An Extension-Research Regional Sharing Strategy
ELECTRONIC TECHNOLOGY
1862-1890 Land Grant Institutions Cooperating

A proposal submitted by the
Board of Directors
SOUTHERN RURAL DEVELOPMENT CENTER
A. INTRODUCTION

At the Southern Extension Director's meeting in Jackson, Mississippi, April 20-24, 1980, the recognized need for Southern regional computing coordination was discussed and endorsed. The Southern Region Extension Directors were challenged by Dr. Robert Kramer, Kellogg Foundation, to share software programs across the state lines and to become cooperatively involved in the development of efforts leading to regional computer communication and sharing for the mutual benefit of all states involved. Dr. Roger Woodworth and John Nevins, TVA, also provided informative support and encouragement for this effort.

A Southern Regional Computer Development Committee was appointed consisting of Dr. William F. Taggart, Associate Director, Oklahoma, Chairman; Dr. John Ragland, Associate Director, Kentucky; and Dr. W. VanDresser, Dean for Extension, Virginia. Each state director named a representative to the committee. The committee representatives were purposely selected to represent all segments of present and potential computer educational and operational usage.

1862-1890 Land Grant Institutions Cooperating
The regional computer development committee developed a set of issues, prepared a list of purposes and established a suggested timetable for operationalizing the regional computer coordination concept. The ideas set forth in this proposal are based on the information contained in the committee's report dated November 20, 1980, and submitted to the Southern Extension Directors.

At the Board meeting of the Southern Rural Development Center on February 19, 1982, a proposal to expand the CES Directors' regional computer concept to include the Experiment Stations and the 1890 institutions was addressed. It was suggested that the Southern Rural Development Center was a natural mechanism for the implementation of the regional computer clearinghouse concept since SRDC has for eight years been involved with coordinating research and extension activities throughout the Southern region. A further advantage would be the possible lower cost of getting the electronic technology clearinghouse function operational through the sharing of staff and the utilization of some existing procedures and equipment. In other words, a new function would be added to an
existing regional center which is already involved with similar information sharing and dissemination objectives. The SRDC Board of Directors charged the Center with developing a proposal to designate the SRDC as the clearinghouse in electronic technology for the Southern land-grant institutions in addition to its rural development functions.

B. BACKGROUND

Since 1974 the Southern Rural Development Center has provided support staff for capacity building and innovative programming for the extension services and experiment stations of 28 land-grant universities in 13 Southern states and Puerto Rico. As one of four regional rural development centers in the nation, the SRDC focuses specifically on the rural problems of the Southern region and has received funding through Title V of the Rural Development Act of 1972 and Public Law 89-106.

Recording and disseminating what is taking place and what is being established in rural development throughout the region is one of the priorities of the Center. One way this task is accomplished
is through a constant publishing effort to provide educators and researchers with up-to-date information relevant to the problems of the rural Southerner.

The Center has been instrumental in increasing extension-research communication and joint programming by bringing experts across state lines and from various disciplines to focus on problems common to the 13 Southern states and Puerto Rico. Region-wide workshops allow each state to share success stories, methods and strategies with other states looking for a solution to the same or similar rural problems. The SRDC constantly explores opportunities to utilize the work and experience of all agencies and organizations involved in rural development projects. Perhaps the most effective program thrust, however, has been the SRDC effort to establish regional cooperation in synthesizing and disseminating research knowledge about pressing rural development needs. The funding and operation of these efforts have developed through a special emphasis referred to as "functional networks." Through these networks, teams of researchers and educators from several universities concentrate on pressing problems facing the rural South.
Program thrusts currently underway and those planned at the SRDC emphasize electronic technology in community and rural development programming. A pilot research and extension project has addressed the question of how local governments establish electronic systems and select hardware. A handbook, "Selection and Adoption of a Computer to Serve County Officials: A Model Procedure," has been developed.

The impact of growth and decline on communities is being addressed through forecasting techniques using computer applications. Community budget estimates for services and facilities as well as for location recommendations for health clinics, fire departments and routes for school buses are being enhanced through the use of electronic technology.

The use of computers in small rural businesses is being addressed through a regional network of extension professionals. Regional workshops have been and are being conducted by knowledgeable research and extension personnel at various institutions within the region to share this knowledge and encourage adoption of the technology by non-users.
C. **JUSTIFICATION**

Extension and experiment stations throughout the South are in varying stages of computer usage for agriculture, home economics, 4-H, community development and administrative management activities. Electronic technology applications for these five areas will constitute the most pragmatic means of development and delivery of information in the coming decades.

The SRDC has networks in place with research and extension personnel in the 1862 and 1890 institutions across the region. The electronic technology clearinghouse concept would be a natural complement to the coordination of research and extension functions already being formed by the SRDC. The proposed clearinghouse function of a regional electronic technology center would emphasize networking and exchange of information. The SRDC would be a logical choice for such an emphasis since the Center has years of experience in sharing materials across the region, establishing functional networks and conducting workshops. In light of the fiscal constraints currently prevailing nationwide, every effort should be made to develop the most cost efficient means
of sharing research results. An electronic technology clearinghouse located at SRDC will allow Southern extension services and experiment stations to both avoid unnecessary duplication and to increase the efficiency of the transfer of computer technologies across the region.

D. PURPOSE

The Southern Regional Computer Development Committee appointed by the Southern Extension Directors at their meeting in April 1980 developed a proposed set of purposes for the Southern computing center. This set of purposes has been used as a starting point in preparing the following list. It has been updated to include purposes appropriate for extension and research at both the 1862 and 1890 land-grant institutions across the South.

The overall purpose of the electronic technology mission of the SRDC would be to serve as a clearinghouse on matters pertaining to the development and implementation of electronic applications in research and education programs for agriculture, home economics, community development, 4-H and administrative management for the Southern region.
Specific functions would include:

1. To inventory and maintain on-line a current listing of available software in the various states. This inventory would contain brief listing of the programs now in use as well as databases within states on weather, markets or other similar information.

The underlying assumption of this function would be to provide a central place where an institution could call to find out if a proposed application was already in existence and to obtain information concerning the availability and a point of contact for more information. Initially, the inventory would be completed for the Southern region but would be expanded to include national information as time and funds permit. This function can be expedited by building upon what already has been done at the University of Florida in an inventory of agricultural programs software, at Mississippi State University in home economics program software and at the University of Kentucky in a variety of software packages for various areas. The CD staff of the Extension Service-USDA has completed a preliminary inventory of CRD electronic technology usage. A small network would be established
to design the content and format for the inventory which could immediately begin to be built into the system.

One possible means of establishing this data file would be to "piggy-back" on an existing system. The National Agricultural Library (NAL) of USDA has a document-retrieval file called AGRICOLA. Informal telephone conversation with NAL's Chief of Information Systems Division reveals that there is the possibility of the Southern Regional Center using the same formatting, etc. and thereby inputing the listing and description of available software packages on this system. AGRICOLA is up-loaded on DIALOG which is maintained by Lockheed Corporation of Palo Alto, California. DIALOG is a national commercial company which can be accessed by a remote terminal. In this way, the information on software or applications would be available without the Southern Regional Center having to develop new program-ming or maintain a system. An effort such as this should be more cost-effective than a stand-alone system. With the approval of appropriate bodies and with appropriate funding, this function could be expanded to include maintaining a copy of the various software programs in a regional library with capability of reproduction at
the Center for sharing with institutions requesting the service or for electronic transmission to requesting institutions.

An auxiliary function would be to maintain a listing of software in the process of being developed. Where appropriate, a technical committee for the subject matter under development, could be brought to a central location to critique the plan for the software development. This could provide the developer with both encouragement and ideas to further assure that the resulting software package would be of maximum benefit to users throughout the South.

2. To inventory and maintain on-line a current listing of institutional personnel in the region concerned with electronic technology. This list would include information about who is doing what or who has what capability or who is working in what area within the region. This list would serve as a mailing list for a proposed newsletter which will serve a communication function to promote knowledge and information exchange among the various institutions. The list will serve to help Center staff identify the "experts" around the region in a variety of electronic technology areas. This knowledge will be especially crucial since a basic concept of this proposal is to emphasize the "clearinghouse function"
of the Center and the "knowledge base" out in the region at the
various institutions. Individuals would be identified who could serve
as instructional personnel for specific types of educational programs,
i.e., workshops, seminars and symposiums or who could help develop
training modules or audio-visual support packages.

3. To coordinate the development of a regional set of
computer software documentation standards and guidelines. A set
of documentation guidelines is needed to facilitate coordination
and cooperation among institutions in sharing software. This
function will be undertaken by a research-extension technical
committee with representatives appointed by the supporting Regional
Associations of Directors. The technical committee will develop a
proposed set of guidelines for consideration and adoption. Each
participating institution will be responsible for preparing its own
documentation following the regional guidelines that are approved.
These procedures will enhance uniformity and thereby increase the
opportunity for sharing between the various institutions. Recommen-
dations for the standards and guidelines to be updated or amended
would be made by the network.
4. To promote and facilitate joint efforts among states in software development. Through a knowledge of what is currently being used and what is "in process," decision-makers could make informed judgments as to what additional areas could benefit from software development. Where one or more institutions perceive a similar need, the Center could facilitate their "getting together" to expedite the development of the software package and to share in the cost associated with the development. Initial cooperation in the development of a specific application would enhance regional sharing and would provide software at a lower development cost than those packages which would be developed by individual institutions and must still be adapted for transfer to other states.

5. To coordinate and organize training programs for a variety of individuals in the various institutions throughout the region. These programs would range from executive development seminars for Directors, Deans, and Administrators to advanced technology updating for high level computer professionals or to initial training for specialists, agents and others in using electronic technology
in their extension or research efforts. The programs would be
developed for a region-wide application or multi-state application
or could be designed for an individual state.

The SRDC will serve as the liaison and not necessarily the
instructor. Information on training needs will be determined, an
agenda will be prepared, and topics to be covered will be selected
and appropriate instructional personnel secured. It is envisioned
that professionals within the cooperating institutions will serve
as a major source of instructional staff but outside consultants
may be used as appropriate. Center staff will participate as
appropriate but the focus again is on maintaining the "expertise"
out in the region and not centralizing it at one location.

Emphasis will be given to selecting instructional personnel
who are "on the firing line" and actively involved in the subject
matter being presented. The SRDC already has a successful track
record in conducting this type of training, i.e., Community Services
and Facilities Budgeting training conducted by Doeksen and Nelson
from Oklahoma State University and Impact Analysis Training (upcoming)
conducted by Deaton of VPI, Gordop of Florida, Wise of Clemson, 
Jones of Texas A & M and Debertin of Kentucky. The later meeting 
is being hosted by Debertin and the University of Kentucky.

Again the networking concept will be used when a training need 
is identified. Appropriate individuals will be sought from the 
participating institutions to plan, design, select staff, implement 
and evaluate the proposed training.

6. To identify the need for and develop training modules or 
packages in selected electronic technology areas for use by the 
participating institutions. Each participating institution has its 
own staff development capability but will need instructional 
materials and audio-visuals to assist them in conducting training 
within their institution. The Center can identify those training 
needs that reach across state and institutional boundaries and 
coordinate the development of modules, packages or audio-visual 
support materials which will enhance local staff development efforts 
and reduce duplication of efforts thus lowering overall cost. The 
SRDC has a successful track record in developing a self-contained
and complete package for "Training in Rural Development." A similar package might be developed for "Training in Electronic Technology" or "Training in Computer Applications for Successful Programming."

The Graduate School of the USDA has a learning center where film and video-tapes are available for individualized learning regarding various aspects of computers such as a video tape on the BASIC language or FORTRAN programming. It might be possible to access these resources in some appropriate way for group or individual training in the states. In recent years considerable emphasis has been placed on individualized instruction utilizing a variety of self-paced modules and electronic equipment. The Department of Defense has been a leader in this field with its task-oriented training. Some of these techniques might be appropriate for developing modules which can be used in county offices, state offices or at conveniently located learning centers.

The emphasis of the SRDC efforts will be, as it has been, to find out what the latest and best technology is and make it available to the states.

Everyone is either "in" or "getting in" computer training it seems--vocational schools, two-year colleges, four-year schools,
military schools and THE PRIVATE SECTOR! What can we learn from them? What can we borrow from them--rather than trying to be too "developmental." The military technical training materials are unexcelled--could they be adapted quickly to our research-extension-user needs?

Once again, the network concept will be used by selecting appropriate personnel from throughout the region to participate in the design and development of the content for the training.

7. To develop and maintain a variety of informational dissemination mechanisms for creating awareness and sharing knowledge about electronic technology in research and extension programming. A major emphasis of the Center is conceived as keeping abreast of regional and national electronic technology developments which have applicability for research and extension programs. The Center would seek to share this "state of the art" information with the participating institutions in a variety of ways including:

a. Publication of a periodic newsletter at least quarterly and probably bi-monthly. The newsletter would provide news...
exchange about new developments and success stories as well as provide opportunities for recognition of individual accomplishments. The newsletter would include information about available training and publications. A proposed format for this publication entitled COMPUTER BITS AND BYTES ON ELECTRONIC TECHNOLOGY IN RESEARCH AND EXTENSION is included as Appendix A to this proposal.

b. Publication of a series of technical reports and proceedings of conferences and training seminars. The series might be in two parts beginning with series of technical reports written by regional researchers or extension personnel and documenting specific efforts or procedures. Technical reports could document the work of various technical committees.

The first publication in this technical reports series might be the regionally approved set of computer software documentation standards and guidelines. The second aspect of this information dissemination effort might be less technical but would include information such as proceedings of conferences and seminars or a collection of papers that otherwise might
Abstracts, probably on a quarterly basis, would be another

d. Periodic publication of electronic technology research

to the professionalization of the field.

statements that enhance the sharing of knowledge and lend support
personal do express the need for "refereed" types of publica-
community as well as the availability of funds. Professional
the "needs" as expressed by the research and extension

priority than a, and b, above and would be pursued based on
journal. The development of this idea would have a much lower

4. Publication of a technical research and extension

of technical reports.

reports with an emphasis on application would be another source
research findings throughout the region. Condensed research
would be to "disseminate" the latest knowledge or
hardware evaluation or software applications. This basic idea

another type of technical report might be the duplication

series might be titled: ELECTRONIC TECHNOLOGY SERIES.
be distributed outside of the author's institution. The latter
service that could be provided. This same information could be maintained on-line. The publication envisioned is a simple two to six-page newsletter format which would give title, authority, data and availability information. It would include a one-paragraph description of the research findings.

e. Maintenance of an on-line information service about current events and opportunities in the field of electronic technology. This idea would need to be developed more fully and would be implemented only if the professional community felt it would be beneficial and if funds were available.

8. To provide limited technical assistance to participating institutions upon request in design and implementation strategies for instituting an electronic technology program or a specific aspect of an electronic technology program. Institutions initiating new program efforts or adding specific components to the programs already existing may feel the need for specialized assistance in identifying and evaluating various alternatives. This function can be provided by facilitating the sharing of knowledge by "experts" within the region. On some occasions it may be appropriate for an individual from one institution to provide consultation...
or specialized services to another institution in a specific area of expertise. The Center would help identify technical resources available within the region which would be appropriate for the service needed. The institution receiving assistance would be expected to underwrite the out-of-pocket expenses incurred. It would be recognized that only a limited amount of out-of-state help could be provided by any identified technical expert.

Individuals who have developed expertise in matters such as copyrights and royalties would be identified and sought out as contributors to the various publications used in the dissemination process and as resource persons for appropriate workshops and seminars.

9. To provide an interface with the commercial sector including vendors so that they would be aware of efforts of the research and extension community while at the same time providing an access to their information networks for the land-grant system. This function is intended to cover commercial applications to electronic technology such as Ceba-Geigy in the agricultural arena or Control Data Corporation as well as the various vendors such as Radio Shack,
Apple, IBM, etc. A list of contact persons would be built and maintained. Liaison would be effected through attendance at trade shows, symposiums, research seminars, demonstrations and on-site visits to their headquarters and operations. As the Center program develops, these contacts might provide a means whereby computer software and hardware vendors can provide equipment, software, and information to complement the activities of the Center through loan or concessionary rental. It would facilitate cooperation for "Hardware and Software Fairs" or demonstrations at state training programs or regional workshops. These contacts might also result in a list of research questions which would serve as ideas for the Technical Research Committee of the Experiment Stations providing an underlying base for region-wide programming in electronic technology.

E. RESEARCH SUPPORT BASE

Effective use of electronic technology by clientele of the land-grant system will require both an effective base of research support and an effective dissemination effort. An invitation has been extended to the Southern Experiment Station Directors by the chairman
of the regional association to participate in a regional research development committee concerned with supporting the demand for electronic technology by clientele. A tentative organizational meeting has been set for April 15. The participating states will form a Technical Research Committee to guide the project which will provide a research base for current and proposed initiatives by the land-grant system in the Southern states. It is anticipated that this committee will perform a research support function for the Center's effort in electronic technology.

The SRDC will keep abreast of the project activities, results and reports so that the information generated can be included in the regional electronic technology "clearinghouse" and made available to the institutions throughout the region.

F. ORGANIZATION

Rather than creating a new and separate Center, this proposal suggests that economies be achieved by combining the regional electronic technology coordination function with those rural development functions already existing in the Southern Rural Development Center (SRDC). The SRDC is an existing regional mechanism created
by the Southern Extension Service Directors, the Southern Experiment
Station Directors and the Administrators of 1890 Extension and
Research Programs. Each of these regional groups would be invited
to endorse and participate financially as well as through staff
support and other means to support this additional function of the
SRDC. These four groups (if they elect to participate) would be
seen as the parent body for both functions of the SRDC, i.e., elec-
tronic technology and rural development.

1. Board of Directors: Each of the participating institu-
tions, through their regional associations of directors or
administrators, would continue to elect members as their repre-
sentatives on the Board of Directors of the SRDC. The Board of
Directors, which currently consists of 9 members, could remain
intact or be revised in accordance with the wishes of the regional
groups of directors and administrators. Currently the Southern
Extension Directors elect three members, the Southern Experiment
Station Directors elect three members, the Administrators of 1890
Extension programs elect one member and the Administrators of

"no one
required to participate"
1990 Research Programs elect one member. These eight members then elect a ninth member from the private sector. Each Board member serves a term of three years.

Specific functions of the Board of Directors would be:

a. To create the electronic technology component of the SRDC by drafting and approving its mission statement regarding the electronic technology function.

b. To develop the policies and priorities which will guide the operation and character of the Center.

c. To review and assess the annual SRDC Plans of Work and research proposals.

d. To oversee by way of periodic review, inspection and analyses the implementation and operation of the Center.

e. To terminate the existence of the Center if it is deemed unnecessary by a majority of the members and their appointing authorities.

f. To create Technical Advisory Committees, establish their functions and oversee their performance.

g. To review and approve the Center annual budget, which will be prepared by the Center Director.
h. To determine the financial assessments from the participating institutions required to support the Center.

i. To report annually to the respective appointing associations and the participating institutions on the Center's operational status and program results.

j. To change any provisions of the Center's by-laws and operating procedures by decision of a simple majority of the board members.

2. **Technical Advisory Committees:** Supporting regional associations of directors will be asked to establish a technical advisory committee to help develop recommendations for policies, programs and priorities to be considered by the Board of Directors. These technical advisory committees will also help provide on-going participation by technical people in the programs of the Center. Membership on the technical advisory committees would be representative of the various subject-matter areas and the participating institutions. An executive committee of the technical advisory committees would be formed to provide an extension-research, 1862-1890 mix and to serve as a small group for interaction with Center staff.
Specific functions of technical advisory committees include:

- review and advise on both the current and planned activities of the Center.
- organize and perform technical functions of software development and educational material preparation that will form the foundation upon which the Center programs will be built.
- review, evaluate, and recommend priorities on all functions or project proposals which may be submitted for consideration and implementation by the Center. Priority for such programming will conform to the mission and operating budget of the Center.
- advise on the development of alternatives and/or recommenda-
tions on policy matters for submission to the Board of Directors.
- advise on determining resource needs for the Center and in determining future directions.
- assist in the evaluation of Center effectiveness in fulfilling its assigned mission.

The technical committees would elect a set of officers and establish operating procedures and by-laws which would be in accordance with the established procedures of their respective Associations and appropriate
coordination with the Board of Directors of the Center.

3. Institutional Coordinators. Each participating institution would agree to provide one or more institutional representative to provide liaison between the institution and the Center; to gather information and provide it to the Center; to assist and otherwise facilitate institutional faculty, staff, and administration with requests for services from the Center; and to serve as the coordinator for institutional projects which involve the Center. Each institution would be encouraged to establish its own "electronic technology coordinating committee" to provide an appropriate extension-research mix. Some institutions may appoint the chairman of such a committee as the institutional representative to the Center while others may choose to appoint both an extension representative and a research representative.

4. Technical Committees. As required, and as recommended by the executive committee of technical committees, a number of additional technical committees might be established to perform specific technical functions for the Center. These committees would include representatives from all or from selected institutions as appropriate and would
be charged with a specific function, i.e., the development of a regional set of computer software documentation standards and guidelines or to develop a specific type of training package. Each committee would be chaired by a project leader who would provide leadership to the committee in accomplishing its assigned tasks. These project leaders would be staff members of participating institutions who would serve upon approval of their respective Director or Administrator without cost to the Center. Upon completion of the assigned tasks, the committee would be dissolved or reorganized as appropriate. The use of a variety of knowledgeable extension and research personnel throughout the region from participating institutions, would provide a truly regional focus, and would provide professional recognition to the committee members. This organizational strategy will also be more cost-efficient to participating institutions than a large centrally located technical staff.

5. Center Staff. An underlying assumption for staffing the electronic technology component of the SRDC is that the staff should be small, consisting of a well-qualified, experienced
professional director, a systems analyst, an editor, and experienced secretarial assistance. It is proposed that the Center Director administer both the rural development and electronic technology components thus gaining expertise but saving on administrative cost when two Centers are established. A similar arrangement is proposed for the Center Editor. If the Center is to maintain technological respectability throughout the region, it will be absolutely necessary to employ a systems analyst who has a high degree of technical knowledge but who hopefully would possess some applied knowledge for extension and research programming.

G. FACILITIES

The Southern Rural Development Center headquarters is located off-campus at Mississippi State University with 4050 square feet of rented space. The cost is $3.05 per square foot and includes five professional offices, a conference room and library combination, a print and duplicating shop, copy and mail room combination. Two of the professional offices are currently vacant and if additional space should be needed there is another adjoining office space with two professional offices and adequate space for computers and
learning centers. Photographs of the SRDC space are found in Appendix B of the original copy of this proposal.

MISSISSIPPI STATE UNIVERSITY
Computer Services and Facilities

The Thomas E. Tramel Computing Center provides a broad range of computing services for Mississippi State University. Computing services are provided through one central computer, a UNIVAC 1100/80A.

The Computing Center staff provides support services in problem-solving and program development for academic applications. System design, programming, implementation, documentation and maintenance of administrative data processing activities are also provided by the Computing Center staff. Educational and research staff of the university are provided with support for their specific data processing applications. The Computing Center regularly offers short courses on selected computing topics for university personnel.

Hardware

The Computing Center's central computer is a UNIVAC 1100/80A. The UNIVAC 1100/80A is a modern, large scale general purpose computer. The major components of the 1100/80A include the central processing...
unit, 6 input/output channels, and two million bytes of main storage. Six magnetic-tape drives are attached to the UNIVAC computer. Five of these are 9-track drives capable of operation at densities of 800 or 1600 BPI (bytes per inch) and one is a 7-track drive capable of operation at densities of 800 BPI in either even or odd parity. 1.5 billion bytes of mass storage is available for program or data storage.

Other I/O devices include card-readers, line-printers, time-sharing terminals and a card-punch.

Time-sharing terminals and remote job entry stations are located throughout the campus and provide interactive service to the computer for all facets of the university.

**Software**

The operating system of the UNIVAC 1100/80A is a powerful general-purpose system, offering both batch and interactive processing by use of multi-tasking techniques. Requests may be made to the operating system through the use of the UNIVAC 1100 Executive Control Language.

Languages and language processors available on the Computing Center computer include COBOL, FORTRAN, RPG, PASCAL, BASIC, ALGOL, PL1, UNIVAC 1100 ASSEMBLER, LISP, SNOBOL, GFSS, GASP, and SIMSCRIPT. In addition,
several mathematical and statistical packages, a text processor and file manipulation routines are available for processing.

**ORGANIZATION**

The Computing Center is administered by a director who reports to the Vice-President of Academic Affairs. The policies and priorities of the Center are recommended by the Computing Center Executive Committee.

The Computing Center staff of approximately 50 people is organized into four groups: Operations, System Programming, User Services and Administrative Services.

**Operations Staff**

The Operations staff includes data entry personnel, production schedulers, and computer operators.

Data entry personnel process data for a wide variety of academic and research projects along with the input from administrative data processing activities. Information processed by data entry personnel may be output in three forms: punched cards, magnetic tape or mass storage.
Production schedulers are responsible for job submission and disbursement of administrative data processing output.

Computer operators monitor the performance of the computing system and respond to job requests for input and output resources.

Average daily activity on the Computing Center computer is 1500 jobs processed, 180,000 cards read, 225 tapes mounted and 2,400,000 lines printed.

**Systems Programming**

The Systems Programming staff develops and maintains the operating system, data communications software, language processors, and utility programs. In addition, this staff is involved with the implementation of a revised computing charging system, a new CALCOMP Electrostatic Plotter System and a terminal concentrator using UNIVAC's UTC system.

**User Services**

The User Services staff provides support service through computer applications to the university's academic and research community. Federal and state agencies along with private industries are also provided with computer services by the User Services staff.
Computer systems maintained by this staff include forest inventory system, mail processing system, student testing information system, soil management system and computer tape conversion system.

Administrative Services

The Administrative Services staff designs, programs, implements and maintains computerized information systems for over 20 administrative and auxiliary units of the university, MCES and MAFES. These information systems also include activities of several academic departments and student organizations.

The Administrative Services staff is responsible for the 3000 computer programs executed by the 100 information systems presently in production.

EXTENSION SERVICE

Mississippi Cooperative Extension Service is an RJE site to the main computer facilities at Mississippi State University. The University has a UNIVAC 1100/80 mainframe computer. The following equipment is located at the Bost Extension Center:
(1) UNIVAC 1004 Card reader/printer remote job entry terminal  
(600 lpm printer)

(3) UNISCOPE 100s data entry terminals

(2) 1610 keypunch/verifier

(3) TI Silent 700s terminals

(18) Radio Shack microcomputer systems. Each system includes  
printer, disk drives and RS232 capability. (8 Model I's,  
9 Model III's and 1 Model II)

The Management Information Department has been given complete  
responsibility for computer services for Extension clientele and  
computer support within the organization. This department is headed  
by a staff assistant to the Director and four professional personnel  
with MS degrees in computer science and agricultural economics. Two  
data systems technicians and four student programmers are also a part  
of the staff. Each specialist department has identified a computer  
contact person who is responsible for supporting software development  
and providing educational opportunities for clientele in their respective  
discipline.

Since 1979 MCES has been involved in pilot testing the feasibility  
of using microcomputers in support of educational efforts at the county  
level. Since that time, through joint efforts of MCES and MAFES,
approximately 30 microcomputer application programs have been developed or adapted for use in Mississippi. An established procedure for software distribution to the various clientele groups throughout the state has been developed, and approximately 1,000 copies of available software have been distributed to interested individuals within the state and to other land-grant universities throughout the nation.

Plans are underway to establish a statewide microcomputer network, placing microcomputers in each of the 82 counties in Mississippi. These stand-alone systems will be linked to a "mini" computer at the Bost Extension Center, which will have pass-through capability allowing access to the large mainframe computer at MSU. The computer is also used to analyze over 100,000 soil samples, 15,000 nematode soil samples, forage samples, perform analysis of livestock herds, farm planning, support for various livestock shows and sales and a multitude of administrative data processing functions.

EXPERIMENT STATION

The Mississippi Agricultural and Forestry Experiment Station (MAFES) functions basically as an RJE unit of the University Computer Center's UNIVAC 1100/80 system. The local job submission and printing site
features a UNIVAC 1104 card processor along with two UNIVAC 1610 card punches.

In addition there are several microcomputers and dumb terminals located throughout the MAFES system. The largest single group of microcomputers and terminals is located in the Department of Agricultural Economics. There are currently six microcomputers (2 Radio Shack TRS-80 Model II's, 2 Radio Shack, TRS-80 Model III's and 1 IBM personal computer) along with approximately 8 Lear Siegler dumb terminals.

Other equipment located in other departments of MAFES include a Data General S/130 minicomputer and TEKTRONIX graphic computer, Sperry UNIVAC V77-600 minicomputer, an Apple II microcomputer, 4 Texas Instruments Silent 700's terminals.

"TOGETHER WE CAN DO SO MUCH"
H. BUDGET (Estimated)

PERSONNEL

Center Director (1.0 FTE) $24,000
Systems Analyst (1.0 FTE) 35,000
Technical Support (1.0 FTE)*
  (Extension--0.5 FTE) 35,000
  (Research--0.5 FTE)
Editor (1.0 FTE) 20,000
Training Specialist (1.0 FTE) 20,000
Secretarial/Editorial/
  Library/Printer Assistance 48,000

FRINGE BENEFITS 29,120
TRAVEL 12,000
SUPPLIES 8,320
COMMUNICATIONS 18,560
CONTRACTUAL SERVICES 30,000

TOTAL $280,000

MCES IN-KIND CONTRIBUTION 59,000

TOTAL BUDGET $339,000

*Appropriate research and extension professional staff will be identified at selected institutions to provide technical support to the Center's activities.
FUNCTIONS

- Inventory and maintain on-line a current listing of available software in the various states.

- Inventory and maintain on-line a current listing of institutional personnel in the region concerned with electronic technology.

- Coordinate the development of a regional set of computer software documentation standards and guidelines.

- Promote and facilitate joint efforts among states in software development.

- Coordinate and organize training programs for a variety of individuals in the various institutions throughout the region.

- Identify the need for and develop training modules or packages in selected electronic technology areas for use by the participating institutions.