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PERFORMANCE AUDIT REPORT

INDONESIA

Central and West Java Provincial Irrigation Development Project (Loan 2649-IND)

Irrigation Subsector II (O&M) Project (Loan 3392-IND)

June 30, 1999

Sector and Thematic Evaluations Group
Operations Evaluation Department

Currency Equivalents (annual for fiscal year averages)
Currency Unit = Rupiah (Rp.)

1989/90 US$1 = Rp. 1,770
1990/91 US$1 = Rp. 1,860
1991/92 US$1 = Rp. 1,992
1992/93 US$1 = Rp. 2,050
1993/94 US$1 = Rp. 2,105
1994/95 US$1 = Rp. 2,230

Abbreviations and Acronyms

ADB	Asian Development Bank
BAPPENAS	National Development Planning Agency
CWJIP	Central and West Java Irrigation Project
DPUOD	Directorate of Public Administration and Regional Autonomy
DGWRD	Directorate General of Water Resources Development
DWRS	District (*Kabupaten*) Water Resources Service
EOM	Efficient Operation and Maintenance
ERR	Economic rate of return
GOI	Government of Indonesia
IDA	International Development Association
IIMI	International Irrigation Management Institute
IOMP	Irrigation Operation and Maintenance Policy
ISF	Irrigation Service Fee
ISSP	Irrigation Subsector Project
JIWMP	Java Irrigation and Water Management Project
M&E	Monitoring and evaluation
NBB	Needs-Based Budgeting
O&M	Operation and maintenance
OED	Operations Evaluation Department
PAR	Performance Audit Report
PBB	Property tax
PCR	Project Completion Report
POM	Plan for Operation and Maintenance
PRIS	Provincial Irrigation Service
SAR	Staff Appraisal Report
SM	Special Maintenance
WUA	Water user association

Fiscal Year

Government of Indonesia: April 1 to March 31

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The World Bank
Washington, D.C. 20433
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Office of the Director-General
Operations Evaluation

June 30, 1999

MEMORANDUM TO THE EXECUTIVE DIRECTORS AND THE PRESIDENT

SUBJECT: Performance Audit Report on Indonesia
Central and West Java Provincial Irrigation Development (Loan 2649-IND)
Irrigation Subsector II (Loan 3392-IND)

Attached is the Performance Audit Report on two irrigation projects in Indonesia: the Central and West Java Irrigation Project (CWJIP) and the Second Irrigation Subsector Project (ISSP-II). CWJIP was approved in January 1986 for a credit of $166 million and closed in June 1993, six months behind schedule. The construction of the Dumpil Irrigation sub-component was supported by a grant from the EEC for $18 million. An undisbursed balance of $1.6 million was cancelled. ISSP-II was approved in June 1991 for a credit of $225 million and closed on schedule in July 1995. A total of $21.2 million was cancelled. The Ford Foundation funded a component for promotion of farmer participation in irrigation management for $300,000. ISSP-II was the second 4-year time-slice of a proposed 15-year irrigation program. It was a direct continuation of ISSP-I (Loan 2080-IND) with only minor design modifications. The audit of ISSP-I, completed in 1995, deferred judgment on sustainability issues until the audit of ISSP-II. This audit examines those issues.

The main objective of CWJIP, the third of three similar provincial projects financed by the Bank, was to increase the capacity of the two provincial irrigation services to manage irrigation development and operation and maintenance (O&M), and to sustain increases in rice production. The major components were construction of small and medium-sized schemes, rehabilitation, and on-the-job training by consultants. ISSP-II was the direct successor of ISSP-I, a national project whose objective was to achieve high standards of O&M, recover costs, and sustain increases in production from previously rehabilitated systems. Both ISSPs were subordinate to a 1987 Statement of Operation and Maintenance Policy (IOMP), which was a Bank condition for ISSP-I. The main components of ISSP-II were Special Maintenance (a type of rehabilitation), institutional strengthening, and cost recovery through an irrigation service fee (ISF).

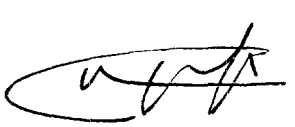
CWJIP was successful in transferring technical knowledge from consultants to technical and field staff. Although initially justified by the need to improve O&M, the project's achievements were primarily physical completion of schemes, rehabilitation, and improved technical capabilities. The failure of IOMP to ensure financing for improved O&M has undermined the sustainability of new and rehabilitated CJWIP systems. Training programs have not been sustained and continue to depend on centrally directed projects for finance. The Dumpil sub-component had major cost overruns; the audit considers its re-estimated Economic Rate of Return of 6 percent to be optimistic. Unfortunately, the organization of the project, its funding and pressure to keep control of finance under central government meant that decentralization was largely cosmetic. Indeed the strategy supported by GOI and implicitly supported by the Bank was that of co-administration, not decentralization.

ISSP-II was an ambitious project that should have led to a cumulative total of 1.7 million hectares of technical, rehabilitated irrigation systems with sustained and efficient operation and maintenance. The intention of the Special Maintenance component was to bring areas up to the technical standards required to implement a program of "Efficient Operation and Maintenance" (EOM). In practice, much of the Special Maintenance investment resulted in partial rehabilitation to meet project area targets, while not achieving the pre-conditions for EOM. Although covenants on continued central government budgetary support for O&M were honored, the high performance standards set for EOM were neither replicable nor sustained. A cost-recovery scheme, based on funding from a combination of property taxes and the ISF, while initially adopted enthusiastically by local governments, was overly complex and subsequently collapsed. The fiscal goal was to move from O&M budgeting as a flat-rate central government subsidy, to "needs-based budgeting," financed by the ISF and autonomous local government income. At its peak, the ISF program financed less than 2 percent of national O&M budgets and the contribution of tied property tax was negligible.

The audit lowers the Project Completion Report's (PCR's) satisfactory outcome rating for CWJIP to marginally satisfactory. The pursuit of a policy of increased autonomy for provincial agencies has not been matched by a fundamental reorganization based on principles of financial decentralization, and accountability to users for quality of O&M services. Institutional development is rated modest rather than substantial. Despite ISSP-II, current O&M continues to rely on flat-rate government grants, and the deterioration of CWJIP systems has not been arrested. Sustainability is thus rated uncertain, as opposed to likely in the PCR.

The outcome of ISSP-II is rated unsatisfactory compared to the PCR's satisfactory rating as the project was overly complex, lacked a sufficient level of prior sector review, and failed by a large margin to achieve either EOM quality objectives or cost recovery. While the Bank threw money at a problem, the government did not speak with one voice and was willing to continue a major program that few people understood, let alone agreed with. Thus institutional development is rated as modest, compared with substantial in the PCR, and sustainability is accepted as being uncertain. The motives behind the proposed IOMP reforms were good, but the difficulty of finding detailed steps to move from a command and control to a "fee for service" and "service for fee" approach were grossly underestimated.

A major lesson drawn from this experience is that the design criteria and O&M methods needed to fully realize production potential must be appropriate to the level of institutional development and degree of decentralization. Implementation should not have been split between a provincial O&M service agency, directed by central government, and local government which was responsible for cost recovery. Achieving efficient O&M requires more than adequate financing, proper staffing, and training within the existing institutional arrangement. The implementation of intra-government fiscal reform and establishing accountability for O&M quality, within a context of overall water resources management, is a precondition for efficient O&M. Current Bank policies in Indonesia are focusing on these issues.



Contents

This report was prepared by Keith Pitman (Task Manager) and Robert Varley (Consultant), who audited the projects in December 1998 and January 1999. William Hurlbut edited the report, and Pilar Barquero provided administrative support.

Principal Ratings

CENTRAL AND WEST JAVA PROVINCIAL IRRIGATION DEVELOPMENT (LOAN 2649-IND)

	PCR	*Audit*
Outcome	Satisfactory	Marginally satisfactory
Sustainability	Likely	Uncertain
Institutional development	Substantial	Modest
Borrower performance	Satisfactory	Satisfactory
Bank performance	Satisfactory	Satisfactory

IRRIGATION SUBSECTOR II (LOAN 3392-IND)

	ICR	*AUDIT*
Outcome	Satisfactory	Marginally unsatisfactory
Sustainability	Uncertain	Uncertain
Institutional development	Substantial	Modest
Borrower performance	Satisfactory	Unsatisfactory
Bank performance	Satisfactory	Unsatisfactory

Key Staff Responsible

CENTRAL AND WEST JAVA PROVINCIAL IRRIGATION DEVELOPMENT (LOAN 2649-IND)

	Task Manager	*Division Chief*	*Country Director*
Appraisal	A. Khan	A. Hussain	S. Kirmani
Midterm	S. Niaz	A. Cole	R. Cheetham
Completion	B. Kramer	G. Feder	M. Haug

IRRIGATION SUBSECTOR II (LOAN 3392-IND)

	Task Manager	*Division Chief*	*Country Director*
Appraisal	S. Ganguly	A. Cole	R. Cheetham
Midterm		A. Cole	M. Haug
Completion	B. Kramer (FAO/CP)	G. Feder	M. Haug

Preface

This Performance Audit Report (PAR) evaluates the Central and West Java Irrigation Project (CWJIP) and the Second Irrigation Subsector Project (ISSP-II). CWJIP was approved in January 1986 for a credit of $166 million and closed in June 1993, six months behind schedule. An undisbursed balance of $1.6 million was cancelled. ISSP-II was approved in June 1991 for a credit of $225 million and closed on schedule in July 1995. A total of $21.2 million was cancelled. ISSP-II was the second 4-year time-slice of a proposed 15-year irrigation program. It was a direct continuation of ISSP-I (Loan 2080-IND) with only minor design modifications. The audit of ISSP-I, completed in 1995, deferred judgment on sustainability issues until the audit of ISSP-II. This audit examines those issues.

This audit, prepared by the Operations Evaluation Department (OED), is based upon a review of project files and official documents. It also drew upon the findings of the recently completed Asian Development Bank study "Sustainable Irrigation Options for Indonesia." The audit was supported by a three-week field visit to Indonesia between December 26, 1998, and January 16, 1999. Two of the three weeks were spent in the provinces of West Java, Central Java, East Java, Nusa Tenggara Barat, and South Sulawesi. Officials and farmers were interviewed during the mission, and current conditions and irrigation operation and maintenance practices were observed. Central government officials, Bank staff, and consultants who had been involved in the projects were interviewed both in Indonesia and Washington and by telephone in other countries.

Following customary procedures, OED sent copies of its draft report to the relevant government officials for review and comment. Comments from the Government have been taken into account in the text and footnotes 59 and 65.

1. Introduction and Background

World Bank Involvement in Irrigation

1.1 Since 1968 the World Bank has invested nearly $3 billion in 27 irrigation projects in Indonesia, even more if related agricultural and credit projects are considered (see Annex B). Irrigation was also the major source of subsidy to rice production during the New Order period 1968–98. Bank-dominated irrigation programs were regarded as key contributors to a success story that enabled ex-president Suharto to attract international accolades for achieving "rice self-sufficiency" in 1984. During the New Order period, foreign donors and lenders became the main source of irrigation project funding.

1.2 The large projects of the 1970s were implemented for the Bank (IDA) by a specially established body, PROSIDA, around which grew a large resident foreign engineering and economic consulting industry. Most of these projects rehabilitated systems built during the Dutch colonial period and were concentrated in established rice-growing areas. By the end of the 1970s, the worst effects of the deterioration in the 1960s had been ameliorated; repairs to structures and canals had redirected sizeable blocks of water within the major catchment areas. The rehabilitation was a significant achievement, albeit with quality problems, and weaknesses in the development of the complementary management and maintenance capability were not fully addressed. Consequently, some of the schemes rehabilitated in the early seventies were in urgent need of re-rehabilitation by the mid 80s. Many projects had continued for 10–15 years with the main sustainability issue being the ability to gain the necessary annual budget authorizations to continue operations and undertake maintenance.

1.3 The Central and West Java Irrigation Project (CWJIP), designed in 1985, was the last of the provincially focused rehabilitation projects. The Irrigation Subsector Projects (ISSP-I and ISSP-II) that followed shifted from new construction and rehabilitation of irrigation schemes to a national focus on maintenance and completion of existing systems.

Contemporary Irrigation Policy Issues

1.4 By 1987 the World Bank had lent about $2.0 billion for irrigation and accumulated a number of OED audits and impact studies. Those studies had become increasingly critical, intensifying pressure for a fundamental change in Bank policy. Critics inside and outside of the Bank made a number of assertions about the portfolio:

- The government clearly favored rehabilitation over maintenance. Provincial governments, ostensibly responsible for operation and maintenance (O&M), shared this preference and did not choose to use their own revenues and block grants for O&M. Experience had taught them that rehabilitation projects would be forthcoming from the central government and donors, at no cost to them.

- Too much of the Bank engineering effort had gone into supervision of very complex schemes.

- The Bank was too willing to accept project economic analyses with no real empirical basis. Monitoring of both O&M and agricultural benefits was inadequate.

- Farmers did not participate meaningfully in initiating irrigation development. Although completed schemes were eventually handed over to provincial governments, neither they nor the farmers had adequate "ownership" of schemes.

- Earlier attempts at tertiary-level irrigation development failed, and coordination between the multiple agencies responsible for fully utilizing irrigation infrastructure was inadequate.

- There was "inadequate preparation and premature inclusion" in the lending program for rehabilitation and new development, brought on by "management and staff anxiety to accelerate a promising lending program."[1]

- The goal of achieving rice self-sufficiency undermined the achievement of food self-sufficiency and agricultural diversification, especially off-Java, where the rice intensification program made less sense.

- The overlapping of projects—with new ones coming online while others were still disbursing—meant that sector lending was a *fait accompli*. This situation had come about without adequate reflection. The Bank never really conducted a thorough sector review.

- "Institutional strengthening" and "decentralization," rather than involving fundamental reform, worked within the highly centralized, hierarchical New Order government. The process was dominated by a central-planning agency, Bappenas, which was involved in detailed allocations through project budgets.

The Economic and Political Background to the New O&M Policy

1.5 When economic conditions in Indonesia deteriorated in 1986–87, the Bank saw it as an opportunity to advocate policy reform through the ISSP. The decline in oil and commodity prices, and the subsequent budgetary squeeze, led to devaluation of the rupiah in 1986. A 22 percent decline in planned development expenditures followed, and the budget for irrigation was cut by about 55 percent. While the Government of Indonesia (GOI) was being forced to reduce counterpart funding, neither the Bank nor other donors welcomed the prospect of a backup in the project pipeline. The "pressure to disburse" or "premature commitment to lend" explains the Board's unusual decision to fund O&M activities.[2] Opposition to the ISSP within the Bank was considerable and was largely based on the suspicion that the project was merely repackaging

1. "The [Executive Directors] were quite pleased when they received a full reply on the status of disbursements as well as on specific measures undertaken by the GOI and by Bank staff towards accelerating disbursements." File note on Board Presentation of ISSP-I. The region comments that " the PAR does not adequately make the case that this is true or relevant for the review of the CWJIP (approved 1986, but with no financing of O&M) or the ISSP II (Approved five years later.)

2. "Because of GOI's highly constrained budgetary situation and corresponding priority being given to undertaking reforms in policy and institutional arrangements for irrigation cost-recovery and O&M funding, we feel that Bank financing of recurrent expenditures for irrigation O&M in accordance with [Operational Manual Statement] 1.21 on 'Bank Financing of Recurrent Cost' is justified." Chief AEAIN, 13 May 86 to VP.

rehabilitation as O&M activities. One senior Bank official also questioned the sincerity and the willingness of the government to grapple with the political aspects of the O&M issue.[3]

Continuity Between ISSP-I and ISSP-II

1.6 While ISSP-I (1988–92) ostensibly signaled a change of direction and initiated a new 15-year sector lending program, ISSP-II seems to have been a foregone conclusion. It was under preparation only a year after ISSP-I became effective (1989). The rationale for ISSP-I was articulated by GOI in its 1987 Statement of Irrigation Operation and Maintenance Policy (IOMP).[4] The IOMP was more of a Bank statement of desired policy, heavily edited by Bappenas to satisfy the Public Works and Home Affairs ministries, than a coherent reform initiative with a broad-based understanding and support within GOI.[5] It was a flimsy basis for such a major program and a shallow treatment of the complex issues of fiscal decentralization.

1.7 OED audited ISSP-I in 1994, before the completion of ISSP-II. The audit, while deferring judgment on the issue of sustainability, was otherwise enthusiastic about ISSP-I. The only major fault it identified was the failure of the Bank's efforts at introducing systematic monitoring and evaluation (M&E) and lack of any usable results.[6] The confidence in the success of both ISSPs was based on direct observation and judgment. Supervision and physical monitoring of completions was good, and a convincing rationale for each activity was embedded in a detailed work plan, tied to the IOMP.[7]

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3. "First GOI did not wish to assume any responsibility for O&M. The reason was that farmers were responsible for O&M under Indonesian traditions; water was God-given, hence no water charges either. This situation continued until the Sixth Irrigation Project (April 1975) under which, upon our urge and dialogue, GOI accepted to cover O&M during construction only, provincial authorities would be responsible after construction....The fact is that the performance of GOI in O&M over the last ten years has been unsatisfactory....Now we are proposing to reward them with another large loan through the proposed project...we are repeating essentially the same kind of understanding under the 'disguise' of a policy statement and action plan." File Note ISSP-I 29 December 1986.

4. IOMP only exists in the form of a letter from the then Minister of Planning to the Bank.

5. "Most references through the PAR do suggest that the Bank exerted an undue influence over the design of this project, and the GOI allowed it. If that conclusion is justified, the issue of project ownership might be mentioned more directly." File Note, OED comments on ISSP-I.

6. It is thus surprising that one finds contemporary cables asking for information that the author should have known was highly unavailable for nearly all schemes: "The Bank would like a larger coverage of schemes, taking into account: historical data of water availability, incremental agricultural production and related agricultural prices/inputs, and physical conditions. Such information should be available on most schemes." File Notes 2649 CWJIP Vol. 13 2/1/93 (emphasis added).

7. The region's comments on the PAR reference other sources of information that might contradict our assessment that the 1994 PAR of ISSP-I was neither thorough nor comprehensive– "We base this message on the consistent messages of routine supervision reports of the projects under review, and independent SGS review, a separate and comprehensive audit in FY 94, thematic supervision in 3/99 and subsequent JIWWP supervision reports." The audit has examined all materials in the files and is unaware of the SGS review and has not been supplied with any additional details by the region.

2. Objectives and Design

CWJIP

2.1 Appraised in 1985, the third of three similar projects in Java and the Outer Islands,[8] the principal objective of CWJIP was to increase food crop production by "provincial strengthening and ownership through design and implementation."[9] Improvement of both O&M and cost-recovery was an explicit objective of the project.[10] Reinforcing the emphasis on O&M, the regional vice-president had said he "would like to see specific targets for improving O&M spelled out in the documents, together with similar targets for increasing the level of cost-recovery."[11] In the Board presentation the project was represented as part of a long-term GOI plan to "decentralize to the provincial level both the capability for planning and implementing such programs, and full responsibility for funding operations and maintenance." The project was prepared by the same engineering consulting company that designed both ISSP projects and acted as lead consultant on those projects as well as on the East Java Provincial Irrigation Project.

2.2 The main component of CWJIP was construction (95 percent of costs), and project works were scattered throughout both provinces. A total of 320 construction subprojects involved rehabilitation (60,000 ha), design (90,000 ha), and construction of new small- and medium-scale schemes (55,000 ha) and upgrade of existing rehabilitated systems (55,000 ha). The upgrading was to facilitate pilot training of O&M field staff. One component targeted O&M and cost recovery more directly, supporting mapping exercises for the purpose of increasing land tax collections, and obtaining assurances that a percentage of increased revenues would be earmarked for O&M.

2.3 An important component of CWJIP was the Dumpil Irrigation Scheme. The component was to construct a new diversion scheme in Central Java to serve 11,300 ha of new irrigable land. The feasibility study and "detailed designs" had been prepared before project appraisal by a joint venture of foreign and local consultants. It became controversial because of its subsequent history of engineering problems and escalating costs.

2.4 The project was to use key staff from the Provincial Irrigation Service[12] (PRIS) instead of the central Directorate General of Water Resources Development (DGWRD). Thus, a sustainable source of long-term employees would be available for key managerial and technical positions. This attempt to devolve responsibilities was combined with a significant investment in training.

2.5 The institutional objective was "decentralization of responsibilities to PRISs and addressing institutional issues related to physical and financial aspects of irrigation development at provincial and local government levels."[13] For overall project coordination, the Directorate of Irrigation I in DGWRD would provide technical guidance and administrative support to the PRIS

8. The East Java Provincial Irrigation Project (2118-IND), approved in 1982, and Second Provincial Irrigation (2375-IND), approved in 1984.

9. The initiating CWJIP Project Brief, 4 February 1985.

10. The Yellow Cover Review, 10 September 1984, states, "priority is being given to maintaining existing schemes rather that starting new ones."

11. VP comments dated 28/6/85. This was not subsequently done.

12. See Annex C.

13. Project Completion Report: Central and West Java Provincial Irrigation Development Project, Report No. 2649, October 25, 1994.

and serve as the central funding channel for loan and government funds. This was is in keeping with established patterns of operations and the GOI requirement that a central government entity administer external assistance.

ISSP-II

Objectives and Components

2.6 The ISSP projects continued capacity building that had been initiated by the East Java Provincial Irrigation Project. The Bank did not want to lend for rehabilitation if the systems would be subsequently neglected. Unable to lend for O&M capacity improvement alone, and with implementation of the 1974 Decentralization Law stalled, a centrally planned and managed O&M project with a smaller overt construction content was a compromise. The primary objective of the ISSPs was to improve O&M quality through adequate financing, proper staffing, and training. ISSP-II also had several sub-objectives:

- Strengthening cost recovery from irrigation beneficiaries in direct support of O&M expenditures, and supporting the transfer of small irrigation systems to water user associations (WUAs) as a way decreasing dependence on government budgets for O&M of the secondary and primary systems.

- Supporting institutional development entailing improved water resources management, public expenditure prioritization, and decentralization by strengthening the roles and responsibilities of the PRIS and WUAs.

- Improving the physical programming, budgeting, and institutional aspects of O&M so that the effectiveness of the existing systems could be sustained.

2.7 The relative importance of the three components of the projects is indicated by their costs:

- **Physical Works** ($222 million) –"Special Maintenance" for 850,000 ha ($154.0 million), 45,000 ha of swamp, and preparation for 250,000 ha of O&M; extension of "Efficient Operation and Maintenance " to a cumulative coverage of 1.7 million hectares, including Bank financing of incremental O&M ($52.5 million); monitoring of five small river mouths; groundwater development; completion of a 20,000 ha swamp scheme; and other activities.

- **Policy Support** ($34 million) – extension of the Irrigation Service Fee (ISF) program to cover at least 700,000 ha ($5.1 million); expansion of the turnover program to 130,000 ha, including additional construction ($19.1 million); and consolidation of rural property taxation (PBB) activities ($2.1 million).

- **Institutional Development** ($16 million) – training ($6.1 million), quality control, river basin management support, development of improved operating procedures, WUA integration, instituting system performance indicators and monitoring of benefits, and a programming and monitoring system to provide "orderly execution of linked components and improved sequencing within each."

2.8 For CWJIP, the M&E component was a core feature and a condition of appraisal, but ongoing Bank support for it was dropped under ISSP-II, with no alternative proposed or

explanation offered. The completion of 26 ongoing irrigation projects was transferred to a new Off-Java Provincial Irrigation Area Development Project.

Methodology of Efficient Operation and Maintenance

2.9 ISSP introduced a confusing lexicon of technical terms[14] that were ambiguous, meaning different things in different contexts and to different people. The most important of these were "Efficient Operation and Maintenance" (EOM), "Special Maintenance" (SM), "Plan of Operation and Maintenance" (POM), and "Needs-Based Budgeting" (NBB).[15]

2.10 The design of both ISSPs started from the axiom that poor maintenance, rather than poor quality construction, was the cause of rapid deterioration. The mechanism to correct this was to transfer technical know-how by introducing new procedures, producing manuals, and conducting training courses. EOM would require a larger per hectare budget that would be covered by raising an ISF and earmarking rural property tax (PBB). WUAs would continue to be responsible for tertiary-level O&M, and further savings in the O&M budget could be achieved by transferring ownership of small schemes to WUAs.

2.11 The supervision reports for both CWJIP and the ISSPs showed a strong awareness and commitment to high technical standards among the region's irrigation experts.[16] On the other hand, the reaction from OED and other outsiders was mixed.[17] The innovations envisaged for O&M were of a fundamental engineering nature, designed to replace a system that was over-staffed, neglected maintenance, and had too many administrative personnel and too few trained field personnel.

2.12 EOM could not be executed without adequate measuring mechanisms and structures to control the delivery of water to the tertiary head. Many "technical" schemes did not meet these strict criteria, hence the need for SM to get the systems to the point where EOM could be implemented. If the definition of SM was too limiting, "upgrading" widened the scope of activity while claiming to remain distinct from "rehabilitation."

2.13 Under EOM, a system-specific manual would be used to produce a plan to guide operations. Maintenance would be systematized with a register used to prioritize needs based on professional technical judgment. EOM therefore should have led to maintenance based on the need for the works to be carried out, not on the average allocation of the funds for general maintenance. The final budget was termed a "Needs-Based Budget." In its purest form, EOM required 1-, 5-, 10-, and 15-year work plans for preventive periodic maintenance, making future rehabilitation unnecessary.

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14. The ISSP-II team acknowledged the difficulty of understanding and explaining EOM: "some progress has been made in developing an understanding of the concept at both national, provincial and section levels." File notes 3392, ISSP II, Vol. 1, 7 October 1988.

15. These are described in Annex-D.

16. "The consultants, under pressure from the Bank, set high technical standards in their manuals for all levels of the EOM operation—the data base, the plans, the costing the accounting, and of course, the operational and maintenance work itself." File Note, ISSP-I, January 1995.

17. "One issue which was neither addressed during appraisal nor during the audit [of ISSP-I]: whether the existing infrastructure and current design standards in Indonesia are really conducive to efficient O&M." File ISSP-II, 1 April 1996.

Differences Between ISSP-I and ISSP-II

2.14 During ISSP-I, provinces had been obliged to introduce EOM prematurely on some schemes. To correct this, ISSP-II stressed sequencing of SM and EOM activities. According to DGWRD staff, the overall quality of SM works and their sequencing with O&M activities were much better handled in the Java provinces (about 75 percent of the SM/EOM area) than in other provinces, where the system deficiencies were more widespread. The design of ISSP-II differed little from ISSP-I. Added was the expansion of turnover and new river basin management components, later taken up in the 1994 Java Irrigation and Water Management Project (JIWMP). Under ISSP-II, EOM funding was to be rigidly restricted to (i) systems confirmed to have all SM fully complete and (ii) tasks truly defined as comprising EOM activities. Some compromise was made on the high technical standards—the supervision mission proposed alternative simpler operating systems while acknowledging that the standard procedures were "appropriate under certain circumstances."

Cost Recovery

2.15 The biggest design deficiency was what one Bank team member recently described as the "baffling problem of cost recovery." Confusion and conflict about the relative importance of improved O&M and cost recovery arose from a failure to separate the primary goal of the project (improved O&M) and one of the means (cost recovery). The primary reason for poor O&M was not a shortage of money but lack of incentives and institutional effectiveness in using the money properly. If more money alone could have improved O&M, this could have been achieved far more easily by simply transferring funds from investment budgets to O&M budgets. This was not attempted, and construction project budgets remained under DGWRD/Department of Public Works control.

2.16 The project preparation teams for ISSP-I and ISSP-II did not include ISF or cost-recovery specialists. Prior to ISSP-I both the Bank and GOI had favored using part of the land tax (IPEDA) and its successor property tax (PBB) for provincial O&M funding. This was not workable because PBB was one of the few non-tied funding sources available to the sub-provincial administrative areas (*kabupaten*).[18] To earmark it would have been antithetical to the spirit of fiscal decentralization.

2.17 "Cost recovery" became a solid, quantifiable objective. O&M had up to then been funded by so-called central and provincial budgets, supplemented by subsidized salaries for permanent government employees. Year-by-year targets were now set to reduce central budget funding, and substitute a combination of earmarked tax receipts (PBB) and a service fee (ISF).

2.18 Both the Bank and GOI seem at first to have conceived of ISF as a cost-recovery mechanism to fund the more expensive EOM approach. A 1986–87 IMF paper on the heavy fiscal burden of overall infrastructure maintenance[19] had gained an audience among the technocrat ministers. The ISF project became a program and was seen both as cost recovery and decentralization. It became the means by which the central government would shift funding to the users. Initially, ISF and the EOM had been linked, as if one would enable the other.

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18. See Annex C.

19. Peter S. Heller in Indonesia, Selected Issues of Public Resource Management," Report 7007-IND, March 11, 1988. See Chapter 4, Government Expenditure on O&M in Indonesia.

2.19 During implementation of ISSP-I and ISSP-II the ISF came to be viewed in a different light by the farmer participants. It became apparent that the power of ISF was as a means to efficient O&M, requiring a contractual relationship between users and suppliers of O&M services.[20] In 1986, the Asian Development Bank (ADB) had reached similar conclusions, emphasizing accountability and contractual commitments as the key to O&M efficiency, not cost recovery. Most of the agencies included in the ADB-IIMI study (which included the Indonesian PRIS) were *public irrigation authorities.* These can be reorganized into commercial water service units that are public, often with customer involvement in management. The ADB-IIMI study found that when their budgets depended on the collection of water charges, the agencies took an active interest in what the payers wanted done and what the payers thought of the agencies' work.[21]

Ownership and Participation

2.20 Through ISSP-II the Bank recognized the range of new issues that had arisen and was accompanied by 5 pages of policy matrix. By project completion, this matrix had grown to 12 pages. Many of the steps for introducing an ISF that had not even been thought about in ISSP-I, such as enabling legislation, were detailed and scheduled. The steps in the action plan could not, of course, explain how policy conflicts would be resolved. Implementation of ISF had been delayed in ISSP-I, but the disagreements between the two executing ministries became apparent before approval of ISSP-II.[22] Only the Ministry of Home Affairs could resolve the conflict at the province and *kabupaten* levels where the fees were to be collected. A government position paper of November 1990, brokered by Bappenas, was forthcoming:

- Institutions would not to be changed: "the institutionalization of ISF will focus on the strengthening of existing government organizations in ISF related activities, aiming to make more effective use of existing organizations and thus limit the need for new organization."

- The ISF would move from a pilot to a national scale (there had been four pilot *kabupaten* for ISF under ISSP-I).

- The needs of the budgeting exercise would take precedence: "it must fit into the current budgeting exercise based on fiscal years and not be tied to cropping seasons..."

- During the pilot ISF program of ISSP-I, farmers had been asked to pay fees on the basis that certain agreed works would be carried out: "under ISSP-II it is intended to de-link such activities as it is considered impractical on a non-pilot approach to ensure that fees collected are used as a priority on those parts of the system requested by the WUA."

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20. See for instance Annex 5, p. 1, of the SAR for ISSP-II.

21. "The IIMI study found little merit in the World Bank's concern about recovering irrigation costs from irrigators, considering it arbitrary, unlikely to contribute much to increasing water-use efficiency, and not a particularly effective way to address problems of equity or deficient public savings." William I. Jones summarizing the results of a 1986 survey in "The World Bank and Irrigation," OED, 1995, page 106.

22. Commenting on the current DGWRD position: "He has made it very clear that he disagrees with the very basic elements/thrusts of the project, and he does not appear to be interested in this project. He may still come under pressure from Bappenas, but we may be better advised to hold the processing of this project until he retires (keep it as a FY 92 project)." Handwritten note by Task Manager to Division Chief, filed 19/10/90 SG.

- Centralized project direction would be maintained by keeping the same institutional roles, layered from Bappenas at the apex for overall coordination, down to the farmers at the bottom.

2.21 Achieving cost-recovery targets, however, would not indicate that the main goal of the project—improved O&M—had been achieved. The position paper formalized the disconnect between fees collected from farmers and the financing of main system O&M. The level of the fee, of central interest to the users, was to be based on predicted productivity, and a designated service level. The level of fee need bear little relation to the requirements of the 'needs-based budget' prepared by field staff.

2.22 The stakeholders' positions were as follows:

- The DGWRD firmly opposed transferring fee-collecting powers to the *kabupaten*—the level at which the ISF would be collected. Furthermore, the DGWRD made clear it did not agree with the idea of "a fee for service" and "service for a fee," or with farmer equity contributions by WUAs to any rehabilitation costs preceding hand-over. DGWRD appeared to want to satisfy the client, the farmers, without entering into commitments with local government.[23]

- The Ministry of Home Affairs wanted to continue a top-down control system executed by local government, with the active participation of farmers. In crude terms, their inclination was to build up the role of the *kabupaten* starting from the ISF bridgehead, and use ISF contributions to influence the service delivery standards of the PRIS.[24]

- Bappenas was most concerned with cost recovery and with system deterioration as a threat to GOI rice self-sufficiency goals—the motive for pushing cost recovery.

- The Bank continued its practice of insisting on central government commitments to O&M, fearing that either ISF would fail or that the provinces would refuse to use their untied block grants or other autonomous incomes for O&M. GOI had to maintain real O&M grants and guarantee sustained funding for EOM (sending a somewhat mixed message to the provinces by negating the central government threat to cut off funding for O&M).

- Farmer commitment to ISF rested on the firm conviction (assiduously promoted in the pilot phase) "that the ISF collections will be recycled for the maintenance of his irrigation system."

23. File notes 3392, ISSP II, Vol. 12.

24. During supervision a reviewer noted, "My impression from the project design is that ISF program is a top down approach to collecting fees rather than a bottom up approach of developing grass roots level institutions, WUAs...I think that the benefits will be much greater if funds are devoted to strengthening WUAs rather than strengthening the bureaucracy." File notes 3392, ISSP II, Vol. 12.

2.23 The Bank recognized what a complex system had evolved for ISF but failed to persuade the Ministry of Home Affairs of the need for a simpler one.[25]

25. The Bank suggested to DPUOD that the new terms of reference for ISF consultants should stress the infeasibility of the intensive participatory approach pioneered in the pilot project. ISSP II files, 26/4/91.

3. Implementation

CWJIP

3.1 Although implementation of CWJIP stretched from 1986 to 1992, the project files are completely silent on O&M and capacity building after 1988, when those concerns were transferred to ISSP-I. Local property tax collections merit a few passing references, but the main focus is on construction contract administration and the Dumpil saga.

3.2 Dumpil originated in a feasibility study found to be deficient as early as 1988.[26] This study missed soil stability problems that caused subsequent canal collapses. It also overestimated water availability. Costs escalated from $24.5 million at appraisal to $48.8 million in 1992.

3.3 Bank supervision of CWJIP was 9 weeks short of a planned 144 weeks. The Advanced Operating Units (AOU) for improved O&M were pioneered in the three Java provinces, which had been prepared by CWJIP and the East Java Irrigation Project.

ISSP-II

3.4 The ISSP project files chronicle a painful history of frustrations and delay involving the cost-recovery component. The PCR plays down the difficulties and stresses the attainment of area targets. While the economic and political crisis of 1998 made things worse, the lack of ISF-EOM linkage was evident long before this.

3.5 ISSP-II was a very complex project. It had nine physical, six institutional, three policy components. Its 16 different consultancies cost $36 million. Components were spread across four ministries and eight directorates at the center, as well as corresponding agencies at provincial and district levels in 13 provinces. With such a wide scope, the supervision missions could cover only a tiny fraction of the project area. Even so, supervision consumed 407 weeks compared to a planned 206 weeks. The supervision appears to have been very thorough; the project plan was updated at each visit and "actions required" were followed up. The project was conspicuously successful in achieving input targets expressed, for example, as "hectares of SM and EOM" and "staff trained." Field observations from supervision missions, however, did not confirm widespread change in either O&M standards or construction quality.[27]

3.6 Neither design nor implementation was sufficiently participatory. Too much attention was paid to the critical path sequencing of SM and EOM, while more fundamental problems of project ownership and the process by which construction was initiated were neglected. While GOI continued to meet its commitments to maintain O&M grants, there were long delays in implementing ISF and passing the necessary regulations. The consultants found that when they

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26. "At many places the text is ambiguous and the reader is not sure what is actually meant...It is not understood how the Consultant has estimated construction cost, without first carrying out the detailed design." Memo to Director Irrigation II from Resident Staff Indonesia, 10/5/88.

27. Corruption is often cited as a major problem with public sector projects. Although the audit uncovered no specific evidence, there appears to be a widespread perception that corruption is endemic but subject to checks and balances. Thus a 30 % leakage factor operates more like a hidden tax on the activity, reducing the quality attainable by contractors who have to compete both on quality and paying the rent for the contract. This organized corruption in the civil service is in contrast to the more rampant variety based on the granting of monopolies and bank loans to the well connected. While corruption may be one significant cause of perverse outcomes in the public sector it is not a distinguishing feature of ISSP-II or CWJIP, but a ubiquitous and damaging malady in much of the dealing between state and private sector. See Annex E.

wanted to prepare tariff rates, the O&M budgets were still being allocated as lump-sums per hectare and not on 'needs-based budgets.'

3.7 The Bank's new cost-recovery expert wrote of the ISF program: "Its operational sustainability in current circumstances...is highly suspect, given the heavy and complex workload imposed on various hierarchical levels ill equipped to perform the tasks."[28], [29] The pilot approach of ISSP-II made an annual system walk-through essential, allowing farmers, the local government, and PRIS to agree on a program of needed maintenance work in exchange for fees. DGWRD favored billing based on deliveries with rates fixed by provincial government. Furthermore, *jurus* (water masters), not community organizers, should be the motivators: "this will be a turn-around from the grass-roots participatory approach used successfully on pilot areas during the first year which, some may argue, could be difficult to sustain on a rapidly expanded program, particularly without co-operation/acceptance of DGWRD/PRIS."[30]

3.8 Although a high-level steering committee met once during ISSP-II, it did not solve the problem of linking ISF collection with the needs-based budget.[31] The committee did, however, adopt ambitious plans to expand ISF to 716,400 ha in 1994–95 to include non-EOM areas. The Bank wrote to GOI that collections of only $300 thousand over 3 years compared unfavorably with the $5 million spent on pilotage, dissemination, cost of collection, and consultant services.[32] The Bank also asked that new mechanisms for channeling ISF be in place by August and called for a Bank review of the findings and recommendations of the Steering Committee by August 31, 1993.[33] Concurrently, however, the aide memoire was reporting that "the recurrent National O&M allocation (RP. 111.4 billion), in 1992–93 is highly satisfactory and reflects GOI's strong commitment to irrigation O&M."

3.9 Channeling of ISF collections into the EOM budget was to be regulated under a 1994 decree. This meant that O&M now had no fewer than seven sources of funding: national, tied provincial, the routine budget, the local government autonomous income (including property tax), World Bank funds, GOI EOM, and now ISF.[34]

3.10 The consultant who worked with the Directorate of Public Administration and Regional Autonomy (DPUOD) on ISF resigned in August 1994 but subsequently returned to work on ISF with his own company under the JIWMP project. For the rest of the implementation period there

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28. "A common complaint from field staff is the complexity of many IOMP procedures. The prime example is the ISF program, where no less than 17 separate forms may be required of farmers and local government officials before fee collections can be deposited with the local government treasury." ADB Sustainable Irrigation Options, Final Report, December 1998.

29. File notes 3392, ISSP II, 10/11/92.

30. File notes 3392, ISSP II, 20/8/90.

31. "Closer cooperation is also required with respect to the preparation of NBBs. It would appear that the O&M NBB for WUAs under the ISF program is prepared in isolation from the O&M NBB prepared by the irrigation agencies." dated 21/7/94.

32. Given the number of farmers involved and the challenging nature of the task, it does not seem reasonable to criticize the ISF program with this kind of off-the-cuff cost-benefit analysis. Even if such a perspective were correct, the relevant benefit would be the discounted future ISF collections. File notes 3392, ISSP II, Vol. 10, 2/6/92.

33. File notes 3392, ISSP II, Vol. 15 1/4/93.

34. "Due to Home Affairs Ministerial Decree No. 46/1994, Home Affairs Instruction No. 406/1995, and Government Letter No. 11/1997, ISF collections are actually treated as general revenue and added to the provincial government budget (APBD). This has greatly increased the ISF bureaucracy, slowed the release of ISF funds, and has meant that farmers no longer see their ISF collections directly contributing to improvements in their irrigation systems." ADB, Sustainable Irrigation Options, Final Report, December 1998.

were extensive delays and no replacement foreign consultant, further delays in legal enablement, and failure to establish an ISF unit in DPUOD.[35] By March 1995, the cumulative area covered had reached 750,000 ha, exceeding the staff appraisal report (SAR) target of 700,000 ha. Collection efficiency for the 1994 season was 65 percent, and Rp. 2.67 billion was received from a payment request of Rp. 5.28 billion, while .78 billion was exempted.[36] Service fees were estimated to have reached Rp. 11,000–27,000/ha or 30–50 percent of the needs.[37] The subsequent collapse in the sustainability of collections came after the audit of ISSP-I. In the words of the ISF expert, "management of the scheme at the national and provincial level leaves much to be desired. What is really missing is the leadership role that the directorate responsible [DPUOD], should have played; leading the events and not being led by them, as is the case now....its insistence on *status quo* is quite surprising."

35. Bank support for ISF continued under JIWMP, although it was later dropped as a result of disagreements between GOI and the Bank.

36 While reported as 65%, by assuming that any exemptions could have been collected, a more meaningful estimate would deduct 15% from the payment requests (which included exemptions) to give 2.67/(5.28-.78)=59%

37. File notes 3392, ISSP II, Vol. 22, 4/1/95.

4. Outcomes

4.1 Both projects had as primary goals capacity building and institutional strengthening to improve O&M. CWJIP had substantial components for construction of small and medium systems as well as rehabilitation, the ultimate effects of which would depend on sustained budgets for O&M.[38] It would be fair to argue that if improved O&M was not forthcoming the appraised benefits would have been much lower. Unfortunately there is no plausible basis for the evaluation of the production targets of CWJIP because the M&E program initiated under the project did not yield usable results. Fieldwork was conducted in West and Central Java, and all areas rehabilitated in CWJIP were automatically included in the ISSP program. In addition, other agencies, for example ADB, were also involved in agricultural and irrigation development in the same areas thus confounding evaluation of project benefits.[39]

Policy Outcomes

4.2 *ISF and the Financing of O&M.* At their peak in 1994–95 national ISF collections covered less than 2 percent of O&M expenditures. Complete figures for cost recovery through ISF are not available for recent years. The most recent figures are for 1997–98.

ISF Collection Efficiency in Java (1997–98)

Province	*Target ISF Collection (Rp. Billion)*	*Actual ISF Collection (Rp. Billion)*	*Collection Efficiency (%)*
West Java	2.84	0.67	23
Central Java	1.56	0.55	35
East Java	3.94	0.33	8
D.I. Yogyakarta	0.08	0.003	4
TOTAL	**8.42**	**1.53**	**18**

Source: ADB, *Sustainable Irrigation Options*, Final Report, December 1998

4.3 The ISF program coverage of about 800,000 ha is not close to reaching the IOMP target of 3.2 million ha of agency-managed irrigation by 2003. The program is generally regarded as dead, although many *kabupaten* administrations still support it and it may yet prove to be a significant source of O&M funding. The only area visited which did not show dramatic decreases in collection rates was Central Lombok, one of the pilot areas for the ADB's Integrated Irrigation Sector Program. At their peak in 1994–95 the ISF programs in South Sulawesi, West Java, and East Java at one time or another were supplying about 10 percent of the provincial O&M budgets.

4.4 While the fiscal goal of reducing dependence on central government O&M grants was a clear failure, the program did remarkably well given that it involved collecting money from farmers in exchange for promised services. A climate of enthusiasm was created, but because of the intractable procedures of the Directorate General of Public Administration and Regional Autonomy and less than perfect cooperation from DGWRD/PRIS, the ISF program eventually became dysfunctional and farmers stopped paying. Success depends on maintaining high collection rates and applying sanctions for non-payment—otherwise free-riders rapidly become a majority.

38. The audit for ISSP-I listed the following agenda for the inquiries of the next audit: technical demands of efficient O&M, Java versus Outer Island, ISF, turnover, new construction, and consultants.

39. Designing M&E to determine the impact of Bank-financed projects frequently overlooks the fact that government may only be interested in the outcomes of the cumulative inputs from many agencies whatever their source.

4.5 In many *kabupaten* that had strong and honest *bupatis* (district heads), there appeared to be flexibility in how the panoply of constraining rules and regulations were interpreted. Three of the original pilot areas for ISF were visited, and although only Central Lombok had maintained good collections, all three *kabupaten* were firmly committed to continuing the program.

4.6 *ISF to be Introduced in Systems Adjoining Present Areas.* This objective was superseded by the 1994 GOI decision to take the ISF program nationwide and not limit it to systems covered by the ISSP EOM budgets.

4.7 *Turnover.* This component was regarded as a success and continued in the JIWMP project. Experience of the GOI-funded program for rehabilitating small schemes before hand-over had more mixed results, with much criticism of poor construction and low participation.

4.8 *Use of Rural Tax Revenues to Directly Fund EOM.* This component seems in most respects to have functioned independently of the rest of the project, apart from supplying some landholding data for pilot ISF *kabupaten*. There was no information on earmarking, but some O&M finance tables included rural tax revenues.

4.9 *Adequacy of O&M Funding.* [40] The field sites overwhelmingly reported that O&M funds were inadequate, which could be dismissed as strategic bargaining to maximize budgets. While it was not possible to ascertain whether budgeted funds were in fact sufficient or being used efficiently, several objective statements can be made:

- ADB found for West Sumatra, Central Java, and Lombok/Sumbawa that actual annual budget allocations averaged less than Rp. 30,000/ha. or half of needs estimated by PRIS.

- Most of the O&M budget is still used for salaries (30–40 percent, for non-permanent civil servants, many of them administrative) and construction contracts (30–40 percent, much of which is spent on unnecessary canal lining). The remaining 20 percent covers operational expenditures including office supplies, equipment, and transportation. Little is used for minor but critical preventive repairs and removing sediment from main canals (probably the most cost-effective use of the funds).

- None of the nine irrigation sub-branches visited by the audit mission was receiving a budget based on estimated need. The Java provinces showed some differentiation of budget based on need, but this did not appear to be related to the preparation of a needs based budget.

Institutional Strengthening Outcomes

4.10 CWJIP and ISSP-I shared similar objectives of decentralizing responsibilities and strengthening the capacity of the province to conduct improved or efficient O&M. The core for both projects was to "introduce a sound O&M program and develop capability for planning, managing and executing O&M related activity." While capability for planning and management improved, the impact was muted by O&M financing constraints and lack of a service orientation by the PRIS.

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40. Table 4: Adequacy of O&M Funding, ADB, Sustainable Irrigation Options.

4.11 *Staff Capacities, Courses, and On-the-Job Training.* Training, although widespread, was carried out only within a project context. With the end of the project, and the end of a routine budget, there were no funds to continue on-the-job training. The field visits found that the lack of routine training budgets was exacerbating staff problems, particularly at the *ranting*,[41] where the applied skills are needed for day-to-day operation. In eight *ranting* offices visited by the audit mission, there was no indication that the system manual, the 33 recommended O&M forms, and the proposed POM were being used. In fact, very few of the *ranting* were even able to produce the Indonesian-language manuals.

4.12 Neither project addressed a major issue: salaries. Salaries for staff declined drastically after the end of the project. Even gatekeepers had received project allowances that were multiples of their regular compensation. Better performance during the project was not supported by sustainable incentives to continue the improved work practices. Field visits found a very capable senior level of engineers who have been trained on the job, co-existing with a large and underemployed lower mass of administrative and temporary field staff.

4.13 *Consultants.*[42] CWJIP training programs were well absorbed and a significant transfer of knowledge took place. Provincial staff felt the consultants had performed well and that CWJIP had a significant effect on field-level skills—especially maintenance. During preparation for ISSP-II, however, the regional technical staff criticized the centrally-based ISSP consultants for having too much influence on the Indonesians and the Bank cut the money for consulting and increased the consultants' workload. Many of the other ISSP technical consultancies do not appear to have contributed much to the amelioration of technical, managerial, and institutional weaknesses at provincial levels. Bank staff also questioned the value of local consultants.[43] The reduction of consultancy inputs in ISSP-II was not accompanied by any balancing initiative to attract and retain sufficient top-quality ISF staff.

4.14 While agreeing with the observation about the weight of reports, this audit cannot concur with the enthusiasm for and assessment of the ISSP consultants as expressed in the PAR of ISSP-I.[44] The fieldwork and interviews conducted for this audit found a widespread perception that most of technical reports produced by project consultants were not used and "over the head" of most of the intended users. One consultant who had been heavily involved in both ISSPs thought the field manuals produced by the project were a waste of money and inappropriate for the skill level of the staff expected to use them.

4.15 *Improved Operating Procedures.* Operating procedures are based neither on original design concepts nor on the guidance of the ISSPs as to how to use them optimally. Most water-delivery practices are based on experience and intuition, iteration and negotiation, rather than

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41. A sub-branch typically covering about 5,000 hectares in Java. See Annex C for description of irrigation organization.

42. "The over-use and over-dependence on consultants is a key issue...A belief that this has been disastrous for Indonesia has existed outside the Bank for some time...these points could be highlighted as a basic problem of failed institutional development or chronic misplaced technical assistance. The fact that this theme rungs through 23 irrigation projects from 1968 to the present is a key issue for the Bank." File Notes, OED comments on ISSP-I, 1995.

43. One consultant said, "CWIJP has the same underlying problems as the ISSPs—the concept that somehow the international consultant could, just by being there, improve the performance of the Indonesian consulting firms. Their use of retired DGWRD personnel in senior project team positions meant that the domestic consultant and client were essentially one and the same organization." Private communication.

44. "The sets of bound, often glossy, interim and final reports issued by these consultants, and by the provincial government offices the consultants support, is good in quality—and staggering in weight." PAR, ISSP-I, p. 5.

systematic scientific analysis of data. Water rotations are done *ad hoc* in the dry season, while wet season flooding continues to be a serious problem.

4.16 Both CWJIP and ISSP envisaged the use of O&M performance indicators to help increase accountability of provincial irrigation authorities. In the few cases where ISSP monitoring forms were being used, the discharges were filled in with long series of exactly the same discharge. There was no systematic monitoring of maintenance condition, although in West Java an inventory showed that more than 70 percent of the provincial irrigation structures (excluding Jatiluhur) were described as *rusak*, or broken. There was, however, little evidence that monitoring forms and the maintenance register were part of a systematic workflow of actual maintenance, rather than wish lists.

4.17 *Project Monitoring System.* The supervision missions for both ISSP-I and ISSP-II pressed for the use of a computer-based monitoring system for both operations and maintenance. This system is still being used in all three provinces, but in a much-abridged form. East Java seems to have the best system, but staff there reported that they used only a tiny proportion of the original data, that data input was by hand, and that management did not consider the operational data of much value. Considerable work had been done by the East Java Irrigation Project to improve the software. The position in other provinces suggested that much of the hardware was either inoperative or used for administrative purposes.

4.18 *WUA Establishment and Training.* No active WUAs were found in the 4 water-short areas at the bottom of the systems visited. In general, it appears that a low percentage (probably 10–15 percent)[45] of officially listed WUAs are "active" in any meaningful sense.[46,47]

Physical Outcomes

4.19 The most compelling argument for satisfactory outcomes to both the projects would have been showing that O&M standards had improved significantly as measured by O&M indicators.[48]

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45. This percentage is close to the official government statistic for WUA which are "sudah berkembang" or "already developed."

46. Where participation has been meaningful, as for instance in transfer of main system O&M to farmer groups, it appears to have been effective. Many registered WUA however do not have any real function, a reflection of their lack of ownership in development. The Bank itself defines "participatory development" as "a process through which stakeholders influence and share control over development decisions and resources which affect them" (Report of the Evaluation Capacity Development Task Force, June, 30 1994.) Most WUA's do not participate in development in this sense. Many WUA are just names that are generated to meet WUA program targets. The indicators government uses to assess WUA are misleading, focusing too much on administrative formalities rather than performance in key tasks of equitably distributing available water supplies and maintaining canals and structures. "Activity" is often "milestoned" by ritual sharing of refreshments between the WUA officers and the project functionaries, rather than the involvement of users in all aspects and levels of irrigation management. Democratic meetings where matters of principle, efficiency and fairness are debated and conflict resolution skills practiced, are relatively rare. The WUA is a foreign concept when identified as a "paradigm of participation." The framework of participatory development of irrigation in Indonesia has often been in spite of, rather than because of Government/Bank initiatives with WUA and participation "projects." These projects are focussed on project budgets and top-down leadership, not enablement.

47 "WUA development will be much more effective if it is linked to giving farmers a genuine voice in planning and carrying out changes in the systems, rather than treating farmers as passive recipients of water expected to provide unpaid labour for maintenance. WUA development would be much more successful if properly sequenced in the process of designing and building physical improvements in SM and other ISSP II construction." Brian Bruns, Ford Foundation, to Suzanne Siskel, 27/2/91 on turnover.

48. Physical Condition: ratio of maintenance work done and outstanding, percent of measuring structures operating correctly, percent of gates operating correctly. Water Management: actual over planned delivery, ratio of actual and planned cropped area, water sufficiency at tertiary head.

A bonus would have been to show, on a sample basis, that agricultural production had increased as a result.

4.20 For dispersed projects like CWJIP and ISSP, with only marginal benefits expected per unit of area, the statistical problems in attributing production benefits to improved O&M are intractable. The high variation in production due to extraneous factors, particularly rainfall,[49] overwhelms any changes attributable to O&M. The M&E effort should have focused on the O&M outcomes, not on second-order production effects. This conclusion was evident by the end of CWJIP. The M&E system is still in use, but it does not appear that the reports are used for anything but meeting donor-reporting requirements. In a much clearer case, the outcome of the Dumpil project component of CWJIP shows about 2,000 hectares guaranteed for dry season irrigation, compared to 11,300 targeted, the benefits delayed by 6 years and at twice the estimated cost.[50]

4.21 Although not as bad as the situation under ISSP-I, most ISSP-II SM funds were spent on rehabilitating systems without actually reaching the point where they satisfied the rigorous requirements for graduation to EOM.[51] Instead of moving a limited area up to the level required for EOM, the combined SM/EOM funds tended to be spread around on partial rehabilitation and canal lining. The overall quality of SM works and their sequencing with irrigation O&M activities were felt by DGWRD to have been better handled in the Java provinces (about 75 percent of the SM/EOM area) than in other provinces where system deficiencies are more widespread.

4.22 *Strengthened Quality Control.* Recurring references are made in the supervision reports to contract size, contract duration, and contractor qualifications. Contract administration, inspection efforts, enforcement policies, and support (such as transport for field staff), are highlighted again and again. Experience on other projects, shows that contractor penalties are essentially non-existent and rejection of material or workmanship rare.

4.23 Although construction quality issues, design, O&M procedures, and sequencing were given considerable and due attention under both projects, the Bank's evaluative conclusions were based on small samples: "physical achievements are not worth much if the construction quality is not satisfactory and the irrigation schemes are not functioning properly....The irrigation schemes of CWJIP consist of more than 500 schemes and are located mostly in remote areas. This makes it difficult to evaluate the construction quality. Construction quality of one scheme is not necessarily representative for other schemes."[52] Both projects were difficult to supervise effectively as they were so scattered.

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49. Shown by the extreme variation in growth rates for lowland rice production: +9 percent to -6.4 percent with a coefficient of variation of 183 percent for Java and 72 percent for off-Java. This extreme variation in annual yields is more a characteristic of rainfed agriculture rather than irrigated agriculture.

50. The region comments that "This component, the only one of the project that was executed directly by the central government, is clearly unsatisfactory and a waste of public resources. The component was included in the project under great pressure by GOI/EED and continued despite many site and construction problems causing large cost increases. The story of this wasted investment would bear additional scrutiny."

51. Staff Appraisal Report, ISSP-II, May 1, 1991, Annex 4.

52. Borrowers Comments on PCR of CWJIP, October 25, 1994.

Economic Rates of Return

4.24 The completion report for CWJIP increases the estimated economic rate of return (ERR) for the project from 27 percent to 34 percent .[53] The adjustment is justified by a more favorable rice price, and dollar cost saving from devaluation. While a detailed recalculation was not possible, the audit considers these estimates optimistic, given the unsustainability of any production increases. Dumpil decreased to 6 percent (formerly 13 percent), and cost overruns since then would decrease it further.

4.25 The SAR for ISSP-II contains insufficient data for an explicit calculation of ERR but claims the overall rate is about 17 percent.[54] The audit used estimated rice yields, production costs, and area attributable to the ISSP-II project to perform sensitivity calculations on the key assumptions about intensity and yield.[55] [56] The model yields an ERR of 17 percent for the base assumptions. The discussion in the SAR indicates that the major production effect is increased dry season rice intensity with the project, a reduction without, and a reduction in yield of 0.5 tons/ha without. The audit considers the projections in the SAR, and by implication those in the PCR, to be unlikely given that operational standards do not yet approach the rigorous standard set for EOM. Options A, B, and C, shown in Table 1, adopt less optimistic assumptions and are as easy to defend as the base case—thus it is unlikely that the ERR exceeds 10 percent.[57]

Table 1. Alternative Outcome Scenarios[58]

Simulation Parameters	*Base Case SAR*	*A*	*B*	*C*
Present Dry Season Rice Intensity,	0.80	0.80	0.80	0.80
With Project Dry Season Rice Intensity after 7 years	1.00	0.90	0.85	0.90
Without Project Dry Season Rice Intensity after 30 years	0.70	0.70	0.75	0.75
Reduction in Without Project Yield tons/ha over 15 years	0.5	0.5	0.5	0
ERR	17%	10%	5%	1%

53. The region comments " even were the gains to tail off over time the ERR would still be above the Bank average." The audit disagrees.

54. "A large part of the project pertaining to fundamental policy reforms and institutional strengthening, with far reaching impact, is not amenable to a conventional economic analysis....an evaluation of SM and EOM is difficult because both activities cost so little that the incremental benefits required to justify them are often smaller than the inter-annual variations in harvested yield or intensity....the justification of the major activities (SM and EOM) is that they are likely to generate rates of return over 10 percent (opportunity cost of capital) even when very conservative assumptions are used to calculate them. " SAR ISSP-II, pp. 49 and 51.

55. See SAR for ISSP-II, Cropping Patterns, Yields and Production.

56. Base: SM/EOM cost = $500/ha, 750,000 ha, Dry Season Rice Yield 4.0 tons/ha, Rice Price $150/ton Paddy ($300/ton for rice less 23 percent quality factor and .65 grain conversion factor). Ordinary O&M $15/ha, EOM $40/ha.

57. The region considers the rating parameters as "poorly substantiated." And notes "the PAR makes no mention that the ICR recalculated the ERR as 19%." The audit has not however received any evidence of the existence of supplementary data upon which either the original calculation of 17% or the revision can be substantiated.

58. The region criticizes this analysis as "a hypothetical sensitivity analysis." The audit agrees it is hypothetical but the quality and quantity of data available justify the use of a simple but intelligible model. The original analyses for CWJIP/ISSPII were based on a priori judgements and analysis of an albeit larger quantity of hypothetical data.

5. Ratings

Central and West Java Provincial Irrigation Development Project

Outcome

5.1 The training achievements in the Java provinces certainly satisfied some of the necessary conditions for sustainable O&M even though the follow-up ISSP project failed to sustain them. Outcome is therefore rated **marginally satisfactory**, compared with satisfactory in the PCR.

Sustainability

5.2 The failure to sustain systematic new procedures on a wide scale; O&M budgets sufficient for satisfactory maintenance; and on-the-job training, justify the audit downgrading the PCR rating of sustainability from likely to **uncertain**.

Institutional Development

5.3 The institutional changes made under the project were not sufficient to alter the major incentives that encourage rehabilitation over maintenance, and just coping over efficient operation. Nonetheless, the capacity of key senior and field personnel was improved, creating the potential at least for more efficient O&M. Although significant technical capacity was created for the CWJIP, the budget was from the project and hence not sustained afterwards. The audit therefore rates institutional development as **modest**.

Bank and Borrower Performance

5.4 Performance by both the borrower and the Bank was **satisfactory** (as in the PCR). Failures to adequately monitor construction quality, operational efficiency, or production were the rule rather than the exception in Bank projects of this period. The sustained effort to support the projects by transferring suitably qualified staff to the provinces and the significant transfer of knowledge from the consultants, justify the rating.

Irrigation Subsector II (O&M) Project

Outcome

5.5 As the main objectives—improved O&M, cost recovery, and introduction of an ISF—were not met, project outcome is rated **marginally unsatisfactory**.[59] The counterbalancing positive contribution of the project to knowledge transfer is acknowledged. Furthermore, the

59. The Borrower requested insertion of the following comment "Since the M&E (Monitoring and Evaluation) component was dropped under ISSP-II with no alternative proposed or explanation offered (page 9) it is difficult to judge the outcome, since the main reference i.e. M&E Report did not exist, so that Principal Ratings for ISSP-II cannot reflect the real situation." The audit team thinks that even if cropping intensity and yield data were available (which they are not) they would be an insufficient basis for firm conclusions because of the high variation in exogenous factors such as rainfall, varieties and pests. A point made in the SAR of ISSP-II itself (page 49.)

negative implementation experience has contributed to Bank support for increasingly relevant projects, such as JIWMP, and reform of the water sector.[60]

Sustainability

5.6 The audit rates financial or physical sustainability of the project **uncertain**. There has been a failure to achieve improvements in standards of O&M, due to underfunding by central and provincial governments, ineffective institutions and incentives, and overestimates of institutional capacity. While current economic and political uncertainties have exacerbated the situation, the funding for irrigation O&M has, however, been maintained more than in other sectors and has been eligible for special employment creation grants. The new Bank Sectoral Adjustment Loan promises long overdue and more fundamental reforms in the water sector.[61]

Institutional Development

5.7 ISSP-II made no fundamental change in the institutional arrangements and incentives. The development was in the technical methods and procedures recommended and not the financial framework and institutions. The audit therefore rates institutional development **modest.**[62]

Bank and Borrower Performance

5.8 Borrower and Bank performance were **unsatisfactory**. Both parties allowed important issues concerning financial governance, accountability, and decentralization to be glossed over in design, then failed to resolve them during implementation. The Bank threw money at a problem while the government was willing to go ahead with a major sectoral program, which few people seem to have understood let alone agreed with. The Bank's insistence on O&M covenants that the GOI abided by, the high quality of supervision by the team that inherited the project, and the dedication of many of the GOI staff are mitigating factors. This rating must be understood as a judgment of the overall management of the project by the GOI and the Bank, which substituted fiscal and political pragmatism for the engineering purism that inspired the project.[63]

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60. The Indonesia Water Resources Sector Adjustment Loan (WATSAL) (which was approved by the Board on May 18, 1999) is based on an irrigation management policy reform (IMPR) adopted by GOI and will cover: (i) new sector institutions and policy; (ii) improving river basin and water quality management frameworks, (ii) improving river basin management and water quality management frameworks and (iii) reforming irrigation management to include empowered water user associations. The Report to the President for WATSAL was not available at the time of audit.

61. The region has commented on the draft audit rating that sustainability was "unlikely" – "This reform agenda did not spring from a new found well. It emerged from an examination of the failures and successes, of past efforts to attain the objective of sustainable irrigation management."

62 The region itself seems to have been unaware of the relevance of Bank work on fiscal decentralization/governance (culminating in Shah et al, Intergovernmental Fiscal Relations in Indonesia: Issues and Reform Options 1994) or privatization/corporatization. This aspect of the Bank's policy work had had little impact or influence on the subsequent design of irrigation, urban-regional management/institutions, or water-supply/sanitation projects in Indonesia.

63. With hindsight the relatively good operational performance of irrigated agriculture in Indonesia (compared to many other major rice producing countries) might have cautioned against such an ambitious program. At best it would have achieved marginal increases in production while being very demanding on government institutions. It is precisely because the general quality of irrigated rice production is already good by international standards, that attempts to fine tune O&M are difficult. On the other hand, the appreciation by GOI of the senselessness of expensive rehabilitation, unnecessarily repeated due to neglected maintenance, was sound.

6. Conclusions

6.1 While CWJIP used a construction/design program to support improved and sustainable O&M, ISSP-I and ISSP-II focused more directly on O&M. The failure to establish sustainable O&M casts strong doubt on the post-hoc ERRs reported for earlier Bank provincial and rehabilitation projects. Both the Bank and GOI were consistent in proposing O&M as the focus for sector investment, as expressed in the IOMP of 1987. With respect to cost-effectiveness it made no sense to spend billions of dollars on construction-rehabilitation, and then enter an unnecessary cycle of expensive re-rehabilitation, whether the effects on rice production were large or small. Throughout the period (1988–95), however, annual O&M budgets never exceeded about $70 million per year, approximately 7 percent of total sector spending by GOI.

6.2 The existing rehabilitated irrigation systems supported by ISSP required high standards of operation to realize their design potential. The arguments for saving funds from repeated rehabilitation, and of systematically operating government-sponsored irrigation systems, was sound. But a project design that hoped to squeeze marginal production increases from the systems was ill-conceived. The region continued to support a consultant-intensive and highly technical approach in the face of internal and external criticism. On the other hand, the limited initial support for direct farmer participation in system management blossomed into an expanding turnover program in JIWMP, and produced convincing evidence of increased benefits for those in the system's command area.

6.3 While there is evidence of increased technical capacity to manage systematic (and in a sense efficient) maintenance, the impact of the entire program of IOMP-related investment has been modest, especially outside of Java. Needs-based budgeting is not widely practiced, and O&M allocations continue to be flat rates per hectare. The focus on the cost-recovery objective (which was really a constraint) led to neglect of monitoring O&M performance as the main measure of project success. Ironically, improved O&M would have made cost-recovery easier; this was as important a sequencing issue as SM and EOM. The motives behind the proposed reforms were good, but they relied too much on accommodation to the existing highly centralized, and hence inefficient, command-and-control approach to the irrigation sector. There was insufficient elucidation of the detailed sequence of steps to get from the command-and-control approach to a service-contract orientation. This could probably not be expected in a single jump.

6.4 Instead of looking at possible fiscal and financial explanations for institutional failure, the design tacked on a complex and unworkable cost-recovery scheme, which even if it had worked, would not necessarily have improved O&M.

Lessons Learned

6.5 O&M improvement projects, in a situation where the Bank is not engaged in fundamental sector reform,[64] should be guided by what is technically and institutionally possible. A simpler

64. "Expectations of 'reform from within' will rarely materialize in the absence of concurrent attempts to address fundamental issues of government policy and politics." A. Bottrall, Water Resources Development, Vol. 11, 1 Mar 95, Overview of Irrigation Management.

irrigation technology with more proportional-flow structures and less stress on optimization would also have had less onerous O&M requirements.[65]

6.6 When undertaking an ambitious, complex, and dispersed project in a country with a centralized bureaucracy, it is inadvisable to split implementation responsibilities between ministries.

6.7 Measure effectiveness by the ability to meet the main objective of a project, particularly when there are numerous objectives. For example, do not be misled by red herrings like cost recovery and ISF if they are not essential to improving O&M standards.

6.8 Achieving efficient O&M requires more than adequate financing, proper staffing, and training. Incentives and financial governance of O&M service suppliers must also be considered.

6.9 Lack of staff continuity—a necessity for reforms requiring decades—is bad for the Bank's image and detrimental to success. In 20 years the Bank has raised a series of problems in Indonesia's irrigation sector, passing the unresolved problems to new projects and eventually abandoning them without finding a solution. This has left GOI agencies confused as capacity building, operation and maintenance, cost-recovery/ISF, and M&E have been successively strong-armed into implementation and subsequently dropped without solving the underlying political and institutional problems.[66]

65. The Borrower added the following comment "Regarding Lessons Learned para 6.5 it was understood that the Bank is not in favor of proportional flow structure because it less water use optimization. To our opinion it is much better to construct division structures which can facilitate either proportional flow or regulated flow. Therefore those principles leads us to construct the structure with same sill elevation, same sill shape and proportional width opening for the purpose of proportional water distribution. Furthermore those structures should be equipped with gates for the purpose of regulating discharge if so required."

66. According to the region "the PAR is flat out wrong in its selective use of the record."

Basic Data Sheet

IRRIGATION SUBSECTOR II (O&M) PROJECT (LOAN 3392-IND)

Key Project Data *(amounts in US$ million*

Item	Appraisal estimate	Actual or current estimate	Actual as % of appraisal estimate
Total project costs	463.3	459.5	99.2
Loan Amount	225.0	203.8	91.0
Cofinancing (Ford Foundation)	0.3	0.3	
(GOI)	238.0	255.4[a]	107.3
Cancellation	—	21.2	—

a Includes very small amount for work financed by OECF for potable water supply and land preparation in swamps.

Cumulative Estimated and Actual Disbursements *(in US$'000 equivalent)*

	FY92	FY93	FY94	FY95
Appraisal estimate	30.0	90.0	160.0	225.0
Actual	31.3	94.0	155.7	203.8[a]
Actual as % Appraisal	104	104	97	91

Date of final disbursement: January 17, 1996

a. US$10 million was cancelled from the loan in August 1994, following a request from GOI. An additional US$11.2 million was cancelled January 17, 1996.

Project Dates

	Original	Actual
Identification (Initial Executive Project Summary)	n.a.	10/28/88
Preparation	n.a.	09/89, 03/90
Appraisal	08/90	09/90
Negotiations	01/90	03/18-22/91
Board presentation	03/91	07/23/91
Signing	09/91	09/05/91
Effectiveness	11/91	11/04/91
Mid-term review	n.a.	10-11/93
Project completion	03/31/95	07/31/95[c]
Closing date	07/31/95	07/31/95

a. ICR is, in general, based on work expected to be done up to 07/31/95.

Staff Inputs (staff weeks)

Stage of Project Cycle	Planned	Actual
Preparation to Appraisal	44.2	96.8
Appraisal	25.8	78.0
Negotiations through Board approval	9.8	22.1
Supervision	108.6	193.4
Completion	18.0	16.3
Total	206.4	406.6

Mission Data

	Date (month/year)	No. of persons	Staff days in field	Specializations represented[a]	Performance rating[b] Imple. Status	Dev objec.	Types of problems
Preparation.	09/89	3	23[c]	I,E	-	-	-
Second Prep.	03/90	3	14	I,E	-	-	-
Preappraisal	06/90	5	20	E,I,V	-	-	-
Appraisal	09/90	5	18	E,I,V	-	-	-
Appraisal through Board approval	06/91[d]				-	-	-
Supervision 1	10-11/91 03/92[d]	2	10	I,P	1	1	-
Supervision 2	05/92	2	3	I,P	2	2	-
Supervision 3	10-11/92	6	3	I,W,O,N,P,A	2	2	-
Supervision 4	04/93	4	11	I,W,O,P	2	2	-
Supervision 5(a)	08/93	1	3	I			-
Supervision 5(b)	10-11/93[e]	5	6	I,P,O,N,E	2	2	-
Supervision 5(c)	01-02/94[f]	2	0	I,P			-
Supervision 6	06-07/94	4	10	I,P,W,O	S	S	-
Supervision 7	10-11/94	3	3	I,P,O	S	S	-
Supervision 8	03-04/95	3	5	I,P,O	S	S	-
Completion	06-07/95	5	6	I,E			

a. I = Irrigation Engineer; P = Procurement; W = Water Resources; O = O&M; N =Institution; A = Agriculture; E = Economist; V - Environmentalist.
b. 1 = Problem-free or Minor Problems; 2 = Moderate Problems; and S = Satisfactory.
c. Includes other projects.
d. These missions are referred to in the following full supervision reports, but no other reports of their findings have been found.
e. Mid-term review.
f. Form 590 was not prepared. No field visits.

Other Project Data

Borrower/Executing Agency:

FOLLOW-ON OPERATIONS

Operation	*Loan no.*	*Amount (US$ million)*	*Closing date*
Groundwater Development Project	3588	54.00	12/31/99
Dam Safety Project	3742	55.00	09/30/00
Integrated Swamp Development Project	3755	65.00	09/30/00
Java Irrigation Improvement and Water Resources Management Project	3762	165.70	12/31/00

Basic Data Sheet

CENTRAL AND WEST JAVA PROVINCIAL IRRIGATION DEVELOPMENT PROJECT (LOAN 2649-IND)

Key Project Data *(amounts in US$ million*

	Appraisal estimate	*Actual or current estimate*	*Actual as % of appraisal estimate*
Total project costs	302.30	248.6	0.8
Loan Amount		166.0	
Cofinancing (EEC)		18.0	
Cancellation		1.6	

Cumulative Estimated and Actual Disbursements *(in US$ million equivalent)*

	FY87	*FY88*	*FY89*	*FY90*	*FY91*	*FY92*	*FY93*
Appraisal Estimate	8.0	30.0	60.0	95.0	129.0	155.0	166.0
Actual	4.2	26.0	44.0	81.2	108.6	152.3	164.4[a]
Actual as % Appraisal	52.0	87.0	73.0	85.0	84.0	98.0	99.0

Date of final disbursement: November 18, 1993

a. The undisbursed balance of $1.6 million was cancelled on that date.

Project Dates

	Original	*Actual*
Identification	n.a.	10/84
Preparation/Preappraisal	n.a.	04/22/85
Appraisal	06/19/85	04/22/85
Negotiations	11/18/85	10/28/85
Board approval	01/14/86	01/23/86
Signing	03/01/86	03/07/86
Effectiveness	08/05/86	09/04/86
Project completion	06/30/92	06/30/93
Closing date	12/31/92	06/30/93

Staff Inputs (staff weeks)

Stage of Project Cycle	*Planned*	*Actual*
Through Appraisal	-	40.4
Appraisal through Board approval	59.6	5.7
Board approval through Effectiveness	-	2.0
Supervision	84.0	87.0
Total	143.6	135.1

Mission Data[a]

	Date (month/year)	No. of Persons	Staff days in field[b]	Specializations represented[c]	Performance rating[d]		Types of problems[e]
					Dev. Impact.	Overall Status	
Appraisal	04/85	7	24	IE,A,E			
Appraisal through Board approval	07/83	3	20	IE,E,S			
Board appraisal to Effectiveness	N/R[f]						[g]
Supervision 1	01/87	2	7	IE,A	1	2	F
Supervision 2	08/87	2	7	IE,A	1	2	None
Supervision 3	07/88	2	16	IE,A	1	1	None
Supervision 4	02/89	2	11	IE,A	1	1	M,T
Supervision 5	08/89[g]	4	16	IE,TE,A	1	1	F,O
Supervision 6	06/90	2	17	IE,A	1	1	None
Supervision 7	05/91	2	8	IE,A	1	1	T (Dumpil)
Supervision 8	05/92	2	16	2IE	2	2	F,T (Dumpil)
Supervision 9	11/92	3	11	2IE,A	2	2	T,F (Dumpil)
Supervision 10	06/93	1	-	IE	1	2	T,F (Dumpil)
Completion	02/94	1	14	IE			

a. Until FY93, project supervised from the RSI field office on a continuous basis.
b. Number of days from start to finish of mission in field.
c. IE = Irrigation Engineer; A = Agriculturalist; E = Economist; TE = Training Expert; S = Surveyor.
d. 1 = Development Impact; 2 = Overall Status.
e. M = Management; T = Technical; F = Financial; O = Other (project coordination and general project problems.
f. N/R = no records.
g. Mid-term review.

Other Project Data

Borrower/Executing Agency:

FOLLOW-ON OPERATIONS

Operation	Loan no.	Amount (US$ million)	Closing date
Provincial Irrigated Agriculture Development Project	3302	125.00	03/31/98

Projects Related to the Irrigation O&M Policy

Project	*Donor*	*Budget (1000$)*		
		Donor	*GOI*	*Total*
Integrated Irrigation Sector (1990–95)	ADB	208,000[b]	56,000	264,000
Integrated Irrigation Sector-II (1995–00)	ADB	100,000	70,000	170,000
Nusa Tenggara Agriculture Development Project (1989–94)	ADB	119,000	29,800	148,800
Third Irrigation Sector Project (1987–93)	ADB	127,500[b]	22,500	150,000
Farmer Managed Irrigation Systems Project[a] (1996–03)	ADB	26,300	17,700[c]	44,000
Northern Sumatra Irrigated Agriculture Sector Project (1998–03)	ADB	120,000	98,300[c]	218,300
Irrigation Subsector Project (1987–95)	World Bank	249,400[d]	109,700	359,100
Second Irrigation Subsector Project (1990–96)	World Bank	277,300[e]	186,000	463,300
Java Irrigation Improvement and Water Management Project (1994–00)	World Bank	165,700	138,300[c]	304,000
TOTAL		**1,393,200**	**728,300**	**2,121,500**

[a] Indirectly supports IOMP
[b] Includes Government of the Netherlands funds
[c] Includes farmers' contribution
[d] Includes funds from the Netherlands, Italy, and the Ford Foundation
[e] Includes funds from the Netherlands, OECF (Japan), and the Ford Foundation

Organization of Irrigation in Indonesia

1. These are organizations, corresponding to the central, provincial, and district levels of government, responsible for irrigation system development and management:

- Directorate General of Water Resources (DGWRD), Ministry of Public Works (DPU), Jakarta
- Provincial Water Resources Service (PRIS)
- District (*Kabupaten*) Water Resources Service (DWRS), being established nationwide under the decentralization program. Before decentralization, these units were branches of the PRIS called *Cabang Dinas Pengairan*. Those offices were originally organized on hydraulic boundaries; *kabupaten dinas* offices are organized on administrative boundaries.

2. DGWRD has primary responsibility for planning the development water resources and for the design and construction of irrigation schemes. Completed schemes are handed over to PRIS for operation and maintenance. The first *kabupaten dinas* were introduced only at the very end of ISSP-I. The decentralization program devolves O&M to local levels of government while irrigation system development remains under joint central/provincial control (co-administration). DGWRD has instituted Irrigation Project Offices (*Proyek Irigasi*) in provinces to implement development projects, including new construction, system rehabilitation, groundwater, and water storage. Irrigation Project Offices essentially are extensions of DGWRD for the use of national development funds (APBN) in provinces. Major staffing decisions and procurement oversights remain within the purview of the DGWRD. Staff assigned to Irrigation Project Offices may be either provincial government officers or seconded DGWRD staff.

3. The Bureau of Water Resources and Irrigation in Bappenas, under the Deputy for Infrastructure, is responsible for ensuring that the development projects proposed by DGWRD conform with the overall development plans of the other economic sectors. The MOHA has responsibility for supervision of lower levels of government for all sectors. The most relevant responsibilities are for ISF (Directorate of Regional Autonomy, DPUOD), WUAs, and provincial government budgets (APBD) for O&M (Directorate for Regional Development, BANGDA)

4. The Department of Public Works Regional Offices (*Kantor Wilayah Departmen Pekerjaan Umum*, or *Kanwil*) represent the DPU in the provinces. Their function is to coordinate preparation of development projects and provide technical guidance on the implementation of DPU projects.

5. PRIS is subdivided into Regions (*Wilayah*), but the fundamental unit of organization for system operation is the Section (*Seksi* or *Cabang*), which in Java and Sumatra roughly corresponds to the size of a district. Section offices tend to follow hydraulic boundaries determined by the topography of irrigation schemes, although there is often a close correspondence with administrative boundaries. A Section in turn is divided into sub-areas known as *ranting* that are headed by a Supervisor (*pengamat*), who has responsibility for a number of water masters (*juru pengairan*) and gatekeepers (*penjaga pintu*). These water masters and gatekeepers are responsible for the opening and closing of the gates supplying tertiary canals. They are assisted by ditch tenders (*prakarya*), who do basic maintenance work. It is at the *pengamat/juru* level that the lower echelons of the government apparatus meet the leaders of farmers' groups and the village administration. The subdistrict (*kecamatan*) is another focus of

relations between irrigation civil service (*pengamat* and *jurus*) and the village government (*lurah, camat, bupati*).

6. Before decentralization, irrigation expertise was sparse at the district level. Formal contact with district government was largely through the coordinating Irrigation Committee (*Panita Irigasi*), which has representatives from all groups involved in irrigated agriculture. In practice, however, the *bupati* kept close contact with the Section office because of the political nature of water and irrigation. In the current decentralization program, the *Cabang Dinas* are being reorganized into DWRS and placed under direct control of the *kabupaten* government. Irrigation O&M will now be the responsibility of DWRS. The decentralization program promotes local authority, revenue-raising powers, re-assignment of revenue sources to the province/*kabupaten*, and increased formula-driven block-grants, which are needed to underpin political decentralization. However, there is a danger that it will weaken PRIS by essentially removing its field offices. It could lead to unnecessary competition between provincial and district offices because both are largely dependent on central governmental funds for irrigation O&M.

Definitions of Key Project Concepts

(From ISSP-II SAR Annex 4, page 69)

1. **Special Maintenance (SM)** consists of maintenance needs that have accumulated in a system that has recently been fully rehabilitated and that otherwise contains the essential structures required in the systems to be turned over to WUAs. SM would include: painting, silt removal, limited canal shaping, localized remedy of canal erosion and limited lining and structure repair. Minor additions such as the construction of a limited number of measuring devices may be included. It also entails preparation of a comprehensive plan of operation and Maintenance (POM) specific to the system including all maps, plans, as-built drawings, manuals, staffing plan, equipment, communication and other support required for proper O&M of a system. It does not include system extension, major new lining, reconstruction of large structures and like work. Upon completion of SM, all facilities and supporting equipment should be completed and in a sound condition fully meeting high standards of construction.

2. **Efficient Operation and Maintenance (EOM)** consists of those operations activities of a routine nature carried out by the O&M organization necessary to provide the planned service to water users and to fully maintain the system (without separate rehabilitation or upgrading programs) in a condition to function as planned, on into the future. Maintenance activities would include: ongoing painting, lubrication of equipment, silt removal, channel maintenance, lining and structure repairs, weed clearance, embankment and road maintenance and replacement of equipment. Operation activities would include coordination with water users, scheduling services, operation of facilities, collection of fees, as appropriate, and the public accounting of service and costs. It also includes regular inspection and reporting on the condition of facilities and appropriateness of operation under the direct administration of irrigators.

3. **Needs-Based Budget (NBB)** comprises a detailed budget to adequately cover all EOM, as defined, for each specific system. It is not to be a fund request for whatever may be desired in staffing, equipments and works. It should reflect the respective Plan of Operation and Maintenance and the staff, equipment and actions required to provide the defined service and fully maintain each feature (including replacement) and the system's overall integrity, permanently on into the future. The NBB should show a breakdown of staff, equipment (fixed and mobile), supplies, materials, utilities and other items used in government accounting standards. These should be aggregated from details of tasks and/or work to be carried out. Private contract work should also be fully identified according to feature and items of work (earthwork, masonry. etc.). It is usual that the annual NBB provides greater detail, building upon a five-year NBB that reflects appropriate sequencing of scheduled maintenance items. The five-year NBB permits scheduling major efforts with canal operations and available staff while avoiding excessive variations in the year-to-year annual budgets. All SM activities should be budgeted separately.

4. **Plan of Operation and Maintenance (POM)** consists of a set of documents, varying in extent and detail depending on the size and nature of the specific project. The POM should be initiated before design or modifications commence so that the resulting facilities are tailored to that system's adopted scheme of operation. A POM should be fully completed before EOM and NBB can be effectively applied. The POM will present the operating concept for the system and the procedure for all operations actions from the diversion supply and coordination with WUAs setting seasonal schedules, to instruction for operating structures and equipment. Likewise, maintenance procedures, schedules and records would be set forth. Maps, plans, drawings, and design/construction data would be included. Staffing levels and qualifications, responsibilities

and authority, and training are some of the key personnel matters presented. Of course, reference to standard provincial manuals would be made as appropriate.

Corruption, Consulting, and Quality of Construction[1]

1. Current exhortations for openness demand that this evaluation say something about corruption. In 39 volumes of files for ISSP-II and CWJIP, the word "corruption" is scarcely mentioned. This is surprising given that most of the donor and foreign business community in Indonesia, and an even higher percentage of ordinary Indonesians, have long acknowledged that corruption is a major factor in explaining the poor performance of publicly financed "projects." The nearest that supervision reports come to the subject is frequent mention of the need to solve "quality control problems" and "tighten up procurement procedures."

2. In the supervision aides memoires criticisms are made of the ineffectiveness of procurement policies in ensuring quality standards. Particular criticisms were: a) the breaking up of programs into too many contracts (inefficient both for contract enforcement, control of corruption and efficiency); b) lack of pre-qualification (which deters self-policing of poor quality work by those with a good reputation and pre-qualifications rights); and c) the failure to sanction non-performance. A large number of small contracts discourages the development of large contractors who have a strong incentive to deliver good quality. Effective supervision was impossible when the CWJIP/ISSP locations were so widespread and supervision resources constrained. We are convinced from our investigations that "quality problems," "failure to enforce sanctions on non-performing contractors," and "administrative irregularities" are euphemisms for corruption and hence the subject deserves to be introduced into the Bank's discussion of irrigation management in Indonesia.

3. It is important to distinguish between regulated and unregulated corruption in Indonesia, through political pressures applied in the private sector (monopolies), to the longstanding but probably less serious widespread corruption in the civil service. While not seeking to justify corruption, the following observations, which are to be treated as opinions, will help the reader understand the limited special, as opposed to general, role that can be assigned to corruption in explaining the ISSP performance. The bias towards keeping discretionary allowances and honorarium within the project, rather than routine budget, is just as serious a problem. The center has carefully retained its control over the distribution of project benefits.

4. Corrupt practices are so entrenched that there is strong pressure to participate. There is not as much choice about being corrupt as an outsider might think. Those who derive a substantial part of their income in this way can simultaneously be both acute observers of how the system works and, without an excessive amount of hypocrisy, wish that the system were different. There is also evidence that not all of the funds raised by corruption are used to finance private consumption. Large slush funds enable the bureaucracy to be flexible and respond rapidly to situations that would be paralyzing under conditions where the level of bureaucratic rigidity and sometimes ignorance, were comparable to Indonesia's, but where corruption laws were rigorously enforced. Some share of the proceeds is used to supplement the salaries of lower-level

1. The region commented on the draft "We suggest this annex be dropped in its present form. We have no issue with it as a general statement on the context of corruption in Indonesia. But the presentation is only negligibly linked to the PAR's assessment of the two projects. It does not even make the link to the project's "quality of construction" despite this figuring in the annex title."

employees who are asked no more than to look away or not tell on their superiors. The prevailing cultural model in the government bureaucracy, and of the political system, is that of patron-client. In some ways, although feudal, this culture functions as an imperfect form of regulation of excesses.

- Senior bureaucrats have to contribute to high-level training courses—how are these to be financed or loans to be repaid?

- Corruption is very well organized and executed. A policy of active searching for evidence of wrongdoing by the Bank would probably have been as unsuccessful in stopping corruption as the "don't ask and don't tell" policy that seems to have been adopted.

- Corruption in the DPU is not generally viewed as greed but as a redistribution of project proceeds to those who do the work. While project allowances redress some of the perceived inequities between professional compensation for professionals (between private and public sectors), this is not sufficient. The reference group that senior employees look to is foreign consultants. They are all very aware of the charge rates and salaries for foreign consultants that are, in many cases, centuples of local equivalents. All government employees tend to see the private sector as the relevant reference group.

- For many years there have been conventions about what the appropriate "rake-off percentages" are—a total of 30 percent leakage as suggested in recent Bank reports is not outside of what most observers think reasonable. Since this is how many "stylized facts" are generated, it is probably as good an estimate as any.

- Although the DPU has always had a reputation offering a wide range of opportunities for illicit gain, it is generally regarded as being an efficient implementer of projects, both able to produce results and shift money. Any criticism of the DPU for corruption could be argued just as strongly for other sectors, without the extenuating arguments of relative efficiency.

- The local consulting companies are sometimes owned by DGWRD pension funds and/or employ retired DGWRD personnel. This network allows the top people (minister and director general) to stay in control and regulate the activities of an extended DGWRD family. One experienced consultant commented that "the concept, that somehow the international consultants could, through just being there, improve the performance of the Indonesian consulting firms. Their use of retired DGWRD personnel in senior project team positions meant that the domestic consultant and client were essentially one and the same organization."

- Work done by Indonesian consultants is often unsatisfactory - especially in economics/social sciences where moonlighting academics are preponderant and standards ill-defined. On the other hand, design work ought to be easier to supervise and enforce standards for deliverables.

- One argument to demonstrate the widespread prevalence of corrupt practices in selecting consultants is that the same consultants often perform better when working for the private sector. In fact, both consulting and construction services in the private sector are of a much higher standard than for government work.

The difference is not in the contract rates paid but in quality of work. An important function for the local consultant in Indonesia has long been to serve as an intermediary through which foreign consultants can pass the bribes they know are necessary to get jobs. These bribes are given in the form of not expecting or getting the professional services that Indonesians are perfectly capable of providing. This is a possible explanation of the dual market for financial, economic, and civil engineering consulting services; a very efficient segment serving the private sector (commercial construction contracts) and a lower cost, corrupt, and inefficient segment bidding with foreign partners for consulting jobs.

- Internationally, as in Indonesia, construction contracts and procurement are the most popular vehicles for corruption. A large contract requires only a small percentage and hence could be regarded as more efficient than many small ones. On the other hand, many small contracts enable the kickbacks to be spread around more evenly, attracting institutional support.

5. One of the main underlying fears about decentralization is that the patterns of behavior that are so familiar to central government employees will be repeated if control of resources is pushed downward. The main argument for decentralization is that it would be easier for honest administrators to enlist the support of citizens in combating corruption since they are in a better position to demand accountability.

MAP SECTION

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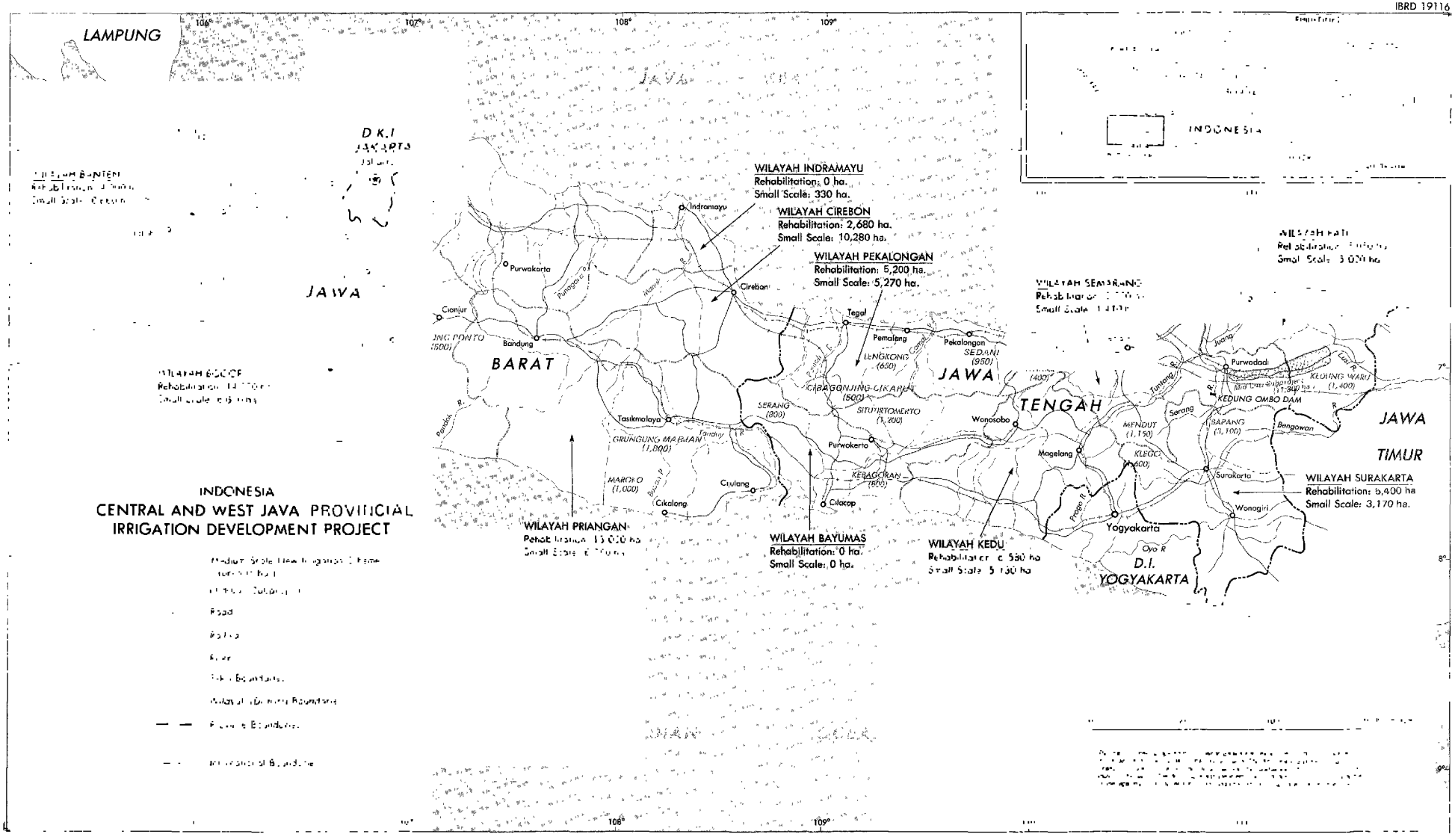

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