

ORGANIZATION AND MANAGEMENT PLAN:

Initiatives in Agricultural Security

*Prepared by the
Homeland Agro-Security Task Force*

**Experiment Station Committee
On Organization and Policy
Of
The Board on Agriculture Assembly
National Association of State Universities
and Land-Grant Colleges**

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CONTENTS

1. Preface	4
2. Summary	5
3. Section 1. Conceptual Components	8
a. Chapter 1 Background and Terminology	8
b. Chapter 2 The Land Grant University System	10
c. Box 1 Creative Collaborators	12
4. Section 2. Planned Response	13
a. Chapter 3 Research Site Security	14
b. Chapter 4 Agro-Security	17
c. Box 2 Training and Educational Needs	25
d. Chapter 5 Support for Law Enforcement and Intelligence Communities	26
5. Section 3. Management, Security and Financing	29
a. Chapter 6 Organization and Governance.....	29
b. Chapter 7 Security	31
c. Chapter 8 Budget Needs	32

PREFACE

This plan addresses the agricultural research component of the Land Grant University (LGU) community's need to respond to recent terrorist events. The intention of this plan is to move forward with necessary activities to protect our research facilities from harm, and to plan research activities with others to protect U.S. agriculture from terrorist attack.

Admittedly, agricultural research is only one part of what we see as a comprehensive LGU response to terrorism. To be successful in these activities integration of our institutional functions and agreements to work with others in agro-security is essential. The Homeland Agro-Security Task Force has thus recommend to the Experiment Station Committee on Organization and Policy¹ (ESCOP) that the broader LGU family and others be included in the planning and implementation of the proposed agro-security institute.

However, we must avoid any delay in getting started in the activities that would protect and preserve the research resources we manage, and the U.S. agricultural and food systems we are obligated to serve. To avoid delay some of the elements of this plan must go ahead with the understanding that, down the road, it may be desirable to incorporate the activities of the other parts of the LGU family and others into the institute's agenda. For this reason the Homeland Agro-Security Task Force has asked ESCOP to move forward with the rapid establishment of the institute.

Additionally, this agro-security response plan will be provided to the Office of Homeland Security as an information piece, with the objective of establishing a more formal engagement with that Office.

¹ ESCOP is the executive committee of the Experiment Station Section of the Board on Agriculture Assembly of the National Association of State Universities and Land-Grant Colleges.

SUMMARY

The Experiment Station Committee on Organization and Policy (ESCOP) of the National Association of State Universities and Land-Grant Colleges (NASULGC) has decided to move forward with the formation of a National Institute for Agricultural Security (herein after referred to as NIAS or the Institute). The primary purpose of the Institute will be for supporting the State Agricultural Experiment Stations and the Agricultural Research Directors of the 1890 Institutions (SAES/ARD) system to work with existing and emerging agro-security activities in ways to complement and not compete with those endeavors.

The Institute's focus for strategic relationships will be with traditional partners such as the Cooperative Extension System (CES) and the Cooperative State Research, Education and Extension Service (CSREES) and the Agricultural Research Service (ARS), and the Animal and Plant Health Inspection Service (APHIS) of the U.S. Department of Agriculture (USDA). Additionally, the Institute will work with professional societies, government research and regulatory agencies and others, all in support of national priorities in agro-security.

Finally, new relationships will be fostered with law enforcement and intelligence agencies of the federal executive branch of government; with national, state, county, and local decision-makers; with scientific communities in both the public and private sectors; and with civil society entities as well as the general public.

Vision: *Our vision is to be efficient, effective, relevant, proactive and responsive in carrying out its responsibilities for coordinating and promoting homeland agro-security assurances for U. S. agricultural production and food systems.*

Mission: *Our mission is to provide rapid access to the best information and services for preventing, eliminating, avoiding or mitigating domestic and foreign threats to U.S. agricultural production and food systems.*

Approaches: The portfolio envisioned in this plan will be composed of many different types of activities. This might include newly created National Research Support Project(s) (NRSPs), Multiple Activity Programs (MAPs), Multistate Research Project(s), Multistate Research and Extension Coordinating Committee(s), and individual state or Hatch-supported research projects, as appropriate.

Each of these activities would be funded and administered by the director of the respective SAES/ARD institution, through established management mechanisms.

The proposed National Institute for Agricultural Security will facilitate the development of this portfolio, and look for participants from other institutions and agencies, as appropriate to the objectives of the individual projects.

Guiding Principles: The Institute will be responsive to the new challenges of bio-terrorism as they threaten U.S. agriculture and food systems. To do this the Institute will promote:

- Functional integration whenever possible, to build on the traditional strengths of the Land Grant University system;
- Working actively with others when such relationships will be welcomed and productive; and,
- Supporting and being respectful² of those who have a statutorily mandated responsibility to protect our nation's agricultural and food systems.

The Institute will be a nationally distributed system, to take advantage of the SAES/ARD's extensive geographical coverage of the nation's agriculture and food systems. Only those tasks that need to be centralized will be organized into central activities (e.g., background checks of applicant students; evaluation of classified information).

The Institute will operate efficiently by drawing on the existing resources (i.e., intellectual, physical, and/or financial) of the SAES/ARD system to the extent possible. It will assist others in efforts to mobilize resources to complete the tasks necessary to adequately assure the security of the U.S. agriculture and food systems. The Institute will help to coordinate the activities of the SAES/ARD system when the institutions are interested in working together, facilitate the SAES/ARD system's activities when working with others, and foster new working relationships, when they are appropriate.

Funding Strategies: The funding required for the needed agricultural and food security research activities must come from new appropriations via traditional and new sources. Most of these new appropriations will likely be allocated through existing mechanisms, such as Formula Funding, Institutional Capacity Building Grants, formal Multistate Research projects, competitive grants, special grants, and contracts. A portion of these newly appropriated funds will need to be managed through the Institute. Examples of this need for central fund management are for security-sensitive threat assessments done with the intelligence community; background checks on all applicant students, especially those from certain countries; and security clearances for employees with access to classified information. Finally, services-for-a-fee may be charged to some institutions, when appropriate.

Legal Status: Creating a legal entity for the Institute will be necessary for it to be eligible for handling funds, entering into legal contracts, and employing staff to carry out the assigned duties, especially when those activities deal with sensitive or classified information, and non-traditional sources of funding. For these considerations

² There is no intent in this plan to disenfranchise or de-federalize any existing state or federal regulatory authorities. Our interest is in supporting their statutory mandated activities through willing collaboration, open cooperation, support and facilitation.

the Institute will be legally incorporated as a not-for-profit 501c3 research institution under the U.S. Internal Revenue Service Tax Codes.

Rationale: The cost of resolving the potential threats of biological terrorism will be substantial; however, the costs of not addressing those potential threats would be crippling. We predict that several federal and non-federal sources of funding can be mobilized to address the need of protecting the nation's food system. This proposal sets out a direct and cost effective way of using the available research resources through the existing SAES/ARD system to prevent or remove such vulnerabilities.

Moreover, we have the opportunity now to work together to design a system to protect our food and agricultural resources, rather than allowing it to form *ad hoc* from the efforts of individual institutions. Unless the SAES/ARD system acts proactively to put necessary protections in place it seems reasonable to predict that new, more intrusive regulations may be placed on the Land Grant University's teaching, research and extension activities.

SECTION 1

THE CONCEPTUAL COMPONENTS

CHAPTER 1

BACKGROUND AND TERMINOLOGY

The United States is vulnerable to terrorism in many sectors, including transportation, public health, the economy, communication, and the food systems. Contributing to this national vulnerability are the traditions of institutional openness and individual freedom of movement. To protect civil society, necessary security changes have been made and many others will be needed. These changes must balance policy, regulatory, education and other interventions in ways that preserve traditional freedoms (to the extent possible) while preventing, avoiding, or mitigating the threats of domestic and foreign terrorism. Dealing successfully with the threats from all forms of domestic and foreign terrorism (e.g., biological, nuclear, chemical, electronic, conventional explosives attack) will require concerted efforts by many elements of the private and public sectors, all working in a coordinated way. The intelligence and law enforcement communities, agricultural regulatory agencies and The White House Office of Homeland Security have mandates at all levels (national, state and local) to provide leadership to these efforts. Many federal, state and local counter-terrorism programs are underway, and others are being formed to provide the necessary and desired activities.

U.S. agriculture accounts for about 20 percent of this country's Gross National Product (GNP) and 25 percent of our export market and it is particularly vulnerable to bio-terrorist attacks. Attacks on the U.S. agricultural sector could cause our nation and the world's food supply substantial damage, and clearly could undermine our whole economy. Various components of the Land Grant University (LGU) system, including the State Agricultural Experiment Stations (SAES) and the corresponding 1890 Agricultural Research Directors (ARD) have helped our nation weather serious pest and disease threats to our food supply. These experiences provide essential knowledge and the understanding that is needed to counter bio-terrorism threats to our agriculture. Stemming these threats will depend on the synergy gained from organized engagement of the SAES/ARD system with the regulatory, education, intelligence and law enforcement communities.

Charge to the Task Force: Richard C. Heimsch, Chair of ESCOP, appointed a core Task Force on Homeland Agro-Security in response to the events of September 11, 2001 and the anthrax attacks in fall of the same year. The charge to the Task Force was to:

- Recommend guidelines/policies and procedures that should be adopted across the SAES/ARD to:
 1. Insure that our research materials, databases, and microbial germplasm collections are secure; and,

2. To reduce the probability that they will become source material for terrorists.
- To determine the capacity of the SAES/ARD system to respond to agro-security issues in terms of:
 1. Human resources;
 2. University-based infrastructure that can be brought to bear; and,
 3. Abilities to address problems that may emerge.

Additionally, the Task Force was asked to:

- Help formulate how the SAES/ARD and USDA/ARS can collectively and cooperatively work together to provide enhanced agro-security for the Nation; and,
- Identify research opportunities in the agro-security arena and to help define research and program initiatives that may support enhanced funding for agro-security in the U.S.

Terminology: Two aspects of Homeland Security must be addressed by the SAES/ARD system. The first is assuring the security of the sites where SAES/ARD research is conducted with hazardous materials (herein after called “**site security**”). The second aspect is support for securing from threats the U.S. agricultural production, processing, transportation, marketing and consuming system for the inputs and products of agriculture (herein after called “**agro-security**”).

Threats (from terrorists and terrorist organizations) are external to an institution. This means those responsible for **threat assessment** must be engaged in surveillance, intelligence collection and analysis, and investigation in order to assess those threats. These activities are the mandate of law enforcement and intelligence agencies.

Vulnerability, on the other hand, refers to the potential targets of terrorist attacks. These could be any number of things, such as bridges, reservoirs, sports stadiums, laboratories, etc., some of which fall within the purview of public institutions.

A **vulnerability assessment** involves identifying potential targets, determining how they might be attacked, the likely consequences of an attack, and then thinking of ways to "harden the target." If an institution or sector of the economy (e.g., animal agriculture) has more than one target, these assessments will help to develop priorities depending upon such things as probability of attack, the likely impacts of an attack, and costs to reduce the vulnerability.

Thus, there is a need for the Land Grant Universities to give attention to areas or targets where our institutions might actually take steps to reduce the risk (through vulnerability assessments).

CHAPTER 2 THE LAND GRANT UNIVERSITY SYSTEM

The federal government created the LGU System in 1862 (and added significantly to the system in 1887, 1890, 1914 and 1994). Faced with fighting the Civil War and desiring to create a national (not a Federal) system of higher education Abraham Lincoln signed into law the Morrill Act of 1862. To fund the individual States' creation of colleges for "agricultural and the mechanical arts" the Morrill Act of 1862 gave tracts of federal land to the states for them to rent, lease or sell to raise the needed money. From this and other acts sprang Land Grant institutions that are geographically distributed in every state from Maine to Alaska and Puerto Rico to Guam (see Figure 1).

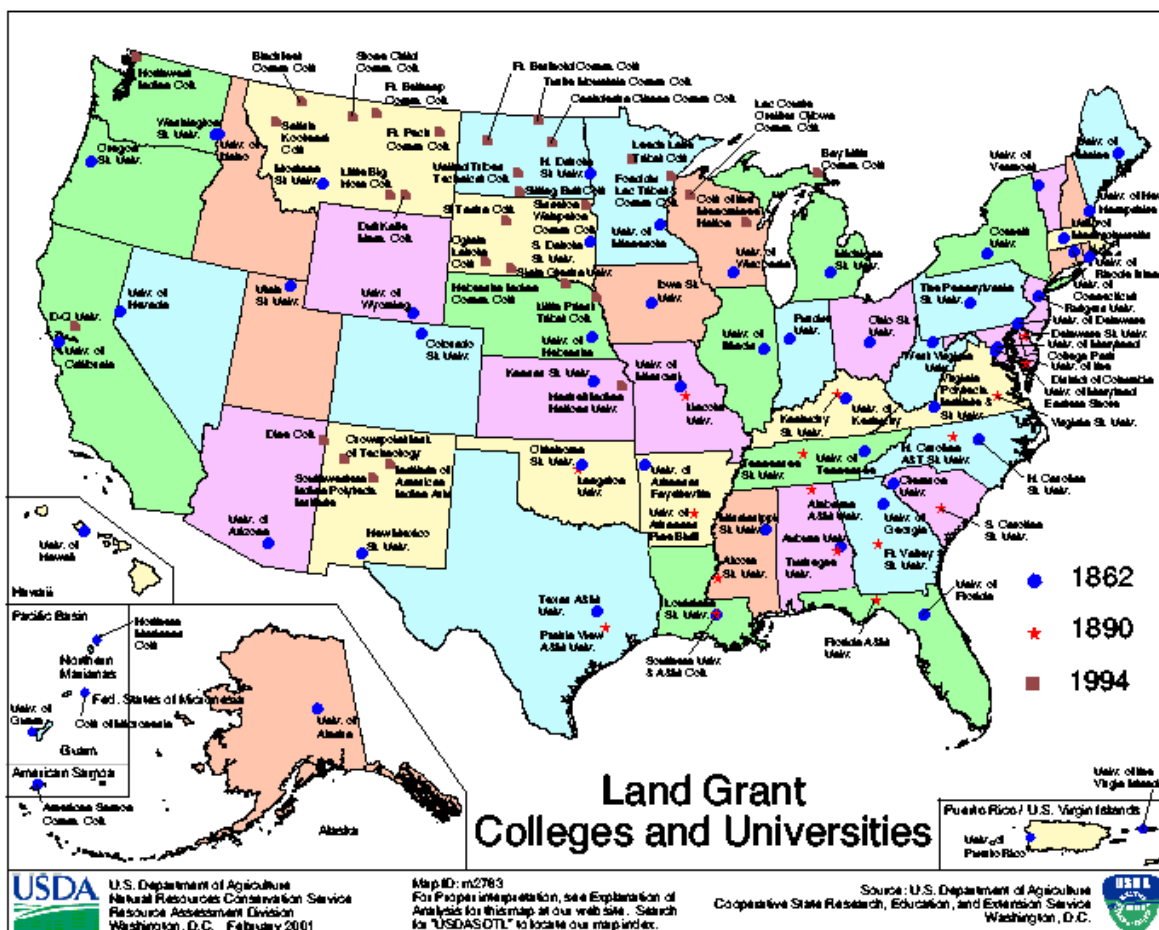


Figure 1. Locations of the 1862, 1890 and 1994 Land Grant Universities³.

The LGUs have thus a special relationship with the federal government. In a shared partnership with the state governments, the Land Grant University system is in fact the federal government's system of higher education, operated through partnerships with the individual states. The system is an intellectual resource of proven value and strength. In

³ West Virginia State University, although not shown on this map, was recently admitted to the 1890 system of Land Grant Universities, by an Act of Congress.

this time of national trial it is most appropriate for the federal government to employ the LGU system in the development of risk management strategies relating to the threats of bio-terrorism.

Central to the LGU system is the SAES/ARD system that conducts the research that supports the teaching and extension activities of the LGUs. Each state has at least one Station⁴, and most have multiple research facilities (strategically located by crop, livestock or forest production systems) for conducting both basic and applied agricultural research and demonstrations of technology.

The SAES/ARD system prides itself on organizational pluralism and institutional diversity. These two characteristics have no doubt contributed to the enormous scientific productivity and in turn the value of the SAES/ARD system to U.S. agriculture and the consumers of those products. No two Stations are alike, and none is bound to approach science in the same way as any other. These attributes have contributed to a tradition of commitment to inquiry and factual challenges of the results of others that promote the best science.

In what may appear to be a contradiction, in many instances the best science is done in a collaboration of experts from several institutions. This is best exemplified by the Multistate Research Program wherein not less than 25% of the federal formula funding (and the corresponding non-federal matching funds) must be used for inter-institutional collaborative research. The Multistate Research Program has a long history of outstanding accomplishment. Similar requirements are placed on federal formula funding for functionally integrated activities (i.e., working with our extension partners).

As the nation turns attention to the threats of bio-terrorism, questions are being asked as to how to organize appropriate institutional responses. This organization and management plan is intended to lay out some options for such an organization, with points-to-consider on preserving the best traditions of SAES/ARD science while optimizing efficiencies by working together, as a system.

By virtue of the federal government's requirements for agricultural research, extension and teaching the LGU system has in place a multistate network of programs that link together the institutions in their activities. Many of these activities are functionally integrated. Coordination of these activities is assisted by the Cooperative State Research, Education and Extension Service (CSREES) of the USDA and by regional Executive Directors of the SAES/ARD network. Multistate activities are not restricted to just LGU participants. In fact, of those projects that are currently authorized by USDA almost all have non-LGU participation. Multistate activities are tracked by nationally organized databases, with outcomes formally reported to the federal government through detailed work-planning procedures. This network of participating universities offers a synergy of efforts organized on research platforms suitable for undertaking many different types of complex research and development activities.

⁴ Two states, New York and Connecticut, have two State Agricultural Experiment Stations. In addition, 17 states have agricultural research programs affiliated with their 1890 Land Grant Universities. A number of other Agricultural Experiment Stations are located in each of the U.S. territories.

The SAES/ARD system, with more than 9000 highly specialized researchers, is ideally suited for engaging the breadth of issues relating to reducing the risk from terrorism to the nation's food production, processing and distribution system. These researchers represent expertise ranging from the basic plant and animal sciences to the development of sophisticated predictive models, and from genomic science to rural sociology. This vast resource of expertise could be most powerfully used in a coordinated and directed program of research and development targeted towards securing the nation's food supply system against terrorist threat. As mentioned above, multi-institutional procedures for coordinating the research of the SAES/ARD and integrated activities with Cooperative Extension System (CES) are already in place, ready for immediate engagement.

As the SAES/ARD considers how to organize responses to the threats of bio-terrorism appropriate thought needs to be given to which activities would best be distributed throughout the system and which would best be centralized. Additionally, we must give considerable attention to issues regarding the release of information to the public *versus* that information which needs to be held secure (classified).

Box 1: Creative Collaborations

Agro-security (as a topic) is not a true science-based discipline. Therefore agro-security has the problem of having a dispersion of human resources. No one institution or set of agencies has the concentration of intellectual power needed to resolve the attendant issues. To address this shortcoming a creative approach to collaboration needs to be employed.

The authority of the Hatch Act of 1887 permits the Land Grant Universities wide authority to assemble teams of research scientists to address common challenges. Multistate research activities are an elegant solution to this need. Example projects are the National Research Support Projects (NRSPs), the Multistate Research Projects, and the proposed Multiple Activity Programs (MAPs). A portfolio of such projects in key areas will serve as a platform upon which the Institute will build a set of collaborations with traditional and new partners to work on agro-security questions, and to support Cooperative Extension activities that provide needed training and education to targeted audiences.

SECTION 2 THE PLANNED RESPONSE

The responsibilities for the SAES/ARD system in response to the threats from bio-terrorism are multiple. Primary among these needed activities is the obligation to harden the vulnerable research facilities from attack and to assure that hazardous materials used in our research activities do not become weapons in the hands of terrorists.

The challenge is in obtaining a balance between providing adequate assurances and being overly cautious. Too little security could be costly. Too much security could stifle otherwise legitimate research activities. Careful site-by-site evaluations are needed to determine the extent of the risks, and site-by-site recommendations are needed to customize site security standards to fit the specific situation, and contribute to certification of national safety assurances.

Chapter 3 sets out what needs to be done relative to site security and proposes activities that can be provided as services by the Institute to the member SAES/ARD institutions.

Chapter 4 states what needs to be done to address the threats to U.S. agriculture and food systems, with a perspective of research mandates. Admittedly, much of what needs to be done is within the remit of government agencies. There is no intention to intercept those statutory responsibilities. Rather we are seeking to find those activities that will contribute to their success, and to locate those responsibilities that legitimately fall to the SAES/ARD system.

Chapter 5 addresses how the responsibilities for research site security and research-related agro-security will interface with law enforcement and intelligence agencies. Heretofore, little contact was made between law enforcement and intelligence agencies and SAES/ARD. This communications gap needs to be filled if we are to make our facilities secure and lessen the vulnerability of our agriculture and food systems.

Chapter 6 describes the organization and structure proposed for the Institute.

Chapter 7 describes an option for dealing with the issues for providing security for classified information.

Finally, **Chapter 8** tabulates the short and longer-term needs for funding this crucial national effort to stem the threats of agro-terrorism.

CHAPTER 3

RESEARCH SITE SECURITY

Many research laboratories, by the nature of their work, must handle hazardous biological materials. In the past reasonable site security was mostly provided by normal procedures that protected supplies from theft, and most employees were simply assumed to be trustworthy.

The tragic events of September 11, 2001 and the anthrax terror of October 2001 have changed the way we view research site security. The prospects for acts of biological warfare changed in that short period from a theoretical concern to a present day reality. Many research campuses have felt consequences from the Fall '01 anthrax attacks, while others have had direct attacks from opponents of genetically modified organisms (GMOs), or by groups opposed to animal research in general.

Acts of bio-terrorism cannot be prevented solely through regulatory requirements and law enforcement. Security precautions must be taken by research institutions themselves to assure the public that a research program's precautions are well thought out and adequate to the challenges. It is very important that research managers have access to advisory services that allow them to make sound decisions on securing the safety of the research sites they supervise, in ways that minimize bio-terrorism risks.

With today's increased concern about bio-terrorism and bio-sabotage, public institutions must pay increased attention to the trustworthiness of their employees, the physical security of their research facilities, the adequacy of their policies for materials storage, and the soundness of their procedures for research oversight. All institutions, big and small, should have adequate measure for site security in place, to minimize the likelihood of criminal activities, and to protect their research assets. This is especially true for facilities that handle extremely hazardous substances.

Research program managers need to remember that those handling bio-hazardous materials in their facilities have long needed to be actively engaged in managing the associated risks for purposes of ensuring the safety of workers and the nearby community. Most of these ongoing safety efforts focus on ensuring that the facility is designed and operated safely on a day-to-day basis using well-designed equipment, attending to preventive maintenance, providing up-to-date operating procedures, and employing a well-trained staff. Thus, an existing safety program provides an excellent base from which to plan bio-terrorism security measures. How to assess what else needs to be done, and how to accomplish that change with limited resources, is the contemporary challenge.

Congress is currently being asked to provide \$50 million to increase the level of security of agricultural research facilities on the campuses of the Land Grant Universities. The plan is to allocate to each university \$50,000 to assess need, against some security guidelines or standards. The institution would then ask for funding from the \$50 million account sufficient to improve their level of security against those expectations.

These guidelines or standards do not yet exist, and will need to be crafted by experts in site security. Moreover, the oversight of the renovations to meet the standards will need to be monitored and certified by some independent entity. To date, little or no thought has been given to the needs for training both employers and employees, or for how employee and student background checks will be organized.

Appropriate, relevant, and uniformly applied standards for site security must be developed and implemented at each SAES/ARD facility in ways that provide protection of our research activities and biological collections. Inventories of collections and control of access to those collections must be established in most cases. Background checks on all individuals with access to those collections must be done with factual assurance⁵. Critically important to the process of responding to agro-security threats will be the capacity to provide confidential threat assessments, interdiction support, and access to organized information, along with advice and training for the intelligence community.

Options:

1. Delegate to each institution the responsibility to establish standards for protecting research facilities under broad performance guidelines (such as the NIH guidelines that were used for containing rDNA research in the laboratory).
2. Assign to CSREES the authority to mandate site security standards for recipient institutions (as was done for handling radioactive materials and research animal care).
3. Legislate regulations for assuring site security through a federal agency [as was done with USDA's Animal and Plant Health Inspection Service (APHIS) and the U.S. Environmental Protection Agency (EPA) for field testing recombinant organisms].
4. Fund a centralized service to provide site security services and certifications to the member SAES/ARD institutions.

Pros and Cons:

The first option provides the tradition of SAES/ARD independence [based on the principle of subsidiary (i.e., making decisions at the lowest level possible)]. This traditional SAES/ARD strength might compromise the application of standards, if they were not applied uniformly to each site. Moreover providing security for the information would be difficult, and background checks on individuals would be very costly, if not impossible.

The second option would place our traditional partner agency in the center of the site security activities, which would have several obvious benefits including fiscal clout and legislative authority. However, unless resources could be found for their additional expenses this approach might prove to be problematic.

⁵ According to a recent report in Science (22 March 2002 pages 2211-2212) 5469 doctorates were awarded in "sensitive" fields of study in the decade of the 1990s to temporary residents in the U.S. from 25 countries declared by the U.S. State Department to be candidates for more "rigorous screening". These countries are: Afghanistan, Algeria, Bahrain, Djibouti, Egypt, Eritrea, Indonesia, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Malaysia, Morocco, Oman, Pakistan, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, United Arab Emirates, and Yemen.

The third option could provide considerable assurances to some critics along with “due diligence” but it would likely prove expensive to the SAES/ARD system. Questions on some aspects of site security assurances would prove troublesome; such as how might APHIS and/or EPA do background checks on student applicants.

The fourth option would be an unusual solution for the SAES/ARD system, but it offers utility in attaining uniform application of site security standards and would allow for the control of secure information. Additionally, background checks could be coordinated with intelligence and law enforcement agencies in ways not possible for public institutions of higher learning.

Regardless of the solution selected, care must be given to making sure that the system is compatible with individual university requirements and is consistent with all laws and regulations. For example, at this time the Immigration and Naturalization Service is modifying its rules regarding student visas. Nevertheless, there is serious doubt that the new INS regulations will go far enough for laboratories engaged in certain types of bio-hazardous research. Stronger background checks, better follow-up on a continued enrollment status, and limiting access to facilities will most likely be needed as a supplement to the INS efforts. Obtaining such background information on student applicants from remote nations is problematic. Collaborating with law enforcement and intelligence agencies that have overseas “assets” may be the best solution, but these agreements must be worked out.

CHAPTER 4

AGRO-SECURITY

The U.S. food production, processing and marketing system is vulnerable to bio-terrorist attack. However, the reality is not all aspects of agriculture are equally threatened. Thus, we must logically define the risks, and determine what actions are necessary to thwart or eliminate them.

A think tank approach to assessing the hazards of agro-terrorism has been proposed by members of the law enforcement and intelligence communities to draw on the academic community in areas of agricultural vulnerability. Teams of carefully selected experts in key fields need to be assembled in face-to-face meetings to map out the concerns, and to help define the necessary research response agenda.

Initially, there is a need to agree on an appropriate paradigm for evaluating the threats of bio-terrorism, and what to do about it. Former paradigms for cancer risk assessment, Cold War threats and environmental hazards may offer some starting points, but none seem appropriate to the task of assessing the contemporary threats from terrorists.

Following the conceptual development of an agricultural bio-terrorist assessment paradigm a series of multiple meetings of academic experts and law enforcement and intelligence community specialists should be held soon. Each of the groups would be requested to write a report using the following “logical framework” for agro-terrorism, which includes:

- Vulnerability assessment;
- Vulnerability prevention;
- Biological monitoring and surveillance;
- Intervention and initial responses;
- *Ex Post* attack activities; and,
- Education and training needs.

Each of these components is presented separately below with respect to the institutional capacities, but with an understanding of the logical framework’s interrelatedness. Some of these activities should obviously be done in partnership with Cooperative Extension; some should be done by others; some should be done with our traditional research partners (e.g., ARS); and some should be done with security considerations. Some activities will need to be centralized, to preserve standards, provide for information security, certify compliance, and to inventory and control hazardous materials. These considerations run through the “logical frameworks” elements, and thus the resolution may not be straight forward, and may end up being a mixture of options.

Vulnerability Assessments: Contemporary threats from bio-terrorism differ from past threats in that the strategic use of “weaponized” biological organisms during the Cold War would have been planned from a military perspective; to harm combat troops, inflict injury

on an enemy's economy, destroy a food supply, or block uses of an area. Terrorists would plan biological weapons with a different perspective: to terrorize a population.

To fully understand the contemporary vulnerabilities of bio-terrorism new studies are needed to determine the most likely biological weapons that terrorists might use to attack the U.S. food supply chain, and the most vulnerable targets. In addition, it will be important to estimate the likelihood of whether specific terrorist events might be attainable by terror groups. This will require a "top to bottom" reassessment of the U.S. food production, processing and distribution system. Such studies will need to look at the "terror factor", not just "military strategy factors".

New vulnerability assessment methods that can be used for prediction are needed. Without such predictive capabilities it will be impossible to appropriately prepare for an attack on the food supply chain; to prioritize the use of resources for prevention; or to prepare interventions should an attack occur. Additionally, psychological impact evaluations, and environmental, social, and economic impact assessment modeling can yield great insights into our contemporary bio-terrorist vulnerabilities.

Assessments of food security vulnerabilities, coupled with simulations of the consequences of an identified threat could help to better define the risks involved. This will require new sampling methods and procedures, better biological assessment methods, and computer modeling on a scale and direction heretofore not attempted. The SAES/ARD system already employs the specialized researchers with the diverse backgrounds necessary to prepare the appropriate vulnerability assessment models. Moreover, this is the type of information that will be critical for providing decision makers with an ongoing, accurate assessment of agro-security vulnerabilities.

Specific examples of contributions to vulnerability assessment that the Institute is particularly well qualified to undertake include:

1. Evaluation of economic consequences posed by the intentional introduction of plant and animal pathogens to the U.S. agriculture and food systems.
2. Modeling and epidemiological evaluation of the transmission of plant and animal pathogens that may be considered as potential weapons.
3. Comprehensive modeling of risks to target populations of animals, plants, and humans to identify and quantify points of greatest risk. Such risk analysis requires considerable breadth of both scientific and computational expertise, which is accessible through the Institute.
4. A comprehensive hazard evaluation and risk analysis of potential points of entry of biological pathogens into the food system.
5. A hazard analysis and risk assessment of potential sources of agents that may be considered as weapons for use within the food supply chain.

The ultimate outcome of these organized vulnerability assessment efforts could be to provide decision makers with a comprehensive understanding of the threat of potential pathogenic agents; their likely sources; the most likely points of introduction into the food

chain; and the potential for widespread transmission of agents. It is crucial that this assessment be conducted in order that resources can be most appropriately and effectively assigned to the development of those prevention and intervention strategies. Such strategies are needed so that resources can be directed at the critical control points of entry into the food chain; those points that pose the greatest risk of psychological, environmental, economic, and social impacts, and those that pose the greatest risk to the health of the consuming public

Options:

1. Use the mechanism of Multistate Research to organize those activities that would benefit from inter-institutional collaborations. Consideration should be given to forming one or more NRSPs to address this topic.
2. Partner with Cooperative Extension on those activities where functionally integrated activities would make most sense.
3. Collaborate with non-SAES/ARD institutions where that strategy would make most sense.
4. Contract with single entities when information security or cost efficiency is indicated.

Pros and Cons:

The NRSP authority could be a powerful program for organizing activities in vulnerability assessment. By selectively appointing members security assurances could be respected. Inclusion of members from Cooperative Extension should be a common occurrence. Participation by traditional partners and new partners (private sector, law enforcement, intelligence agencies) could be added as appropriate. Funding from newly appropriated formula funds would provide the needed resources. A supplemental (emergency) federal appropriation is proposed later in this plan to cover these additional operating costs.

One concern will be for assuring adequate security for the participants who have not received security clearance. This will need to be resolved with the relevant government agencies (some of which do not have reciprocal agreements). This might lead to an option to contract for such services, with controlled participation by selected SAES/ARD experts.

Vulnerability Prevention: Steps can be taken to minimize the risk of a biological attack on the United States agricultural production, processing and distribution system. Complementary research activities should be initiated immediately in ways intended to reduce or eliminate the identified agro-security threats. If an appropriate assessment of vulnerability is conducted and major risks are identified, substantial resources should be directed toward preventing those risks.

The Institute, through its points-of-contact, would have access to many of the world's leading animal and plant scientists who collectively are capable of developing a comprehensive strategy of preventative measures. Such activities include: a reassessment of plant breeding programs with attention to the most likely bio-terrorism agents; research on vaccines for diseases of animals with identified vulnerabilities; and additional research

in biological control and integrated pest management strategies, for deployment in the event a bio-terrorist attack occurs.

Preventative measures can be directed towards those factors determined to be most critical for each specific vulnerability (i.e., prevention would be targeted at critical points, so as to minimize introduction and or transmission). The Institute would have access to a large number of epidemiologists, microbiologists, geneticists, and immunologists capable of conducting a well-coordinated approach to minimizing the risk of an attack on the U.S. food supply chain. Specific areas that need further development include:

1. Development of strains of animals and plants that are resistant to the pathogens posing the greatest risks. With the advent of the widespread study of genomics, it is entirely plausible that new varieties/breeds of crops and livestock could be developed with high resistance to all major vulnerabilities⁶. In these endeavors, consideration should be given to more widespread use of foreign collaborations⁷.
2. Enhancement of ongoing vaccine and pesticide development as a mitigating deterrent to possible threats.
3. Development of procedural recommendations and the oversight (i.e., regulatory, management) necessary to prevent introductions at critical points within the U.S. food supply chain.
4. The delivery of educational programs to a wide range of audiences ranging from rapid response teams to police assigned to anti-terrorist duties. The Institute could easily coordinate educational programs providing the most qualified instructors in designated areas.

Options:

1. Create or expand competitive grant program(s) to fund research in vulnerability prevention.
2. Organize one or more Multistate Research Projects or Multiple Activity Programs (MAPs) created around specific agricultural or food system vulnerabilities.
3. Lobby for special grant (ear marked) funding for vulnerability prevention.

Pros and Cons:

An effective system of vulnerability prevention will require infusion of funds into the SAES/ARD system to support research efforts. Some activities may be suitable for individual investigator-initiated competitive grant proposal approaches. However, some of the work needs to be specifically directed to targeted vulnerabilities. This research may be most effectively completed via institutional grants (a.k.a. formula funds). Some consideration should be given to responding to the political interests of Congress. Thus, the final configuration of responses may be a mixture of funding sources and approaches.

⁶ It must be noted that virtually no breeding effort is currently expended on exotic pathogens, precisely because they do not occur in the U.S. And, precisely because they do not occur in the U.S., they are candidates for bio-terrorism.

⁷ As an example, the International Agricultural Research Centers might serve as locations where researchers could study resistance to diseases and pests exotic to the U.S. and identify resistance genes in endemic settings.

The newly approved MAPs are particularly well suited to this type of mixed funding approaches, especially for project-based accountability.

Although the type of funding dictates the form of research activity, each form of funding has drawbacks. Competitive grant processes tend to be slow to respond. Formula funding activities tend to be under funded. Special grants tend to be year to year with little assurance of continuity. Nevertheless, each has their strengths. The wisdom needed is to match those strengths with the needed tasks.

Biological Monitoring and Surveillance: Any national monitoring and surveillance system for bio-terrorism should, to the extent possible, build on past experiences; use existing resources; and remain compatible with emerging plans.

Presently, there are several efforts by federal and state regulatory agencies, state and county extension programs, state sponsored diagnostic clinics, private consultants and practices and others to form a national plant and animal disease and pest monitoring and surveillance system. This emerging national response needs to be supported by the SAES/ARD system in ways that contribute to, and do not interfere with the outcome.

Many SAES/ARD campuses (most often in partnership with the Cooperative Extension System) already operate plant disease clinics. All states have access to veterinary diagnostic clinics, many of which are now networked, and some of which operate under the auspices of the respective SAES/ARD. These capacities need to be strengthened, linked with federal and state regulatory agencies, and networked into a national monitoring system. We believe this can be achieved at modest cost.

Each laboratory would work independently, but all would be contributing to a national database of information on the incidence of pests and diseases of crops and livestock. Hierarchical access would need to be secured by passwords, but the technology exists to build such a system today. Such a system could be expanded to include research farm managers and farmer-observers (e.g., Master Farmers with appropriate training). Managing the resources for such an endeavor, and providing the needed security for the gathered information, may mean that private sector experts in data management, such as Oracle, Inc. would be needed.

Specific examples where the Institute will promote national agro-security monitoring include:

1. Assist in the expansion of the National Animal Health Emergency Management System to act more effectively as an early warning mechanism for the introduction and/or transition of infectious agents.
2. Improve coordination and recording of State Veterinary Diagnostic Laboratory data into a national database organized and operated in a manner permitting detection of disease at the earliest possible stages.
3. Develop a National Plant Disease Monitoring System as proposed by the American Phytopathological Society that would serve as a central monitoring and early

warning network for detecting the introduction and spread of plant pathogens. Currently no such national system exists and plant pathogens may be introduced into new areas for extended periods before being detected. Particular attention should be given to developing a system that assures the earliest detection.

4. Expand the present scope of a national monitoring and surveillance system to observe potential bio-terrorist risks from insect pests, noxious weeds, and exotic animals.

Options:

1. Request APHIS to form a national monitoring system and make available to them the existing capacities of the SAES/ARD for contributions to that system. It is anticipated that the Cooperative Extension System would be a major contributor to such a network.
2. Request state governments to form a national monitoring network, and offer to assist them.
3. Encourage private interests in developing a monitoring system with public funding. [Note: Proposals for such activity have already surfaced in Washington, DC.]
4. Form an NRSP for linking existing activities in monitoring crop and animal disease occurrences in a national system.

Pros and Cons:

Many entities appear to have some responsibility for contributing to a national monitoring system. How that would be partnered with federal and state regulatory agencies, existing diagnostic facilities, and the Cooperative Extension System needs to be evaluated. Such a study should look at attendant costs, effectiveness and sustainability.

The role of the private sector also needs to be evaluated. Clearly, some contributions from private interests would be ideal. For example, the development of a national database on diagnostic information could be very worthwhile. However, precautions would be needed to assure confidentiality and security. The private sector has resources not commonly available to universities or government agencies (e.g., propriety software, information networks) that could do this set of tasks very well.

The SAES/ARD seems best positioned to work in support of regulatory authorities, state government agencies, and the private sector, in addition to Cooperative Extension System. This could be easily facilitated under the existing authority to convene projects with mixed memberships (i.e., the Multistate Research authority). This would be a very effective organizational tool for this set of activities.

The difficulty of any of the above options will be in securing sustained funding. Past experience with biological monitoring systems has shown a reluctance of elected officials to fund in “perpetuity” those activities that need to be continued in the face of “likely-but-not-actual” outbreak events. Moreover, other mechanisms for funding (e.g., fees for service, an endowment) are inappropriate to this specific task.

Intervention and Initial Responses: The initial response to an act of biological terrorism will be critical to minimizing the amount of the resulting damage. This axiom was recently demonstrated by the foot and mouth disease outbreak in Great Britain. Had British authorities mobilized a more rapid response, the devastation experienced would have been greatly reduced. Organizing and deploying a useful and effective response to a bio-terrorist attack will require three elements: a highly effective monitoring system, a rapid response system, and plans for avoidance and/or mitigation. Presently, for U.S. food system security, we have none of these.

Examples of specific contributions that could be made by the SAES/ARD system (supported by the Institute) working with others include:

1. Organizing appropriate resources to support rapid response teams, perhaps serving as outposts for warehousing supplies, and providing surge space for first responders.
2. Developing vaccines, alternative quarantine strategies and other control measures, all backed up with rapid diagnostic tests, designed into programs to limit spread, once an outbreak is confirmed.
3. Creating a nationwide system of experts specifically educated to provide the maximum support for local government, should an outbreak occur.
4. Providing a backup to regulatory services in areas such as diagnostics, survey sampling and analytical services. The contact points for these backup services could be easily formed into a national database of names and addresses that would be made available to federal and state agencies for “on-call” assistance.

Options:

1. Defer to the federal and state agencies for leadership for designing interventions and initial responses to a bio-terrorist attack.
2. Encourage law enforcement agencies (federal, state and local) to plan interventions and initial responses, with offers of SAES/ARD assistance.
3. Encourage the Cooperative Extension System to provide the necessary leadership for planning interventions and initial responses.
4. Have the SAES/ARD system assume national leadership for planning responses to identified vulnerabilities, seeking to partner with others (extension, regulatory agencies, intelligence community, and law enforcement) in the process.

Pros and Cons:

Statutory authority exists for some regulatory agencies for some aspects of initial responses. For other aspects there would need to be new authorities. For example, APHIS has the authority to stop interstate shipment of some types of pathogens (primarily plant pests), and they can quarantine areas for some diseases (mostly the animal pathogens). EPA’s authorities are said to be more limited. State laws vary, as do county and local authorities.

The larger question is the desirability of attempting a first response through regulation versus law enforcement or education. This debate needs to occur early on in the

development of an effective response system. Ultimately, some blend of regulatory authority, law enforcement and education might be the most successful approach. The role of the SAES/ARD in whatever strategy emerges is likely to be research on alternatives (as in modeling, simulation, forecasting, impact assessment, policy analysis, etc.) and in a supporting role for the action agencies.

Ex Post Attack Activities: In the event of a failure to stop a bio-terror attack, a “post-attack” assessment of the incident (along with developing plans to address those vulnerabilities) will be needed in order to learn from misunderstandings and mistakes. Post-attack studies of impacts (economic, psychological, agro-biological, environmental) will indicate what steps must be taken to avoid damages from future attacks.

Options:

1. Support federal, state and local regulatory agencies in efforts to maintain base line data on vulnerabilities to assure that sufficient information will be available to conduct post event analyses.
2. Agree with other responsible entities that the SAES/ARD system will collect and maintain baseline data to assure that sufficient information will be available to conduct post event analyses.

Pros and Cons:

A link needs to be made between vulnerability assessments and prevention activities, along with post attack activities, to assure that adequate baselines have been established. This will allow analytical solutions to be derived through research on the event. Although each of the responsible entities are fully capable of collecting the necessary data, the best-positioned institution for collecting and storing baseline data and conducting the *ex post* analysis is, arguably, the SAES/ARD. This research capacity could be organized as a Multistate Research Project, a Multiple Activity Program, and/or as a National Research Support Project.

Education and Training Needs: The NIAS will have access to enormous intellectual resources that will be useful for agro-security training and education. The Institute will facilitate needed priority educational and training offerings thorough partnerships. It would not be focusing on training and education as functional activities, which should better be left to others.

Box 2: Training and Education Needs

In FY '03, the Institute's Office of the Executive Director will launch a Professional Development Partnership Program that will develop opportunities for others to host training courses in agro-security practices. These offerings will be consistent with the strategic program needs of national agricultural and food security program plan, and the work programs of the Institute's partners.

The training program is expected to:

- Enhance and develop professional knowledge and technical expertise of staff from partner institutions;
- Provide the partners with an enlarged pool of human resources that will strengthen a distributed, bottom-up approach to agro-security;
- Provide participants with greater understanding of the options for assuring agro-security, on-the-job experience and exposure to agro-security policies and operations;
- Advocate innovative approaches for agro-security by program participants, working in partnership with knowledgeable scientists; and,
- Enlarge the agro-security network in a practical way that benefits local, state and federal governments, as well as institutions.

CHAPTER 5

SUPPORT FOR LAW ENFORCEMENT AND INTELLIGENCE COMMUNITIES

As a facilitator and service provider in the area of agro-security research, the Institute must be fully involved in supporting all relevant public and private decision makers, all components of the nation's governance, and the broader communities of law enforcement and intelligence services.

The Institute will complete the following goals in service to the law enforcement and intelligence communities:

- Support to the law enforcement and intelligence communities by providing access to technical information and professional advice on agricultural vulnerabilities;
- Provide support for training relevant federal and state law enforcement agencies, county and municipal governments, and university security forces on selected agro-security priorities; and,
- Carry out new programs relevant to the needs of the sponsoring agencies.

Specific Supporting Activities

Vulnerability Assessments: There will be a continuing need to assemble panels of agriculture, intelligence and law enforcement experts to review all data available (classified and unclassified) and prepare comprehensive vulnerability assessments based on current information. These assessments must:

- Identify information gaps and formulate data collection requirements;
- List vulnerabilities that terrorists could potentially exploit;
- Assess the cardinal conditions and circumstances for each vulnerability that would lead to a risk, including identification of the windows of opportunity;
- Prioritized lists of vulnerabilities based on factors that could directly impact:
 1. Human health;
 2. Economic vitality;
 3. The environment;
- Develop a prioritized list of likely worst-case scenarios that terrorist might use—these scenarios should be detailed and, where appropriate, include alternative sub-scenarios; and,
- Establish monitoring criteria that would be used by data collectors and analysts to prompt first alerts based on newly collected information.

Frequent updating of all vulnerability assessments will be needed to account for new information.

Data collection and monitoring: Teams of experts will need to be assembled to:

- Acquire, subset, manage and monitor data and persons who are knowledgeable of separate and pertinent agricultural databases residing in:
 1. International institutions (UN agencies, such as the FAO)
 2. Domestic institutions (federal and state departments of agriculture and colleges of agriculture, schools of veterinary medicine, and other research institutions)
 3. Foreign institutions (government research labs and universities)
- Develop, manage, and monitor a comprehensive agro-security database on all pertinent foreign agricultural research. These databases must include the research location, topic, status, funding level, funding source and identities of research staff, including students.
- Information not readily available to NIAS will need to be managed by intelligence and law enforcement specialists.
- Establish and implement a monitoring mechanism for screening data against the criteria established in the vulnerability assessments. These screening mechanisms should flag such things as staff/students/researchers and research topics and materials on watch lists, and peculiar research interests, funding sources, or associations.

Interdiction support: Experts will need to monitor developments in both the unclassified and classified worlds, and will need to flag situations and identify possible solutions in partnership with the intelligence and law enforcement communities, which may require “special” offensive or defensive action.

- *Offensive support:* Specialists will need to identify questionable research materials that terrorists might have a hand in or could exploit, and then suggest ways to “spoil” these studies or developmental efforts. As another possibility, experts could help to identify legitimate research that could be misappropriated by terrorists and then identify potential vulnerability choke points in these efforts that could be easily exploited and propose mechanisms to “trap” any questionable interests or terrorist attempts to exploit them.
- *Defensive Support:* A select group of experts might be asked to look at U.S. agriculture through the eyes of a hostile operative. They might be asked to identify research projects that need to be hardened from outside penetration, identify agricultural activities that lend themselves to capture and exploitation by terrorist groups, and attempt to identify areas in the distribution chain (in this country and abroad) where terrorists could insert themselves and cause substantial harm.

Training for Analysts and Specialists: Education and targeted training for law enforcement and intelligence officers will be essential for a comprehensive, successful anti-terrorist vulnerability management program. To address this task, informal educational programs will be needed for agency policy makers and program leaders in the U.S. law enforcement and intelligence communities. Research faculty with special scientific knowledge on specific organisms will be valuable assistance in this effort, which should seek to accomplish the following:

- Interface with the intelligence and law enforcement communities to prepare assessments, refine collection requirements and advise on briefing preparations and materials;
- Be available to assist in briefing non-scientists up the chain of command in the law enforcement and intelligence communities;
- Prepare formal presentations and briefings that provide a spectrum (i.e., basic to advanced level) of understanding on the relevant biology and the tenets of bio-terrorist activities. These presentations should be tailored to the needs of the audience; and,
- Faculty may be asked to work with special elements within the intelligence and law enforcement communities to build a response capability to augment their traditional reactions to terrorist incidents.

During all of these interactions, the faculty experts will be adding knowledge to the law enforcement and intelligence system, which in effect will be providing *de facto* on-the-job training.

SECTION 3 MANAGEMENT, SECURITY, AND FINANCING

CHAPTER 6 ORGANIZATION AND GOVERNANCE⁸

The Institute’s organization will be headed by a Board of Directors who will set policy, general program direction, approve the Institute’s annual budget, and evaluate and set the compensation rate for the managing staff.

The initial **Interim** Board of Directors will be appointed by the Chair of ESCOP with a majority consent of the ESCOP Executive Committee. This Interim Board will address the more immediate agro-security needs of the SAES/ARD system, until a determination can be made of the interest and willingness of others to join the Institute, and to have their representatives serve on the Institute’s Permanent Board of Directors.

The **Permanent** Board of Directors shall be comprised of twelve or more nationally known leaders (at least four of whom shall have secret-level security clearance). Thereafter, the Board shall elect its own leaders and replacement members, following rules of operations adopted by themselves within three months of their appointment. Board members shall serve without compensation, but may receive actual travel and *per diem* expenses for their service time.

We are proposing that the NASULGC Board on Agriculture Assembly’s Policy Board of Directors:

1. Promote consideration by our partners in joining the Institute, and
2. Assume responsibility for appointing the Institute’s Permanent Board of Directors.

We are specifically seeking to have broad institutional and functional participation in the Institute and as representation on the Board of Directors.

An Office of the Executive Director will organize the first meeting of the newly created Board of Directors immediately after incorporation. A senior staff member of the Institute will be designated “Secretary of the Board”. The Secretary will help set up the permanent Office of the Executive Secretary, the creation of Institute task forces and committees, and help to plan the launching of the Institute’s programs. The Secretary will also organize all subsequent Board meetings, which will seek to provide all business matters with a single meeting agenda, integrate the interests of all program components, help in the evolution of a priority-oriented culture, and streamline record keeping and reporting.

⁸ To be successful in the proposed activities it will be essential to promote the integration of LGU institutional functions and agreements to work with others in agro-security. The Homeland Agro-Security Task Force has thus recommended to ESCOP that the broader LGU family and others needed to be included in the planning and implementation of the proposed National Institute for Agriculture Security. ESCOP has embraced this recommendation.

The Institute's Executive Director will manage the Institute under the direction of the Board of Directors. The Executive Director also serves as the Institute's corporate leader and its chief spokesperson. The Executive Director is a member of the Board of Directors, with full voting rights.

The Executive Director's responsibilities to the Institute include:

- Mobilizing resources to support the Institute's research and educational programs;
- Implementing Board policies across the Institute;
- Supporting intra-Institute collaboration in human resources development;
- Arranging orientation programs for new Board members;
- Providing assistance to the Institute on legal and policy matters;
- Coordinating the Institute's research site security and agro-security assistance program;
- Providing assistance in developing a secure intranet and Internet services;
- Supporting videoconferencing services for the Institute;
- Giving assistance in web hosting and exhibits;
- Communicating with government officials on Institute matters; and,
- Providing a program in agro-security public awareness for the Institute.

The Office of the Executive Director will work collaboratively with all strategic partners, and with the Institute's shareholders and stakeholders.

Cost effectiveness is a key determinant of the Institute's work program and work style. Staff members and the Institute's consulting experts (who are to be organized into work teams) and the Institute's Office of the Executive Director's (see below), combine experiences and expertise into cross-cutting agro-security activities.

The Institute's main contributions to agro-security will include:

- Helping to create research site security coherence nationally;
- Supporting a national agro-security monitoring database;
- Providing support for a rapid response to any terrorist attacks;
- Presenting scientific perspective to national, regional, state, county and local decision makers;
- Commissioning scientific research studies on priority agro-security questions;
- Organizing meetings of committees and task forces, including *ad hoc* committees or working groups to assess issues and gather information;
- Leveraging the Institute's membership and constituency through strategic partnerships;
- Functioning as an information clearing house on agro-security matters;
- Providing leadership for resource mobilization efforts; and,
- Creating and disseminating the Institute's reports (print and electronic).

CHAPTER 7 SECURITY

Extraordinary attention will be given to protecting certain types of information and sources of information, and certain people associated with the Institute. Figure 2 depicts the plan for organizing an Institute with links to closed information resources, which this Institute must access. To draw on the resources of the law enforcement and intelligence communities without this consideration could compromise sources and information if not done with care. Not accessing these classified resources would limit the capacity of the Institute to respond, and succeed.

Only individuals with active security clearances will be able to work both components of this diagram. Those without security clearance will be limited to open areas of knowledge.

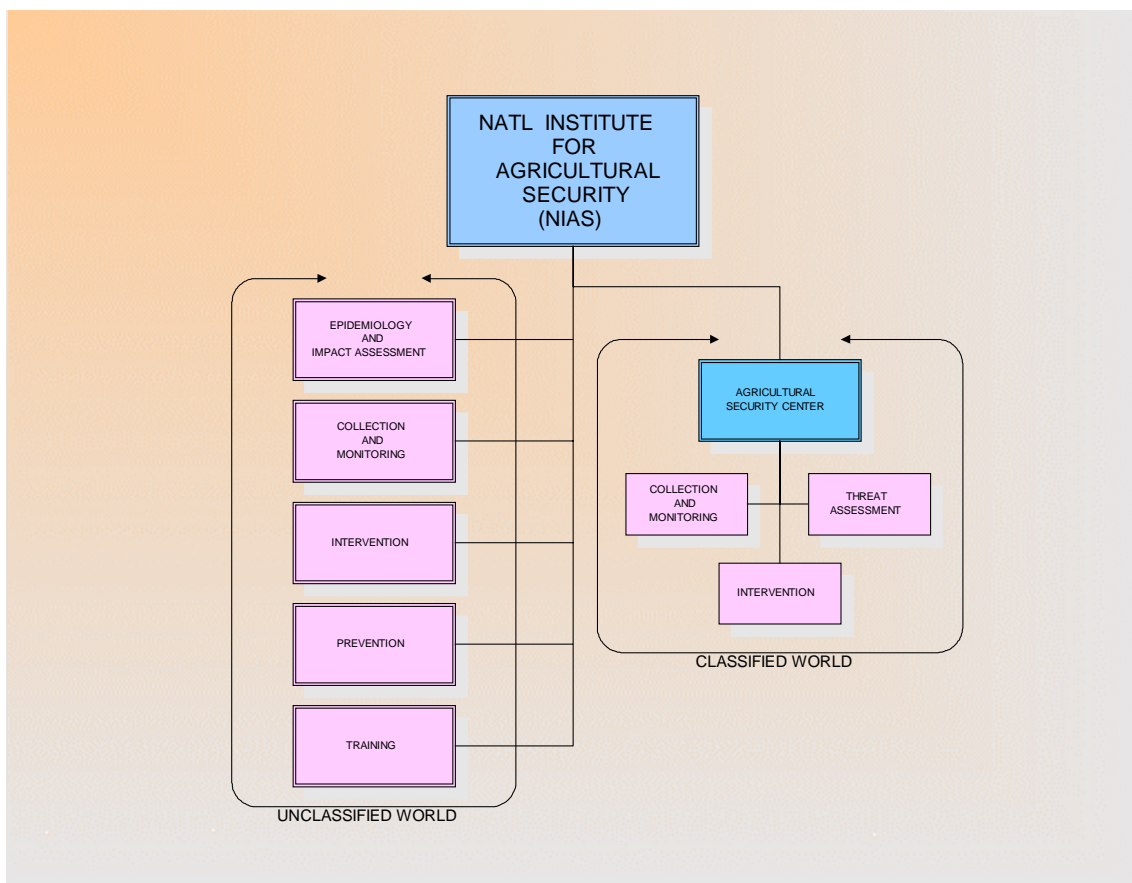


Figure 1. An organogram of the components of the National Institute for Agricultural Security (NIAS) that provides for both open (unclassified) and secure (classified) work.

CHAPTER 8

BUDGET NEEDS

The SAES/ARD system recognizes the value of a balanced portfolio of research activities provided through a mixture of funding authorities. Having different types of funds available to an institution are important for supporting the different types of activities that are needed to solve short, intermediate, and long term problems and to pursue opportunities. This Chapter builds on the fundamental truth that mixtures of different types of funding from multiple sources will be most effective for addressing the tasks of assuring site security and agro-security.

The base (Hatch formula) funding to the SAES/ARD system must be matched 1 to 1 from non-federal sources. For the most part this match comes from state appropriations, and usually the required match is exceeded by a factor of 5 times or more. Base funding allows research activities to be directed into more immediate problem areas. Base funding also provides the motivation and financial support for sanctioned multi-state research projects, and for formal links with Cooperative Extension through formally approved activities (i.e., state-based Plans of Work).

Special grants may specifically target activities in research, extension, or teaching. The high degree of specificity has earned them the moniker of “ear marked” funding. Mostly initiated within Congress, special grants are an important mechanism for directly addressing many aspects of bio-terrorism. As an example, a special grant might be directed to a specific university to conduct a vulnerability assessment, and to initiate research on developing preventative technologies. Another special grant might be awarded to a service center to conduct assessments of research facilities and make recommendations for “hardening” facilities against terrorist attack.

Competitive grants are important mechanism for distributing funds when the demand for funding exceeds the available funds. Often, peer reviews of formal proposal are used to judge the competition. Despite the high transactional costs of peer review and low success rates competitive grants are preferred for some types of research problems. These tend to be situations when the research designs are complex, the information is considered fundamental to science and a quick response time is not essential.

Contracts are awarded to institutions for specific deliverables. This mechanism is considered to provide the timeliest response, but it may be fraught with management difficulties when assessing the fulfillment of the conditions of the contract, especially the deliverables.

As the SAES/ARD system looks to participating in the response to the September 11 and the anthrax attacks more thought is being given to approaching other federal agencies for soliciting financial support. Although only initial contacts have been made, some obvious patterns of likely sponsors have emerged. These are included in the following table as informational only. Much more needs to be done to gain their confidence and trust in the SAES/ARD system before expectations for funding would become realistic.

Given these profiles of funding types it is possible to envision a “balanced portfolio” of activities that the SAES/ARD system can contribute to homeland agro-security in the next years.

Short Term Considerations:

The federal appropriations process for Federal Fiscal Year (FFY) 2003 (beginning October 1, 2002) is virtually completed. Efforts by the SAES/ARD community to secure funding for homeland agro-security activities, although concerted and well coordinated by the BAA Budget and Advocacy Committee and AESOP Enterprises Ltd., will not likely result in any substantial funding for FFY 2003. More recent budget planning has shown major shortfalls in funding for addressing a broad agenda of necessary items. Given the enormity of activity that will be needed for site security and agro-security a strategy is needed to make available some immediate funding. Delaying any action until FFY 2004 is just unacceptable. We see the prospects for threats to SAES/ARD facilities and U.S. agriculture as too obvious to be left unattended for such a long period of time. As managers of public institutions there are expectations for “due diligence”. Inaction because Congress failed to appropriate funding is simply not going to be seen as acceptable.

Task Force members have identified four critical activities that must be initiated immediately:

Site Security-

- SAES/ARD site assessments for security gaps
- Background checks of students and employees

Agro-security-

- Vulnerability assessments, relative to U.S. agriculture
- Developing a U.S. agricultural monitoring system

We are requesting that an emergency appropriation be requested through well-placed Members of Congress for these priority activities. We are further proposing to add to the SAES/ARD site assessments a pilot project at a very few sites to “harden” the facilities. This would allow us to gain experience in the hardening processes and available security technologies. A few hardened sites will also provide us with locations to test the adequacy of the changes, and experiment with alternatives.

We are suggesting that States with well placed Senators or House Members be approached to sponsor emergency legislation as an immediate special grant appropriation in the following amounts:

Site assessments	\$4 million
Background checks	\$5 million
Vulnerability assessments	\$5 million
Designing a monitoring system	\$10 million
Site hardening (@3 sites)	<u>\$3 million</u>
Total amount requested	\$27 million

Prospective Members of Congress should be selected after consultation with AESOP Enterprises President Terry Nipp, and with the concurrence of the Deans/Directors of the sites where that Congressional alignment looks favorable.

Longer Term Considerations:

As we look to the budget needs for a sustained portfolio of agricultural research activities we see a need for substantial funding for essential activities in homeland agro-security. Our best estimates at this early stage have been summarized in the following table. We suggest that this magnitude of funding will be needed into the long term.

Proposed Multi-Sourced Budget⁹

(State matching funds would be additional)

FFY 2004

Source of Funds

	USDA Appropriations				Other			****
	Formula	Special	Competitive	Contract	DOJ	DOD	FEMA	
Site Security								
Assessments		3.0						
Site Hardening	50.0							
Backgrounds								5.0
Agro-Security								
Vulnerabilities		5.0		3.0	1.0	10.0	1.0	3.0
Prevention	50.0	20.0	40.0					
Monitoring	18.0	5.0	2.0	5.0	2.0	12.0	2.0	3.0
Response	20.0	6.0	10.0	3.0	4.0	10.0	10.0	1.0
Ex Post	4.0	1.0	2.0	1.0	1.0	2.0	1.0	1.0
Training	3.0					5.0		
Subtotals	<u>145.0</u>	<u>40.0</u>	<u>54.0</u>	<u>12.0</u>	<u>8.0</u>	<u>39.0</u>	<u>14.0</u>	<u>13.0</u>
Grand Total	\$325 million							

⁹ All amounts are given in millions of dollars for FFY 2004, with the understanding that similar amounts of funding will need to be sustained in the long term.