

Terminal Evaluation

Latin America and the Caribbean

1. Outline of the Project

Country: Argentina

Project title: Joint Study on "Biocontrol of soil-borne infectious plant diseases"

Sector: Agriculture

Cooperation scheme: Technical Cooperation Project

Division in charge: South America Team, Regional Department III(Latin America and the Caribbean)

Cooperation Cost (at the time of evaluation): Thirteen long and short-term experts, one trainee, etc.

Cost: 39.83 million yen

Period of Cooperation:

(R/D) 1 June 2001 – 31 May 2004

(Extension)

(F/U)

(E/N) (grant aid)

Partner Country's Implementing Organizations: Instituto Nacional de Tecnologia Agropecuaria (INTA)

Instituto de Microbiologia y Zoología Agrícola (IMYZA)

Supporting Organizations in Japan: Hokkaido University, Gifu University, The Ministry of Agriculture, Forestry and Fisheries

Related Cooperation: University of Buenos Aires, University of Cordoba

1. Background and Outline of the Project

Damages of field crops and vegetables brought on by soil-borne bacteria that cause plant diseases have become a serious problem in Argentina. Soil disinfectant used for disease control (methyl bromide) could hinder sustainable agriculture, as it adversely affects people's health and the environment. Moreover, a decision was made at the Montreal Protocol meeting held in 1995 to phase out the use of methyl bromide by 2010 as it is considered an ozone depleting substance. Therefore, there currently is an increased trend toward the use of microorganisms as an alternative method to control diseases. This is also true in Argentina, where INTA began research in this area a few years ago.

Thus far, JICA has been continuously dispatching short-term experts since 1994 to transfer basic technology in this area, in response to the request submitted by the Argentine government. Research cooperation in this area was implemented in order to further build on outcome of such transfers, and to develop alternative control measures.

2. Project Overview

(1) Overall Goal

Safety control methods against the soil-borne plant disease are extended in Argentine.

(2) Project Purpose

- 1) A biological control method against soil-borne plant diseases is developed.
- 2) A system, which identifies biological control agents and makes these agents practically usable, is established in Argentine.

(3) Outputs

- 3) Effectiveness of various combinations of selected microorganisms to control plant diseases in the greenhouse and growths chamber is shown.
- 4) Effectiveness of the selected microorganisms in the naturally infected fields is shown.
- 5) The influence of biological control agents on existing microorganisms becomes clear.
- 6) The properties of selected microorganisms become clear
- 7) Effectiveness of the plant disease control programme without use of chemical control agents is shown.

(4) Inputs (at the time of evaluation)

Japanese side:

Long-term Experts:	1
Short-term Experts:	12
Trainees received	4
Equipment:	29.48 Million Yen
Local cost:	10.35 Million Yen
Others:	0 Yen

Argentine side:

Counterparts:	8
Land and Facilities:	
Purchase of Equipment:	Local currency
Local Cost:	248,130 pesos

*Converted to yen based on each average annual exchange rate (12.513 million yen)

2. Evaluation team

Members of Evaluation Team

Team Leader, Evaluation Planning: Hiroshi Nishiki, personnel of South America Team, Regional Department III(Latin America and the Caribbean), Japan International Cooperation Agency (JICA)

Evaluation Analysis: Yasuyo Hirouchi, International Development Associates, Co., Ltd.

Management Adviser: Seiji Kato, Deputy Resident Representative, Argentina Office, JICA

Senior Technical Adviser: Kiroku Kobayashi, long-term dispatched expert, JICA

Period of Evaluation

19 March 2004 - 26 March 2004

Type of Evaluation:

Terminal Evaluation

3. Results of Evaluation

1. Summary of Evaluation Results

(1) Relevance

The Argentine government ratified the Montreal Protocol that decided to completely abolish the use of methyl bromide, which is an ozone depleting substance, by 2010. Therefore, it has a strong need to develop a safe control method that will replace the soil disinfectant. In addition, as methyl bromide will be banned from use as of 2007 within Argentina, there is also a strong demand among farmers for alternative methods to control plant diseases. Therefore, this project matches the needs of the recipient region.

(2) Effectiveness

As a final result of the project activities, microorganisms to be used as highly effective biological pesticides were introduced, and two types of comprehensive programs for controlling plant diseases were developed. Therefore, it is expected that the project goals will be fully accomplished during the remaining period of cooperation. Moreover, related skills were transferred to the counterparts, who were able to acquire enough fundamental skills to continue the research on their own.

(3) Efficiency

Judging from the degree in which the effects of the project were achieved, it can be said that input into the project has been carried out in an efficient manner.

The timing and the extent to which short and long-term experts would be provided were determined based on their quality, technical level, experience, and the plans and progress of the project activities. As a result, the subsequent activities were carried out smoothly, and the effects of each activity were achieved without delay. Therefore, the experts are determined to have been provided in an effective manner. Similarly, the counterpart's quality, number, technical areas and training in Japan were deemed to have been appropriate, judging from their level of achievement and timing in which the effects of activities were achieved. For example, they have each fully utilized their knowledge and experiences gained through their training even after returning to Argentina. Since local costs necessary for the activities were paid according to plan and the equipment was provided within the initial fiscal year, related research was smoothly implemented. The output items listed as a. through e. under

the above 2.(3) were steadily achieved, and results were published as a research paper. Therefore, major accomplishments were made.

(4) Impact

The overall goal of this project is "Safety control methods against the soil-borne plant disease are extended in Argentina." The full attainment of this goal can be expected in a few years' time for the following reasons.

The goal "Safety control methods against the soil-borne plant disease are extended in Argentina." has been achieved through the project. By continuing further research, it is expected that registration with the Servicio Nacional de Sanidad y Calidad Agroalimentaria (SENASA) will be possible. Such registration is a prerequisite for disseminating the disease control methods throughout the country. Since the developed comprehensive method for disease control is comparatively simple and inexpensive, the disseminating activities through the INTA are expected to be fully possible.

(5) Sustainability

Regarding sustainability from a policy viewpoint, as mentioned under the above 1., Argentina has ratified the Montreal Protocol, and its government has publicly pledged to abolish the use by methyl bromide by 2007. Therefore, it is almost certain that continued support as a nation would be provided for the development and promotion of biological control methods.

Furthermore, after INTA became an independent corporation in 2000, a decision was made for INTA to receive 0.5% of import taxes to cover the cost of its activities. Therefore, it is expected that the budget necessary for IMYZA to continue its research will be ensured. For these reasons, it is likely that counterparts will be able to continue with their research in the future.

For the purpose of developing biological disease control methods, IMYZA has already established cooperative relationships with the University of Cordoba, University of Buenos Aires, and several private sector companies that are interested in biological pesticides. Furthermore, there are prospects for attaining further funds from such private sector companies.

2. Factors that Promoted the Realization of Effects

(1) Factors Concerning the Planning Process

Short-term experts had been dispatched from Japan prior to this research cooperation project. As a result, the needs of the Argentine side, their status of damages caused by soil-borne infectious plant diseases, and the technical standards for this purpose could be gained more accurately beforehand.

(2) Factors Concerning the Implementation Process

The Japanese short-term experts who were dispatched prior to this project continued to stay on during the actual implementation of the project as a long-term expert. Therefore, the project was carried out by experts who had a thorough understanding of the local situation, and this resulted in smooth implementation.

3. Factors that Impeded the Realization of Effects

(1) Factors Concerning the Planning Process

Initially, several problems that lacked logical consistency existed within project design matrix (PDM). For example, while there were two project goals, the second goal was actually part of the first goal. However, the implementing personnel held appropriate ideas regarding the project (primary intent, objectives, activities) which were fundamental to the activities, such problems were not detrimental.

(2) Factors Concerning the Implementation Process

Due to the Argentina's economic crisis, which began in December 2001, INTA was not able to fully bear the project costs (test materials, etc.). However, this problem was dealt with in a flexible manner, by such means as using part of the local operating fund allocated for dispatched experts. Therefore, it did not affect the progress of the research.

4. Conclusion

Under this research cooperation, two types of comprehensive disease control methods (sterilization by soil reduction, and combination of biological pesticide and solar heat soil disinfectant) were developed, which was the final result of the project. Thus far, both methods have proven to be effective in controlling diseases, and the results were published in an original report. Judging from such outcomes, it is expected that the desired project goals will be sufficiently achieved by the end of the project period. Moreover, budget necessary for IMYZA to continue its research in the future has been secured, and the counterparts have acquired sufficient fundamental skills in order to carry out related research on their own. Therefore, it is deemed that the research activities undertaken so far can be continued. Due to these facts, this research cooperation will be terminated at the end of three years, according to plan.

5. Recommendations (Specific measures, suggestions, and recommendations related to this project)

(1) INTA must continue providing financial and policy support so that IMYZA may continue its research activities.

(2) At the same time, IMYZA must not depend solely on the funds allocated from INTA for this purpose, but consider ways in which to utilize the technology it has acquired through this project to gain income on its own.

6. Lessons Learned (Matters useful for discovering, creating, implementing, operating and managing similar projects derived from this project.)

(1) The original plan was to hold regular meetings by setting up a steering committee. However, since the project was understood to be progressing smoothly under the monitoring of the experts and overseas offices, the steering committee was never established. However, it is undeniable that had a steering committee been set up, it may have allowed the understanding of the implementing agency of the Argentine side to deepen, and the operation of the project to take place more smoothly. Therefore, it would have been desirable to establish and use a steering committee as planned.

(2) As it is indicated in detail in the main body of the evaluation results, accomplishments of the activities were able to gain sufficient publicity by disclosing them through reports and seminars. Therefore, it is important to thoroughly record the activities in writing, and to appropriately make the content of the activities known to external sources.