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Report No. 9131

PROJECT COMPLETION REPORT

INDONESIA

SECOND SEEDS PROJECT
(LOAN 2066-IND)

NOVEMBER 13, 1990

Operations Division
rtment V
l Office

Currency Equivalent

Name of Currency : Rupiah
Rate of Exchange :

Appraisal	:	US$ 1 = Rp. 625
82/83 - 86/87	:	US$ 1 = Rp. 674 - 1411
87/88 - 88/89	:	US$ 1 = Rp. 1649 - 1760

Fiscal Year of Borrower

April 1 - March 31

Abbreviations

BRI	- Bank Rakyat Indonesia
BS	- Breeder Seeds
DGFCA	- Directorate General of Food Crops' Agriculture
EEC	- European Economic Community
ES	- Extension Seeds
EEC	- European Economic Community
FAO	- Food and Agricultural Organization, Rome
FS	- Foundation Seed
FCRI	- Food Crops' Research Institute
GDP	- Gross Domestic Product
GOI	- Government of Indonesia
GTZ	- German Technical Assistance
HYV	- High Yielding Varieties
IPB	- Institute Pertanian Bogor (Agricultural Institute)
KUD	- Village Cooperatives (Koperasi Unit Desa)
NSC	- National Seeds Corporation (Indonesia)
OECF	- Overseas Economic Cooperation Fund
PSF	- Provincial Seed Farm
PSHS	- Perum Sang Hyang Seri (NSC)
PUSKUD	- Central Unit of Village Cooperatives (Pusat Koperasi Unit Desa)
SCCS	- Seed Control and Certification Service
SPC	- Seed Processing Centre
SS	- Stock Seed

THE WORLD BANK
Washington, D.C. 20433
U.S.A.

Office of Director-General
Operations Evaluation

November 13, 1990

MEMORANDUM TO THE EXECUTIVE DIRECTORS AND THE PRESIDENT

SUBJECT: Project Completion Report on Indonesia Second Seeds Project (Loan 2066-IND)

Attached, for information, is a copy of a report entitled "Project Completion Report on Indonesia - Second Seeds Project (Loan 2066-IND)" prepared by the Asia Regional Office with Part II of the report contributed by the Borrower. No audit of this project has been made by the Operations Evaluation Department at this time.

Attachment

INDONESIA

SECOND SEEDS PROJECT (LOAN 2066-IND)
PROJECT COMPLETION REPORT

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INDONESIA

SECOND SEEDS PROJECT (LOAN 2066-IND)

PROJECT COMPLETION REPORT

PREFACE

This is the Project Completion Report (PCR) for the Second Seeds Project in Indonesia, for which Loan 2066-IND in the amount of US$15.0 million was approved on December 8, 1981. The loan was closed on schedule on June 30, 1989. Last disbursement was on January 3, 1990 and an outstanding balance of US$34,793 was cancelled.

The Preface, Evaluation Summary and Parts I and III were prepared by the Operations Unit, Resident Staff in Indonesia, Asia Regional Office. Part II was prepared by the Directorate of Food Crops Production Development of the Directorate General of Food Crops Agriculture in cooperation with the National Seeds Corporation, PT. Pertani and the Department of Cooperative, Government of Indonesia.

Preparation of the PCR was initiated in January 1989 in the course of a regular supervision of the project. It was followed by a number of field visits by the RSI Operations Unit staff. The PCR was prepared based, inter alia, on the Staff Appraisal Report (No. 3121a-IND); the Loan Agreement (2066-IND); minutes of Loan negotiations; correspondences between Bank and the Borrower; internal Bank memoranda, various consultants' reports, and discussions with the staff of the implementing agencies.

INDONESIA

SECOND SEEDS PROJECT (LOAN 2066-IND)

PROJECT COMPLETION REPORT

EVALUATION SUMMARY

1. Objectives. The overall objectives of the project were to increase the domestic production of foodcrops and raise the incomes of the small farmers by: (a) improving the quality, reliability and availability of rice and palawija (secondary food crop) seeds; (b) strengthening National Seeds Corporation (NSC), PT. Pertani, the Seed Control and Certification Services (SCCS), and selected cooperatives and Provincial Seed Farms (PSFs); and (c) providing incentives for larger private sector role in the seed industry.

2. Implementation Experience. The project had a slow start-up, and implementation during the first two years (following Board Presentation) was substantially behind schedule. The key constraints were managerial, logistical, financial and technical. Things, however improved progressively from the third year and implementation was able to make up for most of the lost time (Para 5.01). Shortages of vehicles seriously hampered the quality and coverage of field operations, particularly of the SCCS staff, who often had to depend on customer assistance for transport support. The Palawija seeds production did not receive the focus that was intended at appraisal and the stipulated linkages with the other relevant projects were not achieved (Paras 5.02 - 5.05).

3. Project Result. The project achieved most of the physical targets for infrastructure development, training, and project/sector related studies. It has: (i) created a modern seed processing infrastructure in the public and semi-public sectors that is currently underutilized but has the potential for producing some 42,000 tons of certified seeds annually; (ii) provided training to a large number of public sector officials involved in the various levels of activities in the seed business; (iii) created the nucleus of a nationwide seed certification and control service, a training infrastructure in Seed technology; (iv) strengthened the financial management of the PT. Pertani and the NSC, and (v) improved the planning, implementation and monitoring capability of the Directorate of Food Crops (Para 6.01). However, total output of certified seeds from the project financed Seed Processing Centres (the key component of the project) have reached only about 60% of appraisal estimates with major shortfalls in palawija seeds production (6% of appraisal estimates), (Para 6.02). The project also did not have much success in promoting greater private sector participation in the seed industry, nor in promoting effective participation of the cooperatives in seed business (Para 8.01). Based on alternative assumptions about the utilization of the

public sector Seed Processing Center and their costs of production, the economic rate of return has been recalculated at 20.3% (scenario I) and 24.6% (scenario II), compared to 39% estimated at appraisal (Para 6.04).

4. Sustainability. The project has built up a public sector seed production and distribution system that is heavily dependant on budget subsidy and is not as cost-efficient as the private sector entities. Given the political difficulties of raising seed prices, it is unlikely that full costs of public sector operation would be recovered by price escalation. The financial and economic sustainability of the public sector operations will, therefore, depend largely on how successfully measures to achieve more cost-effective production systems are instituted, and an optimum mix of public and private sector participation in the various components of the seeds production and distribution system is achieved. The role of the SCCS will grow in importance, especially in respect of s[illegible]ontrol because of the large number of small private producers and growers. However, long-run sustainability will require that the SCCS become a largely self-financing autonomous institution. The small private sector seed industry that is thriving in competition with the public sector has the potential for becoming the core of a progressive seed industry but would require changes in government policies in order to improve the incentives' structure (Paras 7.01 - 7.03).

5. Findings and Lessons Learnt. In retrospect, it would appear that, the project, instead of concentrating on the expansion of public sector infrastructure for meeting questionable seed production targets (Annex 1), should have focussed more on: (i) strengthening support services for production, retention and exchange/sales of good seeds by farmers; (ii) creating the right environment for increased private sector participation in seed business; and (iii) strengthening GOI's capability for technical and financial assistance to private sector enterprises; quality control; varietal development (particularly for palawija crops); and production and distribution of newly released varieties and other seeds/planting materials which farmers cannot produce themselves easily (e.g. hybrids, vegetables, fodder crops, horticulture crops etc)[Para 4.04]. The main lessons learnt are as follows: (a) in planning seed industry development, the importance of on-farm production, retention and farmer-to-farmer exchange of seeds, particularly for open-pollinated crops, should be appropriately recognized; (b) agronomic rationale and the operational implications for replacing farmers' seeds with certified seeds at periodic intervals need careful evaluation; (c) a vigorous varietal breeding programme resulting in releases of superior genetic quality is fundamental to the sustainability of the seed industry; (d) overly sophisticated seed processing technology is not necessary for producing seeds of the required quality; nor should seeds be processed to a higher standard than that demanded by farmers; and (e) strong national institutions for policy setting and quality control, and clear definition of the respective roles of the public and private sectors in a national seed production and distribution system are necessary for promoting efficient growth of the seed industry as a whole (Para 8.03).

Indonesia

Seconds Seeds Project (Loan 2066-IND)

Project Completion Report (PCR)

Part I - Project Review From Bank's Perspectives

1. Project Identity

Name	: Second Seeds Project (Seeds II)
Loan No.	: 2066-IND
RVP Unit	: ASIA (EAST ASIA and PACIFIC at appraisal)
Country	: Indonesia
Sector	: Agriculture
Sub-sector	: Agricultural Support Services

2. Project Background and Sectoral Content

2.01. The key elements in GOI's policy for promoting growth of the food crops sub-sector have been: (a) rapid development and dissemination of high yielding varieties (HYV) of rice suitable for growing in the wetlands; (b) development of a range of HYVs in order to combat disease/pest attack through seasonal varietal rotation; (c) expanding the production of secondary food crops; and (d) improving/expanding the overall physical infrastructure (irrigation development) and support services (input supply, extension, research, credit) for crop production. It is in the context of (a)(b) and (c) above that the GOI has sought assistance from donor agencies (World Bank, OECF, EEC, FAO and GTZ) for developing a seed industry in the public sector.

2.02. The two operations the Bank has so far financed in the realm of seeds production, the Seeds Project (Seeds I; Credit 246-IND), which was implemented during 1971-78, and the Second Seeds Project (Seeds II; Loan 2066-IND), which is the subject of this PCR, were both geared to supporting GOI objectives in the foodcrops sub-sector. Seeds I was implemented at a time when the country was experiencing rapid expansion of areas planted with HYVs, the farmers were increasingly in quest of such seeds, and yet the physical facilities and institutional arrangements in the public sector for the production and distribution of improved seeds were only in rudimentary stages. Seeds II was implemented at a time when the basic infrastructure for a public sector seeds production and distribution programme had been put in place but there still were the needs for: (i) making the national level institutions operationally efficient and effective; (ii) expanding physical infrastructure to areas

outside of Java; (iii) fostering growth of seed industry outside the public sector, and for (iv) diversifying the seeds production base. From the above considerations, both the projects were timely and relevant to the developmental needs of the time, and the Second Seeds Project was a logical follow-up of the Bank-financed first operation.

3. Project Objectives and Description

3.01. The overall objectives of the project were to increase the domestic production of foodcrops and raise the incomes of the small farmers by: (a) improving the quality, reliability and availability of rice and palawija (secondary food crop) seeds; (b) strengthening National Seeds Corporation (NSC), PT. Pertani, the Seed Control and Certification Services (SCCS), and selected cooperatives and Provincial Seed Farms (PSFs); and (c) providing incentives for larger private sector role in the seed industry.

3.02. The project components, as appraised, included the following (Share of base costs in parenthesis):

(a) construction of about 18 new medium-sized seed processing centers (9 for NSC, 6 for PT. Pertani and 3 for either central cooperatives or NSC); 6 new small centers for village cooperatives; and additional equipment for about 10 existing centers owned by NSC and the East Java Provincial Agricultural Service; (46%)

(b) incremental working capital for NSC, PT. Pertani, cooperatives, and PSFs, to finance operating expenses until the sale of seed; (20%)

(c) vehicles for all implementing agencies; (8%)

(d) irrigation/drainage improvements, storage, and other civil works for about 40 PSFs, which would produce foundation (FS) and stock seeds (SS); (7%)

(e) technical assistance comprising consultants in management, finance, training, seed marketing, production, processing; (6%)

(f) studies on: (i) seed marketing and distribution; (ii) the benefits from improved seed; (iii) seed treatment; (iv) site selection for seed production and processing; and (v) the potential private and cooperative sector roles in seed processing, plus pilot activities arising from this study; (4%)

(g) facilities and operating expenses for establishing a diploma course in seed technology at the Bogor Agricultural Institute (IPB), plus additional in-service training for staff of the various implementing agencies; (4%)

(h) equipment and incremental operating expenses for SCCS for certification/regulation of project seed; (2%)

(i) incremental operating expenses of FCRIs for supervision of foundation seed (FS) production, and of Provincial Agriculture Services for supervision of PSFs and private growers; (2%)

(j) construction of air-conditioned long-term storage for breeder seed (BS) at five Food Crop Research Institutes (FCRI); (1%)

3.03. Project support for strengthening SCCS and PSFs was to have a nation wide focus but the largest project component, construction of new Seed Processing Centers (SPCs), was to be implemented in twelve provinces, accounting for about 90% of the country's rice and secondary foodcrops' production.

3.04. Total project costs were estimated at US$50.0 million with a foreign exchange component of US$17.3 million (35%). The Bank loan of US$ 15.0 million was to finance 30% of total project costs with GOI and Bank Rakyat Indonesia (BRI) providing the remaining 59% and 11%, respectively.

4. Project Design and Organization

4.01. Project Design. The project was designed to extend the geographic and crop coverage as well as to consolidate the activities initiated under Seeds I. Notwithstanding a number of differences, the Indonesian seed projects were basically modelled after the Bank supported Seeds projects in India (Tarai Seeds, Seeds I and Seeds II) with the main thrust on the expansion of public sector capacities for: (i) rapid multiplication of already tested germ-plasms; (ii) large-scale processing of seeds produced through contract grower schemes; and (iii) stricter quality control. Likewise, investment proposals were based on: (a) theoretical estimates of demand for certified seeds by farmers; (b) perceived need for periodic replacement of farmers' seeds with certified seeds in order to maintain genetic purity; and (c) relatively sophisticated and capital intensive technology for seed processing.

4.02. The main weaknesses in the conceptual framework and project design were as follows: first, infrastructure development should have focussed on creation of regional centers for seed production and distribution instead of achieving provincial self-sufficiency; second, too great an emphasis was placed on centralized production of certified seeds and not on promoting production of good quality seeds by small farmers/farmer groups; third, infrastructure development was based on high annual replacement rates that had no relevance to actual farmer demand; fourth, it promoted a highly-capital intensive seed processing technology that should be considered inappropriate given that profit margins from processing high-

bulk self-pollinated seeds are traditionally low, and seeds of the requisite quality could be obtained through using less sophisticated and less expensive processing technology; and last, it did not pay sufficient attention to improving the production of FS and SS by government farms, and to on-farm production, retention and exchange (sales) of seeds by farmers.

4.03. In retrospect, it would appear that, coming on the heels of over ten years of Bank's experience with seed projects in India and Indonesia, the project design and its conceptual foundation could have been more innovative, rather than replicative. Instead of concentrating on developing public sector infrastructure for meeting questionable seed production targets, it should have focussed more on: (i) strengthening support services for production, retention and exchange/sales of good seeds by farmers; (ii) creating the right environment for increased private sector participation in seed business, and (iii) strengthening GOI's capability for technical and financial assistance to private sector enterprises; quality control services; varietal development (particularly for palawija crops); and production and distribution of newly released varieties and other seeds/planting materials which farmers cannot produce themselves easily (e.g. hybrids, vegetables, fodder crops, horticulture crops etc).

4.04. Project Organization. The project was implemented under the overall supervision, coordination and monitoring of the Director of Production Development in the Directorate General of Food Crops Agriculture (DGFCA). He was supported by a Project Secretariat headed by a full-time Project Secretary. Implementation of the individual components/activities were by the NSC, PT. Pertani and Department of Cooperatives. No special coordinating or overviewing committees, or implementing agencies outside the existing GOI institutional structure and operational procedures were created. This was an unique feature of the project. Although during the initial years there were considerable management and coordination problems, the situation gradually improved and the project organization worked quite satisfactorily during the later years. Project organization, however, did not pay attention to achieving greater interaction between public sector and private sector operations.

5. Project Implementation

5.01. The project had a slow start-up, and implementation during the first two years (following Board Presentation) was substantially behind schedule. Disbursements were less than 10% of estimates and Bank supervision missions became apprehensive of GOI's commitment to the project as well as the project's relevance to real needs. The key constraints were managerial (delays in staffing and effective operation of the project secretariat, employment of long-term consultants, and in the review and approval of procurement documents; difficulties in coordinating

implementation by eight agencies under three different ministries; and lack of experience among project staff on Bank operations and procedures), logistical (lack of vehicles for implementing agencies), financial (lack of funding in the budget for the first fiscal year of implementation, delays in release of funds, shortage of operating funds for NSC) and technical (inadequate technical expertise among project staff). Following these initial years of "confused approach by the GOI" things, however, improved progressively and implementation was able to make up for most of the lost time. At loan closing, most of the physical targets for the various components had been achieved (Part III, Table 4). Final project costs were US$ 38.09 m (Part III, Table 5A), some 25% lower than appraisal estimates due primarily to depreciation of the Indonesian rupiah during the period of project implementation and shortfalls in GOI commitment for vehicle procurement.

5.02. Shortages of vehicles seriously hampered the quality and coverage of field operations, particularly of the SCCS staff. The SCCS staff often had to depend on customer assistance for logistic support, which is not conducive to objective and unbiased inspection and quality control services. Bank staff and senior management took up this matter with high level GOI officials, including Ministers, but without much success.

5.03. Major reallocations in the categories and percentages of Bank financing were made: first, in February 1985 in order to include funding for new civil works for Provincial Seed Farms and IPB classrooms, and to cover the substantial increases in the import price of the SPC equipments; and for a second time in July 1987, in order to reduce GOI share of local cost funding in view of general resource constraints (Part III, Table C). These reallocations permitted the completion of the key component of SPC construction as stipulated in the SAR. However, one could also argue that given the mounting evidences against the economic and operational viability of these infrastructures, Bank and GOI should have seized upon the opportunity and re-evaluated the component instead of focusing on achieving the relevant SAR targets.

5.04. The palawija seeds production did not receive the focus that was intended at appraisal. This was so because Indonesian policy-makers are still predominantly oriented towards rice self-sufficiency objectives, parent stocks for palawija crops are limited and storage problem of palawija seeds are yet to be resolved.

5.05. There was another important area where actual project implementation diverged from what was planned. A high degree of interdependancy between this project and four other Bank financed projects - two to assist agricultural research development for breeding and testing new varieties, and two others to assist agricultural extension - had been envisaged at appraisal. But the required linkages were not achieved because the project's implementation arrangements did not include the specifics of such linkages, nor were such linkages treated as a priority issue during actual implementation.

6. Project Results

6.01. The project has achieved the physical targets for infrastructure development, training, and project/sector related studies. It has created a modern seed processing infrastructure in the public and semi-public sectors that has the potential for producing some 42,000 tons of processed seeds annually. It has provided training to a large number of public sector officials involved in the various levels of activities in the seed business, including in-service training to field staff (1,450), diploma training to mid-level staff (72) and post-graduate training (4) and short courses (12) to senior professionals. It has created the nucleus of a nationwide seed certification and control service, a training infrastructure in Seed technology, strengthened the financial management of the PT. Pertani (see Annex 1, section II) and the NSC, and improved the project planning, implementation and monitoring capability of the Directorate of Food Crops. NSC was able to produce some 39,000 tons of seeds in 1988 compared to some 5,000-6,000 tons in 1979/80, and for the first time in its history it had an unqualified audit report for FY88/89.

6.02. At project completion total output of certified seeds from project financed SPCs were about 16,500 tons, some 60% of the appraisal estimates of project output. NSC's production of 14,000 tons represented about 65%, PT. Pertani's production of 1,800 tons represented some 13% of the plant capacities installed under the project. Total palawija seeds production was a mere 6% of estimated project production. The project also did not have much success in promoting greater private sector participation in the seed industry, nor in getting an effective participation of the cooperatives in seed business. Similarly, improvements in the physical facilities in the 40 PSFs do not appear to have had the full impact because adequate budgets for their operations are not being made available by the GOI.

6.03. Clearly, while the physical targets for infrastructure development have been achieved, the sustainability of the operation is open to question. Without substantial increases in the price of seeds (which is currently subsidized), and/or reduction in operating costs (which are substantially higher than selling prices for seeds) or writing-off of the capital investments, the highly capital-intensive and heavy overhead oriented public sector SPCs are likely to be non-profitable operations. Some of the SPCs, particularly those outside Java, also face limited demand for certified seeds and hence can not utilize the facilities to their full rated capacities. This perhaps shows that farmers' dependance on certified seeds of self-pollinated crops is not as strong as it is thought to be.

6.04. Economic Rate of Return. The economic rate of return estimated at project completion is 20.3% (Scenario 1), and 24.6% (Scenario 2) compared to the appraisal estimate of 39%. The underlying assumptions were: (i) 80% capacity utilisation at the SPCs, beginning 1995; (ii) 5% annual increase in NSC/PT. Pertani seed production cost (Scenario I); and

(iii) no increases in production costs of NSC/PT Pertani beginning 1990 (Scenario II). Details in Annex 2. The rate of return is lower than original estimates mainly because of: (i) smaller quantity of total seeds produced by the project; and (ii) major shortfalls in the production of the seeds of higher value palawija crops.

7. Project Sustainability

7.01. Public Sector Production and Marketing. The project has built up a public sector seed production and distribution system that is grossly underutilized, heavily dependant on budget subsidy and is not as cost-efficient as the private sector entities. During 1988 total subsidies to NSC alone was Rp.8.4 billion, compared with Rp.3.0 billion in 1984. Currently only about 50%-60% of the total costs of processing and distributing seeds is recovered by NSC from seed sales. Given the political difficulties of raising seed prices, it is unlikely that full costs of public sector operation could be recovered by price escalation. The financial and economic sustainability of the public sector operations will, therefore, depend largely on how successfully measures to achieve more cost-effective production systems are instituted, and an optimum mix of public and private sector participation in the various components of the seeds production and distribution system is achieved.

7.02. Sustainability of SCCS. The value of seed certification and seed control services are now broadly recognized and well institutionalized. However, SCCS operates under chronic budgetary constraints and transport shortages. The role of the SCCS will grow in importance, especially in respect of seed control because of the large number of small private producers and growers. Clearly, its sustainability as an effective instrument for regulatory/quality control functions will require that SCCS becomes a largely self-financing autonomous institution in the longer-term. Introduction of a level of fees that will cover at least the operating costs and depreciation of vehicles and equipment would be the first step in that direction. The recently introduced fees (Rp 1,500 per ha of certification, Rp 2/kg for laboratory tests) are inadequate.

7.03. Sustainability of the private sector operations. The small private sector seed industry that is thriving in competition with the public sector has the potential for becoming the core of a progressive seed industry provided the government would, inter alia: (a) focus public sector operations on the service (policy formulation, advisory services, varietal development) and regulatory functions (seed certification and control) and reduce its involvement in the business functions (production, processing and marketing of ES and SS); (b) quickly phase-out subsidies on seeds (also see para 9.01); (c) ensure easier access to short-term working capital by private seed growers; and (d) make legislations granting breeders' rights.

8. Bank Performance

8.01. Bank's performance has been mixed. It was correct in supporting a follow-on phase for its First Seeds project, but in determining the scope and content of the second project (Seeds II) the Bank was guided by a conceptual framework that appear to have been inappropriate for the long-term development of an efficient seed industry in the country (Paras 4.02-4.04). Bank appraisal did not appreciate the growing role of the private sector seeds operations, particularly in East Java, and did not analyse the implications of seed demand estimates based on the theoretical replacement rates (see Annex 1). The thrust of the key components was also inconsistent with an important GOI and project objective - providing incentives for a larger private sector role in seed production and processing. The Bank did not appreciate that by building up a large public sector seed industry through GOI equity support and subsidies, an emerging private sector was being disadvantaged. Removal of government subsidies on seeds was designed to be a key project intervention for encouraging private sector participation. But it was unrealistic on the part of the Bank to have assumed that the government would have removed subsidies on seeds in isolation from its overall input subsidy policies. Finally, given GOI's budgetary constraints and the centralized procurement administration, the Bank was overoptimistic in assuming that GOI would provide the large number of vehicles required for the project in a timely fashion.

8.02. A total of 109 staff weeks were devoted to supervision which was not in excess of what is required to supervise a project of this nature. In addition to Bank's own staff, short-term consultants were also retained for analyzing the operational, institutional and financial issues relevant to public sector operations. Bank supervision, both in quality and frequency, was satisfactory. Key implementation issues were pointed out and followed-up at the appropriate levels of the GOI. The Bank was appropriately tough in dealing with implementation delays and its interventions prevented irregularities and costly delays in respect of some key procurements. But the most important aspect of the Bank's supervision in the later years of the project was its explicit focus on the questionable development impact of the project, and on the key policy/sub-sector development issues. Although the Bank was unable to reach agreement with GOI on what were largely policy issues, these discussions nonetheless helped raise GOI's awareness of the key sub-sector development issues. The Bank's decision not to support further operations in the seeds sub-sector in the absence of agreement with GOI on these key issues was an appropriate one.

8.03. The main lessons learnt from the implementation of the project are as follows: (a) in planning seed industry development, the importance of on-farm production, retention and farmer-to-farmer exchange of seeds, particularly for self-pollinated crops, should be appropriately recognized; (b) agronomic rationale and the operational implications for

replacing farmers' seeds with certified seeds at periodic intervals need careful continuous evaluation; (c) a vigorous varietal breeding programme resulting in releases of superior genetic quality is fundamental to the sustainability of the seed industry; (d) overly sophisticated seed processing technology is not necessary for producing seeds of the required quality; nor should seeds be processed to a higher standard than is demanded by farmers; and (e) strong national institutions for policy setting and quality control, and clear definition of the respective roles of the public and private sectors in a national seed production and distribution system are necessary for promoting efficient growth of the seed industry as a whole.

9. Borrower's Performance and Project Relationships

9.01. The implementing agencies have to be credited for completing the project as appraised without any extension of the loan closing date. This was achieved despite slow start-up and negligible progress during the first two years. GOI's timely action in changing two key project personnels (Project Director and Project Secretary) in the Directorate of Food Crops Production Development during mid-1983 appear to have been a key factor in improving project implementation. The Project Secretariate provided good leadership, coordination and support to the implementing agencies. Monitoring of project implementation, and progress reporting were adequate.

9.02. The borrower's performance in a number of areas, however, fell short of expectations. First, it was not able to fulfill its commitments for providing the requisite number of vehicles to the project; second, it was not able to take the required action to ensure timely commissioning and proper operation of SPCs constructed for the KUDs and PUSKUD; third, GOI was not pragmatic in agreeing to a removal of subsidies on seeds produced in Java in the time stipulated at negotiations (article 4.08 a of Loan Agreement)1/; fourth, it did not provide adequate resources to the PSFs, and bring about the required improvement in their management, which reduced the impact of project assistance for their upgrading; and fifth, there were unusual delays in processing of contract documents and procurement decisions, particularly with respect to the procurement of SPC equipment.

1/ Although GOI did not fully comply with the dated covenant for removal of subsidies on seeds, it is following a policy for its gradual reduction. For example 1985, sales price recovered only 50% of the NSC costs of seeds production, in 1988/89 recovery was 65% and for 1994 nearly 80% cost recovery has been proposed.

9.03. Bank's relationship with the implementing agencies and other government agencies at all levels has been good and effective. Supervision missions were supported very diligently, and all required information were provided in a satisfactory manner.

10. Consulting Services

10.01. The Project Secretariat was supported by 166, and the IPB by 37 man-months of expatriate consultants. Identification of T.A. requirements were appropriate and performances of most the consultants were satisfactory. However, it would appear that consultants' recommendations were not always followed up with due diligence, seriousness, and timeliness.

11. Project Documentation and Data

11.01 The SAR adequately described the project objectives, the institutional arrangements for project implementation and the project risks. However, it should have paid more attention to describing the important operational linkages between this project and its cohorts (Para 5.05), analyzing the implications of a high annual replacement of farmers' seeds with certified seeds (Annex 1), highlighting the importance of the growing private sector in seeds business and the impact of expanded public sector on its development. No working papers were produced and the SAR at times delved into unnecessary details on minor matters (e.g. equipments will be connected by conveyor belts, sedan will be provided for consultants, rice would be threshed and maize husked before precleaning, storage facilities would be ventilated and seed lots stacked, etc). The number of covenants (20) also appear to have been far too many.

11.02. The Project Secretariat and the implementing agencies have been very cooperative in providing the data for the PCR and making arrangements for the necessary field missions.

Part II. Project Review From The Borrower's Perspective

1. The Role of Seed Project on the Indonesian Agricultural Program

Agricultural development is considered as an integral part of the National development in Indonesia . Within the frame work of the national development, the ultimate objective of the agriculture development is to continously increase the income and welfare of the farmers, who are the rural people, through the increase of agricultural production.

The Government initiated the Five Year Development Plan where the development of the agricultural sector received a very high priority within the economic development of the country. The attainment of sufficient increases in food was one of the main targets.

Since the agriculture sector was given the first priority, the government policy has concentrated to increase the rice production to sustain the self sufficiency and to increase the palawija crops production to diversify the food stuff and to supply as raw materials to the industry .

In order to do above serious efforts in rehabilitation of infrastructure agricultural extension, and in the distribution of fertilizer, seeds, pesticides and credit extension were initiated.
Numerous factors affect the succes of that strategy including the availability of good quality seed of improved variety .

Seed is considered as one of key factor to increase the production and it is also a dynamic instrument for change and it can be used to achieve specific agricultural production objective.

The seed should be prepared to ensure that seed is delivered to the farmer at the right variety ,right time, in enough quantity with good quality level .

Therefore the Seed Programme should be established and developed based upon the consideration of present situation of Seed Industry .
In the 1960s, the Government of Indonesia started to work to strengthen its seed program through the use of government seed farms, in the provinces with the encouragement of groups of seed growers mainly on rice seed production.

Steps were taken in the 1970s, and 1980s to further improve ment of the seed programme among other thing through Seed I and Seed II Project which under World Bank financial supported.

Seed Industry is a huge and complicated and entire complex work of organization, institutions, individuals associated with the seed programme.

The Seed Programme covered some aspects which linked and depending each other, interalia variety development & evaluation, seed multiplication, seed processing & storage, seed distribution & marketing and seed quality control & legislation.

Although the seed programme has been made in order to to increase the production of seed, significant impact largely has been limited to exellent, however there are still constraints and limitations to be solved .

Seed II Project is considered and initiated to strengthen the existing Indonesia Seed Programme however GOI still need more aid from the Bank to develop and improve Seed Industry in Indonesia .

2. Project Design and Organization

2.01. The Project was designed to extent the geographic and crop coverage as well to consolidate the activities under Seed I, covered some aspect of seed in the up to down-stream under 3 (three) Ministries interalia Agriculture, Education & Culture and Cooperative .

In general, the Indonesian Seed Project was basically modelled after the Bank supported Seed I Project. with the main thrust on the expansion of public sector capacities together with the cooperatives activities for :

(i) rapid multiplication of already released varieties
(ii) large-scale processing of seed produced through contract grower schemes and ;
(iii) stricter quality control .

Investment proposal based on :

(i) the teoritical estimates of demand for certified seed by area, season and variety ;
(ii) perceived need for periodic replacement of farmers' seed with certified seeds in order to maintain genetic purety ; and
(iii) the reasonable capital and seed processing technology .

2.02. The weaknesses in the conceptual frame work and project design were as follows :

a. project mainly focussed to strengthen the infrastructure on production and processing of seed, however there was little attention paid on the seed distribution and marketing aspect.

b. the allocation of budget is too great on emphasis on the seed production side while other aspect as seed sources security and seed campaign are not enough .

c. seed business is huge and very complex works and the succes of the program is influenced by many factor as technically and non-technically aspect that some of them can be controlled or un-controlled . These aspects were not enough to be considered or studied during the preparation of SAR, interalia :
   i. too optimistic to decide the target of secondary crop seed production .

   ii. too optimistic on the role of private sector on seed business.

iii. SPCs located in the transmigration areas such as Riau , which are up-land farming area still have some problem due to not enough demand of seed because of the lack of farming condition and transmigration problem.

iv. There is still gap between the cost of production of seed and reasonable seed price to be decided .

d. the budget share between loan and counter budget was not balanced wich the share of rupiah as counter budget is to big, therefore there are difficulties during the implementation.

2.04. It is agreed, that Seed Project Design and it is conceptual foundation as innovative rather than replicative, however the replicative project is still having the possibi lity done in the same area, where the seed demand is still increases .

In order to develop the satisfactory of seed industry, some aspect that should be considered interalia :

a. the project should handle the whole aspect on seed industry integratedly.
b. strengthening and developing a comprehensive Seed Campaign Programme mainly in the area where the infra structure of seed production already established .
c. creating the right enviroment for increased private sector participation in seed business in future by strengthening GOI's capability for technical and financial assitance to private sector enterprises, such as quality control services, varietal development (particularly for secondary crop) and the production & distribution of newly varieties and other seed planting material, which farmer cannot produced themselves easily .
e. the share of budget between loan and counter budget should be set more reasonable so that the implementation can be run smoothly.
f. using foreign and local consultants who should know the local condition on the food crop seed and could give the right clear suggestion or recomendation how to solve the existing problem.

2.05. Project Organization.

(1).The Project has been implemented under the overall supervision, coordination and monitoring of Director of Food Crop Production Development in the Directorate General of Food Crop Agriculture (DGFCA) and daily activities run by a Project Secretariat headed by full time Project Secretary.

(2) Implementation of the individual components/activities were by NSC, PT Pertani, Department of Cooperatives, Bogor Agricultural Institut (IPB) and Agency for Food Crops Research and Development.
In order in line with the directive in the SAR & Loan Agreement and Government Policy, a Steering Committee is established, headed by Director General of Food Crops Agriculture and the member are each Director of Project Component.

(3) Daily monitoring the progress of project implementation is coordinated by Project Secretariate , assisted by liasson officers of project component .

(4) The Project Organization is aimed to achieve target and working schedule, however, time to time there are some difficulties beyond their power .

(5) In general, the Project Organization is considered to work succesfully to complete the physical target and disbursement of loan before ending of the project.

(6) The Project Director and Project Secretariate were mainly work as service function (coordinator) and not enough power to control of the implementation of project in each component under 3 (three) ministries .

(7) During the implementation of project, many factors non-technically beyond of power of project secretariate which some time difficult to overcome interalia in the speeding up the procurement process, phasing out of seed subsidies, setting seed prices etc .

3. Project Implementation

3.01. The Project had a slow start-up, and implementation during the first two years was substantially behind the schedule due to of some constraint interalia the weaknesses on managerial , lack of logistical supporting, shortage on financial supporting and technical matters.

Based on L/A and SAR Project will be initiated on Second Semester 1982 but in fact just to be started in second semester 1983 and completed by the end of December 1989 .

Following years project start to consolidate and run progressively and the implementation was able to make up for most of the lost time .

At loan closing time, all of physical target for the various component had been achieved eventhough some of them have slight change from the schedule .

Final project cost were US $ 38 million, some 24 % lower than appraisal estimates due primarily to depreciation of Indonesia Rupiah and shortfall in GOI commitment for vehicle procurement .

3.02. Project was implemented based on the guide lines of SAR and L/A, however world economic resession gave influence . In order to effective usage of the loan the project changed some of concept two time during the implementation such as categories and ration of loan as the unders. The first change, in 1985 is to add funding for new civil works for Provincial Seed Farms and IPB classrooms,and to cover the substantial increases in the import price of the SPC equiptments, and for a second to reduce share of local cost financing in view of general resources.

3.03. The up-land rice and palawija seeds production has not been yet achieved to the target due to of some reason interalia :

i. these crops have specific charateristics like need of special treatment to storage, low multiplication ratio, uncertainty in of planting time, and not enough amount of parent stock.

ii. the actual demand of palawija seeds were not high because the farmers as user of seeds have not enough knowledge on seed .

3.04. Concerning with interdependancy between this project and four other Bank financed projects to assist agricultural research development for breeding and testing new varieties, and two others to assist agricultural extension had not clearly linkages due to that each project was run individually and in the SAR was not mentioned the specific linkages clearly .

4. Project Results

4.01. The Project already completed due in time and can strengthen the foundation of Indonesian Seed Industry .

The Project has achieved the physical targets for infrastructure development, training, and project/sector related studies except for rehabilitation of some SPCs of DPD .

It has created a modern seed processing infrastructure in the public and semipublic sectors that has potential for producing some 40.000 ton of processed seed annually.

It has provided training to a large number of public sector officials involved in the various levels of activities in the seed industri, including in-service training to field staff (1450), diploma training to mid-level staff (72) and post-graduate training (4) and short courses(12) to senior professionals.

It has created the nucleus of nation wide seed certification and control service, a training infrastructure in Seed Technology, strengthened the financial management of the PT. Pertani and the NSC,

and improved the project planning, implementation and monitoring capability of the Directorate General of Food Crops.

4.02. At project completion time, total output of certified seed from project financed SPCs were about 18.281 tons below the estimated target. NSC's production of 16.414 tons represented some 71.37 % of the plant capacities (23.000 tons), PT. Pertani's production of 1.815 ton represented some 12.95 % of the plant capacities installed (14.000 tons), whereas for Cooperatives just 66 ton or 2 % of total capacities (3.200 ton).

Seed have been produced mainly on rice seed while palawija seed was still low enough around 1.213 tons

The improvements in the physical facilities in the 38 PSFs have already overcame the problem on requirement of the room space for installment of seed processing equiptment which supply from Japan as Grant Aid and it may agreed that it do not appear to have had the full impact because adequate budget for their operations are not being made available by the GOI.

However PSFs is still operated with the limited budget and it is still can prepare the Seed Sources (FS & SS) mainly to keep pace the local requirement .
In some provinces beside from the Central Government the operational cost is still assisted from local government in order to PSF to operate effectively .

4.03. Eventhough the infrastructure for the SPCs has already completed for the sustainability of the operation it is needed some improvement on some aspect (technically or non-technically) in order the program can be functioned as planned and it need some time to reach the target .

5. Project Sustainability

5.01 Public Sector Production and Marketing.

The SPC's has been operted, 7 of SPCs by 1985, 3 of SPCs by 1987, 7 of SPCs by 1988, 4 of SPCs by 1989 and 5 of SPCs by 1990, therefore the operations were not fully active, yet the subsidy for production cost per kg reduced year by year though total subsidy has increased because increasing of of the seed to be marketed .

Some of public SPCs located at under-developing area, hardly work at full capacity because :
(1) not enough seed sources by varieties .
(2) actual demand of seed is not reached to the SPCs capacities.

During 1985, total subsidies to NSC alone was Rp. 8,4 billion, compared with Rp. 3,0 billion 1984 due to amount of seed marketed raised sharply, but subsidies per kg of seed has been already reduced. Effort to reduce the subsidies is still continously being taken by :

1. Reducing cost of production through.
   a. Increasing the quality of uncleaned seed procured to get the high rendement of seed by providing contract seed grower some post harvest equipments as thresher
   b. Using sun drying as much as possible for drying of seed.
   c. Raising drying capacities by modifying bag drier to box drier.
   d. Using public electric (PLN) to process small quantity uncleaned seed.
2. Raising the production capacity of SPC.
3. Maximize the amount of uncleaned seed to be procured at the peak harvest time where the price of seed in the lowest level.
4. Increasing the volume of seed to be marketed.

Subsidies for seed need to pay for a certain years, however public SPCs should reduce the cost of production and increase the amount of production up to its maximum .

The level of farmer's perception discrepancies among t e area and it is necessary to convince them and take the time and special seed campaign which operates through a comprehensive set of interlingking activities.
A viable seed campaign requires time to develop and needs the blending of a efforts by public and private sector enterprises.

There is the way to reduce the subsidy by raising the selling price of seed and to increase actual demand of seed, however goverment duties is to campaign to get farmers understand on the price of seeds .

5.02 Sustainability of SCCS.

The Goverment believe the fee of SCCS (Rp. 1500 per ha of certification, Rp 2 per kg for laboratory tests) are adequate at this time but not enough to cover all of cost for SCCS operation, however we need time to let user of SCCS to understanding the importance of their activities, then we will increase the fee according to their degree of understanding in the future . According to the regulation there is no possibility to use the budget directly for the SCCS operational.

5.03 Sustainability of the private sector operation.

The Goverment has the policy that seed industry in Indonesia should be handed over gradually from goverment or semi-goverment organization to private sector in the future, however Goverment should create the situation and conditions that the private sector seed industry can operate without any problem.

To do so the step to be taken are :

(1). phase-out subsidies gradually by means of increase ES price and reduction of seeding amount per unit area.
(2). securing seed sources .
(3). improvement of activities of SCCS .
(4). campaign to the interested parties including farmers as seed user to understand the facts on seed .

6. Findings and Lessons Learned

6.01 We already confirms that our seed programme is consist of (1). variety development & evaluation, (2). seed multi plication,(3). seed processing & storage, (4). seed distri bution & marketing and (5).seed quality control & legislation, though those are depending upon and linked each other .

In Seed II Project, since main concept in to established SPCs to increase the capacities of seed porduction, so we realized that the areas for seed sources security and improvement of seed distribution ·and marketing were not given enough consideration.
The farmer should be educated and motivate particularly for subsistence farmers. Therefore as key factor to solve this problem Seed Campaign would be initiated and developed.

The merits of good quality seed should be recognized, not only by the farmers but also by local government officials and extension workers.

6.02 Project also a little to pay attention in handling on variety evaluation and release of palawija crops, so that the availability Seed sources as Breeder, Foundation Seed is still limited which influenced the seed flow and it is not attained as the planned.
We should care much more than before on the Crop research especially related to improve the quality of seed.

6.03 Seed is a live embodiement and as a dynamic instrument for change and it can be used to achieve specific agricultural production objectives. Therefore it should be handled by special treatment.

So that, seed producers should have the knowledge, skilled, good management & organization and supporting working capital in handling on seed production and distribution.

There is some example that the SPC under Cooperative management could not run smoothly because the above SPCs had no reliable seed producers .

6.04. Due to seed can improve the agricultural productivity, there fore to succed the programme, it is necessary that the quality of the seed are in the highest possible standard and also to ensure that is delivered to the farmers at the right time quantity and quality.

Therefore the quality of seed is necessary to be monitored and controlled whether it is in the right or true variety & genetic, good physical, good physiology during production, distribution and marketing handling and it can be controlled by giving them labelled on each package of seed.

Seed is also a dynamic instrument for change and it can be used to achieve specific agricultural production objectives, ie to increase and sustaining of food crops production. So as much as posibble seed should be certified and produced in a good controlled and exchange of seed among farmers as much as possible to be reduced particularly for rice crop in order to combat and control of pest and diseases a attack. However in a way we accept the Interfield distribution system (Jalinan Benih Antar Lapang) because seed of secondary crop especially legume crop has short life .

6.05. The palawija (secondary crop) having a specific characteristic and rather difficult to handle, therefore it should be needed more attention and supporting from the government particularly on variety development, production and distribution of newly released varieties.

6.06. Though the operation of SPCs have the important role to the agricultural development in the area, it needs some time to operate in full capacities because there are certain conditions to be fulfill such as the training of seed growers nearby, securing seed sources (with proper varieties, right amount) and buyers .

6.07 Monitoring and controlling the progress of seed production and distribution in Indonesia should be fully under responsibility of Directorate General of Food Crop Agriculture.
However Directorate General of Food Crops Agriculture had some difficulty to obtain the progress report from SPCs constructed under the Seed II scheme and operated by the Cooperatives, due to the administrative jurisdiction .

7. Bank Performance

7.01. The Bank worked based on the directive and guideline in the Staff Appraisal Report (SAR) and Loan Agreement (L/A) during monitoring of implementation of project .

7.02. The Bank always conducting regularly supervision to monitor the progress of project implementation and provided guidance directly in field or written guidance to the project in order the project can run in line with directive in the SAR and L/A .

The Bank was quite aware on the constraint and problem which project faced during the implementation and provided ways out and if necessary it was also submitted to the high relevant authorities to clear the problem where it was beyond of power of project .

7.03. The Bank was appropriately touch in dealing with the implelemtation delays and its intervention preverted irregularities and costly delays in respect of some key procurements.

7.04. The Bank was also very active conducting field visiting and made field finding reports during supervision and its very useful for the project as tool to manage in the implementation of project.

7.05. The Bank was also aware on the sustainability of operation the project by sent some consultants to the field conducting some study and survey concerning with the operation, organization, management, institutional, financial aspect of whole project either on public or private sector view .

7.06. The Bank was enough flexible to fulfil on some of GOI's request for running of project among other thing were the reallocation of categories and budgetting sharing but rather stiff on the achievement of some convenants and project's target, where they were having difficulties to attain due to the technical and non-technical condition which was not enough considered during the SAR made .

8. Borrower's performance

8.01. In the implementation of the project, Project Organization always follow the L/A, SAR and the existing the Bank's and GOI regulation. In running the project ,GOI effort to improve the project management from time to time, by providing project secretariate and component's office the high qualification staffing. GOI was very satisfied by completing the project in time and appreciated to all of the project staff who already work hard and give their assistance during the implemetation of this project.

8.02. However GOI was not able to fulfill some commitments with the Bank which already mentioned in the SAR i.e:

a. despite of the borrower estimations of number of vehicles needed to its project the borrower could provide the vehicles only to the most important field .
b. operational budget for PSF's are not being available however in certain PSF's still can operated with limited budget and some of them still getting supporting from local government.
   Due to seed bussines were developed rapidly, so that the funds were always not enough .
c. Delaying in the procurement of SPC's equipment, raise up because there was of world economic resession, which the succesfull bidder did not accept the price of contract in US dollar, due to the exchange rate of international currency were not stable, therefore the tender sould be re-evaluated and its process took time and a long according to the existing Indonesian's regulation, however the establishment of the SPC's could be set up before the closing date of the project.

d. GOI can not able to operate the cooperative SPC's in full capacity at the proper time, as mention the SAR In fact the Directorate General of Cooperative did not pay full attention to handle this project and KUD as processor were still lack of managerial, skilled, staffing and fail to get credit from BRI . However, they will improve the situation by conducting of on the job training in the SPC of NSC or other producers.

e. Currently the GOI is still can not remove the seed subsidies drastically . However, the subsidies is still provided to maintain the self sufficiency in rice but the goverment is still aware that subsidies in future time should be phase-out .

9. Consulting Services

9.01. DGFCA as the executing agency has been assisted by various expert to make the Project implementation smooth in technical, financial, management aspect and specially in operational of SPC's and other facilieties .

9.02. In general the consultant posses good qualification in line with the guideline in the SAR, and in generally the consultant provided satisfied performance services to the Project interalia : in the preparation of technical specification of SPC's equipment, improvement of accounting system for NSC and PT. Pertani, technical guideline on the operational of SPC's, improvement Project management and training program.

9.03. They also provided many recomendations and suggestions to the Project, however some of them were not suitable and could not be implemented, due to the under-mentioned reasons;

(1). some of them were so principal that it could not applicable.
(2). some of the were not suitable to apply because they came from mis-understanding and not enough knowledge on the situation.
(3). some of them were given but not in right time , data not complete, cohtradictive with the policy and regulation, the time was not appropriate .

9.04. The Consultant could not provided the perfect guidelines on seed marketing which produce by SPC's and also how to reach the target in the SAR.

9.05. The Consultant for seed production gave us poor information and guidance because he was not expert for his line but in the seed quality control .

9.06. The Consultant who appointed by the World Bank (for financial analysis, management and organisation) on Indonesian Seed Industry gave us some the recommendation which were not reliable because their periods to stay in Indonesia for study the situation were not long enough .

9.07. Some of consultant provided useless recommendation and suggestions because of the lack of knowledge on the current seed situation in Indonesia.

PART III

Table 1 : Related Bank Loan

Loan No/ Project Title	Purpose	Year of Approval	Status	Comments
1. Cr 246-IND Seeds - I	Creating a modern seeds industry in Indonesia	1971	Completed	-

Table 2 : Project Timetable

Description	Date Planned	Date Revised	Date Actual
Identification (Project Brief)	May 1978		May 1978
Preparation	Mar 1979		Mar 1979
Appraisal Mission	Mar 1980		Mar 1980
Loan Negotiations	Jul 1981		Jul 1981
Board Approval	Dec 1981		Dec 1981
Loan Signature	Jan 1982		Jan 1982
Loan Effectiveness	Mar 1982		Mar 1982
Loan Closing	Jun 1989		Jun 1989
Project Completion	Dec 1988		Dec 1988

Table 3 : Loan Disbursements

Cummulative Estimated and Actual Disbursements
US$'000

Description	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90
Appraisal Estimate	200.0	2,000.0	4,200.0	6,700.0	9,200.0	11,700.0	14,000.0	15,000.0	15,000.0
Actual	0.0	155.2	705.5	4,572.2	5,978.1	8,522.8	12,949.2	14,459.2	14,965.2
Actual as %age of Estimate	0.0	7.8	16.8	68.2	65.0	72.8	92.5	96.4	99.8

Date of Final Disbursement : January 3, 1990

Table 4 : Project Implementation

Key Indicators	Unit	Appraisal Estimate	Revision July 1987	Actual At Completion
A. Civil Works				
Seeds Processing Centers				
Medium Size	No	18	18	18
Small Size	No	6	6	6
Rehabilitation	No	10	2	2
Rehabilitation of BBI/BBU	No	40	38	38
IPB Classroom	No	1	1	1
B. Equipment				
Seeds Processing Centers				
Medium size	No	18	18	18
Small size	No	6	6	6
Rehabilitation	No	2	2	2
General usage	No	65	27	27
Additional	No	44	44	44
Teaching equipment	No	1	1	1
Laboratory equipment	No	11	11	11
Breeder seed storage	No	5	5	5
C. Others				
In-service training	Person	860	1450	1450
Diploma course	Person	3	72	72
Overseas training/study tours	Person	16	16	16
Studies	No	10	10	10
Pilot activities	No	4	2	2
Technical assistance	Man-month	250	198	198
Vehicles	No	530	197	197

Table 5 : Project Costs and Financing

A. Project Costs
(US$ Mil)

Description	Appraisal Estimate			Actual		
	Local Costs	Foreign Exchange Cost	Total	Local Costs	Foreign Exchange Cost	Total
Investment						
Breeder seed storage		0.1	0.1	0.02	0.17	0.19
Provincial seed farms	1.6	0.6	2.2	1.71	0.19	1.91
Seed processing centers	7.3	7.3	14.6	8.16	7.90	16.06
Vehicles	1.0	1.6	2.6	0.18	0.43	0.61
Laboratory equipment		0.2	0.2	0.03	0.18	0.21
Training	0.9	0.4	1.3	0.95	0.37	1.31
Technical assistance	0.7	1.3	2.0	1.87	0.10	1.96
Studies/pilot activities	0.7	0.6	1.3	0.28	0.01	0.30
Sub-total	12.2	12.1	24.3	13.20	9.34	22.54
Inc. Operating Costs	0.9		0.9	8.90	0.06	8.96
Inc. Working Capital	6.4		6.4	6.59		6.59
Total base costs	19.5	12.1	31.6	28.69	9.40	38.09
Physical contingencies	1.2	1.2	2.4			
Physical contingencies	12.0	4.0	16.0			
Total project costs	32.7	17.3	50.0	28.69	9.40	38.09

B. Project Financing
(US$ 000)

Source	Planned	%	Final	%
IBRD	15,000	30	14,965	39
DOMESTIC	35,000	70	23,124	61
of which : GOI	29,300	59	NA	NA
BRI	5,700	11	NA	NA
TOTAL	50,000	100	38,089	100

C. Allocation of Bank Loan
(US$ 000)

Category	Original	Revision I November 84	Revision II July 87	At Closing (Final)
1. Civil Works	2,500	2,619	3,745	3,248
PSF		300	233	205
SPC		2,019	3,261	3,018
IPB		300	251	25
2. Equipment	5,300	8,660	8,158	8,048
3. TA & Studies	5,800	3,450	3,097	3,670
4. Unallocated	1,400	270		
TOTAL	15,000	15,000	15,000	14,965

Table 6: Project Results

A. Direct Benefits /a

Indicator	Appraisal Estimate	Estimated at Closing Date	Estimated at full Development
Incremental Outputs			
- Rice	63,200 tons	65,831 tons	132,451 tons
- Maize	24,300 tons	NE	NE
- Soybean	7,200 tons	NE	NE
- Groundnut	5,300 tons	NE	NE
- Mungbean	900 tons	NE	NE
Incremental Employment			
- Agencies concerned	450 permanent jobs	NE	NE
- Construction labor	6,000 man-years	NE	NE
- Crop harvesting	4,000 full-time jobs	NE	NE
Incremental Seed Production			
- Paddy	13,400 tons	16,700 tons	33,600 tons
- Palawija	14,000 tons	700 tons	NE

/a See Annex 2 for assumptions.
NE = Not Estimated

B. Economic Rate of Return

Description	Appraisal Estimate	Reestimated at Project Completion /a	
		Scenario 1	Scenario 2
Economic Rate of Return	39%	20.3%	24.6%

/a See Annex 2 for assumptions.

C. Seed Production by NSC & PT Pertani 1/

Description	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995-2005
Seed Production & Sales											
- Production											
NSC	2,840	6,445	7,384	13,915	15,000	16,800	18,816	21,074	23,603	26,435	30,180
PT Pertani	780	1,222	977	1,543	1,700	1,904	2,132	2,388	2,675	2,996	3,420
Total	3,620	7,667	8,361	15,458	16,700	18,704	20,948	23,462	26,278	29,431	33,600
- Sales	3,258	6,900	7,525	13,912	15,030	16,834	18,854	21,116	23,650	26,488	30,240
Incremental Paddy Production											
- Wetland	13,293	28,153	30,702	56,762	61,322	68,681	76,923	86,154	96,492	108,071	123,379
- Dryland	977	2,070	2,257	4,174	4,509	5,050	5,656	6,335	7,095	7,946	9,072
Total	14,270	30,223	32,959	60,935	65,831	73,731	82,579	92,488	103,587	116,017	132,451

1/ see annex 2 for assumptions

D. Studies

Purpose as defined at appraisal	Status	Impact of Study
Seed Marketing and Distribution	Completed	1/
Private & Cooperative Sector Processing	Completed	1/
Benefits from Seed Quality	Completed	1/
Seed Treatment	Completed	1/
Site Selection	Completed	Used for Location of SPCs
Pilot Activities	Completed	1/

Comment : 1/ Government reviewing findings and recomendations but no implementation yet

Table 7 : Record of Compliance With Major Covenants

Agreement Section	Type of Covenant	Description of Covenant	Deadline	Status
Art. 3.01	A.2	Coops to carry out respective part of project		Partially in compliance
		NBC & PT Pertani to carry out respective part of project		In compliance
	A.1.B	Maintain project secretariat within DGPCA headed by duly qualified project secretary		In compliance
Art. 3.02	C.7	Make funds for part D of project available as equity to MBC and PT Pertani as credit to cooperatives		In compliance with respect to MBC and PT Pertani but not cooperatives
		Adequately fund MBC, PT Pertani and cooperatives to meet respective working capital requirements for operation of seed processing centers and for marketing of seeds		In compliance except for cooperatives
Art. 3.03	A.1.B	Employ various consultants	May 31, 82	In compliance
Art. 3.04	A.1.B	Employ consultants for studies	Dec.31, 82	Studies completed
	B.1	Send reports (3.04 studies) and comments to bank		In compliance
		Send reports on seed processing to bank for bank review		In compliance
		Send GOI proposals on ownership of seed processing centers to bank for review		Proposals on ownership, management and operation of centers are not complied
Art. 3.05	A.1.B	Appoint instructors	Jun.30, 83	In compliance
Art. 3.06	B.1	Annually send list of PSFS to be updated in next year and list of proposed processing centers to be constructed	Aug.31, 82	In compliance
Art. 3.07	A.1.B	Appoint duly experienced and qualified manager for each PSF as and when PSF is selected to be upgraded		In compliance
Art. 3.08	B.1	Use goods and services financed under project [illegible] for project purposes		In compliance
Art. 3.09	B.1	Provide project documentation/ reports to bank, maintain adequate records and data		In compliance
Art. 3.10	B.2	Make land available		In compliance
Art. 3.11	E	NBC rights to operate East Java DPD processing centers		
Art. 4.04	C.6	Provide subsidies to NBC 1 PT Pertani, until price of seeds are increased to realize costs		In compliance
Art. 4.07	A.1.B	NBC to appoint and thereafter employ qualified and experienced internal auditor, training manager and marketing planning officer		In compliance
Art. 4.08	C.6	Pricing formulae for seeds		Not in compliance
		Pricing formulae for seeds		Partly in compliance
		Pricing formulae for seeds		Not in compliance
Art. 4.09	C.6	Until conditions of 4.08 in effect, pricing formula for seeds		GOI has indicated compliance not possible until 1992
Art. 4.10	E	NBC to replace no more than two combine harvesters in Sukamandi area		In compliance
SCH.1	E	For PT Pertani processing centers to be constructed under part D.1 of project in 1983 or thereafter, until bank has been satisfied on basis of audits that PT Pertani obligations can be fulfilled		In compliance

Table 8: Use of Bank Resources

A. Staff Inputs

Stage of Project Cycle	Planned	Revised	Actual/a
Through appraisal	N/A	N/A	196.4
Appraisal through Board	N/A	N/A	6.8
Board through Effect.	N/A	N/A	N/A
Supervision	N/A	N/A /b	95.7

/a Project is supervised from RSI field office on a continuing basis.
/b This data is only available from FY88 onwards.

B. Missions

Stage of Project Cycle	Month/ Year	No. of Persons	Days in Field	Special. Repres./a	Performance Rating Status/b	Type of Problem/c
Through appraisal	03/80	4	N/A	N/A	N/A	N/A
Appraisal through Board	07/81	N/A	N/A	N/A	N/A	N/A
Board through Effective.	03/82	N/A	N/A	N/A	N/A	N/A
Supervisions						
1st	10/82	2	6	A,A	2/2	M,T,F
2nd	07/83	2	5	A,A	2/3	M,T,F
3rd	07/84	2	6	A,A	2/3	F,M,T
4th	04/85	4	10	A,A,FA,A	2/2	M,O
5th	10/85	2	3	A,A	2	N/A
6th	07/86	2	8	A,A	2	N/A
7th	09/87	2	6	E,A	2	N/A
8th	07/88	2	N/A	FA	3	N/A
9th	01/89	2	6	FA,A	2	N/A

NA = Data not available/applicable.
/a Key to Specialization: A=Agriculturalist; E=Economist; FA=Financial Analyst.
/b Key to Status: 1=No problem; 2=Minor problem; 3=Major problem.
/c Key to Problems: F=Financial; M=Managerial; T=Technical; O=Other.

INDONESIA

SECOND SEEDS PROJECT (LOAN 2066-IND)

PROJECT COMPLETION REPORT

I. FINANCIAL and OPERATIONAL IMPLICATIONS OF THE PRESENT GOI SEED REPLACEMENT POLICY

1. Present GOI policy is to use certified seeds every year for Supra Insus and Insus Packet D areas, and replace every third year in non-intensification areas. Areas under the Supra-Insus and Insus D have been projected to reach about 5.2 m ha in 1993, with another 5.9 m ha comprising areas of under other intensification programmes (5.2 m ha), and non-intensification areas (.7 m ha). Estimated Seed requirements per annum, as per present GOI seeds policy, would be as follows:

a. Supra Insus/Insus Packet D (5.2 m ha x 25 kg) 100% replacement	-	130,000 tons/year
b. Other areas 5.9 m ha (30% replacement) 2/3 Wetland @ 25/kg 1/3 Dryland @ 40/kg	-	50,000 tons/year
		180,000 tons/year

2. Production of 180,000 tons of certified seeds will require at least 90,000 ha of seed growing areas, in addition to another 1500 ha for the production of stock seeds. Public sector resources required for supervision, certification and control of seed production on such a large area would be enormous and expensive. The total cost of producing this quantity of seed would be about Rp. 120-125 billion, and would involve Rp. 20-25 billion in government subsidies to the public sector SPCs.

3. Maintenance of genetic purity is believed to be the main basis on which the 30% certified seed sales targets are based, on the contention that after 3 years stock purity would sufficiently have deteriorated to warrant replacement. This is presented to farmers as extension advise. For self-pollinated crops, of which rice may be taken as the example since it is the crop of overriding importance, it seems that too great a value is being placed on certified seed. Apart from generation requirement, certification does not

do anything as such but merely acts as a guarantee of standards, which may readily be exceeded in non-certified seeds with proper care including heavy roguing, proper drying, dressing and storing. Consequently, the use of good quality seeds could be substantially increased by having the extension service concentrate on improving the quality of farmer kept seed, which would in any event remain the major source of seeds for self-pollinated crops.

4. One technique the extension service might consider would be the seed plot technique, as it is towards this that the farmers tend to move if seed prices increase. This would involve developing a programme whereby farmers will buy a small quantity of certified seeds, the output from which would be sufficient to cover his entire rice area in the following season. This seed would then be grown in a separate plot, appropriately isolated to prevent cross-pollination, severely rogued, and separately harvested, dried and stored for use during the following season. Such a programme to be effective will obviously need strong advisory and materials (improved storage bins, seed cleaners/winnowers, chemicals for treatment etc) support by the extension staff, but a successful seed plot technique can lead to vast cost savings through reducing the requirements for BS, FS and SS, and yet provide an adequate coverage by good quality seeds.

II. Improvements in the Accounting System and Audits of PT. Pertani.

5. Audits. The overdue audits noted during appraisal have been completed. As of May 31, 1990, there are two overdue audit reports for the years ended December 31, 1987 and 1988. The state auditor (BPKP) has completed the drafts of the audit reports and it is estimated that the final audit reports will be submitted to the Bank by the end of July 1990, for the 1987, 1988 audit reports whereas the 1989 audit report is scheduled to be submitted to the Bank in September 1990.

6. Reporting Procedure. The reporting procedure (including the preparation of financial statements) of PT. Pertani has been simplified, and will be effective January 1, 1990, following a proposed reorganization of the company. Under the old system, all branch offices (up to Kabupaten level) throughout Indonesia (25) had to prepare their own financial statements which then would be consolidated at the Headquarters. Consequently, the consolidated financial statements could not be completed if there was a delay in completion of financial statements of even a small branch office. Under the new system, these branch offices are grouped into 7 geographical areas (wilayah) and therefore there will be 7 separate financial statements which in turn would be consolidated at the Headquarters.

7. Training and Computerization. To ensure that the new system will work effectively the company is now conducting staff trainings in Jakarta. In addition, the staff preparing financial statements will be equipped with personal computer's as a first step of the company's long term computerization program.

Annex 2

INDONESIA
Second Seeds Project (Loan 2066-IND)
Project Completion Report

Assumptions Underlying Economic Analysis

1. The primary economic benefit of the project is the value of incremental paddy production arising from the use of seeds produced by the Seed Processing Centers. The economic lifetime of the project was estimated to be 20 years beginning 1986, the mid year of the project implementation period.

2. As assumed in the SAR, most of the demand for project induced certified seeds would be from the government's crop intensification programmes (BIMAS, INMAS, INSUS, Supra-Insus etc). However, based on current trends in the production and utilization of certified seeds for Paddy - the main project output - it was assumed that at full development the aggregate utilization of plant capacities at the Seed Processing Centers will average about 80%, and that 90% of the produced seeds will actually be sold to farmers.

3. Due to higher returns to paddy cultivation in the wetlands, inadequacies in the technical packages for paddy cultivation under rainfed conditions, and the government's continued emphasis on expansion of irrigated lands, it was assumed that nearly 85% of the certified seeds would be used under irrigated conditions, the remaining under rainfed conditions.

4. At appraisal an average yield increase of about 4% due to use of certified seeds had been assumed. Data on this continues to be unsatisfactory. The study undertaken by the project has produced widely varying estimates - from negative to 0.6 tons/ha - of incremental yields due to the use of certified seeds. Most seed projects, however, use 3%-5% higher yields due to varietal purity, vigorous growth and higher germination resulting from the use of certified seeds. In reestimating ERR, it has been assumed that use of certified seeds will increase yields by about 3% (i.e 120 kg/ha) under irrigated conditions and [illegible]% (i.e. 100 kg/ha) under rainfed conditions. Incremental output from each ton of certified seeds would be 4.8 tons on irrigated lands (at a seeding rate of 25 kg/ha) and 2.0 tons on rainfed lands (at a seeding rate of 50 kg/ha).

5. Economic value of rice was estimated based on import parity price (1989 constant values) derived from World Bank commodity price projections. Conversion factor of .85 was used for estimating the economic value of project costs; average of quarterly actual exchange rates during project implementation were used for currency conversion.

6. All investment costs, including equipment and civil works, and operating costs have been included. Two assumptions were used in estimating operating costs during post-project phase - a 5% annual increase (scenario 1), and zero increase (scenario 2) reflecting improvements in plant operation and management.

Indonesia
Project Completion Report
Seeds – II (Ln 2066 – IND)
Economic Rate of Return Calculation
Rp Million (Constant 1989)

Table 1 of Annex 2

Scenario 1

Description	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Seed Production & Sales 1/																								
- Production																								
NSC				2840	6445	7384	13915	15000	16800	18816	21074	23603	26435	30180	30180	30180	30180	30180	30180	30180	30180	30180	30180	30180
PT Pertani				780	1222	977	1543	1700	1904	2132	2388	2675	2996	3420	3420	3420	3420	3420	3420	3420	3420	3420	3420	3420
Total				3620	7667	8361	15458	16700	18704	20948	23462	26278	29431	33600	33600	33600	33600	33600	33600	33600	33600	33600	33600	33600
- Sales				3258	6900	7525	13912	15030	16834	18854	21116	23650	26488	30240	30240	30240	30240	30240	30240	30240	30240	30240	30240	30240
Incremental Paddy Production 2/																								
- Wetland				13293	28153	30702	56762	61322	68681	76923	86154	96492	108071	123379	123379	123379	123379	123379	123379	123379	123379	123379	123379	123379
- Dryland				977	2070	2257	4174	4509	5050	5656	6335	7095	7946	9072	9072	9072	9072	9072	9072	9072	9072	9072	9072	9072
Total				14270	30223	32959	60935	65831	73731	82579	92488	103587	116017	132451	132451	132451	132451	132451	132451	132451	132451	132451	132451	132451
Economic Value 3/				2709	5609	8378	19759	22647	19941	22074	24434	27047	29938	33779	33684	33592	33497	33405	33312	33312	33312	33312	33312	33312
Economic Costs																								
- Civil Works	592	1524	2123	1650	570	2766	2367	1954	472	236	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Equipment	0	0	2586	1637	483	4569	1900	771	198	99	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- TA & Others	33	111	189	260	221	177	99	70	83	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Operating Cost 4/	646	1883	4874	6229	5766	5194	9205	12754	13392	14062	14765	15503	16278	17092	17946	18844	19786	20775	21814	22905	24050	25252	26515	27841
Total	1270	3519	9773	9776	7040	12707	13571	15549	14144	14438	14765	15503	16278	17092	17946	18844	19786	20775	21814	22905	24050	25252	26515	27841
Net Benefits	-1270	-3519	-9773	-7067	-1432	-4328	6188	7098	5797	7636	9669	11544	13660	16687	15738	14748	13711	12629	11498	10407	9262	8059	6797	5471

Assumptions : 1/ see para 2 & 3 of annex 2
2/ see para 4 of annex 2
3/ see para 5 & 3 of annex 2
4/ see para 6 of annex 2

Ec. Rate of Return = 20.3%

Indonesia
Project Completion Report
Seeds – II (Ln 2066 – IND)
Economic Rate of Return Calculation
Rp Million (Constant 1989)

Table 2 of Annex 2

Scenario 2

Description	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Seed Production & Sales 1/																								
- Production																								
NSC				2840	6445	7384	13915	15000	16800	18816	21074	23603	26435	30180	30180	30180	30180	30180	30180	30180	30180	30180	30180	30180
PT Pertani				780	1222	977	1543	1700	1904	2132	2388	2675	2996	3420	3420	3420	3420	3420	3420	3420	3420	3420	3420	3420
Total				3620	7667	8361	15458	16700	18704	20948	23462	26278	29431	33600	33600	33600	33600	33600	33600	33600	33600	33600	33600	33600
- Sales				3258	6900	7525	13912	15030	16834	18854	21116	23650	26488	30240	30240	30240	30240	30240	30240	30240	30240	30240	30240	30240
Incremental Paddy Production 2/																								
- Wetland				13293	28153	30702	56762	61322	68681	76923	86154	96492	108071	123379	123379	123379	123379	123379	123379	123379	123379	123379	123379	123379
- Dryland				977	2070	2257	4174	4509	5050	5656	6335	7095	7946	9072	9072	9072	9072	9072	9072	9072	9072	9072	9072	9072
Total				14270	30223	32959	60935	65831	73731	82579	92488	103587	116017	132451	132451	132451	132451	132451	132451	132451	132451	132451	132451	132451
Economic Value 3/				2709	5609	8378	19759	22647	19941	22074	24434	27047	29938	33779	33684	33592	33497	33405	33312	33312	33312	33312	33312	33312
Economic Costs																								
- Civil Works	592	1524	2123	1650	570	2766	2367	1954	472	236														
- Equipment	0	0	2586	1637	483	4569	1900	771	198	99														
- TA & Others	33	111	189	260	221	177	99	70	83	41														
- Operating Cost 4/	646	1883	4874	6229	5766	5194	9205	12754	12013	11404	11099	10947	10795	10795	10795	10795	10795	10795	10795	10795	10795	10795	10795	10795
Total	1270	3519	9773	9776	7040	12707	13571	15549	12765	11780	11099	10947	10795	10795	10795	10795	10795	10795	10795	10795	10795	10795	10795	10795
Net Benefits	-1270	-3519	-9773	-7067	-1432	-4328	6188	7098	7176	10294	13335	16100	19143	22984	22890	22797	22703	22610	22517	22517	22517	22517	22517	22517

Assumptions : 1/ see para 2 & 3 of annex 2
2/ see para 4 of annex 2
3/ see para 5 & 3 of annex 2
4/ see para 6 of annex 2

Ec. Rate of Return = 24.6%