Terminal Evaluation

Asia

1. Outline of the Project

Country:
Indonesia

Project title:
Development of High Quality Seed Potato Multiplication Project

Issue/Sector:

Cooperation scheme:
Technical Cooperation Project (former Project-Type Technical Cooperation)

Division in charge:
Agricultural Technical Cooperation Division, Agricultural Development Cooperation Department

Total cost:

Period of Cooperation 1 October 1998 - 30 September 2003

Partner Country's Implementing Organization:
Horticulture Production Development Division, Sub Division, Ministry of Agriculture

Supporting Organization in Japan:
Ministry of Agriculture, Forestry and Fisheries of Japan (MAFF)

Related Cooperation:
Grant Aid (Facilities, Equipment, Agricultural Field arrangement)

1-1 Background of the Project

The government of Indonesia has stabilized and increased the production of major national horticultural crops, in order to secure the nutrient supply resources for its people and to increase income of farmers. Under these circumstances, the Indonesian government, with the cooperation of the Japanese government, implemented a five-year project to increase the productivity of potato seeds in West Java in 1992. As a result, the basic multiplication technique was established in West Java, and potato seeds have been produced ever since. However, in order for the multiplication system to steadily function and expand, some issues still needed to be addressed, such as development of countermeasures against harmful insects, a system to distribute the seeds, and production techniques of the seed producers. The average national yield of potatoes for food was 15t/ha, which still remained at a lower level compared with the world average of 30t/ha. Based on such factors, the Indonesian government requested the Japanese government for technical cooperation in order to establish a multiplication system of potato seeds in West Java, as well as in seven of its surrounding states that are main producers of potatoes. Upon the request, this project was commenced in October 1998, and was implemented for five years.

1-2 Project Overview

(1) Overall Goal

To proliferate the production of superior potato seeds. To develop a national multiplication system for superior potato seeds.

(2) Project Purpose

To develop a multiplication system for superior potato seeds in West Java so that the system can be used as a national model.

(3) Outputs

1) Production techniques of potato seeds are enhanced at BPBK (Breeder's Stock Farm) and BBU (Original Seed Farm) in West Java.
2) Production techniques of potato seeds are improved in West Java.

3) Potato seeds are smoothly distributed in West Java.
4) Instructing system to the staff in West Java is enhanced. In particular, the production techniques for BBI potato seeds and the inspection techniques at BPBK in North Sumatra and Djawa Tengah are enhanced, through the project.

(4) Inputs

(at the terminal evaluation)

Japanese side:

Long-term Experts	10	Short-term Experts	24
Trainees received	20	Equipment	180 million yen
Local Cost			

Indonesian Side:

Counterparts	70	Local Cost	17,000 million rupees
Land, Agricultural Field, Facilities			

2. Evaluation Team

Members of Evaluation Team

Team Leader: Yoshiaki KARINO, Director, Tsukuba International Centre, JICA
Potato seeds Multiplication: Tsuneo NISHIKAWA, Examiner, Seed and Seedling Division, Agricultural Production Bureau, Ministry of Agriculture, Forestry and Fisheries of Japan
Evaluation Analysis: Toyomitsu TERAO, Fisheries Engineering Co, Ltd.
Planning Evaluation: Takahiro NAKAMURA, Staff, Agricultural Technical Cooperation Division, Agricultural Development Cooperation Department, JICA

Period of Evaluation

9 March 2003 - 21 March 2003 (13 days)

Type of Evaluation:

Terminal Evaluation

3. Results of Evaluation

1. Status of Achievement (indicators and their achievements)

(1) Project Purpose

Achievement: Setting the amount produced at harvest time as the standard, the numerical indicator was fulfilled twice (in 2000 and in 2002) during the four years after the commencement of the project. From the perspective of the measurement of the production quantity by batch (mostly twice a year), almost all the batches reached the production level equivalent to the indicator (after converting semiannual figures into annual figures).

(2) Outputs

Output 1)

1)-1 Superior potato seeds (G0 and G1) are produced and stabilized in West Java by September 2003; G0 45,000 - 60,000 /cropping, and G1 55,000 -70,000(3-3.5t)/croppingAchievement: Based on the actual production of recent three crops, BPBK has already made the production stable, which is beyond the target indicator.
1)-2 Superior potato seeds (G2 and G3) are produced and stabilized at BPBK and BBU in West Java by September 2003 as follows.
a) Harvest volume per unit area - G2: 15~20t/ha, G3: 15~ 20t/ha.
Achievement: Based on the recent three crops of attested seeds, BPBK has already started producing more than 20t/ha of G2 stably, which is more than the target ed level. Meanwhile, BBU has produced more than twice the amount set by the indicators. When the quantity came close to the technical standard of indicator, however, some uncertainties still remained.
b) Ratios of attested seeds against the whole production: G2 more than 80%, G3 more than 70%.
Achievement: Based on recent three yield ratios, G2 ratios at BPBK were stably over 80%, which was more than the indicator, while two of the G3 ratios at BBU were far below the targeted level.

c) Ratios of stem tuber size S - L1 to attested seeds: G2 more than 70%, G3 more than 70%.
Achievement: Based on the small stem tuber size (S - L1) on recent three crops, two of three G2 ratios at BPBK were below the indicator, 70%. Therefore, it is necessary to improve the stem size by giving the buds more natural light and improving the yield point survey methods, such as selecting a harvest date on which many appropriate stem tuber sized seeds can be obtained. All of G3 ratios at BBU were far below the indicator, 70%.
d) The planned cultivation schedule is not delayed more than a month
Achievement: Cultivation was conducted mostly on schedule at BPBK. G3 production at BBU was largely delayed by about two and half months on batch 17. This is because the collection of sales proceeds of G3 from seed farmers was delayed, and the fund to purchase G2 seeds was hard to be procured.

Output 2)

The production of superior potato seeds (G4) in West Java up until September 2003 should be as follows:
a) Harvest volume per unit area: 10 - 15t/ha
Achievement: Based on recent three crops of attested seeds, two out of three are below the indicator.
b) Ratios of attested seeds against the whole production: more than 60%.
Achievement: Based on recent three yield ratios, two out of three ratios were below the indicator. The reasons are based on technical problems, as well as funding problems. Some of the seeds have to be changed into money for food without having time for resting period to earn operational funds.
c) More than 80% of producers adopt the sprouting techniques using diffused light.
Achievement: All the seed producers need to the adopt sprouting techniques using diffused light, but based on recent three crops, the ratios of those who did were around 70%, which is still below the indicator.

Output 3)

More than 80% of potato seeds (G4) produced in West Java are sold and utilized as seeds.
Achievement: Based on the annual ratios on production to sales of attested seeds, all the seeds were sold except in 2000 when only 84% were sold because food potatoes were overproduced due to the rapid expansion of agricultural loans, and potato price became very low and the demand for potato seeds declined.

Output 4)

1) More than 50 participants complete the multiplication course of BPBK, and more than 50 participants complete the inspection course of BPSP (seed certification station) by September 2003.
Achievement: Fifty-five participants have completed the BPBK multiplication course, which was over the targeted level, while 43 participants completed the BPSP inspection course, which was below the indicator. However, reputation earned by the inspection course was satisfactory, and seven participants were dispatched to the course from states other than North Sumatra and Central Java at their own expense.
2) The production of BBI superior potato seeds (G2, G3) in North Sumatra and Central Java by September 2003 should be as follows:
a) Harvest volume per unit area - G2: 15 - 20t/ha, G3: 15 - 20t/ha in West Java.
Achievement: Based on recent three crops of attested seeds, all the three crops for both G2 and G3 in North Sumatra were below the indicators. All three ratios for G2 and two out of three crops for G3 in West Java were also below the indicators.
b) Ratios of attested seeds to the whole production - G2: more than 80%, G3: more than 70% 3 in West Java.
Achievement: Based on yield ratios on recent three productions, one of the ratios for G2 and two of the ratios for G3 in North Sumatra were over the indicator. All three ratios for both G2 and G3 were far below the indicators.
c) Ratios of stem tuber size S - L1 to attested seed: G2: more than 70%, G3: more than 70% in West Java.
Achievement: Based on the actual small stem tuber sizes (S - L1) on the recent three crops, one of three G2 ratios at both states were below the indicator, but all the rest were over the indicator.

3-1. Summary of Evaluation Results

(1) Relevance

1) The overall objective of the project to increase the production of potato seeds with high productivity was related to the sector which was prioritized by the current National Development Plan (PROPENAS) (2001-2004). Production Development Division of the Ministry of Agriculture discussed the proposal of standard included the potato seeds standards for G0 to G4 in the National Standard with the concerned organizations. This is for the assured productivity of potato seeds that they were distributing them in the official route and excluding the seeds of ambiguous generations. This could bring about systematic support of the multiplication system of potato seeds, and consistency with the overall goal of the project in terms of the agricultural policies of the Indonesian government.

2) Considering the situation in which it was difficult for many to procure new seed potatoes, it could be evaluated that the project coped well to meet the needs of those who required the seeds, in terms of the price of the seeds, because the seed price achieved by the project was about a half of that of the imported seeds.
3) The inputs of the project were not only for the support of production techniques but also for the distribution and dissemination of techniques to seed producers, which was consistent with the aid policies of the Japanese government.

(2) Effectiveness

Referring to the actual achievement, it could be evaluated that the project purpose was mostly accomplished. Outputs in four sectors contributed to the accomplishment of the project purpose respectively, and each played essential roles. However, some uncertainties were observed, such as the actual per unit production of G4. In spite of the circumstances, the project purpose was accomplished because the project was implemented in wider areas than originally planned.

One of the reasons why per unit production of G4 was uncertain was that the instructions given were not successful and thus the farmers were not trained enough. Problems regarding management, such as the delayed payment for G3 seeds and the selling of G4 seeds for food, were major restrictions for the project implementation.

Based on provisional calculations including self-multiplication (not renewing attested seeds every year, but using the same set of seeds for years through proliferation), if the supply of G4 remains stable at the level of 700t every year, it can be estimated that 70% of actual demand in West Java will be continuously fulfilled every season. It could be considered that this indicates a potential for this multiplication system.

(3) Efficiency

1) Equipment
There was no unused or useless equipment. Some parts of the equipment procured during preceding projects, although they were functioning, needed to be repaired.
2) Dispatched Experts
The evaluation team did not observe any problems with the sectors or technical levels of experts except for the dispatched periods of some short-term experts specializing in multiplication and protection/extermination of insects.
3) Connection to Effectiveness
Low yield ratio of G4 seeds limited the enhancement effect of the model. All the possible measures were taken to improve the technique for G4 production sector, but compared with the effects in other sectors, some problems were observed, such as unclear allocation of responsibilities due to multiple implementing organizations working simultaneously and less inputs of short-term experts. There was room to improve the G4 production system from the management aspect by such means as assigning a specialist in management from the first half of the project term, analyzing management problems of seed producers, and introducing a standard for the selection of seed producers based on the analysis of the management problems.

(5) Impact

1) Political Impact
As observed in the increase of budget for the development of production facilities for potato seed production in Central Java and related facilities in North Sumatra, the project largely affected policy planning and its implementation of the potato seed production of the respective local governments. The project also affected to some degree the national policies of Indonesia, such as the standardization of potato seeds.
2) Technical Impact
Farmers and the concerned persons to seed production were strongly interested in the development of technical system of potato seeds multiplication in West Java. Those farmers who were practical were especially interested in the production of potato seeds with high quality in many areas. Some compared the productivities of imported seeds and the seeds that the project offered in a practical manner. The private companies dealing with the seeds were also interested in improving their proliferating techniques of potato seeds. Moreover, they showed strong willingness to learn the techniques on tissue culture, anticipating that they will have more and more kinds of seeds in the future.
3) Environmental Impact
In Indonesia, potatoes are cultivated in highland areas higher than 1,000 meters. As it is impossible to produce rice in those highlands, potatoes are precious cash crops that can be the core of crop rotation system and profitable. If the project supplied potato seeds with high quality at a low cost, it would effectively promote highland agriculture and the utilization, preservation, and management of the land in the mountain area.

(6) Sustainability

1) Future Policy on Potato Seed Production
The Ministry of Agriculture regarded as its major policy the promotion of agribusiness, which has been trying to establish

production techniques, and expected potato seeds in particular to be a promising crop for agribusiness. This expectation was observed in such changes as the standardization of potato seeds and the enhancement of protection of national potato seeds through its transition to an import license system. Moreover, in those states that have main producers of potato seeds and are paying attention to the profitability of potato seeds multiplication, the respective local governments were very much interested in increasing incomes for farmers, promoting highland agriculture, fostering seed industry, improving financially through state agribusiness, etc., through the multiplication. Under these circumstances, many states intended to promote the production of potato seeds as their major crop.

2) Trend from Organizational Perspective

In many of the main producing states, land was developed on which to build facilities, and to cultivate agricultural fields, and BBUs were newly built. This accompanied the development of an implementing organizational system, which included personnel assignment. West Java commenced the expansion plan for potato seeds production in FY 2002, and changed the name of provincial breeder's stock farm from BBU to BPBK, and BPSB expanded its inspection target crops and increased the number of its staff by seven. BBU which produces G3 seeds will transfer its production sector to a subordinate agency of BPBK, and will also implement organizational changes in FY 2003 in order to rationalize its management by separating the production and sales sections, and making the sales section commissioned to an outside organization.

3) Trend from Personnel and Technical Perspectives.

Retention rate of staff at BPBK, BPSB and BBU in West Java is high, and many of the staff members have worked as counterparts since Phase 1. Accompanied by the commencement of the expansion plan for potato seeds production, BPBK and BPSB increased its members, and the staff will be increased in size according to the progress of the plan in the future. The retention rates of counterparts were high for both Phase I and II, and as the project period continued for 10 years, some of them have been promoted to administrative positions or have retired. While new staff members are being trained through on-the-job-training, they will also have to receive in-office training in order to transfer technique in the future.

3-2 Factors that Promoted Realization of Effects

(1) Factors Concerning the Planning

N/A.

(2) Factors concerning the Implementation Process

N/A.

3-3 Factors that impeded realization of effects

(1) Factors Concerning the Planning

N/A.

(2) Factors concerning the Implementation Process

N/A.

3-4. Conclusion

With the premise that there is actual demand based on the current situation of self-multiplication, if the yield rate of G4 can be increased, the production facilities used in the current scale of the project will be able to cope with most of the demands for potato seeds in West Java. The multiplication model of the project was completed from both aspects of facility scale and technical levels. Considering the evaluation results by Five Evaluation Criteria, the project has successfully accomplished the original purpose.

3-5. Recommendations

(1) The project triggered a movement of expanding the potato seeds production in many states of Indonesia, especially by stabilizing the techniques established in the project within the cooperation target areas of West Java and North Sumatra. This means the effects of the project will be expanded further. However, in order to promote them, it is necessary that the Indonesian government generate a system to support technical improvement in other states by analyzing the demand for potato seeds in Indonesia as a whole and carefully considering future objectives.

(2) It is required to make West Java function as the core of the activities for the expansion of the project effects. Leadership of the Ministry of Agriculture and cooperation of West Java to other states are expected for the future nationwide expansion of the project effects.

(3) In implementing the product expansion plan in West Java, it is required to develop a multiplication plan for G1 and G2, considering a sufficient survey of market trend on G3 and G4 and the situation of human resources.

(4) In producing potatoes seeds, the works of those farmers who produce G4 potato seeds will become more and more important in the future. At this stage, the participation of the private sector including farmers is largely affecting the efficient production of the seeds. In order to promote smooth production of potato seeds, it is recommended that regular meetings be held with private corporations in the agribusiness sector and with concerned governmental officials, to exchange opinion on the multiplication system of superior potato seeds, and for the government to work hand-in-hand with the private sector.

3-6. Lessons Learned

(1) The project procured facilities and equipment for concerned organizations in West Java through grant aid in 1987 and conducted technical cooperation for 10 years to improve their implementing capability. Currently, the concerned organizations in West Java have enough capability to be a model to help other states in Indonesia to develop. Thus, the project was able to implement cooperation as necessary to improve the capability of the beneficiaries' side based on the long-term perspective, which largely contributed to the success of the project.

(2) The project consists of not only the production aspect, such as multiplication of potato seeds, but also the distribution and marketing aspects, which includes methods for selling the seeds. Therefore, issues such as how the effects from the production factor can lead to income increase, can be concretely understood by the beneficiaries and concerned persons. Therefore, considering the example of this project, it is recommended that some distribution factors be included when developing a cooperation plan.