Indonesia

Rice Seed Production and Distribution Project

Report Date：October, 2002

Field Survey：August, 2001

1. Project Profile and Japan's ODA Loan

Location Map of the Project

Continuous Dryer

1.1 Background

In the 1970s, the Government of Indonesia implemented agricultural development programs for the purpose of increasing the production of food crops under Five (5) yearly Economic Development Plans. As a result of these programs, the production of Rice, a staple food in the country, increased at a stable pace: from 11.67 million tons in 1968 to 22.29 million tons in 1981. In light of rapid population growth and increasing rice consumption per capita, however, further agricultural development was needed for the country to attain self-sufficiency in rice production.

Consequently, the Government, in cooperation with the World Bank, implemented the "High Yield Seeds Production and Distribution Program" mainly on Java island since 1971 for the purpose of providing a stable supply of high yield rice seed. As a result, productivity per unit has improved and rice production has increased. The production and distribution system of high yield rice seed, however, was not developed enough to meet the needs of the entire country. To address this issue, further improvement of the rice seed production and distribution system, and of the agricultural infrastructure, was required.

1.2 Objectives

To develop the Rice Seed Production and Distribution System in the three provinces on Sumatera Island, namely Aceh, South Sumatera and Lampung, for the purpose of contributing to: 1) a steady supply of High Productivity Rice Seed, 2) an increase of productivity, and 3) an increase of rice production in those areas.

1.3 Project Scope

- Construction of Seed Processing Centers (SPCs)
  - ・11 SPCs in total, of which 4 in Aceh, 4 in South Sumatera and 3 in Lampung
  - ・SPC is composed of such processing facilities and equipment as dryer, selection machine, laboratory equipment and storage.
- Consulting Services (Detail Design, Supervision and Management Assistance)

1.4 Borrower / Executing Agency

The Government of Indonesia / Directorate General of Food Crops Agriculture (DGFCA), Ministry of Agriculture

※ Project Implementation Unit was DOP (Directorate of Food Crops Production Development)

※ DGFCA had been recently reorganized as DGFCPD (Directorate General of Food Crops Production Development)

1.5 Outline of Loan Agreement

Loan Amount / Loan Disbursed Amount	3,000 million yen / 758 million yen
Exchange of Notes / Loan Agreement	July, 1984 / February, 1985
Terms and Conditions Interest Rate Repayment Period (Grace Period) Procurement	 3.5 % p.a. 30 years (10 years) Partially Untied
Final Disbursement Date	March, 1992

2. Results and Evaluation

2.1 Relevance

At the time of project appraisal, the agricultural development policy of the Indonesian Government was to promote the enhancement of production and distribution of high yield rice seed and the improvement of agricultural infrastructure in order to raise rice productivity in the country. Accordingly, the project purpose was consistent with government policy.

Rice production in Indonesia increased rapidly until 1995. However, the national population continued growing. Rice consumption per capita also increased; for instance rice consumption per capita in 1990 was twice that in 1965. In addition, in the latter half of 1990s, rice production in Indonesia became unstable, being subject to external factors such as unfavorable weather and the Asian Currency Crisis, which raised the cost of agricultural inputs.

As a result, the self-sufficiency level fell below 100% again in 1998 (Refer Table 1). If the

population continues to grow at the same rate as in the past, self-sufficiency is expected to decline again, although the consumption per capita seems to have stabilized at a level of 160 kg / person p.a..

As a consequence, the Government maintains an emphasis on increasing rice production and productivity to secure rice crop self-sufficiency. Accordingly, the project objective remains relevant to current government policy (PROPENAS).

Table 1: Self-sufficiency in Rice and Rice Consumption Per Capita

Year	Rice Production (milled Rice) (ton)	Self-sufficiency in Rice* (%)	Consumption per Capita** (kg/capita)	Population (10^3)
1965	8,654,325	97.9	82.9	106,650
1970	12,893,777	101.0	106.3	120,086
1975	14,900,246	92.1	120.3	134,571
1980	19,777,817	101.3	129.9	150,341
1985	26,034,971	105.7	147.8	166,550
1990	30,134,227	102.9	160.4	182,474
1995	33,179,341	105.5	159.1	197,622
1996	34,084,700	106.6	159.3	200,583
1997	32,934,499	101.5	159.4	203,521
1998	32,816,293	96.6	164.5	206,427
1999	33,927,883	97.1	166.9	209,287

note : The above values were estimated based on the following formula, using official FAO data.

* Production / Destination amount of consumption
Destination amount = Domestic supply – Feed - Seed

** Destination amount of consumption / Population

2.2 Efficiency

2.2.1 Project Scope

As the Government of Indonesia declared that it attained stable self-sufficiency in rice in 1984 with about 26 million of rice production, the project plan was revised by the Government. Project sites were reselected to decrease regional disparities in capacity to produce rice. Moreover, owing to budgetary constraints on the Indonesian Government, it was decided to proceed with the establishment of only 5 prioritized SPCs (Seed Processing Centers); eventually, the remaining 6 were cancelled. The 5 prioritized SPCs are in the province of DI. Aceh, South Sumatera, Lampung, West Java, and South Sulawesi. The following scopes were realized:

(i) 5 modern SPCs were established with a potential capacity for producing some 9,000 tons of rice seed annually, an amount that could cover the rice seed requirement for 360,000 ha of rice field.

(ii) 84 units of vehicles were procured, comprising trucks (8), pick-ups (8), jeeps (6), motorcycles (49), forklifts (9) and tractors (4).

(iii) Provision of training for 100 officials (from public and semi-public agencies, cooperatives and private sector) involved at various levels in the seed business,

including job-training for seed production, processing, management and marketing.

In addition, the total man-months of the consulting services doubled from the original plan because of the delay in project completion (see below).

2.2.2 Implementation Schedule

The Project commenced in 1988, after a delay of 4 years, and was completed in 1992, substantially behind the original schedule. In the initial stage of the project, the Government of Indonesia was faced with a worldwide economic recession, which heavily influenced the availability of local currency in the budget and delayed fund release.

2.2.3 Project Cost

Actual total project costs were 1,090 million Yen, comprising 758 million Yen in foreign currency costs and 4,486 million Rupiah in local currency costs. These figures are all below the original estimates. While the original loan amount was estimated to total 3,000 million Yen, the actual amount was only 758 million Yen. This was because of the cancellation of 6 SPCs and depreciation of the Pupiah against the Yen during project implementation.

2.3 Effectiveness

2.3.1 Increase of Processing Capacity

Two SPCs were established as part of the Project in newly developed seed production areas, Pulo Ie[1)] (DI. Aceh) and Belitang (South Sumatera). Each has the capacity to process 500 tons of rice seed per annum. The remaining 3 SPCs were located in areas where seed processing had already been introduced: Pekalongan (Lampung), Sidrap (South Sulawesi) and Sukamandi (West Java). As a result of the project, annual processing capacity increased 2,000 tons at Pekalongan, 2,000 tons at Sidrap and 4,000 tons at Sukamandi. The capacity of those three SPCs has also subsequently increased as a result of other projects, assisted by such organizations as the World Bank.

2.3.2 Rice Seed Production

Table 2 shows the actual data on seed production from four SPCs, in Pulo Ie, Belitang, Pekalongan and Sidrap, obtained during the field survey for this evaluation[2)]. The rice seed is produced to meet annual targets set by each SPC. The SPCs are operated by state-owned limited corporations[3)] PT. Pertani (*Persero*) and PT. Sang Hyang Seri (*Persero*).

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1) SPC in Pulo Ie in DI.Aceh was apparently burned down during the riots in the region in 1998/99 and, according to an official at the Ministry of Agriculture, no longer exists.

2) Data on the remaining SPC, in Sukamandi was not available.

3) PT. Pertani (Persero) and PT. Sang Hyang Seri were founded in 1959 and 1971 respectively, as state-owned corporations. They were situated under the Ministry of Agriculture until 1998 and 1997 respectively, when they were taken over by the State Ministry of Development and Investment of State Owned Corporation.

While performance (achievement rate) was rising in general[4], recently its trend turns into a decline.

Table 2 : Extension Seed (ES) Production of SPCs in Belitang and Pekalongan

Operated by PT. Pertani *(Persero)*

	SPC in Pulo Ie, DI. Aceh (capacity of 500 tons installed under the Project)			SPC in Belitang, South Sumatra (capacity of 500 tons installed under the Project)		
	Plan	Actual	Achievement Rate	Plan	Actual	Achievement Rate
1993	250	175	70 %	n.a.	n.a.	n.a.
1994	250	225	90 %	n.a.	n.a.	n.a.
1995	350	315	90 %	250	150	60 %
1996	500	380	76 %	350	200	57 %
1997	600	500	83 %	450	325	72 %
1998	750	250	33 %	500	475	95 %
1999	n.a.	n.a.	n.a.	500	550	110 %
2000	n.a.	n.a.	n.a.	600	500	83 %

Source: PT. Pertani in Belitang

Operated by PT. Sang Hyang Seri *(Persero)*

	SPC in Pekalongan, Lampung (capacity of 2,000 tons installed under the project)			SPC in Sidrap, South Sulawesi (capacity of 2,000 tons installed under the project)		
	Plan	Actual	Achievement Rate	Plan	Actual	Achievement Rate
1990	2,000	2,180	109 %	n.a.	n.a.	n.a.
1991	2,150	2,550	119 %	n.a.	n.a.	n.a.
1992	2,200	2,877	131 %	n.a.	n.a.	n.a.
1993	3,500	3,698	106 %	n.a.	n.a.	n.a.
1994	3,500	3,671	105 %	n.a.	n.a.	n.a.
1995	4,000	5,005	125 %	n.a.	n.a.	n.a.
1996	5,000	5,353	107 %	n.a.	n.a.	n.a.
1997	5,000	5,026	101 %	5,000	5,400	108 %
1998	5,000	5,182	104 %	5,000	5,855	117 %
1999	6,000	5,657	94 %	6,000	6,007	100 %
2000	6,000	5,059	84 %	8,000	7,002	88 %

Source: PT. Sang Hyang Seri in Lampung

According to the heads of the SPCs, farmers have been refraining from buying rice seeds from the SPCs since around 1997, instead purchasing cheaper but lower quality seed from private seed-growers or cultivating seed by themselves. This might be one reason for the decrease in seed production at SPCs. One of the major reasons for the above situation is the high price of SPCs' seed, which is controlled by the government[5] (cf.2.5.3).

The former has 6 regional offices and 26 area branches in the country. The latter has a central office in Sukamandi and 7 regional offices in the country.

[4] The SPC in Pulo Ie, DI. Aceh was destroyed by fire in 1998/99.

[5] Seed price will be determined in the open market system starting in 2003.

Even though the quality of seed produced at SPCs is better than that from private firms, and the government takes farmers' purchasing power into consideration when setting the rice seed prices, the SPCs' seed price stays higher than that of private firms.

2.3.3 Rice Seed Quality

Standard criteria for seed quality control, i.e., Moisture Content Ratio (<13.0%), Purity Ratio (>98.0%), Foreign Body Mixing Ratio (<2.0%), Other Breed Mixing Ratio (<0.2%), Weeds Seed Mixing Ratio (<0.1%) and Germination Ratio (>80.0%) are set in SPCs. According to each center's head, the ES (Extension Seed) processed so far has met the standards.

2.3.4 Facility Utilization

During the field survey, the mission visited 3 of 5 SPCs established under the Project, i.e., the SPC in Belitang, South Sumatera (PT. Pertani), the SPC in Pekalongan, Lampung (PT. Sang Hyang Seri) and the SPC in Sidrap, South Sulawesi (PT. Sang Hyang Seri). The remaining SPCs are in Pulo Ie, DI. Aceh and in Sukamandi, West Java. The former was destroyed by fire in 1998/1999, and the latter was monitored in the late 1990's by a mission dispatched by Japan Bank for International Cooperation[6]. For those reasons, the present mission selected the three SPCs mentioned above for inspection.

The major problematic findings of the mission, common to all three SPCs, are described below.

1) Continuous Dryer

At no SPC was this machinery utilized as anticipated at the time of the original installation. At the SPC in Sidrap, it was operated just once, shortly after installation, for 40 hours. This machinery plays a very important role in controlling the moisture content ratio, which can greatly affect the quality of rice seed. According to the operations staff at all SPCs, the continuous dryer hardly worked for mechanical trouble, making it difficult to maintain the quality of the output. In addition, the manufacturer of the machine, a private Korean company, went bankrupt in 1994, after which it was impossible to procure spare parts. Consequently, the use of the continuous dryer had to be abandoned.

2) Box Dryer

Since the continuous dryers are not operable in the 3 SPCs, seeds are dried naturally in the sun (during the dry season) and/or in box dryers (during the wet season). It has been about ten years since the original procurement, and the box dryers have deteriorated to some extent. SPC in Sidrap replaced its box dryer using its own funding.

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[6] Monitoring report of SPC in Sukamandi presents a very similar situation to that in other SPCs visited at this Evaluation.

3) Packaging Equipment

Packaging equipment at the SPCs packages seeds in bags weighing 5kg or 10 kg. However, the efficiency (speed of packing) is lower than that of manual packaging. At Sidrap, a manual packing tool was invented that enables workers to complete packing work faster than the machine.

Other facilities, such as selection machines, testing equipment and storage space, are generally in good condition and pose no serious problems. In conclusion, it can be said that since the project facilities have not been fully utilized since completion, there have been some constraints on the realization of the project's effects. However, the O&M organizations found alternative measures by themselves for coping with the disadvantageous situations and were able to achieve the project's goals to a satisfactory extent.

2.4 Impact

2.4.1 Beneficiaries' Perception of SPC

In the course of this evaluation study, an interview survey of beneficiaries was carried out in order to understand the beneficiaries' (rice seed consumers') perception of the SPC. The respondents were selected from Way Rarem Irrigation area for the SPC in Pekalongan, Lampung (PT. Sang Hyang Seri) and from Komering Irrigation area for the SPC in Belitang, South Sumatera (PT. Pertani). In each irrigation area, 100 farmers were chosen randomly and questioned, with the assistance of the O&M agencies. The major results of the survey are described below.

1) Rice Seed Procurement

More than 90 % of respondents purchased high-quality rice seeds from their local SPC, as summarized in Table 3 below. It is likely that the SPCs contributed to the stable provision of high-quality rice seed in the surrounding areas.

Table 3 : Source of Rice Seed Procurement

Beneficiary Area / Procurement Source	Way Rarem Irrigation in Lampung	Komering Irrigation in South Sumatera
SPC	92: SPC in Pekalongan by PT. SHS	92: SPC in Belitang by PT. Pertani
Others	8: No Rice Cultivation	7: SPC in Pekalongan by PT. SHS 1: Other Source

Source: Interview Survey of Beneficiaries, PEDAC 2001

2) Farmers' Assessment on the Seed Quality

A majority of respondents (51 of 92 in Way Rarem Irrigation, 48 of 92 in Komering Irrigation) reported that a shorter period of growth was required for the seed procured from the SPCs -- from 4 to 5 months without SPC seed to 3 to 4 months with SPC seed.

In addition, they reported qualitative improvements in the taste of rice and an increase in productivity (yield ratio).

2.4.2 Impacts on Environment

According to the SPCs visited at this Evaluation, there are no negative or positive impacts on environment that have arisen as a result of the Project.

2.5 Sustainability

2.5.1 O&M Organization

The SPCs established under the Project are operated and maintained by state-owned limited corporation, PT. Sang Hyang Seri and PT. Pertani. They were originally public corporations and commercialized in the late 1990s. Corresponding with each regional jurisdiction; PT. Sang Hyang Seri is responsible for O&M of the 3 SPCs in West Java, Lampung and South Sulawesi, and PT. Pertani is responsible for the remaining 2 SPCs in DI. Aceh and South Sumatra. All the buildings, equipment and machinery were handed over from the government to these corporations after project completion.

2.5.2 Quality Control Activity

The O&M organization is responsible for seed production and processing. Both corporations generally conduct periodic, standardized testing to maintain the quality of stored seed. Quality control follows the regimen outlined below:

1) To carry out a monthly regular quality check, especially on paddy seed stored more than 4 months after harvesting. The items to be checked include water content, growth capacity, and warehouse disease.
2) To record the testing results in a report form for easy monitoring and prevention aimed at reduction of the number of complaints about seed quality.
3) One month prior to the expiration date, the stored seed has to be tested again by BPSB (Balai Pegawas Sertifikasi Benih: Bureau of Seed Certification Supervision).

BPSB has an established quality control system. Although most of the seed processed at the SPCs so far has met the standards, the head of PT. Sang Hyang Seri in Sidrap commented that further improvement of the system, such as a decrease in the amount of floating seed / empty seed is still required in the SPCs so as to be more competitive in the coming deregulation of rice seed market in 2003.

2.5.3 Project Sustainability

The project's sustainability is discussed in view of Seed Marketing and Financial Status, and Facility Conditions.

<Seed Marketing and Financial Status>

The first priority in rice seed marketing is to control and maintain quality at a level that is higher than the standard. The SPCs have performed well in this regard. However, some problems related to seed marketing should be pointed out, as follows.

The high price of seed candidate (dried un-hulled rice), the result of production cost increases (such as fertilizer, pesticide and wages), and the governmentally controlled price for the SPCs' seed are causing the financial performance of the operation companies to suffer. The corporations' role in the agricultural sector is to stabilize seed supply in the beneficiary area, therefore, the market price of SPCs' rice seed is set at lower by the government compared to its production costs in order to secure farmers access to high-quality seed. The corporations currently receive subsidies from the government, and would not be able to fully cover their production cost without the subsidies. Thus, their financial status at the moment is virtually assessed as less than marginal[7)]

Moreover, because of deregulation policy of Indonesian Government in the rice seed market, these two corporations and other seed growers / producers will have to compete in a global market, in terms of both quality and price. In sum, project sustainability will depend on whether or not the O&M organizations are capable of strengthening their marketing and management capability to adopt to the coming competitive market.

<Facility Conditions>

Although the mission observed the malfunction of some machinery during the field survey, as stated above, currently, the SPCs manage operations by independently applying alternative methods.

3. Recommendations

1) To cope with the coming deregulation on rice seed price, which will require wider approaches for project sustainability, it is recommendable for the O&M organization to conduct a comprehensive study on seed production and its market, including 1] effects of globalization of rice seed market, 2] strengthening of quality management system, 3] study and design on facility improvement, and 4] strengthening of the O&M organization.

7) For example, the market price of rice seed is set at 850 to 900 Rp / kg while at least 1,050 to 1,100 Rp / kg is necessary to cover production costs, in case of Sidrap, South Sulawesi, according to the Head of PT. Sang Hyamg Seri in Sidrap.

Comparison of Original and Actual Scope

Item	Plan	Actual
(1) Project Scope		
1) Construction of Seed Processing Centers (SPCs)	11 SPCs DI. Aceh (4) South Sumatera (4) Lampung (3)	5 SPCs DI. Aceh (1) South Sumatera (1) Lampung (1) West Java (1) South Selawesi (1)
2) Procurement of related facilities for the SPCs	- Seed Processing Equipment and Supplies - Seed Storage/Warehouse Equipment and Supplies - Laboratory Equipment - Incidental Equipment - Vehicles	as planned
3) Consulting Services - Design Works - Supervision - Training	Foreign : 157 M/M Local : 69 M/M Total : 88 M/M	Foreign : 302.75 M/M Local : 53.60 M/M Total : 249.75 M/M
(2) Implementation Schedule		
1) Loan Agreement	Nov. 1984	Feb. 1985
2) Approval of Contract of Consultant	Aug. 1985	Apr. 1989
3) Review and Study	Sep. 1985 – Nov. 1985	Jun. 1989 – Jul. 1989
4) Land Acquisition and Consolidation	DI. Aceh Jun. 1986-Dec. 1987 South Sumatera Jun. 1986-Feb. 1988 Lampung Sep. 1986-Sep. 1987	DI. Aceh (Pulo Ie) 1988 South Sumatera (Belitang) 1988 Lampung (Pekalongan) 1988 West Java (Sukamandi) 1988 South Selawesi (Sidrap) 1988
5) Building Facilities - Approval of T/D - Tender - Contract - Construction	May 1986 Jun. 1986 – Sep. 1986 Oct. 1986 – Dec. 1986 DI. Aceh Jun. 1986-Dec. 1987 South Sumatera Jun. 1986- Feb. 1988 Lampung Sep. 1986-Sep. 1987	Feb. 1990 Feb. 1990 Jan. 1991 DI.Aceh (Pulo Ie) Sep.1991 – Jun. 1992 South Sumatera (Belitang) Sep.1991 – Jan. 1992 Lampung (Pekalongan) Sep.1991 – Jan. 1992 West Java (Sukamandi) Aug.1991 – Jan. 1992 South Sulawesi (Sidrap) Sep.1991 – Jan. 1992

(3) Project Cost		
Foreign currency	3,000 million yen	758 million yen
Local currency	1,581 million yen (6,700 million Rp.)	332 million yen (4,486 million Rp.)
Total	4,581 million yen	1,090 million yen
ODA loan portion	3,000 million yen	758 million yen
Exchange Rate	1 JPY = 0.236Rp. (at project appraisal)	1 JPY= 0.074Rp. (weighted average during project implementation)

Independent Evaluator's Opinion on
Rice Seed Production and Distribution Project

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The project is a very good example of a very bad planned project. The objective of the project, for example, was not clearly defined. As a result, there is unclear who is actually going to be the primary beneficiaries of the project: the farmers, the consumers, the government, or the companies participating at any stage of the project implementation process.

The project basically failed in the accomplishment of Indonesia's middle and long-term agricultural development plans. Even though there are many factors contributing to the failure of the project, evident that is available at the project level, support this conclusion. Three out of five continuous dryer at prioritized SPCs, are not functional, as it was plan. SPC in Pulo le in Aceh Special Province was burned down in 1998/1999 (?) Continuous dryer at SPC in Sidrap in South Sulawesi was only operated for the first 40 hours after its installment. There is no information about the third inoperable SPC.

The focus and the involvement of the O&M agencies in evaluating the impact of the project are questionable. Since the evaluation study focus mainly on farmer perception about the role of SPC, the information about the impact of the project is seriously incomplete. There is no information, for example, about an increase in the farmer income. In addition, while the used of High Productivity Rice Seed has a significant impact on farming system, which eventually has a significant impact on the environment, there is also no information about the impact of the project in this aspect.

Special attention needs to be put on the efficiency of the project. Considering the number of SPCs established, and depreciation of the Rupiah against Yen during the implementation of the project, the final project cost should be lower than the actual cost. Serious attention needs to be put on the increase in the man month of consultancy service consumed by the project. While number of SPC established is less than 50 percent, doubled in consulting service cost is questionable.

JBIC View

1. As for project planning, it should be reminded that the relevance of the project is clearly explained in the report (2.1.Relevance). In there, the agricultural development policy at the time of appraisal was to promote the enhancement of production and distribution of high yield rice seed and the improvement of

agricultural infrastructure in order to raise rice productivity in Indonesia. In light of this explanation, the objectives of the project, which were “a steady supply of High Productivity Rice Seed”, “an increase of productivity” and “an increase of rice production in Aceh, South Sumatera and Lampung are surely in line with the development policy. In addition, it is also clear that the primary beneficiaries of this project were rice seed consumers of SPC who had purchased high quality rice seeds from their local SPC (Table3 on P.7). To sum up, this project has strong relevancy to middle and long-term agricultural development plans, clear objective of the project and clearly defined beneficiaries of the project.

2. Since this project ended about ten years ago, available information on the impact of the project is very limited. Even with such limited information, it can be observed that some production of SPCs achieved production target and some of them even exceeded the target. It is fair to add that to some extent SPCs contribute to provision of high quality rice seed to farmers.