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AUDIT OF
THE SMALL RUMINANT COLLABORATIVE
RESEARCH SUPPORT PROGRAM

AUDIT REPORT NO. 9-000-87-6

MAY 26, 1987

AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D C. 20523

Deputy
Inspector General

May 26, 1987

MEMORANDUM FOR SAA/S&T, Nyle C. Brady
FROM: D/IG, James B. Durnil 
SUBJECT: Audit of the Small Ruminant Collaborative Research Support Program

This audit report presents the results of audit of the Small Ruminant Collaborative Research Support Program (SR-CRSP). Your comments to the draft report are included as Appendix A to this report and summarized beginning on page 10 followed by Office of Inspector General Comments. Please provide us within 30 days actions planned or taken to implement the recommendation.

Background

Title XII of the International Development and Food Assistance Act of 1975 established a program to use land grant universities in collaboration with institutions in developing countries to increase world food production. Title XII was the basis for Collaborative Research Support Programs (CRSP), established to do research in a given agricultural specialty. Subsequently, CRSPs were established for small ruminants (primarily sheep and goats), and seven other specialty areas.

Title XII provided the basis for the CRSP goal of increasing world food production by supporting research to solve food and nutrition problems of the developing countries. Agency guidelines stated that "The ultimate goal and objective of CRSPs is to increase production and improve consumption of food in developing countries. The prime objective of CRSPs is to generate the technology applicable to the developing countries to make this possible." The logical framework (Logframe) established that expected outputs were "packages of validated, improved technological practices developed in specific locations, but readily adaptable to other locations."

A.I.D. is responsible for the CRSP operations. However, direct management of the day-to-day CRSP operations is done by a management entity--the University of California at Davis (UCD). UCD operated under a grant first awarded on September 1, 1978. UCD was responsible for coordinating research efforts of other participating institutions to ameliorate world food, nutrition and poverty problems. The Small Ruminant CRSP initially consisted of a network of 13 participating institutions (primarily universities) each doing research under sub-grants awarded by UCD in one or more disciplines. The 13 institutions were awarded 17 projects, each headed by a principal investigator. This was subsequently reduced to 10 projects and 10 institutions. A total of \$27.4 million of Federal funds had been planned through September 30, 1987. UCD has requested a 3-year extension until September 30, 1990, and an additional \$12.6 million in funding.

Audit Objectives and Scope

The audit objective was to determine whether the Small Ruminant CRSP was developing technologies that could be used to increase food production in less-developed countries. The program results audit was made at the Bureau for Science and Technology and at UCD. Visits were made to UCD and the overseas locations of the principal investigators for UCD's breeding and health projects. We also met with the principal investigator for Montana State's breeding project, who was serving on a temporary appointment at the UCD.

The audit reviewed information in administrative, project and financial files related to the Small Ruminant CRSP. The audit also considered results of evaluations made annually by an external evaluation panel (EEP), which consisted of a five-member team of scientists knowledgeable about international agriculture. The audit did not include a review of internal controls over CRSP operations.

The audit was made in accordance with generally accepted government auditing standards.

Results of Audit

The Small Ruminant CRSP had taken positive steps in the areas of training of participants and institution building. The CRSP had released publications and funded advanced degrees for 150 foreign individuals and 50 Americans. The CRSP had also established working relationships between U.S. universities and similar institutions in five overseas countries. Also, certain spin-off benefits that may be attributable, in part, to CRSP funding may enhance small ruminant production.

However, as summarized in the following paragraphs, the Small Ruminant CRSP needed to orient research toward technologies that would provide greater assurance of an increase in food production.

Small Ruminant CRSP Could Have Done More Toward Increased Food Production

Title XII provided that U.S. land grant universities collaborate with institutions in developing countries to increase food production. A.I.D. established guidelines to direct this effort. The Small Ruminant CRSP, however, could have more effectively followed the guidelines, and thereby significantly increased the CRSP's potential to successfully meet Title XII overall goals.

Specifically, the Small Ruminant CRSP has not yet (i) developed technology packages to increase food production, (ii) oriented its research toward applied technology, (iii) developed project sites that will lead to world-wide application of research results or (iv) developed plans and procedures to link research results to local and national extension services so that research benefits would be extended to poor producers of small ruminants.

These conditions could have been prevented by greater emphasis on obstacles to effective application of research results, and by better planning and management. As a result of these conditions, there has been neither a measurable benefit to the small ruminant producer, nor an increase in food production from the \$27.4 million previously provided the CRSP.

Significant improvements in program management, direction, and implementation are needed in order to realize tangible future benefits from the \$12.6 million of new A.I.D. funds. Unless A.I.D. management is willing to ensure these necessary improvements are fully implemented, the SR-CRSP should be phased out.

Development of Technology Packages

Title XII established an increase in world food production as the major CRSP goal, and the primary objective of CRSP was to generate technologies to increase food production.

The verifiable indicator that the goal was accomplished would be working examples of validated, improved technology packages. For example, the Small Ruminant CRSP logframe stated that an objectively verifiable indicator for CRSP outputs was the "development of working examples of improved management practices using new technology packages."

Technology packages would consist of written documentation of research results in a form that would be usable by extension personnel or farmers, so that the results could contribute toward the goal of increasing food productions. Results would also have demonstrated to be effective for use in the developing country, given the socio-economic factors and cultural practices applicable to that country.

The CRSP, however, had not produced any technology packages through October 1986, although the EEP had recommended preparation of technology packages since October 1981. In its July 1983 report, the EEP stated that there was no involvement of personnel concerned with extension of results, and that generation of technology was by itself not sufficient. The July 1983 evaluation report stated further that documentation concerning application of results was needed in order to illustrate a more precise intent of the CRSP to aid small farmers.

In 1984, the EEP stated that all CRSP projects should begin working on joint packages of technical innovation, to be validated economically and socially under practical conditions.

In its report of July 1985, the EEP stated that it was disappointed that the need for all CRSP projects to begin preparation of packages of technological innovations was not clearly defined. The EEP further commented while "some thought had been given to validation of research results, the time horizons for such validation efforts seem well beyond the current grant period."

Therefore, in the opinion of a panel of scientists very knowledgeable of the Small Ruminant CRSP, the CRSP had not produced any integrated technological package that could be used by the target population to increase food production.

Orientation of Research

Research was generally not oriented to applied topics that would likely lead to the production of technology packages. Research had addressed survey or applied research of a general nature, rather than topics oriented to the solution of specific problems. Moreover, much research continues to be oriented to topics that are referred to in the CRSP Integrated Program Plan for the period April 1979-1980 as "immediate objectives."

Research Results. Much of CRSP research has addressed subjects of a basic nature rather than subjects having direct significance to small farmers. The external

evaluation panel in 1983 reported that research carried out through July 1983 primarily concerned the identification of general information on production factors in sheep, goats or alpaca. Moreover, the CRSP's annual report that summarized the latest research results available showed that research was still often oriented to general subjects. Of 87 recent reports issued on CRSP research, 46 concerned primarily survey information of existing small ruminant production systems. Of the 41 other reports, 17 involved research of a more general nature, and 24 may have included information of significance to the target population.

Research Plans. Since the evaluation panel's report of July 1983, research plans for future projects continued to be oriented toward research of a more general nature. Of 113 projects included in the 1986/1987 workplans, 29 were of survey information of existing small ruminant production systems and 52 concerned applied research of a more general nature. Only 32 plans concerned work that may ultimately be of significance to the target population.

Many of the 113 workplans for 1986/1987 still addressed "immediate goals" as identified in the Integrated Program Plan for the period 1978-1980. For example, the Plan identified as an immediate goal the characterization of the nutritional and economic value of available forage, by-product and native range feedstuffs. Of the 113 workplans for 1986/1987, 14 were specifically concerned with this issue. Other goals in the 1986/1987 workplan that had been established as immediate goals for the period 1978-1980 included:

- Establish recommendations for mineral, protein, vitamin and energy supplementation practices that will help optimize reproductive rates, disease and parasite resistance, growth rates, food efficiency, and carcass grade at market age: 12 workplans
- Characterize range sites and evaluate existing plant communities in relation to their ecological potential: 4 workplans
- Document the social and cultural factors influencing small producer decision making: 5 workplans.

In summary, much of the research conducted and planned to date has concerned collecting survey or general information, rather than addressing specific issues that could be used to produce new technologies. While some of the research is now oriented to overcoming specific constraints or problems, the majority continues to concern general issues that may or may

not have applicability to the target population. While survey work may have been necessary early to define problems, there has been inadequate progress from survey efforts to applied research.

Selection of Project Sites

CRSP guidelines require that research performed be adaptable on a global or regional basis and that the research be important to the economy of the country, and already exist to a significant extent. Further, research should not take place in A.I.D.-graduate countries (countries that have prospered sufficiently so that they no longer qualify for U.S. assistance) unless the research contributed uniquely to the program and to neighboring less-developed countries. However, much Small Ruminant CRSP research did not generally satisfy the above criteria.

Breadth of research - Most CRSP research was applicable only to a specific country or parts of the country.

- CRSP research in Kenya almost entirely concerned the introduction of a dual-purpose goat (a goat that would produce significant amounts of both milk and meat). Research was oriented to conditions found in Western Kenya.
- Moroccan research concerned prolificacy of sheep indigenous to Morocco, and primarily concerned larger and comparatively more financially secure landholders. Animal management procedures were oriented entirely to Morocco.
- Indonesian research was limited to issues concerning animal breeding that had application only to Indonesian farmers; to nutrition and management matters almost entirely unique to Indonesian flora and methods of raising sheep; and to a sub-project in North Sumatra, Indonesia, done at the request of the Indonesian government.
- Research in Peru almost entirely concerned issues applicable only to that country.

Therefore, any favorable results would be applicable primarily only to portions of the prime countries.

Preliminary information should have resulted in terminating the CRSP because small ruminants were of relatively minor importance in Brazil, Indonesia and Kenya. Brazilian research concerned goats raised in Northeast Brazil, an area

that included many poor farmers. However, most goats there were not owned by the poor, and the research had little potential impact on Brazil's economy.

Small ruminants were also relatively unimportant in Indonesia. Indonesia was a lowly-rated choice as a project site. Small ruminants were far more important to several other Asian countries, notably India and Pakistan, which were not selected because of political unrest or the difficulty of arriving at collaborative working relationships. The inclusion of Indonesia, however, limited the potential usefulness of the results, as the research almost exclusively concerned conditions unique to Indonesia, and there were relatively few small ruminants there.

There were also significant constraints to research in Kenya. Historically, few goats have been raised in Western Kenya. There was no assurance that small ruminant holders wanted to raise goats for milk. Also, there is sufficient food available in Western Kenya. Kenyan research was highly speculative, therefore, and not oriented to a location where a significant number of small ruminants already existed as required by CRSP guidelines.

Brazil as A.I.D.-Graduate Country - Brazil's status as an A.I.D.-graduate country made it a questionable choice. Legal opinion justifying Brazil was largely based upon the assumption that the CRSP would have significant Latin American and worldwide impact. However, research there actually had little or no impact anywhere, including Brazil. Due to funding constraints and continued criticism, the CRSP planned to significantly curtail research in Brazil by September 30, 1987.

Extension of Results to Small Ruminant Producers

Title XII requires the development of extension services to make information available to farmers. The July 1985 evaluation report also stressed the desirability of a handbook to make information available. CRSP actions to facilitate extension of information, however, were not effective. Neither the technology packages nor the handbooks have been prepared. Also, although there were plans for several regional meetings to discuss results, the planned size and scope of the meetings were insufficient to achieve much extension. Therefore, the CRSP has not established effective mechanisms to insure that research results will have practical applications.

Problems with Planning and Management

The above problems occurred because the CRSP did not react to programmatic shortcomings in its early stages. The CRSP also did not adequately consider obstacles to implementation of research results and was inadequately planned and managed.

Research Orientation - CRSP Guidelines require that research address constraints and have a strong probability of impact. However, CRSP orientation has been on general research, rather than application. In responding to the July 1985 evaluation report, the UCD management officials responsible for CRSP activities stated that its "constant theme was to do research and hope that the indigenous extension services would take an active interest in transmitting information." Although in October 1985, UCD officials still considered technology packages to be a "substantial further imposition," the UCD named a lead principal investigator to develop them for the five sites. However, as of May 1986, little had been done.

Planning - CRSP Guidelines stated that a global plan was to be prepared with objectives and strategies to address priority constraints that kept small ruminant production low. However, the focus of the CRSP research was to define, rather than address, constraining factors that limited production. For example, the plan for Indonesia identified the following constraints.

<u>Project</u>	<u>Constraint</u>
Nutrition	There is little information on common feedstuffs on Java, or on what constitutes an optimum feeding regimen.
Health	Small ruminants on Java have infections, contagious diseases and parasites.
Sociology	Research is needed on how social and cultural attitudes affect the small holder, small ruminant production system.
Breeding	Extensive cross breeding has resulted in a continuum of genetic types.

In addition, the CRSP plan did not adequately coordinate CRSP research. A contractor specifically addressing CRSP coordination reported that the CRSP had not been structured to ensure integration, and management had not exercised

central program direction. The contractor recommended centralization of direction and development of a coherent research strategy. These actions were not taken.

Control Over Research - The UCD officials also did not adequately control the research. Principal investigators were responsible for preparing annual workplans to guide their research. The UCD officials responsible for CRSP activities did not issue specific guidance on research that workplans should address, and made few revisions to the plans.

In effect, principal investigators independently decided the direction and scope of their own efforts. Most workplans were oriented toward developing survey information, and were done in isolation from other projects. The evaluation panel was highly critical of workplans, finding many of them too general, not oriented to small farmers or to overseas conditions, or not specific as to research activities, time frames, or the project's relationship to research objectives.

Problems with the workplans continued. Preliminary workplans for fiscal years 1987 to 1990 still included the development of general information. For example, plans included:

- An economics project to carry out studies to define existing production and marketing systems and their associated constraints,
- A nutrition project to do applied studies, such as evaluating the effect of locally available feed supplements in three country sites, and
- A sociology project to gradually deemphasize the collection of basic information on small ruminant production systems, and make field trials.

Workplans also were not monitored to ensure that planned research was accomplished. Baseline performance was not defined, performance goals were not assigned, nor was progress measured against plans. Investigators could continue research for years without having output compared with the plans.

Conclusion

The UCD officials believed that the nature of the CRSP, as a research function, required investigators to have a great deal of freedom in developing and performing the research. Although researchers needed to be able to exercise judgment, central direction was needed for the CRSP to successfully develop technologies to increase food production.

The CRSP has had positive results. However, the CRSP has not effectively progressed toward its goal of contributing toward increased food production, and needed substantial changes to meet this goal. The program and management issues discussed in this report are fundamental for the successful accomplishment of the Small Ruminant CRSP's goal.

Recommendation No. 1

We recommend that the Senior Assistant Administrator, Bureau for Science and Technology, direct that:

- a. The grant for the Small Ruminant Collaborative Research Support Program not be renewed when it expires on September 30, 1987, unless the Senior Assistant Administrator, Bureau for Science and Technology, has made a prior determination that steps have been taken to ensure the likelihood of progress toward the accomplishment of the CRSP goal of increased food production. Such determination should be based upon an assessment of a confirmed commitment to the improvements required, including the changes in program direction and management necessary to correct the deficiencies discussed in this report.
- b. Notwithstanding the changes required by recommendation 1, technology packages and technical manuals, to the extent possible, should be prepared to document research results that have been completed to date. The documents should be prepared in such a manner to facilitate communication of research results by extension personnel to small ruminant producers.

Management Comments

Management stated that "... none of the relevant documents which provide the basis for judging the SR-CRSP in any way require or suggest that the CRSP must demonstrate that the supported research has 'increased food and/or agricultural production' in order to achieve the objectives of Title XII, the Joint Research Committee's concept and guidance paper for the CRSP (approved by BIFAD and accepted by the Agency), the basic SR-CRSP agreement signed in 1978, or--perhaps, most importantly--the most recent External Evaluation Panel (EEP) report on the SR-CRSP, dated October 1, 1986."

Office of Inspector General Comments

We believe that A.I.D. funded agricultural research programs should have increased food production as a primary objective. To this end the revised Guidelines for the Collaborative Research Support Programs Under Title XII of the International Development and Food Assistance Act of 1975 prepared by the Joint Committee on Agriculture Research and Development, recommended by the Board for International Food and Agricultural Development (BIFAD) and approved by the Administrator on June 21, 1985, under the heading CRSP Outputs states:

"The ultimate goal and objective of CRSP's is to increase production and improve consumption of food in developing countries. The prime objectives of CRSPs is to generate the technology applicable to the developing countries to make this possible. A corollary to this objective is to improve research institutional capability in prime and other countries where research is conducted so that they can ultimately operate independently and play lead roles in spreading technology in their respective ecological zones and geographic regions."

Management Comments

Management stated that this CRSP has generated very significant research technologies which have and will lead to increased food production and provided the following examples:

- contagious Caprine pleuropneumonia vaccine,
- the elimination of white muscle disease,
- eradication of Caprine Arthritis Encephalitis,
- development of a dual purpose goat breed,
- the upgrading of Criollo sheep, and
- an increase of alpaca fiber yields.

Office of Inspector General Comments

Our review has shown that very little if any SR-CRSP research had increased food production. In fact, the lack of technology packages, poor site selection, orientation to basic rather than applied research, absence of linkage to

extension service, and the general diffused mode of management and direction as discussed in this report has substantially reduced the probability that the SR-CRSP research will have a measurable increase in food production. In regard to the examples cited by A.I.D. management we noted the following.

The contagious Caprine Pleuropneumonia vaccine research was begun by a veterinarian working in Kenya for the Washington State University. Subsequently the SR-CRSP through its sub-grant agreement with the Washington State University began paying the salary of this veterinarian. Certain research breakthroughs have been subsequently claimed by the University, the veterinarian and SR-CRSP. Although eventual commercial release of this vaccine is possible, further testing is required and commercial viability is yet to be determined.

In regard to elimination of white muscle disease, the 1986 External Evaluation Panel report stated, "... the preliminary research finding by the Veterinary Institute (IAU) offer promise (underscoring added) of the elimination of a severe white muscle disease ..."

The eradication of Caprine Arthritis Encephalitis has occurred by the Kenyan government having all infected goats killed. This disease was introduced in Kenya by a United Nations Food and Agricultural Organization (FAO) project in a shipment of 25 Nubian goats. It infected an estimated 100 native goats in an east coast area of Kenya and was identified by Washington State veterinarians whose salary was funded by the SR-CRSP.

Research in developing a dual purpose goat breed is continuing and still in the process of being tested under controlled conditions. Acceptance by the general population was anticipated but as yet not known. Constraints to acceptance are currently being researched. Constraints include (1) shortage of forage during dry seasons, (2) stiff competition between goats and other livestock, (3) helminthiasis as the major cause for mortality, (4) keeping goats and other livestock from grazing food crops and protecting goats from predators and theft, and (5) the need for developing a superior dual purpose goat genotype.

Upgrading of Criollo (native) sheep in Peru had occurred by cross breeding with other local breeds. Research as to applicability and acceptability was, however, continuing.

Research results with 60 alpacas under controlled conditions showed promise for increasing the quality and quantity of

Alpaca fiber yields. Research was also conducted at two villages with a total population of about 800 people and 2000 alpacas. The extent research results had been adopted by these villagers was not known, however, and the use of research by the general population had yet to occur.

Management Comments

Management stated that research results need time to achieve commercialization and widespread use.

Office of Inspector General Comments

We recognize that agricultural research requires extensive time. We also recognize that there have been noteworthy research accomplishments in this SR-CRSP. However, as discussed in this report, adaptation of accomplishments outside of controlled research conditions is unlikely without significantly improved program management and redirection.

Management Comments

Management stated that the report comments about development of technology packages are well taken. However, research results have been well documented by the publication of some 1,500 scientific and nontechnical reports, papers and bulletins.

With respect to the technology packages, a draft of a Production Handbook for "Dual Purpose Goat Production in Subhumid Tropical Regions Under Intensive Management Systems" is being prepared. This handbook will be appropriate for regions in Kenya, Uganda, Tanzania, Ethiopia, Rwanda, Burundi, Cameroon and many other countries. Another handbook is being planned for "Goat and Sheep Production Under Intensive Management Systems in the Lowland Humid Tropics." This handbook will be appropriate for areas in Indonesia, the Philippines, Malaysia, Nigeria, Haiti and other ecologically similar areas of the world.

Office of Inspector General Comments

While the publication of 1,500 reports, papers and bulletins may have documented research performed, they do not serve the purpose intended by technology packages. The one draft handbook being prepared and the one being planned may possibly serve this purpose. However, as stated in this audit report, the SR-CRSP logical framework established the expected outputs to be packages of improved technology practices. These packages were to be in a form usable by extension personnel or farmers, with the result of

increasing food production. These packages would have been demonstrated to be effective for use in the developing country, given the socio-economic factors and cultural practices applicable to that country. To date this expected output has not been achieved.

AUDIT OF
THE SMALL RUMINANT COLLABORATIVE
RESEARCH SUPPORT PROGRAM

APPENDICES

SENIOR ASSISTANT ADMINISTRATOR

DEC 17 1986

MEMORANDUM

TO: IG, Herbert Beckington

FROM: S&T, N. C. Brady *NCB*

SUBJECT: IG Audit (Draft) of the Small Ruminant
Collaborative Research Support Program (SR-CRSP),
Audit Report Number 9-000-87

A meeting was held at my request with Messrs. James B. Durnil and Jack Ottke of your staff on December 4, 1986. I appreciated the opportunity to meet members of your staff, and I believe the meeting was useful in raising some of the basic questions I had about the criteria against which the CRSP was judged and which apparently served as the primary basis for the auditors' critical findings and primary recommendations.

As to the report's recommendation that:

"The Senior Assistant Administrator, Bureau for Science and Technology, direct that:

1. The grant for the Small Ruminant Collaborative Research Support Program not be renewed when it expires on September 30, 1987, unless the Senior Assistant Administrator, Bureau for Science and Technology, has made a prior determination that adequate steps have been taken to ensure the likelihood of progress toward accomplishment of the CRSP goal of increased production. Such determination should be based upon an assessment of a confirmed commitment to the improvements required, including the changes in program direction and management necessary to correct the deficiencies discussed in this report.
2. Notwithstanding the changes required by recommendation 1, technology packages and technical manuals, to the extent possible, should be prepared to document research results that have been completed to date. The documents should be prepared in a form such that extension personnel in less-developed countries can effectively utilize the results in communicating with small ruminant producers in their countries."

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It is clear to me, as it was to the October 1986 External Evaluation Panel (EEP), that this CRSP has generated very significant research technologies in the short time it has been operational, which have and will lead to increased food production.

Some of the specific noteworthy examples are the Contagious Caprine Pleuropneumonia vaccine, the elimination of white muscle disease, eradication of Caprine Arthritis Encephalitis, development of a dual purpose goat breed, the upgrading of Criolla sheep, and an increase of Alpaca fiber yields. These advances have applications in the regions of the world where goats and sheep are produced not only for increasing food production, but also for generating expanded income for the rural poor. The increased income of the poor will allow them to purchase additional food and improve their overall nutrition.

The CRSPs were designed and implemented as research entities. However, I feel that the SR-CRSP has been quite successful to date in extending their research results at very minimal costs through scientific publications, short courses, field days, regional conferences, international meetings, a training video tape, radio messages, outreach projects and involvement with national goat and sheep production programs. Agricultural research and the subsequent commercialization of the developed technologies are long-term projects (15 to 25 years). As an example, the improved wheat and rice varieties developed respectively by CIMMYT and IRRI in the 1960s (and improved in the 1970s) have only in recent years been fully adopted, adapted, and used in Asian farmers' fields to an extent that has -- some 20 years later -- produced a significant increase in the world's production of those cereal grains. India and Indonesia are "self-reliant" in cereal grain production and Bangladesh has made tremendous strides; but African countries have not yet been able to adapt and use the improved varieties to grow enough cereal grains to meet their peoples' needs. The point I'm making here is that in agriculture, newly developed technologies which result from research need time to achieve commercialization. A similar example in the U.S. is hybrid corn. The hybridization technique was discovered in the 1930s, but the commercial impact of the new technology was not initially realized until the 1950s. Incidentally, continuing improvements in corn production are being realized even today in U.S. agriculture as a result of that research discovery in the 1930s.

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Beyond the realities of research and technology transfer, I would also note that insofar as I can determine, none of the relevant documents which provide the basis for judging the SR-CRSP in any way require or suggest that the CRSP must demonstrate that the supported research has "increased food and/or agricultural production" in order to achieve the objectives of Title XII (specifically, Section 297(a)(3) of the FAA, as amended), the Joint Research Committee's concept and guidance paper for the CRSP (approved by BIFAD and accepted by the Agency), the basic SR-CRSP agreement signed in 1978, or -- perhaps, most importantly -- the most recent External Evaluation Panel (EEP) report on the SR-CRSP, dated October 1, 1986.

As you know, the design of the CRSPs utilizes a Technical Committee (TC) composed of leading scientists in the research field, a Board of Institutional Representatives, an EEP (recognized authorities in the scientific field), and the Management Entity to administer the CRSP and establish the technical direction of the CRSP. Since the CRSP design was a relatively new concept, there were some organizational and implementational difficulties in the past. However, we have worked to resolve them and feel that the recent selection of Dr. David Robertshaw as the new Program Director for the SR-CRSP will further enhance the administrative and technical direction of the CRSP.

Your comments about development of technology packages are well taken. However, I feel research results have been well documented by the publication of some 1,500 scientific and nontechnical reports, papers and bulletins.

With respect to the technology packages, a draft of a Production Handbook for "Dual Purpose Goat Production in Subhumid Tropical Regions under Intensive Management Systems" is being prepared. This handbook will be appropriate for regions in Kenya, Uganda, Tanzania, Ethiopia, Rwanda, Burundi, Cameroon and many other countries. Another handbook is being planned for "Goat and Sheep Production Under Intensive Management Systems in the Lowland Humid Tropics". This handbook will be appropriate for areas in Indonesia, the Philippines, Malaysia, Nigeria, Haiti and other ecologically similar areas of the world.

I am including a copy of the October 1986 EEP report for the SR-CRSP for your personal review.

I would of course be pleased to discuss further my views with you and your deputy.

Attachment:
1. EEP Report

APPENDIX B

Report Distribution

	<u>No. of Copies</u>
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