Cooperative State Research, Education, and Extension Service (CSREES)

IT Strategic Plan

Fiscal Years 2003-2008

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ABBREVIATIONS USED

ABBREVIATION	DEFINITION
ARS	Agricultural Research Service
CSREES	Cooperative State Research, Education, and Extension Service
CRIS	Current Research Information System
C-REEMS	Competitive Research, Education, and Extension Management Systems
CYFAR	Children, Youth, and Families at Risk
ECOP	Extension Committee on Organization and Policy
ESCOP	Extension Service Committee on Organization and Policy
EFOIA	Electronic Freedom of Information Act
ISTM	Information System Technology Management
IT	Information Technology
NIH	National Institutes of Health
NIMS	National Integrated Management System
NPL	National Program Leader
NRI	National Research Initiative
NSF	National Science Foundation
OCIO	Office of the Chief Information Officer
OMB	Office of Management and Budget
PDA	Personal Digital Assistant
REE	Research, Education, and Economics
REEIS	Research, Education, and Economics Information System
USDA	U.S. Department of Agriculture

Foreword

The Cooperative State Research, Education, and Extension Service (CSREES; the Agency) has as its business the provision of federal funding and program leadership to advance a global system of research, extension, and higher education in the food and agricultural sciences and related environmental and human sciences to benefit people, communities, and the Nation.

CSREES is one of the four agencies that comprise the Research, Education, and Economics (REE) mission area of USDA. REE is assigned federal leadership responsibility for the discovery, application, and dissemination of information and technologies spanning the biological, physical, and social sciences through agricultural research, education, and extension activities, and economic and statistical analysis.

CSREES has primary responsibility for providing linkages between the Federal and State components of a broad-based, national agricultural research, extension, and higher education system. CSREES provides funding for projects conducted in partnership with the State Agricultural Experiment Stations, State Cooperative Extension Systems, land-grant universities, selected Historically Black and Native American colleges, and other research and education institutions. Federal funds are distributed to universities and institutions by statutory formula funding, competitive awards, special grants, and cooperative agricultural and research grants. CSREES is responsible for administering USDA's a large number of competitive grants.

The technological advances of the 20th century have made it possible, and our modern culture has made it imperative, that CSREES and its partners have the benefit of ready access to the information contained in the databases maintained by CSREES and its partners. Given societal change and the technological direction of the future, all citizens will expect ready access to research-based information. CSREES will be challenged to help all citizens interpret research information on topics in the food and agricultural arena; to enable policy makers to respond to critical concerns; and to link researchers, customers, organizations, and policy makers nationwide.

To meet this demand, CSREES management has established Information Systems and Technology Management (ISTM). ISTM is charged with the primary responsibility for developing and implementing a strategic approach to modernizing CSREES information technology resources. This approach incorporates strategic, operational, and capital investment planning. The ISTM charge is to develop and distribute the IT goals, objectives and priorities of CSREES, to request the required resources, and to assure that CSREES systems apply appropriate technologically advanced systems to support the CSREES mission.

A CSREES Deputy Administrator who is also the Chief Information Officer for CSREES heads ISTM. The CIO's immediate staff includes a Policy Team whose responsibility is to assist the CIO in developing policy and procedures for ISTM. Two directors report to the CIO: one for Applications, and one for Operations and Administrative Support. The functional areas that these directors are responsible for are shown in Figure 1.

This document presents the Information Technology Strategic Plan for CSREES for Fiscal Years 2003-2008. The IT strategy presented in this plan will evolve as CSREES evaluates new technologies and continually engages with its partners. The strategic planning process requires the preparation of annual operating plans with feedback mechanisms to ensure performance. Preparation of such operating plans also includes reviewing the strategic plan annually and revising it as necessary to ensure that it remains valid.

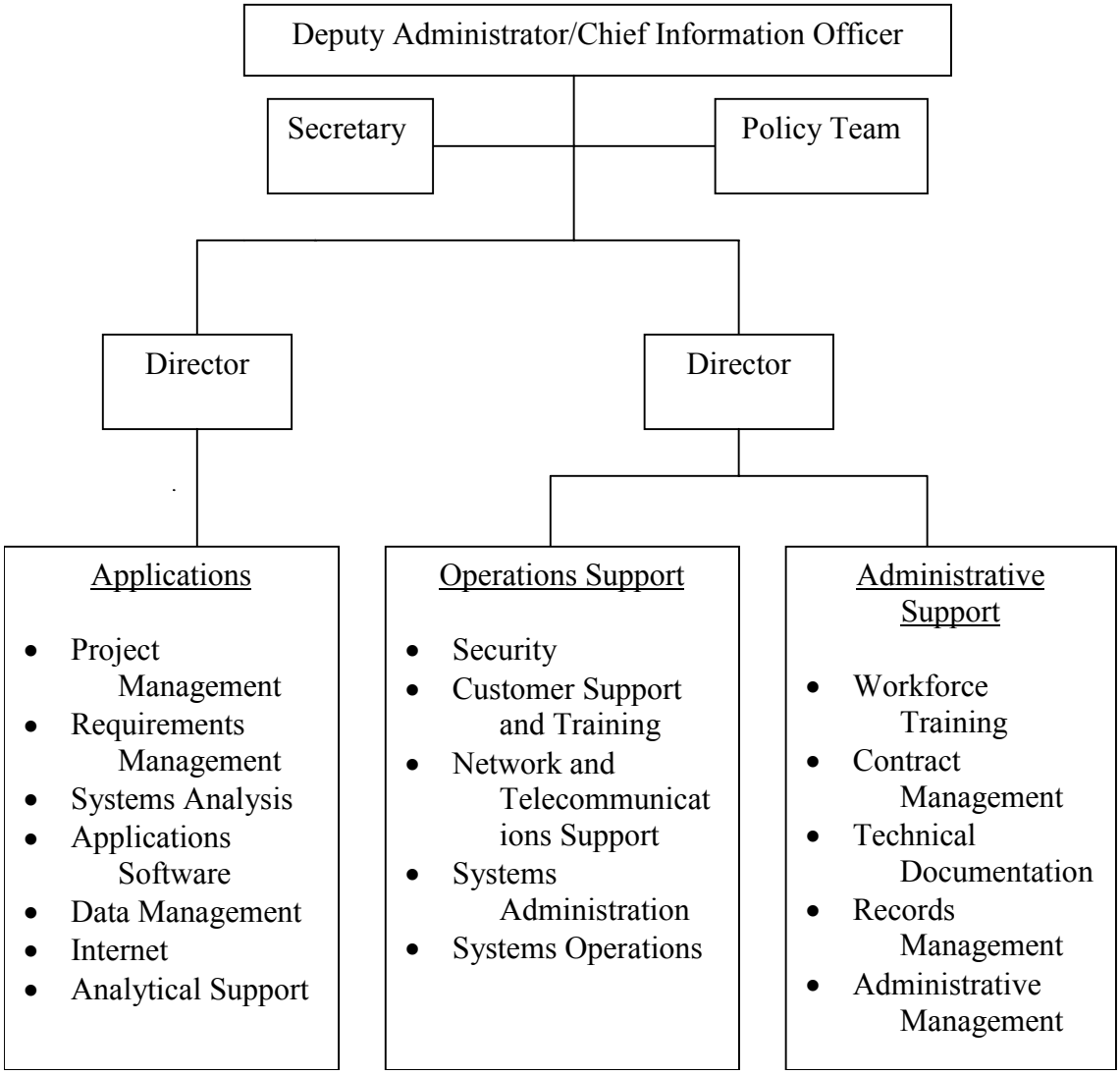


Figure 1. Current ISTM Organization

MISSION

To provide quality; business-, mission-, and customer-focused; and cost effective information management services.

VISION

CSREES provides reliable, responsive, and accurate information systems support, which satisfies the business requirements through a one-solution approach.

VALUES

Assuring quality information technology products and services requires strict adherence to the values described below. These values are fundamental to successful daily operations and to achieving the strategic goals and objectives outlined in this plan. They are based on the values set forth in the CSREES Strategic Plan submitted for review 10/04/00.

- **EMPLOYEE EXCELLENCE** – CSREES is committed to its employees and to their development, meaningful participation, and recognition.
- **HONOR AND INTEGRITY** – CSREES acts ethically; is open, honest, and fair; keeps its word; and takes full responsibility for its actions.
- **COLLABORATION** - IT policies and priorities are developed through cooperative efforts between program and information technology staff and, where appropriate, CSREES partners. .
- **COST EFFECTIVENESS -**IT resources are leveraged as much as possible, avoiding waste and redundancy.
- **CUSTOMER FOCUS** – IT priorities, resource allocations, and services are provided consistent with the needs of CSREES staff and partners.
- **INNOVATION AND RESPONSIVENESS** – The CSREES IT program constantly explores new ideas and methods in order to increase the effectiveness of its services and to meet the changing needs of its customers.
- **QUALITY PRODUCTS AND SERVICE** – CSREES ensures that IT services and resources are provided that satisfy stakeholders, partners, and customers and meet its business needs.

CSREES IT PRINCIPLES

CSREES IT principles are statements that guide the operation and evolution of the IT program within CSREES. They are necessary to ensure that IT decisions remain consistent with CSREES business requirements, the needs of CSREES partners, and the legislative and regulatory direction that CSREES receives.

The principles are universally accepted within CSREES and apply to all business units. They are stable, withstanding changes in technology, processes, and products. They maintain a clear relevancy with policy changes in programs and management approaches as well as reflect the general policy direction within the Federal Government.

Each principle is discussed in general. A rationale and implication statement is provided for each that relates it to the business of CSREES. The rationales and implications will evolve over time, as they respond to factors such as the current IT environment, internal and external initiatives, external forces, and changes in the CSREES mission, vision, and strategic plan.

The One Solution approach provides a means for refining both business processes and their system support to achieve the most effective and efficient CSREES program possible.

> **Discussion**: One solution is an approach that treats the business processes and the IT systems that support them holistically. The processes are examined and restructured so that multiple business units can use them. As a result, the IT program achieves an enhanced customer focus. All IT support - systems, data, and technology - is addressed from the point of view of its ultimate use within the business processes necessary for CSREES and its partners to fulfill their responsibilities.
>
> **Rationale**: With a focus on One Solution, CSREES can streamline both its business processes and the systems and data that support them. Achieving One Solution will have the effect of conserving resources and assuring that comparable and/or related business processes are carried out and supported consistently.
>
> **Implications**: Throughout CSREES there will have to be a focus on similarities. This will apply to business functions, to data, and to applications support. Business processes may support differing legislation and be applied to differing organizations, but the processes themselves, and in many cases the information used by the processes, will be alike. Sharing, rather than building uniquely, will become the focus of redesigned processes and systems.

System reliability is the key to assuring that CSREES business requirements are fully supported by the information technology program.

> **Discussion**: Information systems are indispensable to the successful fulfillment of business processes. Computing tools must meet program needs, must be available on demand, and must be supported by a dependable telecommunications

network. To assure availability and reliability of its IT resources, CSREES must determine its requirements for upgrading IT resources, requesting funds, and developing policy and procedures consistent with the requirements of its business processes.

Rationale: Network and the computing tools must be robust in order to support the CSREES program. CSREES staff and partners must be able to depend on the IT network and its assets to provide uninterrupted processing and communications services whose capabilities continue to expand to meet the growing needs of the program.

Implications: Adequate funds and personnel must be made available to assure that CSREES business processes are fully supported. CSREES standards and enterprise architecture must be strictly adhered to in order to assure that the number of opportunities for failure are limited during both operations and migration to newer versions of applications, software, hardware, and services.

Business orientation provides the foundation for the information technology program.

Discussion: The sole purpose of the Information Technology program is to provide support to CSREES and its partners in carrying out their legislated responsibilities. CSREES business units must actively and collaboratively participate in a decision process that assures that architecture decisions are consistent with business needs. In addition, since these decisions affect CSREES partners, they must participate in the deliberation process when they will be affected by the results. When all stakeholders participate in the development of requirements for IT systems and services, then they share a common understanding of the services to be provided.

Rationale: IT staff should not make unilateral decisions about the CSREES architecture. It is critical that the business units provide direction with regard to their requirements. If IT staff develops the architectures based on their own "best guess" of what is needed, the result could be inadequate support. Needed information could be unavailable, outdated, or wrong, and systems may be incapable of adequately supporting business functions. Decisions must be made in collaboration with the business units.

Implications: Business units must be able to communicate their goals, objectives, processes, and support needs to IT staff. During the system development and maintenance process, IT staff must frequently meet with the stakeholders to ensure that both architecture and systems remain relevant to the business processes.

Value is a prime consideration when acquiring or enhancing IT resources.

Discussion: Information management decisions must be made that provide maximum benefit at a minimum cost to CSREES. Data, systems, and technology must be designed and used to optimize the value of the services provided and to

promote and enhance the quality, effectiveness, efficiency, and/or functionality of the business processes.

Rationale: Resources are finite and usually do not meet demand. Therefore, CSREES must make the best use of the resources that are available. Priorities must be established and maintained that direct the available resources to the areas that have the most potential for providing positive results. IT must be viewed as a capital investment necessary to ensure sound business operations.

Implications: Acquisition decisions must not be based solely on technology trends, but also on business direction, consistent with established policy and standards. New technologies should be added to the standard set only if they can demonstrate their ability to support business needs, are compatible with the current infrastructure, provide a tangible cost benefit that demonstrates cost effective improvement in operational efficiency, or enables a required business process. Appropriate tools must be available to test and evaluate these technologies.

Standards and architectures are established that enable and encourage resource sharing and promote opportunities for reusability and portability.

Discussion: Standards provide the ability to share reusable components, help establish a collaborative systems environment, and provide the flexibility to adapt to changing requirements. Data, applications, and technology must be implemented within an architectural framework that is sound, consistent in use, and flexible to accommodate the diverse business of CSREES. The standards contained in this framework must be based on formal or de facto industry standards and/or the decisions made within CSREES, USDA, and the government as a whole to ensure quality and security of technology and data. Exceptions will be based on CSREES tested and accepted technology and the assumption of responsibility for the exceptions by the system owner.

Rationale: Data, applications, and technology will comply with standards that have been established for and by CSREES. These standards will enable interoperability, enhance communications, and maximize the effectiveness of resources. When standards are established that support resource sharing, they need to be managed to optimize the benefit to business processes, not to minimize the cost of delivery. Platform independent clients will enhance portability and flexibility.

Implications: Standards must be developed that are appropriate and generally applicable. CSREES IT standards must be rigorous enough to ensure connectivity of a variety of equipment, software, and information but flexible enough to allow choices that address business needs. Mechanisms must be in place to make exceptions, limited in scope and duration, to the established standards when a deviation is essential to assure the success of a business process.

Single point of entry is instituted to facilitate locating information and to avoid redundant data collection.

Discussion: In consonance with the principles of E-Government, as expressed in the Presidential Initiative E-Grants, locating CSREES data will be facilitated, as will non-redundant data entry, through a single point of entry. All data will be appropriately backed-up to ensure its continuous availability throughout systems managed by CSREES. As current systems are re-engineered, this principle will be followed. Multiple pointers to data location are not only allowed but are encouraged to ensure this principle yields the benefits of its design without the drawbacks that have previously been caused by multiple data entry locations.

Rationale: Customers should have easy access to CSREES data. Whether inside or outside the federal government, users should be required to enter new data into systems only a single time and from that point onward that data should be propagated throughout all the systems that require the data.

Implications: To enable single point data entry, there must be common data definitions that apply to all CSREES systems. Once the definition of the data is agreed upon, systems must require single data input wherever feasible. In addition, a single directory must be established and maintained to facilitate access to CSREES data.

Shared Data concepts will be applied throughout the CSREES information technology program.

Discussion: All CSREES business units have a need to share data. Data bases must be designed and the data within them maintained to support multiple purposes. CSREES staff and partners should be able to use CSREES data in any way required to satisfy their business processes. Individuals are requested to share their data whenever possible and desirable.

Rationale: CSREES staff and partners must have access to required data to enable informed decisions or to carry out a business activity. A shared data environment is one of the necessary elements of the single point of entry principle. As such it has the potential to reduce the cost of capturing and storing data, increase data quality by obviating errors based on repetitive data entry, and increase productivity by facilitating access to needed information.

Implications: A current, up-to-date inventory of all systems and their data elements must be available for individuals to use in identifying which systems they must be able to access. In all cases where data sharing is being considered, a determination must be made that the data is not subject to privacy act or other confidentiality restrictions. Technical mechanism for sharing must be developed. In addition, agreements must be put in place between business units that cover data definitions, rights of access, and methods for keeping users apprised of data base availability and maintenance activities.

Security and Privacy protection of IT resources will be consistent with CSREES information sensitivity and system availability requirements.

Discussion: CSREES information, systems, and infrastructure must be protected, as appropriate, throughout the IT life cycle. Privacy Act data must be protected

whether it is stored at the desktop or on the network. Systems must be protected from denial of service attacks, from corruption or loss, and from environmental risks. Data in the systems must be protected from unauthorized use and guaranteed to be reliable. Security weaknesses in CSREES systems could jeopardize other USDA IT systems.

Rationale: CSREES data is vital to the continued mission critical operations of CSREES. CSREES systems can be compromised by internal as well as external actions. Hackers could conceivably gain access to grants funding data and eliminate programs or change them in ways that would be detrimental to the public interest. Privacy Act data could be extracted from the data bases and used inappropriately. Hackers could use CSREES system vulnerabilities as a gateway to other government systems.

Implications: All employees must accept security as a necessary component of their business operations. A balance must be struck between protection and operations, i.e., security must be tight enough to afford the appropriate level of data and system protection without being so tight that it inhibits operations. Protection levels must be consistent with risk, one element of which is affordability.

Workforce development will focus on providing and promoting ongoing IT training and collaboration opportunities to ensure a competent and well informed CSREES staff.

Discussion: In order for CSREES to achieve its vision of providing leading edge information systems support, the IT workforce must be properly trained, have the tools to respond to CSREES business requirements, and an environment conducive to providing quality services. In addition, the general CSREES staff should be provided with continuing training so that they can participate knowledgeably in the decisions regarding IT requirements and resources and can use those resources advantageously.

Rationale: Technology is advancing at an ever-increasing pace. At the same time, the government is trying to keep up with the private sector in terms of using emerging technology. The resultant mandates for system improvement have put a burden on the technical workforce. CSREES must ensure that its workforce is composed of experienced staff, that their knowledge is kept current with changes in technology, and that the lines of communication with each other and with their clients and partners are robust.

Implication: CSREES staff must have access to relevant training and professional development opportunities on a regular basis. Professional development opportunities include participation in professional conferences, interdepartmental work groups, and professional organizations. Observing best practices in other organizations that have needs similar to CSREES and working in an environment where a free exchange of ideas between IT professionals and clients is encouraged are also necessary to assure that systems developed and enhanced serve the business purposes of CSREES.

IT SITUATION ANALYSIS

IT Support

- Current IT resources are inadequate to the job of supporting CSREES business processes. This problem has existed for years and is the basis for the recent reorganization of IT resources under a CIO.
- There is a divergence of opinion between providers of IT services and their customers. The providers believe the systems would be more supportive if the users took the time to learn how to use them. Some users view the IT staff as unresponsive, controlling, and lacking in certain competencies.
- CSREES staff, other than in ISTM, have become expert in website development, programming, PDA's, and/or the creation of system solutions that meet program needs. Various components of CSREES have created systems or are aware of systems that could be adapted to fulfill requirements. In the past, the IT staff did not always take advantage of the ideas or skills of these individuals.
- CSREES operations involve and, in some ways, are dependent upon its partners; land grant universities, research stations, extension agents, NIH, NSF, and other federal agencies. The universities develop and maintain databases and websites that CSREES needs for operations and reporting. NIH and NSF maintain project data for those interagency projects for which they are the lead agency.
- All IT software and hardware procurements must be approved by and implemented by ISTM staff.

IT Management

- In March 2002, in recognition of the fact that IT support for CSREES was not keeping up with business requirements and had, in fact, reached crisis stage, CSREES management created the position of Chief Information Officer and gathered its IT staff and their responsibilities into a single, new organization - ISTM The CIO was selected from one of the program offices in recognition of the fact that program requirements must be understood within the IT community and that program needs must drive IT plans. The majority of the CSREES IT resources were assigned to ISTM when it was created.
- ISTM is still learning to work as a team and developing its strategies for providing reliable and adequate IT support in a structured environment. New managers are being selected but have not assumed their new positions. Views differ as to why the IT program is not functioning more effectively. There could well be a problem of too much work for too few people and promises being made by management that cannot be fulfilled due to a lack of resources.
- CSREES does not have complete control over some of its systems. There are administrative and budget activities that take place outside of CSREES that impact CSREES IT activities.

- CSREES is one of four agencies in REE and is dependent on one of the other three agencies, ARS, for administrative support. The priorities of CSREES are not always compatible with the priorities of ARS. At present, there appears to be no satisfactory approach to resolving conflicting priorities.

- There is a continuing lack of recognition on the part of CSREES senior management of the requirements that IT needs to satisfy to support CSREES business processes.

IT Planning

- The CSREES Information Technology Strategic Narrative, dated Spring, 2001 and a later version dated August 15, 2002, are CSREES IT strategic planning documents.

- The CSREES Strategic Plan was submitted for review 10/04/2000. No later plans exist.

- A capital investment process for projects funded below Departmental thresholds does not exist.

Budget

- In recognition of the crisis within the IT program, CSREES management has provided generous and necessary budget support. This has resulted in greater visibility for the IT program along with the heightened recognition of its criticality to the success of the CSREES program.

- Some CSREES programs receive funding directly from other agencies, states, universities, and other entities. One result of receiving funding from outside sources is to foster an attitude of independence from the strictures of CSREES.

- Business requirements sometimes demand complex and costly technological solutions; e.g., a collaborative support system that includes partners and stake holders.

Personnel

- CRIS staff will likely experience a high volume of turnover. As much as 80% of the CRIS staff is eligible or will be eligible to retire during the next 3 years.

- Many of the IT staff lack skills essential to delivering a forward looking information support program. Recruiting staff with these skills is very difficult. Federal salaries are not comparable to those in the private sector.

- Career ladders are out of date or non-existent for many IT functions. There is little active recruiting for career ladder positions.

IT Resources

- Essentially there has been no change in the IT infrastructure since the report of the *2001 Information Technologies Review* that was completed in July of 2001. There have been minor improvements in the overall infrastructure, but not enough to

improve the day-to-day operations in CSREES or to instill confidence in the users that they are receiving adequate IT support.

- The CSREES IT staff supports a large variety of somewhat compatible equipment. There are a large number of servers supported by multiple, incompatible operating systems. The approximately 400 desktop PCs vary widely in capability. There are a variety of laptop computers and PDAs. Three separate networks using three different email systems support CSREES. Web pages are separately managed by various CSREES organizations. Various CSREES business units separately manage Web pages.

- Systems are generally unreliable. While improvements have been made during the last 6 months, failure still occurs at an unacceptable rate. Backup systems are ineffective and inefficient.

- Customers are not always kept aware of problems when they occur, of their likely effect, and of the expected time for resolution. Efforts at broadcasting general voice mail messages have helped to reduce the communication problem.

- Email is unreliable, down at times for as much as 2 weeks. Storage space for mail is too small. There are no agency-wide up-to-date mailing lists for internal or external clients. Remote access is viewed as poor, cumbersome, and slow. No effective email policy has been published to date.

- There is no clear concept of the purpose for the websites. The websites throughout CSREES are not standardized in either format or content. ISTM has not effectively created a generally acceptable approach to standardization. There is no long term client input regarding web issues. The user advisory groups established in the past were considered ineffective and, as a result, were discontinued due to lack of interest.

- Multiple unlinked databases, with multiple entries of redundant information exist. It is difficult to respond to Congressional and other inquiries. There is a need for a uniform process for all databases. Some staff believe REEIS will fulfill this need, but this may not be true since it will not encompass all database systems. Offices make their own databases to satisfy their needs. They are concerned that consolidation will result in some important small databases being destroyed. Offices have taken years to develop these databases and customers use and appreciate them.

- Program offices can obtain software application development and other IT assistance from sources other than CSREES IT staff. They can and do go to universities for assistance. This causes compatibility problems.

- The Help Desk is viewed as ineffective. They do not set up appointments and do not do work or follow-up in a timely manner, and often cannot fix the problem.

- There is a "one size fits all" approach to training. There is a high level of dissatisfaction with the training. There are a wide variety of skill levels in CSREES. The training is geared to the lowest level and is not always relevant. No self-teaching materials are available.

- IT policy is inadequate and incomplete. It needs to be brought into compliance with made with USDA OCIO policy and made specific to CSREES. Some examples of areas where policy needs to be developed or modified to meet current regulations and/or CSREES specific needs are: Security for CSREES; Records/Document/Data Management, Enterprise Architecture, IT Privacy, Requirements Engineering, Configuration Management, Quality Assurance Policy, Remote Access, and IT workforce.
- IT Standards are incomplete and are not thoroughly disseminated.
- Communications with CSREES staff and partners regarding IT issues are inadequate.
- IT program management could be improved. Program managers need training to keep them current with IT advances and government initiatives. Contract management training is especially needed.

External Opportunities

- Funding for E-Grants and E-Government may provide additional resources for improving CSREES IT infrastructure, policies, and procedures which will assist CSREES clients.
- Lead role within USDA for the E-Grants efforts provides opportunities to influence the department and its agencies into doing business collaboratively using methods already adopted by CSREES.
- Relationship with partner institutions through NASULGC groups and Research Station Director Councils provides valuable opportunities for information exchange regarding customer needs, future direction, and access to subject matter experts including IT experts.
- Coordination with user groups of CSREES services provides valuable input as to effectiveness of CSREES products and services.
- Lessons learned from similar groups in the area of best practices for electronic grants management, strategic planning, data management, project management, and other areas.
- Participation with partner and other USDA system developers improves opportunities for sharing data, improving taxonomies, and improved system design so that information can be more easily understood and shared and available at less cost.
- Participation in other USDA and Federal Government working groups provides opportunities for preparing CSREES to be in alignment with future Federal IT goals and objectives.

- Current USDA enterprise architecture effort provides opportunities for CSREES to work to improve its IT planning to meet future vision for the agency.
- Changing technology provides opportunities for providing new products and services and may in some circumstances reduce costs.

External Threats

- Volatility of IT funding between and within fiscal years makes planning difficult. There is a two to three year delay between when a request is formulated and the funding is received.
- Attacks of the network from outside agency requires constant vigilance and extensive changes to the IT infrastructure and procedures.
- Internal security violations have potential to disrupt vital services and destroy agency information and other assets.
- Changes technology are so rapid in today's environment that evaluating and determining appropriate action is expensive and difficult.
- Externally mandated deadlines, such as for E-Grants support and telecommuting, may increase stress on resources.
- Lack of full and comprehensive (adequate) OCIO IT policies creates confusion and addition expense for CSREES which must develop their own policies.
- Lack of an adequate USDA Departmental financial system and regulatory requirements for extensive financial reporting on IT expenditures and assets, severally hampers decision making and operations of IT programs.

IT STRATEGIC ISSUES

IT Support

- **Supporting CSREES Work Processes** - The current information technology environment does not adequately support CSREES business requirements. CSREES staff and partners expect to be supported with technology that facilitates collaboration, shared information, continuous system availability, security, and ease of accessibility.

- **Congressional and Administration Mandates** CSREES receives direction from both the Congress and OMB that requires them to provide mandated functional requirements within a specific timeframe. Information systems, tools, and infrastructure must be able to adapt rapidly and fully to these requirements.

- **Centralized Access to CSREES Information** - The number of unrelated systems and databases maintained complicates providing the data required for CSREES business processes, reporting to oversight bodies, and keeping the public informed.

E-Grants and E-Government

- **E-Government** Public Law 106-107 and the Government Paperwork Elimination Act (GPEA) requires CSREES to implement the E-Grants initiative in October 2003. This initiative requires: 1) establishing a simple, unified electronic "storefront" for customers of federal grants to find opportunities, apply, and manage grants; and 2) facilitating the quality, coordination, effectiveness, and efficiency of operations for grant makers and recipients. The demand of meeting this requirement, will cause CSREES to extend its current IT capabilities. The introduction of new technology that will, for example facilitate E-Authentication, will strain the already outdated information infrastructure.

One Solution

- **One Solution** is an approach to meet agency goals through customer-focused business processes, electronic systems, and data structures that are integrated, flexible, and efficient.

- **Technology Standards -** Standards have the potential to increase the alternatives available to support business activities through their capacity to permit the mix and match of technology from different vendors. Today the need for interoperability among systems and among organizations is greater than ever. Appropriate standards play a vital role in assuring economy, efficiency, flexibility, and currency.

- **Information Sharing and Management** An effective IT support program is heavily dependent on information sharing which itself is founded on a solid information management structure. The five functions within information sharing and management are described below.

« **Data Integration** relies on data consistency across platforms and applications. It facilitates sharing which reduces data redundancy, expands the ability of data to be more extensively used, and provides the means to initiate single point of entry policy. Data exchange standards define mechanisms to assist with transporting data between systems and to the web.

« **Data Standardization** is the foundation of the E-Government initiatives. Responsibility for a data standards program is usually vested in a single office that works collaboratively with all stakeholders. REEIS staff is tasked with identifying data standards for use in integrating REE data and can assure that data standardization decisions are made that meet CSREES business requirements. Data standardization permits identification and reduction of redundant data, encourages reuse of information, and reduces costs associated with transforming data that is required for use by multiple systems.

« **Data Quality and Security** assures that data used by decision makers and others is timely, complete, accurate, consistent, unique, and valid. Data must be clearly defined in order to facilitate knowledge sharing. Data security assures the protection of sensitive data as well as the unauthorized access and manipulation of any data.

« **Records Management** is the discipline of maintaining records in a manner that meets operational business needs, accountability, and public expectations. Record consist of information, in all forma, including data in computer systems. The federal government relies on an active records management program both to conduct its business and to evolve into E-Government. Records management programs are supported by document management and workflow technologies.

« **Knowledge Management** is used to assist in retaining agency knowledge as the organization changes. It is also used to disperse knowledge and is a major part of E-Government initiatives.

IT Management

- **Enterprise Architecture** - OMB has designated the development of Enterprise Architectures as the cornerstone to the E-Government initiative. This architecture is a comprehensive, business-driven blueprint of the applications, information, and technology required by the entire Agency. The existence of an enterprise architecture within CSREES will support executive-level decision-making, facilitate increased collaboration and resource sharing, and provide the basis for investments in information technology.

- **Reorganization** The March 2002 reorganization provides an opportunity to transform the overall approach to IT support within CSREES. New policies and procedures need to be established. ISTM staff needs to be trained to work as a team. Strong stakeholder consultation needs to be initiated. IT projects need to be

prioritized based on Administration, USDA, and CSREES policy and requirements. These priorities need to be accompanied by realistic timelines and adequate resources.

- **Communication** A strong program is needed to assure that IT issues, problems, solutions, plans, and accomplishments are regularly communicated throughout CSREES and to its partners. Continuing to actively participate in USDA and OMB IT policy level strategic and policy initiatives will provide the CSREES IT program with visibility as well as the capability to best meet administration requirements.

- **Capital Investment Planning** The CSREES IT Investment and Planning Board (CITIP) must actively participate as sponsors of the IT program in addition to their role as evaluators of proposed investments into information technology. The evaluation process must be tightly linked to both the IT Strategic Plan and the Enterprise Architecture. The executives on the CITIP must actively encourage development of business unit requirements definitions that support the CSREES enterprise architecture, which is the foundation and justification for Capital Investment.

Information System Security and Privacy

- **IT Security** CSREES has developed an Information System Security Plan designed to assure that its systems are protected commensurate with the risk and magnitude of the harm resulting from the loss, misuse, or unauthorized access to or modification of information. The plan covers all agency information collected, processed, transmitted, stored, or disseminated in general support systems and major applications. This includes assuring that agency systems and applications operate effectively and provide appropriate confidentiality, integrity, and availability, with cost-effective management, personnel, operational, and technical controls.

  Security plans implement policies, standards, and procedures that are consistent with government-wide guidelines and with USDA direction. They insure that controls are placed and administered where they are most effective and that agency procedures are developed, documented, implemented, and monitored to ensure reasonable and effective management of both traditional and new technology.

- **Confidentiality of Electronic Information (Privacy Act)** Storing Privacy Act data electronically generates additional requirements for protection. Policies must be developed to assure that the protection is adequate and that agency-wide training on the appropriate use and protection of electronic records is initiated.

Workforce Development

- **IT Workforce Planning** Although many skilled IT professionals are now seeking employment, the process for filling government vacancies is still long and laborious. Presently a high percentage of IT professionals are eligible to retire (80% in some program support areas). Planning for their replacement must begin as soon as possible because of the long lead-time required. Skills needed in the future must be identified and integrated into current hiring strategies.

- **Training and Professional Development** Training is a necessary component of a good Information Management program. All levels of personnel at all levels of proficiency should be included. This includes managers, professional staff, technical staff, and users. It is especially important that technical staff keep their skills consistent with those required as technology advances.

IT STRATEGIC GOALS AND OBJECTIVES

Goal 1: IT Support - Provide CSREES staff personnel and partners with an infrastructure that is technologically current, reliable, and meets the requirements of their business processes.

Objective 1.1 Provide communications and computing services for staff working on site, on official travel, and telecommuting. These services should assure that the network is adequate and provides uninterrupted availability, that personnel have necessary computing tools, and that adequate Help Desk services are provided.

Objective 1.2 Maintain all IT systems in a state amenable to rapid transformation when CSREES receives Congressional and/or Administration mandates.

Objective l.3 Provide appropriate centralized access to strategic, programmatic, and administrative systems.

Objective 1.4 Establish a program that assures data quality and integrity.

Goal 2: E-Grants and E-Government - Provide the Public, CSREES partners and the research community with access to agricultural research, education, and extension information, provide grants management support, and comply with E-Government mandated initiatives.

Objective 2.1 Provide linkage to the E-Grants portal, support and promote the use of the portal and provide a web-based application generator for the USDA grants program.

Objective 2.2 Provide a comprehensive and meaningful website with links to data of interest and use to the Public.

Objective 2.3 Provide quality support for web development based on standards, web development tools approved for use within CSREES, and the emerging technology that facilitates E-Government initiatives.

Goal 3: One Solution - Institute a One Solution approach to IT planning and implementation that incorporates non-redundant, single point of entry processes and is based on a comprehensive information management program.

Objective 3.1 Develop a strategic approach to One Solution that assures that business processes, as well as system and data support, are non-redundant.

Objective 3.2 Establish and enforce standards for both data and systems that promote operational efficiency and economies of scale.

Objective 3.3 Facilitate data integration of systems used by CSREES and its partners in accordance with business needs.

Goal 4: IT Management - Provide CSREES with IT management that encompasses sound business practices, promotes collaboration among organizational units, formalizes

IT policy, complies with direction from USDA and OMB, and incorporates the best practices of comparable organizations.

Objective 4.1 Formalize IT policy and planning activities within CSREES including Strategic Plan and annual tactical plans.

Objective 4.2 Institute a capital investment process that covers all IT projects, incorporates the business requirements of CSREES and its partners, and complies with OMB and USDA capital investment guidance.

Objective 4.3 Establish a CSREES Enterprise Architecture, based on CSREES lines of business and composed of: 1) business 2) data, 3) application, and 4) technology models.

Goal 5: Information System Security and Privacy - Establish an IT security program that is compliant with government regulations, provides assurance that systems and data will remain available and reliable, and appropriately protects Privacy Act data.

Objective 5.1 Establish a security and privacy program consistent with legislative, regulatory, and Administration direction.

Objective 5.2 Assure that all data and system resources are adequately protected from denial of service attacks, corruption or loss, and environmental risks. System security documents should be coordinated with stakeholders and adequately communicated.

Objective 5.3 Provide effective security training for IT staff, contractors, and customers.

Goal 6: Workforce Development - IT Workforce Planning and Development is focused on implementing and promoting recruitment and retention strategies to ensure that CSREES maintains a quality IT job force, capable of leading the agency to meet its mission objectives.

Objective 6.1 Recruit skilled IT staff and assure that their assignments are compatible with their expertise.

Objective 6.2 Provide appropriate training and collaborative opportunities for CSREES IT staff that will enhance their ability to provide the necessary IT support to the CSREES program .

Objective 6.3 Provide appropriate training opportunities for non-IT CSREES staff to assist them in evaluating their technology needs and to enhance their use of the systems that support their business processes.

APPENDIX 1: STRATEGIC PLANNING PROCESS

Overview

CSREES IT management determined that a planning structure needed to be developed that encompassed strategic planing, capital investment planning, and an Enterprise Architecture. The process adopted was based on three efforts: 1) Review of IT planning and budget documents prepared by CSREES in the past; 2) Interviews with CSREES staff; and 3) Best practices research..

Document Review

Electronic documents, paper documents, and documents posted on the USDA website were reviewed. Specific information for the plan was derived from the *CSREES Information Technology Strategic Narrative*, dated Spring, 2001 as well as the version dated August 15, 2002. The CSREES Draft Strategic Plan, submitted for review 10/04/2000, was examined and used as a reference. In addition, materials that describe CSREES organizations and their responsibilities, the E-Grants initiative, budget documents, technology studies conducted for CSREES, DOL OCIO direction regarding capital investment planning and managing information resources were examined and incorporated into the planning document as appropriate.

Interviews Conducted

Interviews were conducted to gather information concerning business and processes and the technology and services that support them. Information was gathered from senior staff and NPLs in the following offices: Communications; Budget; Competitive Programs; Plant and Animal Systems; Soil Water and Air; Planning and Accountability; National Research Initiative; Extra Mural Program; and Families, 4-H and Nutrition. Members of the ISTM staff responsible for Email, Help Desk, LAN services, REEIS, CRIS, Operations and Administrative Support, and ISTM Policy were also interviewed.

Best Practices Research

Best practices in planning and managing an information support program were addressed through visits with other federal organizations similar in size and function to CSREES. These organizations included: the Electronic Research Administration (eRA) in the National Institutes of Health; the Office of Science Policy at the Department of Energy; and the National Science Foundation.

APPENDIX 2: SWOT ANALYSIS

Strengths, Weaknesses, Opportunities, & Threats (SWOT)

Strengths

- CRIS has good relationship with state clients
- C-REEMS has good relationship with internal clients
- Strong Congressional support for CSREES grant programs
- CSREES staff viewed in USDA as IT savvy and a leader
- Knowledgeable staff motivated to find solutions to IT issues
- CSREES management aware of the IT issues and committed to fixing the problems
- Highly skilled and dedicated employees throughout CSREES
- New document management system
- Electronic jacket being developed with a CSREES innovation research grant
- (CYFAR) electronic activities
- Executive Information Technology Investment Review Board
- Directors of ISTM Applications and Operations and Administrative Support

Weaknesses

- Variety of hardware and operating systems does not allow depth of trained support personnel resulting in possibility of no support during personnel absences
- Management weakness in implementing solutions.
- Poor technology platform and architecture
- Lack of integration and coordination among CSREES program offices
- Poor internal communications
- Lack of prioritization of IT issues
- Instability of the IT system
- Different expectations of IT by the research and extension professionals

- CSREES staff with similar responsibilities do not coordinate business processes
- Multiple databases tracking the same projects
- Turnover among IT staff
- Employee attitudes and perceptions
- Network Assessment
- System Security Assessment
- Organization ISTM not complete; Key ISTM managerial positions unfilled
- CSREES orientation to studying IT problems rather than fixing them.
- No common business culture in CSREES
- Culture of control and blame
- CSREES staff (some with assistance from universities) have developed software and databases that may not be compatible with ISTM and E-Government requirements
- Lack of published standards and procedures
- Training not tailored to needs of different user groups
- Inadequate training in contract management

Opportunities

- E-Grants
- E-Government
- Funding for E-Government and E-Grants
- E-Grants/E-Government Working Group
- Internal Task Force that produced 2001 report
- ECOP and ESCOP
- Research Station Director councils
- Recent coordination among animal experts in formula and competitive programs regarding website
- Lessons learned from NSF and NIH regarding electronic grant management

- National Integrated Management System (NIMS) Reporting system developed by Northeast Research Station Directors

Threats

- Budget variability
- October 2003 Deadline – E-Grants

APPENDIX 3: CSREES ORGANIZATION

History

The history of the land-grant institutions and CSREES began with the 1862 passage of the **Morrill Act**, which provided the states with 30,000 acres of federal land for each congressional representative to be sold to provide an endowment for at least one college to teach agriculture and the mechanic arts.

In 1887, the **Hatch Act** expanded the land-grant program, providing federal funds for research and experiment stations at the land-grant colleges, thus forming the basis for the **Cooperative State Research Service**.

In 1890, a second Morrill Act expanded the 1862 system of land-grant universities to include historically African American institutions.

In 1914, the **Smith-Lever Act** granted federal support for extension work in agriculture and home economics and formed the basis for the **Cooperative Extension Service**.

The **McIntire-Stennis Act** of 1962 authorized a program of forestry research at the land-grant colleges

Evans-Allen Program authorized aquaculture grants.

In the 1970's, the **Competitive Program** was established and by the 1990's had grown to encompass 50% of the CSREES funding.

At some point, the Cooperative State Research Service and the Cooperative Extension Service found a need for Washington offices to represent their interests. Those offices were merged in 1994 to form CSREES. Also in 1994, 29 Native American tribal colleges gained land-grant status.

The March 2002 CSREES reorganization created three new groups: ISTM, Communications, and Planning and Accountability.

Intra-Agency Relationships

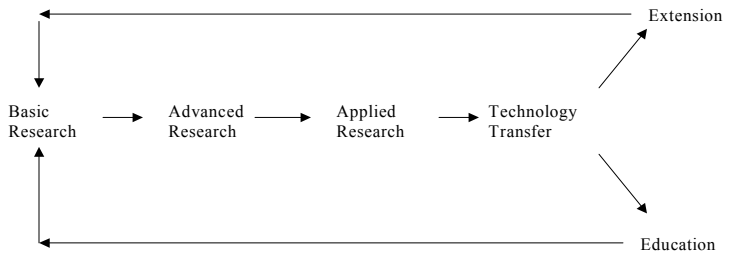
CSREES is one of four agencies in REE and is dependent on one of the other two agencies, ARS, for administrative support. Service to CSREES is secondary to the needs of ARS.

The day-to-day CSREES operations involve and, in some ways, are dependent upon its partners; land grant universities, research stations, extension agents, NIH and NSF. The universities develop and maintain databases and websites that CSREES needs for operations and reporting. NIH and NSF maintain project data for those interagency projects for which they are the lead agency.

CSREES Programs

CSREES projects run the gamut from basic research to advanced research to applied research to technology transfer.

CSREES BUSINESS LIFE CYCLE



Technology transfer is accomplished through the extension and education programs. The extension programs are administered out of the land grant colleges and involve agents in every county in the US. The agents, in turn, support programs like 4H Youth Development, the Children, Youth, and Families at Risk Program and the Expanded Food and Nutrition Education Program. CSREES administers three major types of grant programs, Formula, Competitive and Integrated. Each type has different operations and administration requirements.

Formula Funded Projects

(Hatch, Hatch Multistate, McIntire-Stennis, Evans-Allen and Animal Health)

Formula funds are distributed annually by the CREES **Budget Office** to the land-grant colleges in accordance with formulas dictated by the Hatch and Smith-Lever Acts. Hatch Act funds are designated for research and experiments, while Smith-Lever Act funds support extension work in agriculture and home economics.

Beginning two years ago, the grant recipient institutions were required to submit to CSREES **Five Year State Plans of Work** for the utilization of the formula funds. The CSREES Planning and Accountability Group receive State Plans via Email and then coordinate their review by four CREES groups.

National Program Leaders (NPLs) in Plant & Animal Systems, Natural Resource & Environment, Economic Community Systems, and Families, 4H, & Nutrition administer the formula grant program through their review of the Work Plans, individual project proposals and Annual Reports. NPLs also review individual formula grant project proposals for USDA relevance and send comments back to the States.

The Formula Grant program greatest IT need seems to be **document management** for 5-Year Plans, project proposals, annual reports, reviews and comments. The challenge in

designing user-friendly software resides in the different expectations of NPLs who have previous experience with Extension and Research systems. The NPLs from extension programs alumni are more predisposed to database reporting systems, while the research NPLs.

Competitive Grants

The Competitive Programs Group administers the award and management of the National Research Initiative (NRI) grants with assistance of NPLs with parallel scientific backgrounds in the formula grant groups. Each program has a NPL assigned and each NPL manages multiple topical areas.

The requests for applications (RFA) are posted on the Web starting in August for the next fiscal year. There may be a total of 150 to 200 proposals received in response to a RFA.

The present grant process is paper driven. The program office and the panelists are inundated with paper.

The Proposal Services Group receives the required 14 copies and original paper applications, keys summary information into CREEMS, which generates tracking numbers. Proposal Services then circulates the proposals to the proper program group for review.

In the future, CREEMS will generate letters and other information to applicants regarding their application. Presently, NRI now manually sends a post card acknowledging receipt of proposals.

Panel managers are recruited from Universities and are given temporary appointments as federal employees. They coordinate the NRI review process for proposals. Using to a biography database, the coordinators select proposal reviewers and panelists. At least six weeks prior to the panel meeting, panelists are assigned and sent 20 to 25 proposals to review. The Processing Services Unit stuffs the envelopes and mails out the proposals. There is a 50% return rate from panelists who decline the request to review proposals.

Every year, there are about 30 panels with 400-500 panelists and thousands of ad hoc reviewers for the National Research Initiative. Three to five outside ad hoc reviewers read each proposal.

Each panel of 10-29 people comes to Washington for 3 to 5 days to review proposals.

The panel comments, reviews the comments of the ad hoc reviewers, and ranks each proposal. NRI has to follow the rankings of the panel in awarding grants, funding projects from highest to lowest rank until the money runs out.

The proposal review process requires document management, databases for panelists and reviewers, event-planning software, payment systems, project tracking system for receipt and broadcasting summaries, progress reports and final reports.

NRI sends award packages to the Office of Extramural Programs for funding review and contract. –The contract award documents go up “the chain of command” for signatures. There is a need for a sophisticated document management system like the NSF electronic

system. (The signature process offers some challenge to an automated processing system because most systems retain only the last signature.)

When winners and losers are notified NRI provides write-ups of the reviewers' comments, redacting false statements, inappropriate comments, and confidential information. This is now done by hand and involves retyping or cutting and pasting.

NRI and other agency groups are mapping out the requirements of the document management system. There are a large number of problems that have to be resolved – signatures, linking to the tracking systems, the creation of letters and more.

NRI is setting up a web based review process and management system, hoping for a net reduction in paper rather than a transfer of cost to panelists who would have to print out the proposals.

Special Research Grants

National Program Leader (NPL) notifies specified institutions of congressionally designated funds to be awarded non-competitively and asks for a proposal, which is reviewed for scientific soundness. This responsibility should be supported with a document management system and facile electronic communications between NPLs and the institutions.

Interagency Projects

CSREES, NSF and NIH engage in interagency projects with one agency taking the lead for proposal review, grant award and administration. Document management and collaborative tools would enhance this effort.

Multi-State Research Projects

25% of CSREES formula funds allocation must go to competitively awarded multi-state research projects. Most of the funds are for travel and administration

Agriculture Research Station Directors meet once a year for coordination meetings that also attended by NPLs from the Plants and Animals, Natural Resources, Economic and Com. Systems, Families, 4H and Nutrition Groups.

IT collaborative tools would enhance the value of these projects.

Academic Department Reviews

NPLs for groups like Plant and Animal Systems are the team leader for academic program reviews, which are designed to enhance program quality, assist research directors, promote knowledge sharing. These reviews are conducted on site at the land-grant universities.

Database management, remote access to email and program databases and document management systems would facilitate department reviews.

Communications

The Communications Group supports CSREES and partner organizations through media relations, publishing, exhibits, public affairs, electronic media, photography, and printing

The Communications Group works with communication units in the Land Grant Universities in an effort to share with Congress and state legislatures the successes of USDA/ Land-Grant collaboration.

Communication organs include: weekly status reports to USDA Secretary, an electronic newsletter disseminated to CSREES partners, Headline News on CSREES website, and Fact Sheets reporting on Community National Science & Education Impact Program distributed to Congress and State Legislatures.

Information gathering for the Headline_News is labor intensive and, therefore, could benefit from an interactive application or collaborative tool through which staff could report activities to the Communications Group.

Communications staff collates economic, social and environmental data for the Community National Science And Education Program that is submitted by CSREES partners via secure web-based systems. ISTM supports the web-based data collection system.

The Communications Group, which is responsible for the public image of the agency, might effectively provide guidance and approval for the CSREES website templates and content, with ISTM providing the technical support.

Budget Group

The Budget Group is called upon to respond to OMB and congressional requests for information such as specific funding by category and state or formula and competitive CSREES funding by institution. This information is not easily retrievable from existing databases.

An IT collaborative tool may be of assistance to the Budget Group in their liaison responsibilities regarding grant awards with Office of Extramural Programs.

Planning and Accountability

The Planning and Accountability Group is responsible CSREES portion of the USDA performance plan and for the receipt and internal distribution of State plans and State annual reports from the States. The plans are received from the States, distributed to CSREES units for review, and comments sent back to the States. A good document management system is a necessity.

The newly established group will responsible also for multistate programs and evaluation studies of programs and processes. The Group will be the agency liaison to policy committees; ECOP (Extension Directors) and ESCOP (Research Directors).

The group could use strong database, communication and collaboration tools.

Office of Extramural Programs (OEP)

OEP is responsible for the administration of grant awards for CSREES formula funds, grants, cooperative agreements, special projects, etc. The group must liaise with the Budget Group to ensure the available of funds for awards. Collaborative tools and a document management system would enhance the exercise of their responsibilities.

APPENDIX 4: BEST PRACTICES

These meetings were held in conjunction with the development of the CSREES IT Strategic Plan.. The CSREES Statement of Work stated "For a best practices model they shall interview staff of the Office of Science within the Department of Energy, staff at the National Science Foundation, and at least one other government organization of similar size and function to CSREES that is located in the Washington, DC area. The third organization chosen for best practices research was the Office of Extramural Affairs at the National Institutes of Health.

Department of Energy, Office of Science Policy (SC)

Attendees: Ted Griffin; Director Strategic Planning & Architecture, SC, DOE

Todd Forsythe, Kelly Flynn, John Heneghan; Stanley Associates

Cindy Dickinson; USDA CSREES

Rhoda Mancher, Cleve Laird; HW&W

Stanley Associates provide strategic planning support to DOE SC-65 for this effort.]

Best Practices:

1. Taking extraordinary efforts to achieve management buy-in.
2. Assuring that all levels of staff participate in planning process.
3. Publicizing the efforts and results of the planning effort.

Ted Griffin provided us with: 1) a copy of their *Information Management, Strategic Plan Update for 2002-2006*; 2) a copy of the Office of Science Policy – Headquarters org chart; and; 3) a copy of his management presentation (File name: DOE Ranking Matrix) for understanding and prioritizing actions for the next budget period. [All of these documents are now in USDA CSREES and HW&W possession in electronic form.]

Mr. Griffin explained that the Strategic Plan, written originally in 1997, was updated to cover the FY 2001-2005 time period, and recently to cover FY 2002-2006. These updates do not include the conventional items included in the usual process of strategic planning [e.g., mission, vision, situation assessment]. Instead, the Office of Science Policy has focused on the specific services to be performed (Information Management Strategic Plan Narratives) and the interrelationships of these services (Dependency Diagrams) with a five-year Strategic Plan Schedule that relates to an annual $8 million budget. This is the first year that they have tied budget into their strategic planning. In conversation later, Mr. Griffin mentioned that the Information Management (IM) budget was dropping from a current level of $10 million to $7 million. This budget provides IT support for approximately 400 staff members.

The Strategic Plan states that "Having been approved by the SC HQ IM Board, this updated Plan is the sole basis for the development of the FY 2002 IM budget and Operating Plan. Requirements, scope, schedules, and delivery plans will continue to be refined in collaboration with our customers throughout FY 2002 to help ensure that products and services are delivered effectively and accomplish their intended purpose."

The Office of Science Policy IM program has accomplished this planning, until recently, dealing directly with middle management through the SC HQ IM Board—comprised of members that represent upper management, but do not necessarily carry decision-making authority. This year the IM program has, in addition, held preparatory, one-on-one meetings, approximately 30 minutes duration, with each of the nine SC Office Directors. Mr. Griffin feels that it is essential that these managers gain an understanding of and develop a commitment toward buy-in of the strategic plan. The Office of Science Policy IM program follows up on these individual meetings with a presentation before them (or their designees) when they meet as an Executive Steering Committee. There they address items presented in a paper entitled *Prioritization of Office of Science IM Projects and Services, Executive Steering Committee (ESC)*. Using this instrument, they—with individual input, but from the results compiled as a group—determine the priorities for the projects and services planned for the coming year. As a reference for the ESC members, IM Board, and other relevant group rankings are provided as a part of the package. Mr. Griffin has been extremely pleased with the results to date.

Mr. Griffin and his contractor staff were very helpful and assured us of their continued cooperation. He has agreed to meet with USDA CSREES management to help build their support for a similar approach to obtaining management involvement and approval for strategic planning when CSREES maangement feels that the time is right.

National Institutes of Health, Office of the Director, Electronic Research Administration (eRA)

Attendees: James Cain, Director, Extramural Information Systems

Donna Frahm, eRA Chief Information Officer

Cindy Dickinson; USDA CSREES

Rhoda Mancher, Cleve Laird; HW&W

Best Practices:

1. Having a key management official from a program office be a spokesperson for the IT program.

2. Continually communicating with stakeholders about plans, progress, problems, and mandates.

3. Design systems in a modular fashion, so that they can be easily and quickly

Donna Frahm, designated as the appropriate contact by CSREES, arranged the meeting, held with her director, Jim Cain. Cleve Laird and Cindy Dickinson explained CSREES interest in arranging the meeting. Donna Frahm and Jim Cain then provided some background. They explained that Ms. Frahm had been assigned to this new position 10 months prior to our mneeting, and that while progress was being made, they did not yet have a completed strategic plan (SP). [Currently, eRA does have some elements in place: e.g., vision, initiatives.] eRA has been in existence 8-10 years, with antecedents back to 1989. They had no budget and had to solicit the NIH granting offices that they support to get the funds needed to update their technology.

Primary to eRA's current success was their obtaining a "corporate sponsor" in the person of J. J. McGowan—a scientist and the Director of Extramural Activities in the National Institute of Allergy and Infectious Diseases (NIAID). He has helped bring a "scientific spin" to information management issues and has enabled eRA to acquire the much needed funding. Another supporter has been Wendy Baldwin, Deputy Director for Extramural Research. They are both members of the Steering Committee, which provides a strategic perspective on the business of NIH. That committee reviews the eRA budget via their multi-year plan. Above this group is the Board of Governors of the NIH CIO. The highest level of review from the Institutes, and having final budget approval, is the Financial Administration Review Board (FARB). Additionally, there is a Project Team, meeting bi-weekly, comprised of representatives within the business areas of grants administration that address eRA matters. [Ms. Frahm agreed to send us a chart of the relationships of these various groups.]

Their architecture addresses three areas: functional, technical, and data. Their architect was appointed about the time that Ms. FRahm assumed her position as CIO. The function has been expanded to include 5 FTEs, but the 4 additional staff members have

not yet been hired. The architect is a former Data Base Administrator. His focus is on data at a detailed level. This focus has proved less than advantageous in developing an Enterprise Architecture. The architect does not report to the CIO, although he should according to Clinger-Cohen. The architecture and methodology for addressing architectural requirements is not completed. Ms. Frahm feels that 5% of their IT budget should be spent on developing and maintaining the architecture.

eRA has three platforms: J2EE (Java 2 Enterprise Edition; provides an integrated business solution); Oracle server; and, VSM files (to be gone in two weeks). Ms. Frahm feels that ideally they should have a single platform. She sees the architecture as the key to migrating to new circumstances. These circumstances, based on a sound logic, would lead their processes and the automated support to commonality. They want to correlate their business architecture and their support systems. [See System Architecture (http://era.nih.gov/aboutera/system_arch.cfm) website for their logic/principles.]

Ms. Frahm stated that a strategic goal of E-Grants processing is to have the front end processing severable from the back end processing. This provides flexibility and economies of effort in supporting both changing business requirements and technology.

eRA has a staff of about 350, including contract support. eRA has established an Office of Strategic Communications which produces a newsletter, maintains a website, and schedules workshops to make stakeholders aware of eRA activities/accomplishments. Ms. Frahm sees both tactical and strategic impacts to communications.

National Science Foundation's (NSF) Office of Information and Resource Management (OIRM). Division of Information Systems (DIS),

Attendees: Andrea T. Norris, Director, DIS and Deputy Chief Information Officer (DCIO), NSF;

Cindy Dickinson, USDA CSREES

Rhoda Mancher and Cleve Laird, HW&W

Best Practices:

1. Integrating the IT Strategic Plan with the strategic plan of the program supported.
2. Creating advisory boards that contain stakeholders as participants.
3. Adopt a two-prong approach to IT improvement: While preparing and conducting long term foundation or infrastructure projects also initiate short-term, forward looking projects that can bridge to the next generation.

This meeting resulted from a recommendation, during an earlier meeting with William F. Marchese, Program Analyst, Research Directorate Systems Branch and Arthur R. Saenz, , Computer Specialist, External Systems Branch, that Andrea Norris was the correct person to furnish best practices information to assist in developing an IT strategic plan for CSREES.

Cindy Dickinson, Rhoda Mancher and Cleve Laird made Andrea Norris aware of the CSREES desire to benefit from the work she might be doing in conjunction with strategic planning for her division. Ms. Norris explained that she arrived at NSF from NASA about 16 months ago. She found NSF wanting to be always at the leading edge of technological innovation. As an example, she described the highly successful NSF FastLane project which is an interactive real-time system used to conduct NSF business over the Internet. Her director, Dr. Nathaniel G. Pitts, Acting Director of the Office of Information and Resource Management, was a visionary of this effort, with the full support of Dr. Rita R. Colwell, NSF Director. Under their leadership the changeover from a paper based process to full automation occurred during the five years from 1996 to 2001. This process incorporates proposals, awards management, financial activities, human relations information, logistics, procurement and travel. Now their challenge is to modernize the system using current technology. At the same time they will review their workflow and business processes to see if they can be revised to provide more efficiency. Their answer to the question of what's after the transition from paper to automation is E-Gov.

In lieu of a specific IT Strategic Plan, they are proceeding under the guidance of an internally developed Administrative/Management (M&A) strategic plan (Ms. Norris will request permission to share this document with CSREES, with the understanding it is to be held in confidence). This plan focuses on the Outcome Goals of the NSF Strategic Plan and addresses three major aspects: people, tools, and ideas. An advisory committee has been established for the M&A side of NSF, with representatives from OMB, IBM, involved universities, and others organizations. They are further encouraged by the President's improved management agenda on which they are to be graded quarterly.

NSF is improving and documenting procedures to service approximately 200,000 outside customers—university business offices, principal investigators—and 1,500 inside customers. They handle approximately 10,000 service calls per month. NSF has previously held to a 5% figure for overhead for over 10 years. They have been particularly proud of this. Meanwhile the NSF budget has been doubling over the past five years. With the advent of technological change, replacing much of the manual work with automated systems, there is hope that this percentage will decline.

They initially set up a team and developed a wish list to address the Outcome Goals of the NSF Strategic Plan. This first plan was not well grounded. Now they have defined their role as having responsibility for IT for the whole of NSF M&A, supporting the M&A strategic plan.

I. Under the **Ideas** goal, the M&A guidance was to validate core business processes—what do we do that's unique (with step one to develop a high level "as is" assessment). This included: 1) Merit review process; 2) Awards management and oversight; 3) Budgeting and financial management; 4) Knowledge management; and 5) Performance planning and oversight (evaluation & planning for the organization).

II Under the **People** goal they addressed the skills needed for the future. Currently their staffing comprises ½ scientists and ½ business administrative and support personnel. They want to move from a skill base to a competency base and are proceeding with the concept of an NSF Academy for their own staff—a lifelong learning approach. This includes the use of IPA's on 2 year assignments (200-300 at a time).

III Under the Tools goal—E-Gov and IT they addressed: 1) The technology needed; 2) The architectural standards [currently there are none] needed; and 3) The plan for migrating to a new IT environment.

They have engaged Booz Allen Hamilton for a three year period to assist them in their overall task. The first six months is focused on an "as is" architecture, processes, and current human environment assessment. Next they are to address the "to be"—the how do we want to do business question—and then the "how to get there". There is a steering committee for this contract. The weaknesses in the steering group is that there are no program representatives or customer—neither inside nor outside—representatives. They also have the benefit of an advisory group of key constituents including the owners of the applications, a technology and tools group of appropriate business stakeholders, and the M&A divisions heads. This group voted on the priorities to be addressed.

Additionally, there is a CIO advisory committee comprising the CFO and program people before which the recommendations for this contract effort were presented. In all of these groups IT has no voting representation.

The IT program wants to: 1) Consider such revolutionary things as a virtual IPA; 2) Define the next generation of support; and 3) Determine how to migrate to that support. They have a new project called the Electronic Jacket (EJ) Pathfinder—a virtual interface for role-based workflow processes with My Desktop (from the current situation) tailored for each user. [FastLane provides/is their document management system.] The EJ contains the materials the program officer needs to process proposals for funding as well as to conduct grant administration. The EJ is to be initiated in phases.

Ms. Norris admitted that the IT program could not afford to stand still while the Booz Allen study was conducted. She therefore recommended that a two-prong approach be taken: 1) The solid foundation being built (in this case through solidifying the technical architecture and improving the infrastructure) and 2) a forward looking project that can bridge to the next generation (in this case their EJ Pathfinder).