

Overview of Terminal Evaluation Study Results

I. Outline of the Project

- Country: Republic of Nicaragua
- Project Title: Strengthening of the Integrated Pest Management in the Northwest Region in Nicaragua (Fortalecimiento del Manejo Integrado de Plagas (MIP) en la Región Noroccidental de Nicaragua)
- Field: Agriculture, Rural Development
- Cooperation Scheme: Technical Cooperation (Japan-Mexico Partnership Program)
- Section in Charge: JICA Nicaragua Office
- Total Cost: 45,059,000 JPY
- Cooperation Period: (R/D): From August 28, 2003 to August 27, 2005
- Beneficiary Country's Implementing Organization: National Autonomous University of Nicaragua, León (Universidad Nacional Autónoma de Nicaragua-León), Center for Investigation and Reproduction of Biological Control Agent (Centro de Investigación y Reproducción de Controladores Biológicos, CIRCB)
- Supporting Organization in Japan: N/A

1. Background of the Project

In the northwest region of Nicaragua, the cotton, banana and sugar cane had been produced on a large scale using massive amount of agrichemicals from 1960's to early 80's, which contaminated soil and groundwater and caused bad affects on the human body. In this regard, raised the interest on the sustainable agriculture with the environmental consideration, the Center for Investigation and Reproduction of Biological Control Agent (Centro de Investigación y Reproducción de Controladores Biológicos, CIRCB) of the National Autonomous University of Nicaragua, León (Universidad Nacional Autónoma de Nicaragua-León, UNAN-León) has been engaged in the research and development of the Integrated Pest Management (Manejo Integrado de Plagas, MIP) since early 80's. Since before the implementation of this Project, the CIRCB had been making efforts at promoting the technology mainly to the medium-sized and small farmers through the Counterpart Fund of the Non-project Grant Aid Cooperation and also receiving the Third Country Experts from Mexico. In 2002, JICA initiated the first triangle cooperation by Japan, Mexico and Nicaragua, "Strengthening the Integrated Pest Management" (3 years of cooperation period) with the CIRCB as the implementing agency, for the purpose of establishing the production technology of the biological pesticide and promoting the technology to the medium-sized and small farmers.

2. Description of the Cooperation

(1) Overall Goal

The medium-sized and small farmers in the northwest region of Nicaragua put the Integrated Pest Management in practice

(2) Project Purpose

The medium-sized and small farmers in the northwest region of Nicaragua use biological pesticides for the agricultural production

(3) Outputs

1. UNAN- León establishes the production technology of the biological pesticide suitable to the technological capacity and demand of the farmers
2. UNAN-León establishes the distribution routs for the biological pesticides produced by them
3. The farmers understand the effects and usage of the biological pesticides produced by UNAN- León

(4) Inputs (at the time of the evaluation)

Japanese side:

- Dispatch of short-term experts: 2
- Donation of equipment: US\$141,161.14
- Acceptance of trainees: 7
- Local cost: JP¥9,823,000

Mexican side:

- Dispatch of short-term experts: 13
- Local cost: US\$22713.70
- Acceptance of trainees: 12

Nicaraguan side:

- Assignment of counterparts: 16
- Local cost: US\$486,119.00

II Evaluation Study Team

Member of the Evaluation Team

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Study Period: June 27 – July 11, 2005

Type of Evaluation: Terminal

III Overview of the Evaluation Results

3-1 Achievement

(1) Achievement in Overall Goal and Project Purpose

As to the Overall Goal, it was difficult to grasp the achievement since there was no information to measure accurately the level of achievement of the indicators. Some of the reasons were because it was 3 years after the Project and only in a period of time since the promotion activities were started, and it takes quite a time to get to understand the appropriate usage of the biological pesticide. However, since 4 out of 7 medium-sized and small farmers answered that now they use less amount of chemical pesticide, it is possible to expect the reduction in the use of chemical pesticide even though a specific data on the value of the reduction was not available. For the production cost, it was impossible to confirm its reduction, since there was no study on it, and neither was it possible to gather information from the farmers. However, the production cost of the biological pesticide is generally lower, and which allows expecting the reduction.

There was no accurate data to identify the level of achievement set by the indicators for the Project Purpose neither. However, the total area of the medium-sized and small farms which applied the biological pesticides was 54.2% of the planned value. Therefore, it is contemplated that the level of achievement is not very high.

(2) Achievement in the Output 1

While there was no difference in the price of biological pesticide from the beginning of the Project in spite of the inflation rate, the UNAN-León prepared manuals of the production and utilization in 4 different biological pesticides, except the one which had stopped producing with the problem of the facility, which revealed the high level of achievement. Also for the quantity of the production, there were types of biological pesticide which could not achieve the planned value, but it was the result of the quality and production control from the shift of demand. Therefore, it can be thought that it generally achieved the output.

(3) Achievement in the Output 2

At the time of the Terminal Evaluation, all 4 types of biological pesticide produced by the Project had been sold directly from the UNAN-Léon to the farmers, which met one of the indicators. In the quantity of the biological pesticide distributed to the market, it did not reach to the targeted value for the virus, fungus and trichogramma, although the lacewing had exceeded greatly the targeted value. As for the marketing routs, the UNAN-Léon concluded an agreement for the distribution with the farmer's association (Cooperativa del Campo) by the time of Terminal Evaluation, but those in Ocotal, Estelí and Sébaco were not functioning yet. Consequently, it cannot deem that the marketing rout, which is the most important indicator for the Output 2, was established, and therefore the level of achievement of the Output 2 is not high.

(4) Achievement in the Output 3

It is difficult to identify the level of understanding of the 3,000 farmers in practice. According to the test to determine farmer's comprehension on the effects and usage of the biological pesticide, done by the evaluation study, the percentage of questions answered correctly was 69%, and it revealed that they obtained basic knowledge although not complete. It can be considered that the 1,005 farmers who participated in the promotion activities obtained certain basic knowledge. On the other hand, there were not many farmers who received the technical support more than 2 times, and it was unidentified that how much practical knowledge those farmers could have obtained from the training. Also considering the fact that only a little more than a third of the targeted number of farmers actually received the training or technical support from the UNAN-Léon, it can be speculated that the achievement of the Output 3 is not high.

3-2 Summary of Evaluation Results

(1) Relevance

In reference to the National Development Plan of Nicaragua, the agriculture is a priority sector for the national economic development, and the promotion of the organic farming comes up to the national policy.

Moreover, the strategies of the Plan include the improvement of the agricultural productivity in rural areas, environmental conservation, and sustainable use of the natural resources, and also it aims to promote organic farming to revitalize the agriculture sector in the country. The success of the Project will lead to the achievement of “the improvement of agricultural and livestock productivity” which is regarded as an important development task both in Japan’s Official Development Assistance Country Policy for Nicaragua and in the JICA Country Program. Therefore, the Project is highly relevant in the policy.

On the other hand, while it is high in consistency with the needs of medium-sized and small farmers, the usage of biological pesticide is more complicated than that of the chemical pesticide, and it requires a lot of knowledge and techniques to achieve the results expected. Therefore, it can be considered that it needed a more profound strategy in the transfer of knowledge which is adequate to the technical capacity of the medium-sized and small farmers.

The site of the Project was high in relevance, as the northwest region of Nicaragua is an agricultural area which contains the largest number of farmers and the quantity of the production in the country, and also is the area of activities for the UNAN-Léon which executes the Project. On the other hand, considering the cooperation period and human and financial resources of the Project, it can be thought that the targeted area was too large.

As to the promotion measure of biological pesticide, it should have considered and established an alternative way when the National Commission for the Integrated Pest Management stopped its function. As far as considering from a point of the relevancy in promotion measure, it cannot say that it is high in relevance.

(2) Effectiveness

Regarding the three outputs expected in the Project, the output, “Establishing the Production Technology of the Biological Pesticides” was satisfactory, and the output, “The farmers’ Understanding of the Effects and Usage of the Biological Pesticides” was overall acceptable. These results can contribute to the achievement of the Project Purpose, “The Farmers’ Utilization of Biological Pesticides for Agricultural Production”. However, the output, “The Distribution and Promotion of the Biological Pesticides” has yet to be successful, which prevents the achievement of the Project Purpose within the cooperation period and erodes the effectiveness of the Project.

(3) Efficiency

The dispatch of Japanese and Mexican experts, the trainings for C/Ps, and the supply of the equipment were appropriate in quality and quantity, which contributes to the good results of the first and second outputs. Nevertheless, since the timing of introducing each category was not appropriate and the third output did not turn out satisfactorily, it is difficult to say that the efficiency of the Project is high as a whole.

Although the timing of the supply was inadequate, the productivity of biological pesticide was improved in the wake of fact that the facilities of the CIRCB’s laboratory were got in good condition with those procured equipments; which were appropriate in quality and quantity for the implementation of the Project. Moreover, the technical ability of C/Ps was improved by the dispatch of experts and the acceptance of trainees, and it also contributed to the improvement of the productivity. Estimating the amount of the production in a case of utilizing the most of human and financial resources of CIRCB in this Project, it revealed that it was possible to have more production than the actual result. Regarding a few types of biological pesticide out of the 4 types, which retain higher demand not only from the medium-sized and small farmers but also from the enterprises, it could be possible to increase the production even when it has not established the distribution routes yet. For that reason, it cannot exactly conceive that the efficiency of the production was high. In addition, although the specialty of the experts dispatched (Japanese and Mexican) was adequate and they were motivated enough, the period of dispatch was so short that both the experts and C/Ps felt that time was running short to transfer the knowledge and techniques sufficiently. Therefore, it cannot say that the input of those experts was efficient to reach the outcome, provided that there was limitation in system of the dispatch of Mexican experts.

(4) Impact

Although it was impossible to grasp specifically the achievement of the Overall Goal since there was no data available, it can be considered that the level of achievement at the time of the Terminal Evaluation was low, due to the insufficiency of the activities necessary for the promotion of the biological pesticide and the establishment of the distribution routes. Hence it cannot deem that the impact has been raised enough. It has been seen the indications which can lead the incidence of the impact although there was no transformation which can be deemed as an impact apart from the Overall Goal.

(5) Sustainability

The overall sustainability of the Project is not necessarily high at the point of the terminal evaluation.

- Sustainability in national policy: Organic agriculture, including biological pesticides, is promoted as a national policy. The implementing institute (the university) intends to establish CIRCB as a national reference center of biological pesticides, and the C/Ps are to continue the production of biological pesticides, which shows some sustainability. However, the university is not an institute for distribution and promotion. The sustainability of distribution and promotion is not promising unless the university intends to facilitate distribution and promotion as its policy.
- Financial sustainability: The profit from the sales of biological pesticides covers the cost of materials, and currently the profit exceeds the cost of materials. Financial sustainability is assured as long as the implementing institute maintains the status quo in its production and sales. It is necessary, however, to expand the area of distribution and sales of biological pesticides in order for those biological pesticides to be more available in the target area from now on. Although CIRCB is offering support to the university, it is not certain if they can reserve necessary expenditures (anticipatory investment) for the future.
- Technical sustainability: The C/Ps have improved their skills and knowledge, and the production of biological pesticides has been improved through the Project, particularly in accumulation of some techniques.

3-3 Factors Contributed to the Achievement of Outputs

- As to the production activities, putting through the market investigation about fungus and the registration to the MAGFOR, the plan was generally carried out.
- The experts and C/Ps maintained good relationships, and communicated sufficiently with each other.
- Most of the C/Ps were high in aptitude for the establishment of the technology of the Project.

3-4 Factors Induced Problematic Issues and Problems

- (1) Due to the cooperation between 3 countries ("South-South Cooperation"), the administration process took more time than had been expected, which influenced the progress of the Project activities. More time should have been taken into consideration for establishing the agreement compared to regular technical cooperation projects.
- (2) The National Commission for the Integrated Pest Management (Comité Nacional de Manejo Integrado de Plagas), which was supposed to cooperate in the promotion and distribution activities of the biological pesticide, stopped its function practically, and caused delays in the activities. In launching the Project, the national commission's operating system and budget should have been researched more meticulously in order to set up more realistic activity items.
- (3) Since it took a year to registrar in the MAGFOR as a necessary step to distribute the biological pesticide as well as the CIRCB took time to gain understanding from the University to start in earnest "the biological pesticide sales business," the activities to expand the distribution is still under the execution. Not only the time required for the agreement among the 3 countries but also the achievement of the Project and the focus of the activities should have been discussed so that the original Project implementation plan was more realistic.
- (4) The responsibility for the total project management was not clear among the project members, the periodical monitoring was not put into practice, and it did not undertake the activities based on the indicators of the PDM. Although the indicators were set, it only gathered partial information about the indicators, therefore the level of achievement of the indicators was not grasped adequately. With regard to the PDM, there was not much logic in order to achieve the Project Purpose from the activities' level. In such a project without long-term experts as this, it was essential to first check the project operating and administrative abilities in the local Project members and to offer trainings in skills required in project operation and administration, including project cycle management.
- (5) After the dispatch period, the experts returned to their countries, and there was hardly any communication between the experts and the C/Ps. The dispatch period was short, and it was not enough time to transfer sufficient skills and knowledge between them. The long distance between them after the dispatch period could not be helped, but more efficient technical transfer would have been possible with communicative tools such as the Internet and video teleconferencing.
- (6) The absence of the project coordinator and long-term experts made the C/Ps proceed independently in the application procedure of equipments, which delayed the supply of the equipment. The procurement of materials for the virus and fungus production was also difficult. The local

implementing institute could have had measures, such as the allocation of a local coordinator with the local cost, when it was hard to allocate the Project personnel (coordinator) due to the lack of the budget.

3-5 Conclusion and Recommendations

Among the 5 evaluation criteria, the study found that there are challenges left especially in the effectiveness, impact, and sustainability. In the 3 components of the Project (the production, promotion and distribution of the biological pesticide), the project period was ended when only the part of production had been almost completed, and it just started the efforts in the promotion and distribution. To achieve the Project Purpose and the Overall Goal onward, it requires strengthening the activities in the promotion and distribution, considering the following 4 recommendations. However, these 4 measures cannot be implemented by the end of the Project. If the local implementing institute endeavors for several years from now on and implements these measures successfully, the original Project Purpose will be accomplished.

(1) Prepare training curriculums which suit to each object group

To popularize the techniques of biological control to those medium-sized and small farmers, which is more complicated than chemical pesticide, it is necessary to identify the contents and curriculums of the training suitable to the target beneficiaries, and give continuous trainings to the participants. In addition, it expects to make use of internal and external resources as effective as possible.

(2) Guide the techniques in the Integrated Pest Management related to the biological pesticide

Since it cannot expect the effective result from the biological pesticide by itself, it should obtain the integrated skills of biological control. It needs to carry out trainings on the Integrated Pest Management at the same time for the maximum results of the techniques in biological control.

(3) Strengthen the partnership with external organizations

There is a limitation to put promoting activities in practice in the future with the human and financial resource the CIRCB has at this moment. Therefore, apart from the conventional ways of promotion and distribution, it needs to cooperate with external organizations such as NGOs and agricultural associations, and utilize their human resources and networks.

(4) Update the technical information in the biological pesticide and the Integrated Pest Management

To overcome the technical issues, it is necessary that the C/Ps keep renewing and improving the techniques and knowledge. Participating actively in national and international congresses and giving a presentation, it helps to gather and exchange information with other institutions and grasp the latest technical tendencies. Moreover, it helps to establish relationships with other institutions.

3-6 Lessons Learned

The affiliation to the OECD in 1994 has transformed Mexico from the aid recipient to the aid provider. Since then, it has been accumulating 10 years of experience supporting Mexico as an aid provider under the scheme of JICA in sum the South-South Cooperation. In addition, the South-South Cooperation Scheme has been strengthened through the Japan-Mexico Partnership Program concluded in 2003, and the establishment of more effective scheme of cooperation has been sought. Under the circumstance, the cooperation of the Mexican side in this project remained only the dispatch of short-term experts. Focusing on the "establishment of the effective scheme of cooperation", it emerged following issues.

(1) Establishment of the ways of management and administration in the project of 3 countries cooperation

The project management can be more difficult when it involves 3 countries. Since JICA employs PCM method, it is important that JICA takes responsibility for explaining it sufficiently and establishing the substructure of the project management among them.

(2) Realization of the effective dispatch of the experts on a basis of the restriction

To achieve an effective result only with the dispatch of the short-term experts, as a case of this project, it is necessary to establish a firm framework and method for the project management, and set clearly and specifically the role of short-term experts in the framework.

(3) Formation of the cooperation system under the circumstance of Japan-Mexico Partnership Program (JMPP)

It is expected that Mexico puts its structure in order, to start making efforts as an independent aid provider, provided that it is a member of the development assistance committee of OECD, and also a country with a JMPP treaty. Japan is expected to contribute to the strengthening of the Mexican structure.

(4) Implementation of the effective cooperation combined flexibly with other schemes of JICA

Considering that it can be more effective if it combines the south-south cooperation with other schemes of JICA and other donors, in order to prepare the foundation of Mexico as an aid provider, it is suggested to have active combinations with the south-south cooperation and other cooperation schemes, which provides opportunities to the Mexican side to learn the practice of aid provision.

