

PROJECT ASSISTANCE COMPLETION REPORT
Agriculture Research II
Project No. 492-0286

As specified in AID Handbook 3, App. 14A, this Project Assistance Completion Report describes the project status, reviews project accomplishments (on both research impact and institutional strengthening), defines AID's continuing responsibilities and identifies lessons learned.

PROJECT STATUS

The project has completed all activities, including construction of infrastructure, procurement of commodities, provision of technical assistance and training.

AID obligated \$10.0 million for this project in 1979 and in 1980; however, AID subsequently deobligated \$1.7 million in 1985, leaving \$8.3 million. The project has invested \$8.1 million and expects to deobligate the remaining \$200,000 in FY 87. The Government of the Philippines (GOP) invested the equivalent of \$11.8 million in pesos (P88.8 million). The GOP's total investment in agricultural research was approximately \$32.1 million in pesos during the life of the project. This project ended on December 31, 1985.

ACHIEVEMENT OF PROJECT GOALS

In 1979, the project paper identified weak research institutions and the lack of applicable research as major constraints to increased production. Thus the purpose of the project was to:

- Improve research capability in eight research centers with national/regional responsibility in basic and applied research to accelerate generation, verification, and dissemination of new technology appropriate for resolving problems of small farmers. In addition, the project aimed to strengthen PCARRD's capacity to plan and manage research. The element which was crucial to achieving the goal of assisting small farmers was the geographic decentralization of research (strengthening regional institutions).

Inputs to achieve the purpose were:

- International and local manpower training,
- Provision of field and laboratory equipment,
- Improvement of library facilities, and
- Infrastructure development.

Outputs expected were:

- Increased quantity and quality of research personnel in eight research centers;
- Adequately equipped field and laboratory research facilities in eight centers;

- An improved library system in the research centers and an improved information retrieval system and scientific literature service;
- An increase in PCARRD's capability in determining priorities, coordinating, programming, and evaluating of research;
- Increase of ability to attract support from local and international organizations; and
- An increased and sustained flow of research information, especially to aid small farmers.

Two external evaluations of Agricultural Research Loan II were made in 1984. The February 3, 1984 report determined how effectively funds were utilized in achieving project goals, and the April 9, 1984 report evaluated the impact on production, yields and income, especially of small farmers, as well as effects on consumers.

The first review team concluded that PCARRD utilized Loan II funds effectively to achieve the goals of improving the research capability in the Philippines:

- Manpower development provided training for 71 B.S., 398 M.S., and 70 Ph.D. candidates. Short-term, non-degree training and travel grants were provided for 186 individuals. Two thirds of the training grant awards were made to institutions outside the Manila/Los Banos area in support of geographic decentralization to enable more direct support to small farmers.
- Equipment and library materials worth about \$2.4 million were delivered to the eight centers and the PCARRD Secretariat. The Project completed \$5 million work of infrastructure development projects in the centers.
- The ability of PCARRD to influence research management, especially toward the small farmer, was reflected in an increase of PCARRD-funded research under Loan II outside the Manila/Los Banos area from 23% in 1981 to 50% in 1983. The corresponding amount of funds for these projects went from 11% in 1981 to 40% in 1983. During its existence concurrent with Loans I and II, PCARRD has generated over 700 million pesos of research support from GOP and international sources. The report stated that the system has developed research priorities related to development goals and improved research management practices and policies which reduce duplication of research projects, improve accountability, and encourage dissemination and utilization of results.

The second review team in their impact evaluation focused on the expected output of "an increased and sustained flow of research information, especially to aid small farmers." A summary of findings follow:

- "the research institutions aided by this project have already had some positive impact on small farmers and will have greater impact in the near future. The economic impacts so far have

been in corn, rice, and rubber, and in the next five years there will be significant impacts on sweet potato productivity. The regional institutions are playing an important role in solving regional and national problems."

Research Impact

The introduction of downy mildew-resistant varieties of corn, and the discovery of a chemical method of seed treatment have resulted in the virtual elimination of the disease and are partly responsible for an 8% increase in yields. Research on corn borer pests has reduced the health hazard associated with traditional methods of control (by reducing the number of applications of pesticides), and has reduced the negative ecological impact of corn borer control programs. A corn producer in Mindanao developed the practice of datasselling corn to control the corn borer and made this known to scientists at a PCARRD/Southern Mindanao Agricultural Research Center (SMARC) sponsored symposium. PCARRD provided a grant to a scientist to verify this method and the result is a technique validated and operational in the Maisagana corn production improvement campaign.

The project contributed to significant increases in sweet potato yields through the introduction of new varieties by the Visayas State College of Agriculture (ViSCA).

The project also strengthened key institutions which coordinated the application and wider dissemination of the World Bank-funded KABSAKA Project, a program of early maturing high-yielding rice seed and pre-emergence herbicides aimed at making two rice crops per year possible in rainfed areas where traditionally most farmers have produced only one crop. With training and technical assistance from the project, a tobacco farmers' organization developed into an important representative of farmers in determining floor prices of tobacco and helped identify which varieties should be grown. Other data indicate that tobacco farmers in one location were able to increase their yield per hectare by about 80 percent due to increased inputs and a complete shift from older varieties to the best yielding, high quality, Virginia variety.

However, a program for collecting and analyzing data on the impact of new technology as described in the Project Paper was never implemented. Even where accomplishments appear to have been the greatest, as with tobacco and sweet potato, data are not available.

The report concluded that the Philippine Council for Agriculture and Resources Research and Development (PCARRD) "has emerged as the leading institution with the scientific capacity to recognize potentially important technologies and with the national stature to coordinate research, extension, and training to capitalize on these technologies in order to solve pressing national problems. In this sense, the project purpose has been fulfilled. Concentrating support to specific institutions while allowing PCARRD and the institutions to decide on the use of the funds as they saw fit was a critical element in the project's success. The other element crucial to the success of

this project was decentralization without which there would be less technology for small farmers and less interaction between scientists and small farmers. In terms of lessons learned, it is evident that when decentralization is planned and actually implemented, it can work effectively and help achieve intended goals. Research and pilot programs have focused on high value, labor intensive crops and on producer organizations for crops, such as mushrooms and vegetables, which are contributing to increased income and improved living standards of small farmers and laborers."

On the other hand, the failure to implement the original evaluation scheme, including the impact assessment component, has frustrated efforts to assess the success of the project and has detracted from disseminating success stories in order to mobilize political and financial support.

Institutional Capability

This section expands the description of the expected output of adequately equipped research facilities. The project planned to have the eight selected centers adequately staffed and equipped and undertaking problem-oriented research relevant to their regional needs. Based on the Project Officer's assessment, four of these centers are well-equipped, well-staffed and actively engaged in problem-oriented research: Visayas State College of Agriculture (ViSCA), Central Luzon State University (CLSU), University of the Philippines at Los Banos (UPLB) and University of Southern Mindanao (USM).

In addition, Mariano Marcos State University (MMSU) has recently appointed a new administrator who has expressed his determination to implement a strong research program. In August, 1985, MMSU inaugurated the project-financed research laboratory and installed the equipment procured under the project. Hence, it is too early to evaluate MMSU's research efforts.

Isabela State University (ISU) and Palawan National Agricultural College (PNAC) are both very remote and have not received sufficient budgetary support from the GOP. Accordingly, these two centers have focused on conducting "field trials" on adjacent land and have not been able to undertake problem-oriented research programs. While they have made excellent use of the field equipment, most of the laboratory equipment remains underused.

The Forestry Research Institute (FORI) operates seventeen centers/stations throughout the Philippines and has also suffered from budget cuts during the life of the project.

AID'S CONTINUING RESPONSIBILITIES

AID's major responsibility is to continue monitoring the commodities and infrastructure financed under the project to ensure their proper utilization and identification. An end-use evaluation of all commodities and infrastructure financed under the project, conducted in August-September, 1985, reported that the recipient institutions have received the equipment and that the infrastructure work has been completed. The buildings are well constructed and occupied by the recipient institutions. Unfortunately,

significant amount of laboratory equipment (valued at \$53,000) remains unused and many of the buildings and equipment lack proper AID marking. AID and the implementing agency, PCARRD, have discussed these problems. Accordingly, PCARRD has agreed to properly mark the commodities and infrastructure.

Utilization of the currently unused laboratory equipment "in the furtherance of project goals," however, is more problematic. The recipient institutions have not used this equipment for a variety of reasons: they lack the funds to either install, repair and/or operate this equipment and in some cases they don't have a strong need for this equipment. To address this problem as well as the recipient institutions' overall operating needs the project financed \$56,000 worth of spare parts in 1985 in order to repair and maintain equipment (approximately half of this was local procurement). AID and PCARRD have also developed an innovative arrangement whereby recipient institutions can acquire presently unused equipment by paying for the shipping. AID has informed PCARRD that "if the recipient institutions have not been able to use the subject equipment within a reasonable time as specified in the Project Agreement, then AID will have no choice but to issue a bill for collection to the Government." AID has set July, 1987 as the date by which the equipment should be used.

LESSONS LEARNED

The two most important lessons learned from the Project are the need to (1) carefully analyze recipient institutions' capabilities to use and maintain research equipment and to procure equipment accordingly, and 2) prepare a comprehensive book/journal procurement which provides recipient institutions with a basic research library rather than purchasing reference materials based on each recipient institution's requests.

The project over-estimated Government expenditures for research in future years and assumed that the recipient centers would have adequate funds to operate and maintain the equipment. Thus, the project bought what was considered a minimum set of research equipment for each of the research centers. In retrospect it would have been more efficient to procure low maintenance, simple equipment designed for field trials at the more remote centers. On the other hand, analyzing library needs and then purchasing a minimum set of reference documents per center would ensure that each center possessed the critical mass of reference documents needed to conduct sound research. A project could also considered additional requests from each center depending upon their interests and needs.

An additional lesson learned related to the failure to implement the original evaluation scheme described in the project paper. Evaluating project impact would have helped the impact evaluation team assess success or failures of the project as well as assisting PCARRD in telling success stories to benefit clientele and to mobilize political and financial support for research. Relative to impact, the team cited four points about research that are pertinent to the evaluation of successful research efforts.

1. It takes research longer than most projects before an impact is realized.

2. Research is inherently uncertain with a few big payoff projects paying for a large number of projects that never have any payoff.
3. For research to have impact, a system to disseminate technology and provide production inputs and market products must be in place. It is impossible to separate the effects of research from extension, input supply, and price policy.
4. On a worldwide basis investment in medium to long-term research agricultural has been an extremely productive.

Recommendations for action:

1. Follow up with PCARRD to insure compliance with July, 1987 deadline to utilize currently unused laboratory equipment.
2. Encourage PCARRD to establish a process for assessment of the impact of research within their normal evaluation procedure and to publicize success stories.

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