely different situations (ranging from 20 to 1700 loans), and the high credibility of the TAG installation and support group, it should be possible hereafter for TAG - or its successors - to virtually require that the seven conditions given above be pre-requisites for accessing the DRMS system by new users.

SIMUS OF DRMS PROJECTS

<u>Region & Country</u>	<u>Preliminary mission</u>	<u>Initial assessment</u>	<u>Submission of draft</u>	<u>Discussion of draft</u>	<u>Submission of final</u>	<u>Data collection</u>	<u>Training in CS-DRMS</u>	<u>Data collection in</u>	<u>Appointment of resident</u>	<u>Installation + local</u>	<u>Data entry in</u>	<u>Completion of data</u>	<u>Data analysis</u>	<u>Training of policy</u>	<u>Reviews</u>
	<u>Discussion</u>		<u>Report</u>	<u>Report & Training in D/E Sheets</u>	<u>Report</u>	<u>In Progress</u>		<u>Progress</u>	<u>Advisor</u>	<u>Training</u>	<u>Progress</u>	<u>Entry</u>		<u>Analysis</u>	
AFRICA															
Botswana	*	*	*	*	*	*	*	*	**7/8	*	*	*	*	*	*
Ghana	*	4													
Kenya	*	5							3						
Lesotho	*	*	*												
Mauritius	*	*	*	*	*	*	*	*	3	*	*	*			
Tanzania	*														
Nigeria	*	6													

<u>Region & Country</u>	<u>Preliminary mission</u>	<u>Initial assessment</u>	<u>Submission of draft</u>	<u>Discussion of draft</u>	<u>Submission of final</u>	<u>Data collection</u>	<u>Training in CS-DRMS</u>	<u>Data collection in</u>	<u>Appointment of resident</u>	<u>Installation + local</u>	<u>Data entry in</u>	<u>Completion of data</u>	<u>Data analysis</u>	<u>Training of policy</u>	<u>Reviews</u>
	<u>Discussion</u>		<u>Report</u>	<u>Report & Training in D/E Sheets</u>	<u>Report</u>	<u>In Progress</u>		<u>Progress</u>	<u>Advisor</u>	<u>Training</u>	<u>Progress</u>	<u>Entry</u>		<u>Analysis</u>	
ASIA															
India	*	*	*	*	*	*	*	*	1	*	*				
Maldives	*	*	*	*	*	*	*	*	1	*	*	*			
Sri Lanka	*	*	*	*	*	*	*	*	1	*	*	*			
CARIBBEAN															
Barbados	*	*	*	*	*	*	*	*	1	*	*				
Belize	*	*	*	*	*	*	*	*	7	*	*	*			
Grenada	*	*	*	*	*	*	*	*	1	*	*	*	*		
Guyana	*	*	*	*	*	*	*								
Jamaica	*	*	*	*	*	*	*	*	*	*	*	*			

Region & Country	Preliminary mission	Initial assessment	Submission of draft	Discussion of draft	Submission of final	Data collection	Training in CS-DRMS	Data collection in	Appointment of resident	Installation + local	Data entry in	Completion of data	Data analysis	Training of policy	Reviews
	<u>Discussion</u>		<u>Report</u>	<u>Report & Training in D/E Sheets</u>	<u>Report</u>	<u>In Progress</u>		<u>Progress</u>	<u>Advisor</u>	<u>Training</u>	<u>Progress</u>	<u>Entry</u>		<u>Analysis</u>	

ECCB REGIONAL PROJECT

ECCB	*	*	*		*				*	*					
Antigua & Barbuda	*	*	*				*								
Dominica	*	*	*	*	*	*	*	*							
St Vincent & the Grenadines	*	*	**				*								
St Lucia	*	*	*				*								
Grenada	*	*	*				*								
St Kitts & Nevis	*						*								

<u>Region & Country</u>	<u>Preliminary mission</u>	<u>Initial assessment</u>	<u>Submission of draft</u>	<u>Discussion of draft</u>	<u>Submission of final</u>	<u>Data collection</u>	<u>Training in CS-DRMS</u>	<u>Data collection in</u>	<u>Appointment of resident</u>	<u>Installation + local</u>	<u>Data entry in</u>	<u>Completion of data</u>	<u>Data analysis</u>	<u>Training of policy</u>	<u>Reviews</u>
	<u>Discussion</u>		<u>Report</u>	<u>Report & Training in D/E Sheets</u>	<u>Report</u>	<u>In Progress</u>		<u>Progress</u>	<u>Advisor</u>	<u>Training</u>	<u>Progress</u>	<u>Entry</u>		<u>Analysis</u>	
Anguilla *							*								
Montserrat *							*								
MEDITERRANEAN															
Cyprus	*	*	*	*	*	*	*	*	1	*	*	*	*		
PACIFIC															
Fiji	*	*	*	*	*	*	*	*	1	*	*	*	*		
RG	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Salomon Is.	*														
W Samoa	*	*	*												

Region & Country	Preliminary mission	Initial assessment	Submission of draft	Discussion of draft	Submission of final	Data collection	Training in CS-DRMS	Data collection in	Appointment of resident	Installation + local	Data entry in	Completion of data	Data analysis	Training of policy	Reviews
	<u>Discussion</u>		<u>Report</u>	<u>Report & Training in D/E Sheets</u>	<u>Report</u>	<u>In Progress</u>		<u>Progress</u>	<u>Advisor</u>	<u>Training</u>	<u>Progress</u>	<u>Entry</u>		<u>Analysis</u>	

NON-COMMONWEALTH COUNTRIES

Thailand * * * * *

9

Mozambique

10 *

- 1 Adviser not required
- 2 Adviser under recruitment
- 3 Request for Adviser under consideration
- 4 Review made of existing arrangements for debt recording and management, and report submitted. A decision on the use of CS-DRMS awaited.
- 5 Report on existing arrangements, and recommendations on setting up a debt recording and management system was sent to Government. Based on the report, the Government of Kenya have sought TAG assistance in establishing CS-DRMS.
- 6 TAG has been selected to assist in establishing a debt recording and management system in Nigeria. The project is being funded by the World Bank.
- 7 Adviser has completed assignment
- 8 New request under consideration
- 9 Funded by USAID and IDRC
- 10 Funded by SCFM

Consideration of Options for The Role of Resident Advisers

Using a resident adviser should be cost effective in as much as the on-going presence reduces the necessity for long range TAG support, increases scope for local training, speeds up the activation of various stages of the project and results in a professional finished product. The downside is that the client can become over-dependent on the resident adviser, hold on to him/her too long, use the adviser for work other than DRMS, and fail to instill in the local operatives the requirement to become self-sufficient. The slower approach of doing without a resident adviser can result in the project growing its own "national" roots.

A major concern must be for the possibility that when a resident adviser departs, the local team left to run DRMS may not be able to sustain it because their knowledge is actually fragmentary and not wholly won by "doing-it-themselves". Sustainability of DRMS is an ultimate objective - with or without an adviser - and the routes to this result are many and varied. The General Technical Assistance (GTA) program of the CFTC could maintain its co-operation with TAG to ensure that the projects are sustained.

It is important to recognise that DRMS is itself an evolving system in a very intricate and important field - debt management. Issues with respect to debt are forever changing as are the sources, terms and conditions of loans and grants. Thus in a very real sense the need for some form of professional advice - intermittently or for months at a time - will continue over a very long horizon for DRMS clients.

For purposes of discussion, the process of start-up operations and production of analytical reports by DRMS is broken down into five stages. These can be described as shown in Chart 1.

CHART 1

Five Stages of DRMS

1. Review of Document Holdings and Information Flows

- Identification of required documents, location of documents,
- administrative procedures and responsibilities for document access,
- document retrieval, and
- notice and information flows.

2. Data Collection and Entry

- Understanding and interpretation of loan/grant agreements,
- preparation of data entry sheets,
- entry of data,
- verification of entries, and
- comparisons with World Bank, IMF and other key databases.

3. Operational Testing and Running of Database

- Testing of database - debugging and cleaning,
- running database, standard report generation and distribution to users,
- entry of new loans, refinancings and related debt adjustments,
- entry of drawdowns and payments,
- arrears, penalties and exchange rate effects, and
- preliminary forecasts and projections.

4. Development of Management Analyses

- use of management tools,
- data provision for policy analyses,
- debt management and refinancing options, and
- decision-making scenarios.

5. Full Operation of DRMS as a Management System

- Advanced report generation and distribution to users,
- custom report design and generation,
- simulation analyses, and
- provision of debt management consulting services.

This description of DRMS project development goes beyond that given in project cycle and product development discussions** Moreover it is thought that none of the more than two dozen DRMS installations has yet completed stages 4 or 5 completely. In number of instances - such as Cyprus, PNG, Grenada, Jamaica, Mauritius, and Belize - various elements of stages 4 and 5 may have been achieved. Nowhere is DRMS quite the provider of the complete range of debt management consulting services to domestic and external decision-makers that is its ultimate objective.

** See for instance, Commonwealth Fund for Technical Cooperation, TAG, Advisory Services on External Debt Management, Commonwealth Secretariat London, August 1987, pp 9-12.

Following from this description of the stages of development of each DRMS project, it is useful to ask where and how resident advisers can be helpful in moving the project speedily, efficiently and with controlled quality to stage 5? There is no definitive answer to this question - each installation should be viewed on a case-by-case basis, and the initial situation in every country may be different. As noted above, institutional arrangements vary; access to documents are widely different; skills in loan/grant agreement interpretation will vary; numbers of loans and grants, plus their complexity (e.g. multicurrency, multilender etc.) are not standardised; the size, ability and experience of the local bureaucracy varies; and local costs of operation are diverse. Moreover a resident adviser who could serve satisfactorily through all five stages of the DRMS project operation would have a rare skill mix, ranging across such diverse areas as: personnel management, loan agreement analysis, banking and financial markets analyses, computer programming and systems analysis, statistics and econometrics, macro-economics, management consulting, to loan and grants negotiation experience.

It thus appears that a team approach to the provision of technical assistance may be more appropriate than the long term commitment of a single resident adviser. It is recommended that experts with different technical knowledge and experience be provided which corresponds to the specialised requirements of the different phases of the project.

Table 1 shows three alternative uses of resident advisers, external advice and local resources. These are by no means the only options available, however they are representative of the approaches adapted to date in countries which have installed CS-DRMS. In option X, the client requires help from the start because of weak local resources, a large document load, and little knowledge of debt management. In option X, the client is very dependent on resident advice probably over a period of 18 to 24 months - to push through stages 1 to 4. Two different

advisers would be required - one with loan agreement knowledge for stages 1 and 2 and another with systems, management, and economic skills for stages 3 and 4.

Option Y is a fast-track approach to installation, where the local team can cope with document identification - stage 1 - with the help of TAG missions. Data collection and entry is then undertaken by a dedicated task force to speed the move to operation of DRMS. The task force may be a large group of local employees assembled to crash through this task, or it can be a contract consulting group having won a tender for the job. A resident adviser is supplied only for stages 3 and 4 to operationalize the DRMS system and begin the output of management reports. The advisory time period is likely to be 6-12 months in all. Option Z is close to the approach adapted by Sri Lanka.

Option Z is the slow-track approach for a country which has considerable local skill resources, low local costs, and wishes to avoid the dependency on outside advice of option X. In the first two stages, the local team draws extensively on missions and hot-line advice from TAG. In stages 3 and 4 a visiting adviser would visit twice or three times a year for several weeks at a time.

TABLE 1

ALTERNATIVE APPROACHES TO RESIDENT ADVICE

Stage	Option X	Option Y	Option Z
1 Review of Document Holding and Information Flow	R.A. + Local Team	Local Team	Local Team
2 Data Collection and Entry	R.A. + Local Team	Task Force	Local Team
3 Operational Testing	R.A. + Local Team	R.A. + Local Team	V.A. + Local Team
4 Development of Management Analyses	R.A. + Local Team	R.A. + Local Team	V.A. + Local Team
5 Full Operation of DRMS	V.A. + Local Team	V.A. + Local Team	V.A. + Local Team

Note:

R.A. - Resident Adviser
V.A. - Visiting Adviser

It should be noted that for stage 5 it is suggested under all options in Table 1 that there should be a visiting adviser. Stage 5 requires that DRMS produce custom reports and simulation analysis useful for economic review and decisions about substantive issues in debt management. At this stage, the visiting adviser should be well versed in financial, banking and economic questions that bear upon policy-making. This is quite a different set of skills from those required in stages 3 and 4. Indeed, it is worthwhile considering the set-up of regional visiting advisers in the Caribbean, Southeast Asia, and the South Pacific to service several clients from an in-region base**. As part of these activities, regional advisers would also bring key members of their DRMS client teams together at least once a year as a "Users Group" and for "Graduate School" training in advanced features of CS-DRMS.

The evaluation team considers the constitution of an accurate and comprehensive database which includes public debt, private debt and grants to be of fundamental and critical importance to the successful implementation of the DRMS project. If the data capture activities are spread over an extended period of time, or if only part of the debt data is captured then the benefits which will accrue to the country will be limited ~~to~~^{or} delayed. If ~~the~~^{the} data capture activities is lengthy then the project risks losing the momentum and political support necessary for its success.

The evaluation team recommends that the constitution of the database be undertaken by a task force, which should complete its work within a 6-9 month period. The task force should be responsible for the collection of all historical data including private and public debt and grants and it should have the

** Africa could be serviced from London for logistical reasons

support of all the agencies with responsibility for the different data which is required (i.e. Central Bank, Ministry of Planning and Finance, etc). During the data collection, entry and verification phase there should be a full time resident adviser assigned to the project. The task force could be comprised of the civil servants who will be responsible for the operation of the CS-DRMS system following implementation, civil servants with accounting/loans administration experience who will be seconded full-time for the duration of the task force, external consultants or a combination of internal and external resources. The essential element is a well defined project plan, commitment and full cooperation of the participating agencies, availability of staff with the requisite understanding and ability to learn to interpret loan/grant agreements, a training programme for task force members, and detailed reference documentations on loan interpretation and creditor practices.

Thus the evaluation team's recommended approach to the use of technical advisers and the task force approach for the capture of historical debt data is shown in Table 2. While there is no ideal approach to the use of resident advisers, the evaluation team has drawn up a suggested format for a country with under 500 loans and some local resource capability, but which is in haste to get DRMS up and running - Option V. This might be the interesting option for a number of pending non-Commonwealth clients. The suggested use of advisers is shown in Table 2.

Table 2

SUGGESTED USE OF ADVISERS

Stage	Option V
1. Review of Document Holding and Information Flow	Local Staff
2. Data Collection	R.A. + Task Force and Entry
3. Operational Testing and Database Running	R.A. and/or V.A. + Local Team
4. Development of Management Analyses	V.A. + Local Team
5. Full Operation of DRMS	V.A. + Local Team (Senior Financial Analyst/Economist)

NOTE

R. A. - Resident Adviser
V. A. - Visiting Adviser

Note that the Resident Adviser in stages 2 and 3 does not have the same skills as the Visiting Adviser used in stage 5.

EXPENDITURE ON CS-DRMS DEVELOPMENT

	COMMENCEMENT DATE AND DURATION	CUMULATIVE EXPENDITURE TO 30 JUNE 88
<u>CS-DRMS Software</u>		£
a. Enhancements to DOS version	Nov 1983 Continuing	247,325
b. Development of UNIX version	July 1986 Continuing	79,300
c. Enhancements to UNIX version	July 1987 Continuing	56,100
d. Enhancement of Data Base Management System	July 1987 Continuing	2,900
e. Report documentation	Apr 1986 Continuing	18,400
f. User and Technical documentation	Jan 1988 Continuing	10,100
g. Training material	Mar 1986 Continuing	68,700
h. Management of system development	July 1987 Continuing	27,300
i. Support of system development	July 1987 Continuing	17,500
j. Review of Debt management aspects of CS-DRMS programme	Jan 1988 2 Months	26,400
TOTAL		554,025 =====

EXPENDITURE ON CS-DRMS PROJECTS BY COUNTRY

COUNTRY	COMMENCEMENT DATE & DURATION	CUMULATIVE EXPENDITURE TO 30-6-88*
		£
BARBADOS	SEPT 85 - Continuing	36,400
BELIZE+	NOV 85 - Continuing	43,750
BOTSWANA+	JULY 85 - Continuing	62,500
CYPRUS	MARCH 85 - Continuing	36,700
DOMINICA	AUG 85 - Continuing	7,500
FIJI	AUG 85 - 1Yr 4Wks	36,800
GHANA	NOV 87 - Continuing	10,300
GRENADA	JAN 85 - 2 Yrs	37,700
GUYANA	SEPT 86 - Continuing	17,800
INDIA	JAN 86 - Continuing	50,200
JAMAICA	SEPT 85 - Continuing	40,900
KENYA	OCT 87 - Continuing	26,000
MALDIVES	FEB 86 - Continuing	25,900
MAURITIUS	NOV 85 - Continuing	44,500
NIGERIA	JULY 87 - Continuing	32,900
PNG+	SEPT 84 - Continuing	56,300
SRI LANKA	JULY 83 - 4Yrs 2Mths	119,200
TANZANIA	JULY 87 - Continuing	10,300
		<u>695,650*</u> =====

+ The expenditure shown against these countries does not include the cost of Resident Advisers, which was as follows:

Belize	Botswana	Jamaica	PNG
£29,427	£30,341	£43,793	35,044

* These figures do not include overhead costs or telephone and telex charges. The total needs to be increased by 30% to cover these costs, giving a grand total of £904,345, or £1,042,950 including Resident Advisers.

CS-DRMS TRAINING COURSES

<u>Date of Course</u>	<u>Number of Participants</u>	<u>Country</u>	<u>Cost (£)</u> <u>Total</u>	<u>PNG</u>
1/7/85-2/8/85	3	Sri Lanka (2) Grenada (1)	*	-
6/5/86-6/6/86	9	Jamaica (2) Botswana (2) Cyprus (3) Barbados (2)	28,643	-
30/10/86	10	Belize (2) Fiji (2) India (2) Maldives (2) Mauritius (2) PNG (1)	52,447	4,944
3/10/88-4/11/88	9	Kenya (2) India (1) Mauritius (1) PNG (1) Tanzania (2) Ghana (2)	56,616	5,698

* Full details of the cost of this course are not available.
The two Sri Lankan trainees were funded by IDRC.