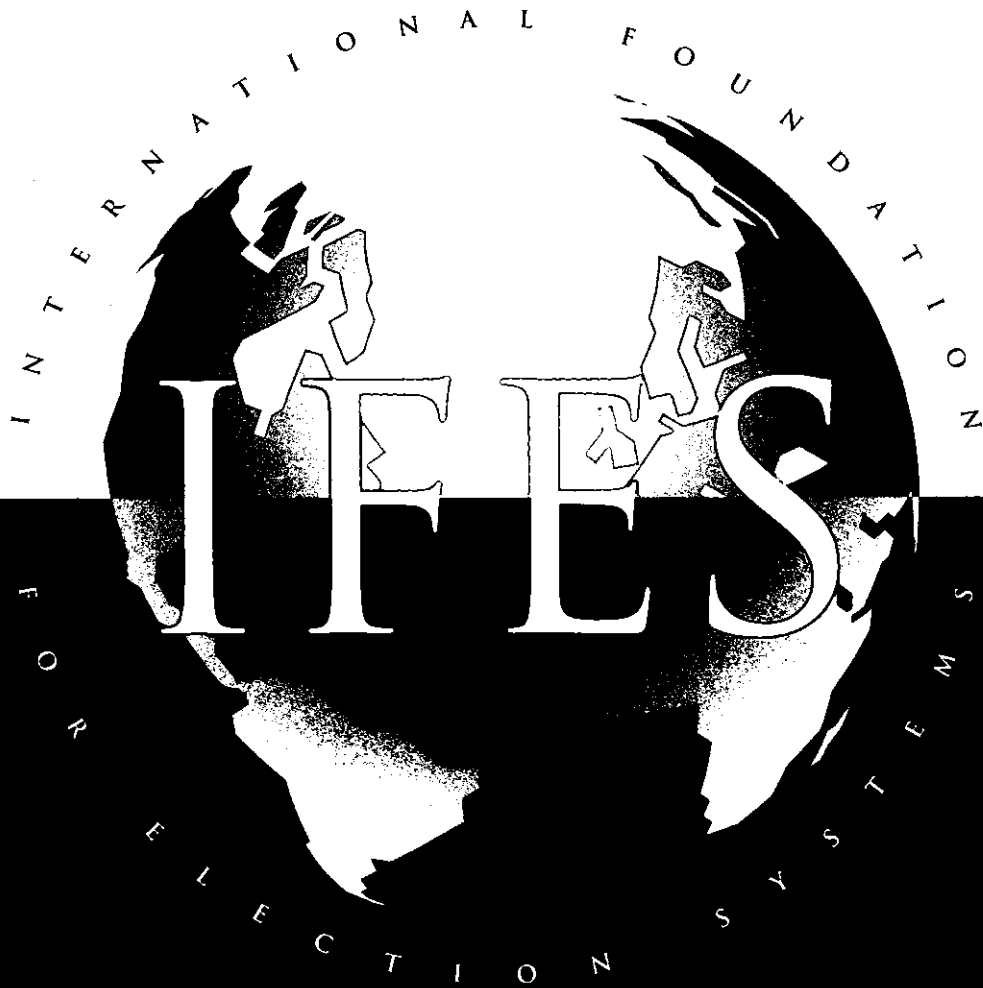
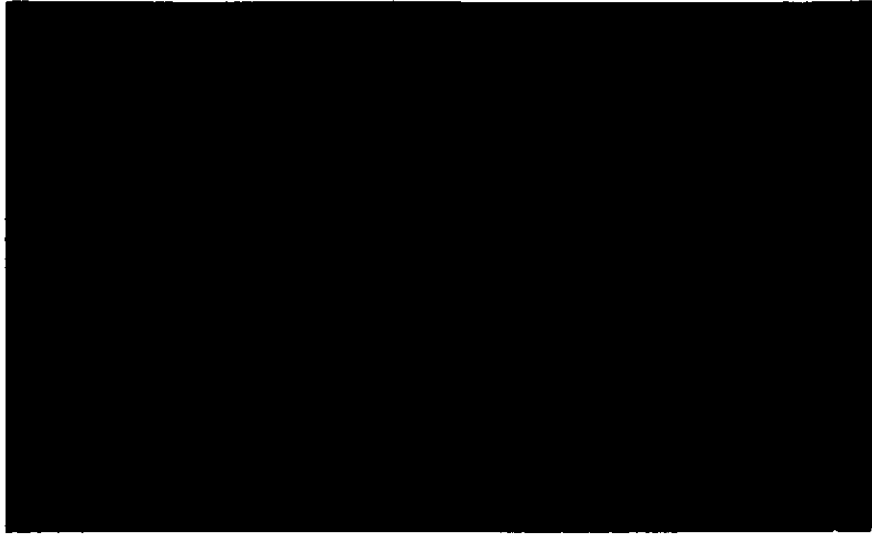


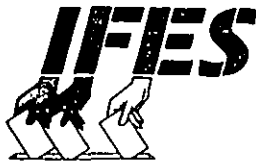
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SIERRA LEONE PRE-ELECTION ASSESSMENT

NOVEMBER, 1995

Denise Dauphinais and Robert Wilcox

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EXECUTIVE SUMMARY

In August 1995, INEC sponsored a National Consultative Conference on the electoral process. The overwhelming consensus of the meeting was that Sierra Leone should return to multi-party democracy and constitutional government through an electoral process as soon as possible. Several key decisions regarding this transition were made by the Conference, including the adoption of a national constituency proportional representation electoral system for selecting members of parliament and the recommendation of February 26, 1996 as the date for both presidential and parliamentary elections. These decisions have been publicly supported by the Chairman of the National Provisional Ruling Council (NPRC), Captain Valentine Strasser, both in Sierra Leone and during his recent visit to the United States and during the Commonwealth Heads of Government meeting in New Zealand.

The primary difficulty faced by INEC is the lack of a legal framework for the electoral process. Decrees covering the franchise, voter registration and the election of members of parliament were drafted by INEC and forwarded to the government prior to the National Conference. As of Nov 16, 1995 no action had been taken by the government of Sierra Leone towards the enactment of the decrees. Decrees specifying the election of the president and the agreed change of electoral system from single-member constituency, first-past-the-post to national constituency, proportional representation are currently being drafted by the Attorney General's office.

A second major problem faced by the Commission is an overall lack of resources, especially financial resources. Financial limitations have greatly restricted INEC's ability to conduct voter and civic education activities and essential pre-planning, coordination and training functions. The Commission also requires outside technical expertise in the areas of election administration and logistics, transportation and communications planning, and computer systems.

The general level of planning for the elections requires substantial improvement in the very near future if all of the interrelated tasks required -- both legally and administratively -- to hold elections in three months are to be completed on time. While the uncertainty regarding the legal framework and a severe lack of funds makes such planning difficult, the need for a comprehensive plan identifying what needs to be done, by whom, when, where, how, and at what cost must be developed as soon as possible so that when funding becomes available the Commission is able to act in an expeditious and cost-effective manner.

Given the critical nature of these elections to the future of Sierra Leone and the highly uncertain environment in which they will take place, contingency plans for mission-critical tasks are necessary. Such mission-critical issues would include: the production of a voter registration list; development of the Commission's capacity to distribute materials and personnel to areas outside of Freetown; and the establishment of nation-wide communication links for both administrative and security reasons.

The IFES team has serious reservations regarding the technical feasibility of the computerized voter registration system planned by the Commission. Given the obvious constraints of time, money, equipment and technical expertise, the immediate design and implementation of a hand-written voter register as a contingency plan is essential. Reservations regarding the methodology for data collection and related personnel and training issues also exist, but with additional planning, should be more easily resolved.

IFES maintains that INEC is committed to conducting elections in late February 1996. Their commitment to the democratic process as the most viable way forward for Sierra Leone is shared by a broad consensus of the Sierra Leoneans as well as by many in the National Provisional Ruling Council government. From a purely technical perspective, the prospects of INEC being able to conduct credible elections in February 1996 are good if the following three conditions are met as soon as possible:

1. The legal framework for the registration and electoral process formalized;
2. International and domestic financial and technical support for INEC is mobilized;
3. Detailed, comprehensive planning for the registration and election is completed by INEC as soon as possible, so that when conditions 1 and 2 are met, the Commission is able to immediately proceed towards election day.

I. INTRODUCTION

The International Foundation for Election Systems (IFES) was contracted by the United States Embassy, Freetown, Sierra Leone to conduct a pre-election technical assessment of the Interim National Electoral Commission (INEC) of Sierra Leone. Funding for this activity was secured under Section 116 (E) of the Foreign Assistance Act of 1961. This assessment specifically focused on two issues: computer and information management needs of the Commission, and the overall status of INEC preparations to hold elections on February 26, 1996. The assessment was conducted in Freetown during the period November 4 through 18, 1995 by computer consultant Robert Wilcox and IFES' Program Officer Denise Dauphinais.

This assessment marks the third time IFES has visited Sierra Leone since it first began moving towards a return to multi-party democracy in the early 1990s. IFES conducted a pre-election assessment in 1991, just prior to a coup d'etat which brought to power the National Provisional Ruling Council (NPRC) government headed by Captain Valentine Strasser. In July 1995, the United States Agency for International Development (USAID) requested that IFES personnel participate in an assessment mission under the direct auspices of its Center for Democracy and Governance. The current assessment derived from activities identified during the July 1995 mission.

The IFES team would like to thank INEC Chairman James Jonah, and Commissioners Dr. Abdullah Fadlu-Deen, Almami Cylla, Professor Bob Kandeh, and Ibrahim Cisse for their assistance. We would also like to thank INEC consultants Onofre Dos Santos (UN Chief Technical Officer), Sam Graham (Commonwealth Secretariat Legal Advisor), Kate Birsell (UN Volunteer, Legal Drafting Consultant), Gillian Felvus (European Union, Civic Education Advisor), A. Conte (Civic Education Consultant) and Mrs. Coomber (Voter Registration Consultant).

Special thanks also go to U.S. Ambassador to Sierra Leone, John Hirsch, Deputy Chief of Mission Charles Ray, Public Affairs Officer Dr. Pat Sharpe, Lizzie Slater and Freddie Barron for their assistance.

II. LEGAL FRAMEWORK

Despite having announced in August a February 26, 1996 date for holding presidential and parliamentary elections, no legal framework has yet been established by the GoSL. Substantial work to draft both a law governing the registration of voters (the *Franchise and Electoral Registration Decree*) and the election of members of parliament (the *Electoral Provisions (Consolidation) Decree, Being a Decree Regulating the Composition of Parliament and the Election of Members to Parliament and to Local Authorities*) has been completed. According to

INEC, these draft decrees have been passed on for review and consideration by the NPRC government. Draft decrees governing the election of president and describing the electoral system to be used are presently being drafted by the Attorney General's office.

It was not possible to obtain an estimate of when the various laws governing the electoral process would be finalized and enacted.

The lack of a legal structure continues to be a major impediment to the ability of the Commission to organize for the elections. Given the broad consensus that elections should go forward expressed at the National Conference and elsewhere, the failure of the NPRC government to issue an electoral law decree is troubling.

It cannot be over emphasized that if elections are to occur on February 26, 1996, the electoral law must be enacted as soon as possible. The legal time frame for the conduct of elections included in the law must be flexible in order to accommodate the very limited amount of time until the elections and the amount of preparatory work.

Although the laws are not yet in their final form, the paper "Proposals for the Enactment of Electoral Laws for Sierra Leone," prepared by INEC prior to the August 1995 National Consultative Conference provides insight into the Commission's intentions regarding the legal framework for these crucial elections:

"Experience has shown that when electoral laws are contained in multiple documents, there is a serious risk that these laws would be misread, misunderstood and misapplied. This inevitably leads to disputed amongst political parties and between political operatives and election officials. The Commission feels strongly that fair play and efficiency can best be achieved if the electoral laws of Sierra Leone are consolidated as much as is possible given the current circumstances. The Commission views any further amendments to the existing legislation as dysfunctional."

The importance of internal and external legitimacy was also a prime consideration of INEC in developing draft laws,

"...if Sierra Leone is willing to welcome International Observers, every effort must be made to promulgate laws that meet international standards.... the Commission felt that international consensus was important in view of the current social and political climate in Sierra Leone. An electoral system which is fair and efficient would demonstrate the Government's sincerity to both the local and the international community."

Proposed changes from existing legislation would:

1. Consolidate responsibility for elections in the Electoral Commission rather than dividing it between the Commission and a government ministry.
2. Give INEC the flexibility to deal with unpredictable social and security conditions by giving it the authority to establish a new period for registration in exceptional circumstances, and to permit absentee registration.
3. Make the legal timetable for elections more realistic by changing from fifteen to thirty the number of days between nomination of candidates and the election.
4. Remove overly broad discretionary powers from Presiding Officers regarding the ability to authorized body searches, or to have a voter arrested for misconduct. Under the proposed decree, the Presiding Officer will only be allowed to have the "misbehaving" voter removed from the voting station.
5. Authorize that the counting of ballots be conducted at the polling station immediately upon the close of voting rather than at a counting center. The count will be witnessed by agents of the political parties, polling station staff, and authorized observers. Certified copies of the results for each polling station will be distributed immediately and when presented to the Returning Officer, these results will be the official notification of the results for that polling station. Recounts of the ballots after the count at the polling station can be made by the Returning Officer upon the request of a Counting Agent, but the Returning Officer may refuse to do so if he/she believes that such a recount is unreasonable.
6. Allow candidates to be present in polling stations only to cast their own vote. Political party polling agents will be permitted to observe all aspects of polling operations and vote counting. This will eliminate possible intimidation and undue influence being exerted by candidates. Polling agents will also be forbidden to canvas or display anything which identifies him/her as an agent of a particular political party while at a polling station. All party polling agents will be obliged to wear identification stipulated by the Commission.
7. Forbid the carrying of firearms or other weapons by anyone other than a Peace Officer. Under the proposed law a Peace Officer is, "a member of the Sierra Leone Police or a member of the Special Security Division of the Sierra Leone Police."

III. VOTER REGISTRATION

In general, preparations for voter registration have advanced since IFES' previous visit to Sierra Leone in early July 1995. As was the case in July, the Commission intends to utilize a door-to-door canvassing methodology for data collection using Optical Mark Recognition (OMR) scannable forms with a tear-off voter card to be given to the newly registered voter. Completed forms will be returned to Freetown where they will be processed by OMR scanning equipment. Registration data will be processed by computer and registry lists produced.

Since July 1995, progress has been made in the areas of: identification of personnel (hiring of a national consultant from the Census Department and contracting with the teacher's union for field workers), preparation of materials (Voter Registration Handbook), identification of a vendor for the OMR scanning equipment (DRS, based in the UK), and the design and ordering of OMR scannable registration forms. During our visit, the first round of training of trainers for registration took place in Freetown.

The procurement of materials such as the scannable registration forms and scanning equipment has progressed slowly due to difficulties experienced by INEC in obtaining foreign exchange. According to the Commission, a letter of credit for approximately \$68,000 US was signed on Monday 13 November to cover the printing of the registration forms in the UK. A swap of local currency for foreign exchange is under negotiation between INEC and UNDP to cover the estimated \$120,000 cost of the three OMR scanners.

Delays in funding and the related delays in procurement have forced the Commission to postpone the start of data collection several times. Data collection is tentatively scheduled to begin in mid-December. Training of key INEC personnel has already begun with a seminar on the overall registration process.

Planning for the procurement of other supplies (clipboards, pencils, satchels, etc.) needed for registration does not appear to have started although the Commission has asked the vendor of the scanning equipment to provide price information for clipboards and satchels. While the quantities of these supplies are not great, it will take time and effort to acquire suitable items in the appropriate quantities at a reasonable price. Other vendors specializing in these types of items should be consulted. Some but not all items may be available locally. Many of those items not available in Freetown could be purchased in Accra, Ghana.

COMPUTERIZATION OF THE REGISTER

The plan for voter registration relies on expensive optical mark recognition (OMR) scannable forms to be printed outside the country. The Commission has made plans to purchase DRS scanners capable of reading up to 7,200 forms per hour. Each scanner includes a 486 PC to control the scanner and for the storage of the scanned data.

Data from these scanning PCS will then need to be re-formatted for the registry database. Although there are 12 PCS in the Commission, there are no scanners, scanner PCS, registry database software, scanner to database translation software or high speed line printers. The current PCS do not have enough memory or disk space to support the project. Few professionals with the skills to support the computer aspects of the project are available in the country.

The production of a voter registry using optically scanned forms to produce computerized voter lists cannot be completed in time for a February 26, 1996 election. The technical complexity of the plan and conditions in the country make it unlikely that a computerized registration using scanning technology could be successfully completed on a time schedule of less than nine months to one year from the receipt of computer and scanner equipment, and the engagement of several computer experts.

It is recommended that a simplified approach, using the already purchased OMR forms (with detachable voter registration card) supplemented with hand-written lists be designed and implemented immediately. The production of a credible voter registry was the key reason given by INEC to the National Consultative Conference for a delay of elections from December 1995 to February 1996. Reliance on this technical application to produce a mission-critical output under these conditions could jeopardize the entire electoral process.

It is worth noting that the origin of INEC's plan for a computerized registry is based on a system currently under development by the Electoral Commission of Ghana with technical assistance from IFES under a USAID-funded grant. The Supporting the Electoral Process (STEP) project in Ghana is the first known use of OMR technology to facilitate data capture for voter registration. The STEP project has been underway for about one calendar year with more than two consultant years invested to date.

The technical complexity of the Ghana system and its status as a prototype system should also be mentioned. Registration data collection using the scannable forms in Ghana was completed during a two-week period in October 1995 and the scanning of completed forms has only recently begun. Specifically because this is a first time ever application of OMR scanning technology, the Ghanaian Electoral Commission took a conscious decision to maintain the production timetable established for the production of a manually-entered register, thus five months have been allowed to scan the data and complete the registry. The Ghana project is using six NCSi scanners running simultaneously (with one in reserve), each of which can process up to 10,000 forms per hour. After scanning, data is transferred to a powerful network fileserver. The registration data base has been custom programmed in ORACLE using Microsoft Access as the user interface. All software programming has been done by the Data Processing Department staff of the Ghana Electoral Commission with support from IFES field staff and consultants.

The attraction of OMR scanning for voter registration is that it eliminates the need for manual data entry, thereby substantially eliminating the number of computers and data entry operators needed. It also eliminates data entry errors and substantially reduces the time required for data to be entered into the computer, thereby dramatically reducing the period between data collection (registration) and completion of final lists.

When INEC first began to investigate the possibility of using OMR for data capture in mid-1995, the application of such technology may have been feasible given a February 1996 election date. This would have assumed the immediate availability of funds, equipment and technical advisors.

In the long term, if resources permit, development of a computerized voter registry for Sierra Leone could be pursued using the OMR scanners. It could be combined with a census project and form the basis of a national ID card. After the transition to constitutional democracy and as Sierra Leone moves to rehabilitate its infrastructure and re-settle its people, the ability to rapidly process detailed demographic data which such a system can provide may indeed prove vital beyond the question of voter registration. If such a computerized scanned registration is pursued in the long term, it will require substantial financial, human and technical inputs from outside Sierra Leone. Since the basic design and development work has already been completed in a neighboring country, it is suggested that INEC establish close links with the Electoral Commission of Ghana so that it can reuse as much of the Ghana registration project work as possible. (For a more detailed description of the computing environment in INEC see Infrastructure, Computerization, below.)

DATA COLLECTION METHODOLOGY

Plans and training for registration data collection are well advanced. A manual for registration workers has been developed and printed. As mentioned above, the first training of trainers seminar has taken place in Freetown. Data collection will be conducted by teams going house-to-house registering occupants. While IFES has substantial doubts about whether canvassing is the most appropriate technique for voter registration in Sierra Leone given the constraints of time, money and security, the Commission appears committed to implementing this strategy. Given this commitment, the Commission should attempt to incorporate, to the degree possible, the following points regarding the advantages of the alternative fixed-registration center system:

- A. Registration is by self selection (i.e.: all those wishing to register must present themselves at the registration center) and will thereby provide a more accurate indication of public interest in the electoral process. It also avoids the appearance of registration as compulsory as well as the appearance of coercion and intimidation which may develop when teams make repeated visits to the homes of voters.
- B. Processing of registration forms is easier since the Registrars are seated at a table with all the necessary materials close at hand. Close consideration of this issue should be

a priority given INEC's plan for computerized registration using OMR scannable forms which require special handling (no folding or bending of edges, protection from humidity, etc.).

C. INEC plans for all persons registered to be marked with indelible ink in order to avoid multiple registrations. The type of ink selected requires that a Registrar apply the ink to the elector using a small stick. The application of such ink is always problematic both for the elector and the individual applying the ink. Individuals responsible for the completion of forms should under no circumstances also be responsible for applying the ink.

D. The use of registration centers greatly facilitates voter education which can begin with registration as each Registration Center will, on election day, be used as a polling station. This has proven a particularly successful method of eliminating unnecessary confusion on election day especially when dealing with illiterate populations.

E. Transparency of the registration process is greatly enhanced by using registration centers as monitoring by agents of the various political parties, local monitors and international observers is greatly facilitated. Oversight and the resolution of problems is also facilitated since supervisory personnel will at all times know where registration teams are located. While INEC's current plan to canvas does include provisions for party agents and community representatives to accompany Registrars, the advisability of having groups of 4 persons (at least one political party agent and one community representative) visiting every household and then placing a visible mark on the outside of each dwelling, given the current security situation, is not readily apparent.

In light of the above points, contingency planning for such occurrences should be systematically undertaken prior to the start of any field work. From discussions with the Commission both in July and now, it does not appear that adequate consideration of likely problems has been undertaken and methods for resolving problems developed. Such problems may include: refusal of admission by occupants, fear of reprisal and intimidation due to the placing of registration stickers on dwellings, security for mobile registration teams (especially when working in areas on the outskirts of cities), inappropriate behavior and intimidation by registration workers and others.

IV. PUBLIC EDUCATION

A public information campaign related to the upcoming elections have been underway for several months. This campaign has used a variety of media to reach the Sierra Leonean people: radio and television broadcasts, posters, T-shirts, stickers and leaflets, the holding of large meetings and smaller discussion groups, the creation of jingles. Basic themes ("The Future is in Your Hands"

and "Footsteps to Democracy") are simple and clear. All materials are being produced in each of Sierra Leone's national languages (Krio, Mende, Temne, Limba and English).

It is indeed impressive to see the amount of work accomplished by the Commission in this area given the extremely limited financial resources available. Through contacts with the few diplomatic missions in Freetown, INEC has secured some resources: renovated Land rovers fitted with public address systems; audio-video equipment for the production of messages; and the financing for the printing of posters, stickers and a calendar featuring locally created artwork focusing on the elections.

Funding for the parts and technicians needed to repair the Sierra Leone Broadcasting System's (SLBS) shortwave transmitter which broadcasts nationwide has been secured. The ability to reach a nationwide audience will greatly enhance the Commission's ability to distribute its message to all Sierra Leoneans, especially those in RUF-controlled areas.

Teams of Commission staff have been able to make some trips by air to secure areas outside of Freetown to conduct mass meetings. By all reports (backed-up in some cases with video tape), these meetings have met with great enthusiasm. Unfortunately, the Commission lacks funds to increase its activities outside of Freetown. Plans are for the re-fitted Land rovers donated by the British High Commission to be stationed in the regional capitals to facilitate local campaigns. Some of these vehicles have been dispatched despite the ongoing insecurity involved in road travel outside Freetown.

In order to continue and expand upon its work in this area, the Commission urgently needs funds for printing and other production costs, as well as for staff training and transportation.

V. PREPARATIONS FOR ELECTION DAY

Concerted planning for this crucial activity has only recently begun. Preliminary lists of personnel, material and supplies have been compiled and efforts are currently underway to gather vendor and price information. There is a great need for an itemized budget, procurement and distribution schedule. Much work remains in order to be adequately prepared for the election:

1. Terms of reference, based on the law, for Presiding Officers, Polling Assistants, Polling Agents and Security Officers must be developed and training materials created and produced.
2. The recruitment of temporary personnel to fill the positions of Presiding Officer, Polling Assistants and Security Officer must be undertaken in a manner to elicit input from the various political parties.

3. Training plans, including budgets and schedules, must be developed to ensure that all personnel are appropriately trained prior to election day.
4. Specifications for the various election commodities needed (indelible ink, ballot boxes, ballot papers, etc.) must be determined.
5. Once specified, items must be procured in a cost-effective and timely manner to ensure their delivery to the Commission in sufficient time for their distribution prior to the polling sites.
6. The necessary legal and administrative forms to be used at the polling places must be designed and printed in sufficient quantity.
7. Transportation resources must be located and plans for the distribution of materials must be devised. This will likely prove extremely challenging due to security concerns related to travel by road outside of Freetown.

As with many of the other functions of the Commission, plans for election day must go forward in the absence of both a firm legal framework and funding.

VI. INEC INFRASTRUCTURE

COMPUTERIZATION

While INEC staff at all levels expressed great enthusiasm for preparations for the elections, it was evident that they were beginning to drown under the complexity of elections planning. Written schedules, plans and budgets are not consistent or up to date. Although INEC has 12 computers, they are not fully utilized because of a lack of training, difficult to use software and inadequate memory. INEC should use computers to more effectively manage the complex process of an election. To do so, intensive training on the use of the computers, integrated with basic training in election planning and administration, will be needed.

Three recommendations for enhancing INEC's computing capacity are included in this report. Each builds upon the existing level of computer resources, and each other to preserve computerization investments.

The first recommendation includes training, upgrades to the existing computers, office software, environmental protection of the existing computers, printers, spares and a minimum local area network [LAN]. This plan also includes the services of an international consultant to set up the equipment and provide training. Implementation of this plan will allow the existing computers to be used in the everyday management functions of the INEC.

The intermediate plan adds to the basic plan a file server and data backup for increased data security and storage redundancy.

The advanced plan includes software and scanners to support an optical mark recognition [OMR] computerized voter registry as well as E-mail and connections to on-line and Internet services to assist in technical support.

As much as possible, the hardware and software recommended are already coming into use in Sierra Leone. These recommendations are tailored to the ability of the INEC to learn rapidly to utilize computers to support an election in the first half of calendar 1996. International consultants will be needed to rapidly and reliably execute these alternatives. National consultants should be trained at the same time as INEC staff so that after the elections, support can be provided locally. INEC should work with local suppliers in the long term for hardware, spares and repairs.

Existing computing capability

The INEC has 12 486DX33 Mitac model DM4033V-213 4E2TEE IBM compatible computers produced in the UK, each with 4MB memory and a 204MB hard drive. Each computer has the DOS versions of WordPerfect 6.0, Lotus 123, dBase4 and a virus scan program. Most have desktide uninterruptable power supplies [UPS]. Some have mice. The Commission has 9 Epson dot matrix printers.

There has not been a concerted effort to train INEC staff on the use of computers, the result of this failure to provide training is that equipment is unused. Only those staff members with previous specialized training in and recent use of DOS, WordPerfect for DOS and Lotus 1-2-3 for DOS are able to use the Commission's computers.

The Office of the Executive Secretary uses the computer for word processing of correspondence. The Commissioner responsible for registration also has overall responsibility for computing. His office makes use of the computer for text processing and lists of registration personnel, districts, and so forth. Data from the pilot registration project conducted last year is still being hand entered into computers by clerks.

The voter education section has used computers to draft designs of posters and other materials. In order to produce production-ready materials, this section has borrowed the personal laser printer of one of its consultants. This 2MB HP LaserJet IV is often moved to other offices for use. Staff frequently copy files onto a floppy disk which they move from one machine to another in order to print.

INEC could gain the most leverage from using their computers as management and planning tools. Various plans and budgets have been produced, but most of these are outdated and/or inconsistent. Many of the budgets are text tables of numbers without supporting narratives or

more detailed breakdowns. Scheduling software is not used. Schedules, where seen, are text files, not the output of scheduling software.

Requirements Analysis

INEC is solely responsible for carrying out an election under the new election law. This will include the registration of voters, the registration of candidates, educating voters, procuring and managing inventories of voting materials, conducting and monitoring the balloting, counting the ballots and producing the results. In order to accomplish this, the INEC will also need to prepare training materials, manage and pay staff, implement budgets and manage schedules.

Written plans, schedules and budgets are essential for successfully managing the activities of both the Commission and the elections. These requirements may be met by a suite of basic office software tools and general purpose scheduling software. The addition of a file server, high speed printers and scanners would provide additional capability. Training on how to use specific computer software must also be accompanied by training on how to accomplish planning, scheduling and budgeting functions using the software.

Recommendations for Computerization

A number of improvement options, organized by increasing cost, capability and complexity are presented below. Based on the short time frame to gain results, more complex proposals, such as a wide area network connecting the regional offices, are not considered.

I. Basic Level: Training, Windows Software, Office Applications, Printer Sharing

It is recommended to upgrade the existing computers to Windows for Workgroups and Windows-based office and project management software. Memory upgrades of the existing machines and the replacement of lost mice will be required to do so. Several laser printers to supplement the dot matrix printers will be needed. A simple LAN is needed to share the printer and share or move files between machines.

An intensive training effort must go hand in hand with the software recommended. Training on how to use the software applications and how to do the functions of the INEC with computers should be integrated. Actual examples and exercises incorporating the Commission's ongoing activities should be part of the training. One-on-one training should be provided to the commissioners to accommodate their schedules.

Environmental conditions in INEC's headquarters in Freetown are harsh. INEC's computers are located in offices on the upper floors of a building by the ocean. Each office is individually air conditioned during working hours. When office temperatures become too cold, staff routinely open windows rather than turn-down air conditioners thereby

exposing computers and other office equipment to extreme humidity and salt air. Temperatures range into the low 40s C. The Harmattan, the windy dust season of late November, December and January, is hostile to floppy disks, tapes, and their drives, printers and power supplies. It is recommended that the INEC immediately obtain fitted dust covers for all computer equipment. If a file server is purchased, it should be housed in a room with continuous air conditioning and dehumidification. Floppy disks and tapes with critical data should be stored in a way to protect them from humidity, condensation and dust.

The condition of the electrical mains supply in Freetown is variable. The INEC does have a generator. Voltage fluctuations, line noise, surges, spikes and outages are the rule. An experienced computer manager reports that Sierra Leone is a "graveyard for uninterruptible power supplies (UPS)" who commented that he saw the failure of 22 out of 30 UPS units of one common brand in 1 ½ years. This brand is considered to be relatively reliable. It is recommended that, in addition to UPS, good quality mains filters be purchased locally immediately and installed between the UPS and the mains and that every PC and printer be supported by UPS. The brand Saisho, available locally, performs well. If this proves inadequate, isolation transformers should also be added. In this case, the isolation transformer should be plugged into the wall outlet, the mains filters should be plugged into the isolation transformer, and the UPS should be plugged into the mains filter.

Spares and consumables can be difficult to obtain and expensive in Freetown. Few computer businesses maintain expensive inventories because business conditions cannot support such high overhead costs. It is recommended that a small inventory of spares be maintained at the INEC consisting of floppy drives, hard drives, drive controller cards, video controller cards, power supplies, UPS units and surge protectors. If desired, management of the spares, routine service and installation of replacement parts could be contracted to a local computer service company.

The market in personal computers, network and file servers is very cost competitive. The components parts of this equipment (power supplies, drives, mother boards, etc.) are available in a range of quality, reliability and price. Components that will operate reliably over time in a climate controlled home or office in Europe, the US or Japan may not operate reliably in Sierra Leone. Typically only engineers working in the computer manufacturing business can test or determine component quality. Larger manufacturers can afford to employ such engineers and larger volume manufacturers are extremely sensitive to even a small percentage of returned failed products. Where possible, it is recommended that major brands, with higher quality components, longer warranties and a proven Sierra Leone track record be used.

2. Intermediate Level: *File Server, Security, Tape backup*

Beyond the basic improvements suggested above, the addition of a file server will allow a safe and secure repository for shared files. The file server should be equipped with a reliable DAT tape drive. It should be sized to be capable of supporting the advanced proposal below.

3. Advanced Level: *Database, Scanners, High Speed Printers, Laptops, E-mail, Internet access*

The basic and intermediate plans if implemented would lay the computing infrastructure for a computerized voter registration system as currently planned by INEC. The system envisaged by INEC entails the use of OMR readable voter registration forms which are completed in the field and which are then processed in Freetown using OMR scanners. This processing captures the data collected (name, address, sex, etc.) on each registration form and stores it in computerized form. This data can then be translated into a data base format and registration lists can be produced.

Based on IFES experience assisting the Electoral Commission of Ghana to develop a proto-type computerized voter registration system using OMR technology, it is very unlikely that a computerized registry for Sierra Leone could be complete by late February or early March, 1996. Even if elections are delayed until in May or June 1996, the production of a computerized registry would be doubtful. If this option is to be pursued, work should begin immediately so that a register could be ready for local elections which may be scheduled for late 1996.

It is anticipated that the Sierra Leone voter roll will be 1.5 to 2.5 million people in 191 districts. Given the estimated size of data base, it is recommended that high performance database software such as Oracle or Microsoft SQL server be used for the registry. A unified country database will allow the transfer of registration due to the movement of voters to be accomplished easily. High-speed impact printers will allow the timely printing of lists.

Laptop computers for consultants and staff traveling to districts outside of Freetown will allow them to be productive around the clock and around the country. Laptop computers should have at least 16 MB of memory, 300MB disk storage, 2 PCMCIA slots, a PCMCIA Ethernet card, a PCMCIA data/fax modem and the office and scheduling software recommended above.

The ability to have technical questions answered by the world networked community would be invaluable for supporting the INEC computers. Software updates, virus pattern updates and drivers may be downloaded. A modem and software should allow an appropriate combination of

CompuServe, the Microsoft Network and Internet access. Mail, news and file download will be needed. Over time and with training, E-mail could become an effective management tool within the INEC. If telecommunications to the regional offices improves mail access could be extended there.

COMMUNICATIONS

Telecommunications infrastructure in Sierra Leone is limited. Within the greater Freetown area, phone service is fairly reliable. Outside Freetown, service is extremely limited. In light of ongoing insecurity in the rest of the country, it is not expected that internal phone service will dramatically improve. International phone communications can be difficult, but are far from impossible.

Of primary concern to INEC is its ability to communicate with its regional and other upcountry offices. Given the generally poor and unreliable state of the phone system, a plan for two-way HF radio communications between Commission headquarters in Freetown and various locations should be investigated. Such a system could start with voice only communications with the possibility of enhancements to include radio-telex or other text transmissions. The installation of a computer-based text or data transmission system, in light of the overall weakness in the area of computerization within the Commission, is not advisable at this time. In locations where phone service is practical and where electricity is available, the relatively simple addition of fax machines could provide the needed voice and text capability.

Technical assistance to develop a practical and cost-effective communications system for INEC should be sought in the immediate future. It is likely that individuals with the technical expertise necessary to develop such a system are available in Sierra Leone.

TRANSPORTATION

As has been the case for the past year, road travel in most areas outside of Freetown is not recommended. Air travel (small plane or sometimes helicopter) from the capital to various towns and cities up country is possible, but is also limited. Prior to the war, civil aviation in Sierra Leone was not well developed. There are few functioning airfields and the total air lift capacity available in Sierra Leone is limited. Should the security situation improve, road transportation to some areas should be utilized.

The Commission has several multi-passenger four-wheel drive vehicles. Some of which are for use by Commissioners. Other vehicles are outfitted for civic education outreach with public address systems.

VII. CONCLUSIONS

The commitment of a broad consensus of the Sierra Leonean people, combined with that of the Head of State, Captain Valentine Strasser, other members of the government, the political parties, and INEC to hold elections in February 1996 has been, and continues to be strong. Other elements remain unconvinced. These elements include not only the Revolutionary United Front (RUF) of Corporal Foday Sankoh, but also members of the Republic of Sierra Leone Armed Forces (RSLMF) and the NPRC government. The ability of these groups to delay the electoral process is evident, both in terms of maintaining a continuing climate of in-security and in creating a level of uncertainty through the government's failure to finalize the legal framework for the electoral process.

Reports of attacks outside of Freetown in which the hands of civilians are amputated by "rebels" (whether they are RUF or RSLMF "SOBELS" is unclear) who, invoking the INEC slogan "the future is in your hands", tell their victims that they now have no future, speak to the degree to which these unconvinced elements are threatened by the prospect of elections. Domestic and international reliance on the February 1996 elections as the cornerstone of Sierra Leone's emergence from civil conflict is not without considerable risk.

RECOMMENDATIONS

1. Laws covering legal aspects of the electoral process (Franchise and Voter Registration, Election of Members of Parliament, Election of the President, Adoption of the System of Proportional Representation) should be decreed by the NPRC government as soon as possible. The importance of the appropriate legal framework for the elections should not be underestimated both in terms of providing "rules of the game" for the various participants and as a concrete symbol of support by the NPRC government for a return to multiparty democracy.
2. An intensive planning and budgeting activity should be immediately undertaken by INEC to develop a comprehensive legal and administrative schedule leading up to elections on 26 February 1996. An implementation plan and activity time line will assist the Commission in accomplishing the numerous complex activities necessary to achieve an open and transparent election on schedule. This plan will facilitate external funding by providing donors with accurate and up-to-date information.
3. Financial resources must be immediately mobilized allow the implementation of the schedule and budgets developed by the Commission through the process described in item number two. Despite the many uncertainties related to internal security and political maneuvering, it is clear that there exists within Sierra Leone a broad consensus that multiparty elections should be

held in the near future. There is also a widespread understanding and acceptance that such elections may not reach all areas of the country and therefore some Sierra Leoneans may not be able to participate due to security concerns.

4. Appropriate human resources to support the work of the Sierra Leoneans in the Commission must be mobilized. INEC is generally well staffed with a mixture of elections professionals who worked for previous commissions under the single-party state and civil service administrators and other dedicated professionals. However, specific needs for outside technical assistance exist. The arrival during the visit of the IFES team of the Chief Technical Advisor to INEC from the UN will certainly compliment the ongoing work of legal drafting consultants from the Commonwealth Secretariat and the United Nations, and a consultant in civic education supported by the European Union. Additional outside help is needed, in particular, support in the area of logistics (both procurement and transportation) are urgently required. Additional needs include: communications (HF radio and radio telex), and computer operations (software training/networking/general systems operations).

5. Computerization of the voters register as it is currently planned by the Commission is not technically feasible given the triple constraints of time, money and lack of human resources. If the February 26, 1996 election date is to be met, an alternative hand-written system should be immediately designed and implemented either as a primary or a back-up system. Special attention should be placed on ways of deterring fraud.

6. INEC's current array of computer equipment (see description in _____) is under used. Reasons for its underutilization are a lack of training, reliance on DOS-based software which is difficult to use and requires recent and continuous use to master. Upgrade to Windows-based software which is easier to use, enhancements to the RAM of each computer in order to operate the new programs, and the implementation of an intensive training program for the new software with emphasis on management tasks should be undertaken as soon as possible. The value of computers in election administration for the creation of planning, budgeting and implementation tracking mechanisms, as well as the preparations of training, voter education and other materials is immense.

7. The procurement process to support the registration of voters and the election itself must begin immediately. Activities such as the determination of quantities, the development of specifications, and the identification of suppliers must begin well in advance of the scheduled events in order for the materials to be in place when needed. Related logistical issues such as the identification and organization of INEC's support infrastructure -- warehouses, offices, means of transport -- must also begin as soon as possible to ensure that critical logistical resources are in place and functional prior to the election.

Appendix A: Rationale for Recommended Computer Items

Application and Management Training: Training on Windows, Windows office applications and scheduling software is the single highest payoff investment in INEC productivity. The training should be provided to INEC personnel as well as international consultants as needed. The training must include training on how to manage the INEC with written plans, schedules, budgets and training materials. The training should include Microsoft Word, Excel, Powerpoint, Project and file management. There is an opportunity to create a new management culture within the INEC based on strong interdepartmental communication, regular management reporting, integrated plans and written materials that are continuously updated as plans evolve.

Windows: Windows is beginning to displace DOS in government and commercial offices in Sierra Leone. Windows will lower user training barriers and allow faster training. For INEC to be successful, the ranks of computer users must be expanded beyond those with DOS and DOS application training. Windows for Workgroups includes built-in networking software for file and printer sharing which will reduce LAN costs. Windows '95 was considered. Windows '95 has the additional feature of synchronization of file versions between computers, for instance, between a laptop and office machine. It is not recommended to proceed at this time with Windows '95 because there are very few people in Freetown who have any experience with it. It's important to have as many backup support people available in the country as possible for the software selected.

Windows Office Suite: The Windows Office Suite Professional provides a consistent user interface between applications and with Windows. Included is Word, for word processing, the Excel spreadsheet, PowerPoint for presentations and the Access database for small databases. Existing files in WordPerfect and Lotus 1-2-3 may be easily converted or incorporated. As users of the software become comfortable using it, they may begin to use Object Linking and Embedding capability [OLE] to allow text documents, budgets and schedules to be inter-linked. When one is updated, the corresponding linked parts will be updated.

Project: This software is used to manage schedules and the resources necessary to complete them. It tracks task dependencies. As tasks proceed ahead of schedule or are delayed the schedule may be easily adjusted. The software allows quick evaluation and visualization of schedule alternatives. The schedule may be viewed graphically, as a list of tasks, a list of resources or on a calendar. Training on the software and project management will need to be brought in from outside Freetown.

Virus Soft Ware: Viruses are a problem worldwide, including in Sierra Leone. One machine required disk data repair due to a virus during IFES visit. It is recommended that up to date virus software be installed on each PC. Current virus patterns should be downloaded from the virus scan software supplier and installed on each PC every one month. The software should be configured to scan any floppy inserted into the machine automatically. IFES has had good

experience with the products of McAfee and Associates.

Printers: To supplement the existing dot matrix printers, several laser printers should be obtained. The value of these has already been demonstrated by the use of one borrowed from outside the commission in the voted education department. The HP LaserJet IV-6MB has demonstrated its reliability in the country and is recommended. The advanced option includes 2 high speed dot matrix printers. Epson DFX-8000 have a good record of reliability in the country.

Local Area Network (LAN): A basic Ethernet LAN with twisted pair wiring for the 3rd and 4th floor of the INEC is proposed. The built-in networking software of Windows for Workgroups will allow printer and file sharing. The added administration complexity and cost of a Novell network is not recommended. The LAN hub should allow up to 24 connections for expansion. All of the consultants' offices should be wired.

Laptops: Laptop computers for the consultants will allow them to work extended hours when the INEC is closed. The laptops should be equipped with the same software as other commission computers. They should have at least 16MB RAM, 2 PCMCIA slots, a PCMCIA data/fax modem and a PCMCIA Ethernet card to allow them to connect to the LAN.

File server/tape backup: Windows NT software is recommended. This will allow file security for file sharing, replacing the minimal file security of Windows for Workgroups alone. Windows NT easier to administer than competing file server systems and is starting to come into use in Sierra Leone.

Database Soft Ware: Larger databases, such as a full voter register, require higher performance database software. Either SQL Server or Oracle is recommended. The use of Oracle would build upon the voter registry work done in Ghana. Some software from Ghana may be able to be reused. SQL Server would be cheaper to buy, more expensive to redevelop software for initially, but more cost effective in the long term.

Optical Mark Recognition (OMR) Scanners: The INEC has standardized on the DRS brand of scanners, from the UK, which are used for educational testing in Sierra Leone. Three scanners with control PCS and LAN connections are planned. The network software compatibility with the other INEC computers will need to be examined. The OMR scanners are included in other INEC budgets, so are omitted here. Ghana is using a different brand of scanner, so that the data translation software from the scanner format to database format will be different.

High Speed Line Printers: Printing data for elections employee lists, full parliamentary candidate lists or a computerized voter registry will require faster printers. Epson DFX-8000 series printers are recommended for reliability and local service based on country experience.

Mail Soft Ware: Microsoft server based mail is recommended for security and reliability. In the

long term, an Internet mail gateway is recommended to provide a communications channel for

technical support. Should the electoral commission desire, results and press releases could also be communicated via the Internet. CompuServe and/or Microsoft Network provide similar capability.

Accounting and Bookkeeping Software: If the commission establishes a financial controller, that person should determine the choice of accounting software based on their own preference and experience. The software should be able to provide reports in Excel and Word format. They may use Excel directly for accounting. In any case, the software should be inexpensive enough that it may be procured within the budget of the commission.

Appendix B: Computing Infrastructure in Sierra Leone

Vendors

African Information Technology Holdings [AITH] 38 Waterloo St., Freetown phone 222403,224106; 223942 fax. Dr. A. Tom Roberts is the managing director and J.K. Boe-Nortey is the manager of technical services. AITH is the authorized ATT computer systems dealer in Sierra Leone. They provide LAN installation, and hardware repair. The managing director has a background in academia and good long term plans for the company, including becoming a Microsoft Solution Provider. Some LAN hubs and LAN wire were stocked. Desk and laptop computers may be ordered from the factory with lead times of 4-6 weeks. At a higher price, orders through resellers shorten the time to 2 weeks. The above times include air shipment. DAS Cargo provides a once per week air freight service from London, Amsterdam and Brussels. Imports are subject to a 5% duty and a 20% sales tax.

Holron Computing, Waterloo St., Freetown is the authorized Apple and Compaq dealer in Sierra Leone. They also install LAN's.

Securicom provides LAN installation and Internet services. Mr. Meyi Jones-Asgill (229-652) is the manager. This firm provides an E-mail gateway and news gateway services and does soft ware development, primarily in DOS.

Agencies and Businesses

Sierra Rutile is a private firm with a small office in Freetown. They had an extensive LAN at the mines, which were closed due to rebel activity. They may be useful for technical support on a time available basis.

The US embassy in Freetown has a large collection of Windows PCS and laser printers. They are just now installing a Banyan Vines twisted pair Ethernet LAN.

Educational Institutions

Fourah Bay College includes the Institute for Public Administration and Management. Representatives from the institute may benefit from the training planned for the INEC. In the long term, they may be able to provide training locally. They may be contacted via Professor Bob Kandeh, INEC commissioner.

Banks & Government

The following LAN installations were reported but not verified-

Bank of Sierra Leone - 30 growing to 90 PC Ethernet LAN, Windows NT Server, SQL Server, Visual Basic
funded by the World Bank with training provided outside Sierra Leone

Union Trust Bank - thin Ethernet, DEC Ethernet cards

The State House - Windows for Workgroups and LANtastic

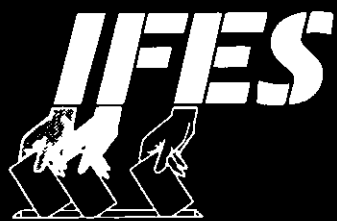
Commercial Bank - migrating to Windows NT, fiber Ethernet

Appendix C: The LAN and the Existing Computers

It is recommended that the LAN hub be located either in the computer room or the civic education office on the 4th floor. If it is located in the computer room, it would be helpful if the floor above could be cored or a passage be found. Otherwise there is a vertical chase for telephone lines in the corner of the 4th floor civic education office. If lines are run by the most direct route, the 100M distance limit for twisted pair Ethernet should be met. The wiring contractor should be closely supervised to stay within the 100 meter limit and avoid stretching the cable. A decision on wiring the accountant's office in its current location should be made on the basis distance and the use of the machine. It may be possible to move the accountant's office to the 4th or 5th floor. At the time, plans for any international financial consultant should be weighed.

The locations of the existing computers:

- Office of the Chairman
- Chairman's secretary's office
- Office of the Executive Secretary, outer office
- Legal Drafting Consultant's Office
- Office of the Commissioner for the Southern Province
- Office of the Commissioner for the Western Province
- Office of the Commissioner for the Northern Province
- Office of the Commissioner for the Eastern Province
- Civic Education Office
- Registration computer room - two computers
- Accounts (first floor)



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