Validation Report

Reference Number: PCV: INO 2008-11
Project Number: 29312
Loan Number: 1479
July 2008

Indonesia: South Java Flood Control Sector Project

Operations Evaluation Department

Asian Development Bank

ABBREVIATIONS

ADB	–	Asian Development Bank
BTOR	–	back-to-office report
DGWRD	–	Directorate General of Water Resources Development
EA	–	executing agency
EIRR	–	economic internal rate of return
GIS	–	geographic information system
IA	–	implementing agency
M&E	–	monitoring and evaluation
MEU	–	monitoring and evaluation unit
O&M	–	operation and maintenance
OED	–	Operations Evaluation Department
PCR	–	project completion report
PMU	–	project management unit
PWD	–	Public Works Department
RIWRT	–	Research Institute for Water Research and Technology
TA	–	technical assistance

NOTE

This report retains the component numbering structure of the Report and Recommendation of the President (1–6), rather than that adopted by the Project Completion Report (A–F).

Key Words

adb, asian development bank, flood control, oed, operations evaluation department, program, program completion report, project implementation, regreening policy, south java, validation

Director	R. K. Leonard, Operations Evaluation Division 1, OED
Team Leader	G. Rauniyar, Evaluation Specialist, OED
Team Members	A. Morales, Evaluation Officer, OED
	V. Melo, Administrative Assistant, OED

OED PCR VALIDATION REPORT

A. Basic Project Data		PCR Validation Date:	May 2008	
Project Number:	29312; Loan 1479-INO		**Appraisal**	**Actual**
Project Name:	South Java Flood Control Sector Project	**Total Project Costs ($ million):**	184.00	116.4
Country:	Indonesia	**Loan/Credit ($ million):**	103.00	84.6
Sector:	ANR	**Cofinancing ($ million):**		
ADB Financing ($ million):	**ADF:** –	**Borrower Contribution ($ million):**	81.00	31.7
	OCR: $103			
Cofinanciers:	None	**Cofinancier Contribution:**	–	
Board Approval Date:	9 Sep 1996	**Closing Date:**	30 Sep 2003	30 Jan 2006
Project Officers:	**Name:** I. Fox T. Miyazato M. Drilon	**Location:** Agriculture (East) SEAE SEAE	**From** Sep 1996 Dec 1998 Apr 2007	**To** Dec 1998 Dec 2006 Nov 2007
Evaluator: **Team Leader:**	J. Cook G. Rauniyar Evaluation Specialist	**Director:**	R. Keith Leonard, OED1	

ADF = Asian Development Fund, ANR = agriculture and natural resources, INO = Indonesia, OCR = ordinary capital resources, OED = Operations Evaluation Department, PCR = project completion report, SEAE = Agriculture, Environment and Natural Resources Division of the Southeast Asia Department.

B. Project Description (as stated in the Report and Recommendation of the President [RRP])

(i) **Rationale and Expected Impacts.** Floods caused major adverse social effects and losses in South Java, directly and indirectly affecting about 400,000 people in the project area. Project beneficiaries perceived flooding as a severe handicap to their livelihoods, health, and general well-being. Flood control works in each river basin were built over a long period but generally were not well maintained and no longer provided adequate protection. Consequently, human suffering had been increasing. The Project would improve the quality of life and provide security from frequent flooding for floodplain residents. Needed were integrated and consistent flood control measures, combining structural and nonstructural measures, and complemented with land rehabilitation in the upper river basin catchment areas to enhance water-retaining capacity.

(ii) **Objectives or Expected Outcomes.** Anticipated outcomes included (a) preventing regular flooding of houses and crops; (b) improving environmental factors that negatively influence health; (c) minimizing disruptions of services and commercial activities; and (d) enhancing the income-earning capacity of the generally poor populations in flood-affected areas along 200 kilometer (km) of the south coast region of Java in the provinces of West Java and Central Java, and in the Special Province of Yogyakarta. The Project also aimed to improve land use in the upper catchment areas of the rivers to reduce flooding in their lower reaches, as well as to promote sound management of natural resources by monitoring river characteristics. In addition, the Project was to provide assistance to strengthen capacity for river maintenance and develop means, through which part of the costs of works and their operation and maintenance (O&M) can be recovered from beneficiaries.

(iii) **Components and Outputs.** The Project comprised six components, namely (a) flood control and protection, (b) institutional strengthening of water resources services, (c) a flood warning system, (d) monitoring of river characteristics, (e) upper catchment land rehabilitation, and (f) project implementation coordination. Their major outputs were discussed in Section B.ii.

C. Evaluation of Design and Implementation (evaluation assessment of actual vs. envisioned)

(i) **Relevance of Design and Formulation.** The Project's design was highly relevant to the needs of South Java's flood-prone populations. It was consistent with the Government's sixth 5-year development plan, which placed high priority on mitigating natural disasters (to which Java is highly prone). Asian Development Bank (ADB) had long supported the water resources sector in Indonesia and many of its subsectors, including flood control. The RRP cites the Wampu River Flood Control and Development Project,[1] which is stated to be particularly relevant to South Java and from which lessons were drawn in the design, including the need to avoid the causes of implementation delay.

ADB's 1994 operating strategy[2] for Indonesia had stated that "irrigation and water resource development should continue to be an area of bank investment, with increased emphasis on: (a) optimizing returns on existing investments in irrigation infrastructure through improved O&M and cost recovery practices; (b) improving water use management and efficiency; and (c) integrating water resource planning, including flood control" (para. 92 of the strategy). Assumptions in the project design were relevant and appropriate.

Institutional arrangements included three executing agencies (EAs), with most project activities under the Ministry of Public Works (components 1–4). Component 5 was to be implemented under the Ministry of Forestry and component 6 under the Ministry of Home Affairs. These implementation arrangements, though complex, were necessary for the execution of the Project. A comment is made later about the desirability of having consultants under one package (component 6 consultants) monitoring activities of the others, which caused some conflict.

Under the project preparatory technical assistance (TA), environmental impact assessments were undertaken for the two core subprojects, and these were summarized in the summary environmental impact assessment prepared by the Appraisal Mission.[3] This indicates that adequate analysis was undertaken and appropriate safeguards were planned. The river training works at the rivers' mouths were indicated to require periodic dredging, which, according to the summary environmental impact assessment (para. 55), "could be undertaken at little cost." In practice, regular dredging programs may be difficult to maintain in Indonesia.

The Operations Evaluation Department (OED) considers that the design process was sound and that the resulting project design represented a good balance between hardware and software approaches to flood control and mitigation. Its participatory approaches were valuable. The sector project approach was appropriate, with two core subprojects developed by project preparatory TA; to be followed by detailed design and the development of the remaining eight subprojects under the Project.

[1] ADB. 1972. *Loan 092-INO: Wampu River Flood Control and Development Project*, for $5.94 million, approved on 04 April 1972. Manila.
[2] ADB. 1994. *Indonesia Country Operational Strategy*. Manila.
[3] ADB. 1996. *Summary Environmental Impact Assessment of the South Java Flood Control Sector Project.* Manila.

(ii) **Outputs and Costs as Envisioned during Appraisal as Compared to Actual Costs and Achievement of Outputs; Reasons for any Deviation**

Component 1: Works were completed in the 10 basins as planned, although other ongoing programs[4] limited the amount of work that was undertaken in the Citanduy basin. Works included (a) 469 km of riverbank works (levees, revetment, and parapet walls); (b) dredging, and gated structures at the confluence of major drains into the rivers; (c) river mouth improvement (jetty and groin) of six river mouths; (d) ground sills to protect bridge piers; and (e) raising and widening of selected bridges. The project completion report (PCR)[5] (para. 10) reports that "Most of the structures have fulfilled their expected functions. In a few cases, when river drainage capacity was upgraded, the river water level became higher than existing bridges. It was necessary to raise these bridges, and corresponding embankments at crossover points, where the flood water levels were higher than existing bridges after the Project." Following collapse of an important bridge at Srandakan on the Progo River, the PCR notes that the Project invested into constructing a ground sill across the Pongo River to alleviate riverbed erosion. No mention is made of this in the Government's own PCR,[6] apart from saying in Section 2.5.9, that the foundation piles had collapsed.

Component 2: O&M plans were developed for each river basin. The PCR (para. 12) reports that two training seminars were successfully undertaken and involved 104 trainees. Project monitoring and evaluation units were established by provincial water resources services in Central Java and Yogyakarta in late 2004. Under national decentralization policies, responsibilities for river basin management are divided between national, provincial district and river basin organizations. A management review in 2004 (Government's PCR, Section 5.3) reported "it is likely that some degree of uncertainty remains as to which agency is responsible for what,"[7] and para. 14 of the PCR stated that "each responsible agency provides the required equipment for O&M." OED considers that these statements are optimistic, at present.

Component 3: A flood warning and forecasting telemetry network was installed in the Citanduy River basin to record river level and rainfall data. It had one station per 100 square km in the upper basin. Installed flood forecasting software is theoretically capable of generating flood warnings 14 hours in advance of a flood event. The system was physically completed in November 2002 and the training of staff undertaken. A review mission in May 2003 reported, however, that "the system was not operational because it was not clear who would operate the system, and who will pay the cost for O&M. In addition, the users of the flood warning information had not been identified. The users should be the local government officials; however, there is no connection between the newly completed flood warning system and the existing local government communication system." These issues had been raised during design, and assurances were given that no problems would arise in relation to them.

[4] ADB. 1989. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of Indonesia for the Lower Citanduy Irrigation Project*. Manila, which was completed in December 1989; and ADB. 1996. *Report and Recommendation of the President to the Board of Directors on Proposed Loans and Technical Assistance Grant to the Republic of Indonesia for the Segara Anakan Conservation and Development Project*. Manila, completed in March 2005 were the two other ongoing programs during implementation of the Project.

[5] ADB 2007. *Project Completion Report on the South Java Flood Control Project in Indonesia*, for $103 million, approved on 07 November 1996.

[6] Government of Indonesia 2005. *Project Completion Report on the South Java Flood Control Project in Indonesia,* for $103 million, approved on 07 November 1996.

[7] Following decentralization, considerable confusion remains in the Indonesian water sector in relation to demarcation between agencies. This results in either gaps in responsibility or duplication thereof.

Component 4: The River Morphology Work Program developed a detailed monitoring schedule (covering five rivers) designed to promote a rational basis for licensing riverbed sand and gravel extraction and to assess the effects of watershed erosion on riverbed morphology. The Project undertook to design rehabilitation and construction of shore-stabilizing structures at six river mouths to prevent the rise of backwater in the rivers and so maintain year-round river communication with the sea. The monitoring program established with assistance from the Project has not continued post-completion, probably because it is not afforded high priority by the water agencies, which are likely to find difficulty in meeting their mandated monitoring responsibilities (for climate, river flow, and water quality). Water quality monitoring was developed at 54 stations by the Research Institute for Water Research and Technology (RIWRT). The PCR does not provide information as to what had existed previously or on the role of the provincial water resources departments. Water quality monitoring is a complex area with multiple agencies and unclear demarcation of responsibilities. Experience under capacity building in the Water Resources Sector projects in ADB would suggest limited sustainability of monitoring networks in the absence of clearly defined responsibilities.

Component 5: Under the Project's Upper Catchment Land Rehabilitation program, 19,300 hectares (ha) of degraded lands are reported to have been upgraded in strategic areas of the upper catchments of the project rivers and capacity building programs undertaken. The area target was reduced from the planned 27,000 ha, by an ADB review mission in 2004 due to insufficient and delayed funding from the Government[8] and a 50% increase in the estimated cost of regreening activities. The component introduced improved and more participatory regreening processes (component 5 PCR, Section 3.2).

Little information is available on the quality of catchment upgrading. In practice, the ending of consultant inputs in 2001, before the program had fully commenced, meant that monitoring ended at the end of fiscal year 2000 (March 2001). However, the Government's PCR (Tables 3–8) reports that "Some activities in the seven districts cannot meet the technical standard, since the regreening activity implementation was made in a hurry due to the limited time for the fund allocation." Lack of usable data has resulted from a failure to follow up on the year-2000 baseline survey, which Section 4.1.1 of the component 5 in the PCR reports "has not been used for either monitoring or evaluation purposes… Erosion plots established at selected sites have also not been well maintained, and cannot be used to measure any reduction in erosion or runoff." Perhaps surprisingly, "the Project did not design a monitoring and evaluation system, no training of Project monitoring and evaluation personnel was undertaken. Farmer groups were not trained in participatory monitoring and evaluation techniques" (component E PCR, Section 4.6.1.4).

The component TA commenced in May 1999 and ended in November 2001, although the contract was extended with input from November 2004 to March 2005 to assist in project completion review. Consultant inputs were therefore out of sync with the implementation schedule. Also, "the Project did not design a monitoring and evaluation (M&E) system, no training of Project M&E personnel was undertaken. Farmer groups were not trained in

[8] At the time of the Project's design, the National Regreening Program was an ongoing land rehabilitation program using funds collected by the Department of Forestry from forest concessionaires in lieu of forest replanting following forest harvesting. These funds (which were off-budget funds of the Government of Indonesia) were considered plentiful and underutilized. As such, the program was to be 77% locally funded. Following the financial crisis of 1997, the end of the Suharto era, and the Government's reformation (with several new presidents and administrations), these local funds were brought within the Government's budgeting system (at the insistence of the International Monetary Fund), held by the national treasury, and reallocated in competition with all government agencies as priority development budgeting. The new government, in a fiscally conservative and prudent policy, did not prioritize land rehabilitation and soil conservation. Beginning in 2000, local funding became inconsistent, irregular, and delayed. (Component 5, PCR, Section 1.1).

participatory M&E techniques" (component E PCR, Section 4.6.1.4).

Component 6: The Project undertook a range of activities, including to develop a geographic information system (GIS) at the village level designed to support decision makers in districts, provinces, and a major river basin organization. Resettlement guidelines were developed to assist planners in preparing and executing resettlement plans. The RRP estimated resettlement to involve 700 ha and 400 families, based on the requirements of the two core subprojects. Neither the Government's nor ADB's PCR provides information on actual resettlement needs, which is a deficiency in both reports. The PCR, however, reports land acquisition cost (presumably including resettlement) at $6 million, or about one quarter the $23.6 million estimated at appraisal. A major factor was significant devaluation of the rupiah from Rp 2,000 per dollar at appraisal to Rp 10,000 when compensation was effected.

Conclusion: Overall, the six components were desirable to meet project objectives. While Component 1 dominated in cost terms, the support provided to flood mitigation by the other five components was significant. Component 3 is the only partial exception to this statement, due to the difficulty of operating telemetry systems in Indonesia.

(iii) **Project Cost, Disbursements, Borrower Contribution, and Conformance to Schedule (as Relevant to Project Performance).** The total cost of the Project at appraisal, reformulation, and completion has been provided in the PCR in paras. 28–29 and Appendix 6. The PCR reflected the disbursement issue correctly in para. 15. The delay in implementing the Project was associated with (a) late approval of subprojects, (b) revision of contracts of consultants and the nongovernment organization, and (c) holding back payments to the consultants. After the EA replaced the project director, performance improved.

(iv) **Implementation Arrangements, Conditions and Covenants, and Related TA Projects.** Implementation arrangements were complex. As planned, the Directorate General of Water Resources Development (DGWRD) of the Ministry of Public Works was the EA for components 1–4, while the Directorate General for Land Rehabilitation and Social Forestry of the Ministry of Forestry, through watershed management units, was the EA for component 5. The Directorate General of Regional Development of the Ministry of Home Affairs executed component 6 and was responsible for planning, land acquisition, and resettlement. The Public Works Department (PWD) underwent two major reorganizations during implementation, but the PCR reports that this did not greatly affect implementation. Similarly, the decentralization process, which adversely affected many projects and caused implementation uncertainties, is reported not to have had a negative effect on the Project. Project stakeholders can be commended for managing project activities effectively in a difficult macroeconomic-environment.

With implementation through three ministries, each with a separate consultancy package, coordination was sometimes problematic. This was exacerbated by the component 5 consultants' establishing their base in North Java (see below), and movement of the project management unit (PMU) to Gombong (Section v below). The PMU, assisted by the components 1–4 consultants, appears to have coordinated the main project components adequately.

Consultant inputs totaled 2,119 person-months (422 months international; and 1,697 months national), which was almost double the amounts planned. The PCR reports that this was due to extended the implementation period, as well as the additional scope and design work. Subcontracts covering such items as aerial surveys, topographic surveys, environmental and social surveys, resettlement planning, geotechnical investigations, hydraulic modeling, nongovernment organization services, and river mouth investigations were implemented as part of the main consulting services contract.

This contributed to smooth implementation. RIWRT was contracted to monitor river morphology, maritime influence, and water quality. RIWRT's gains in institutional capacity were considered valuable. The PCR indicates that inter-consultant coordination was good, apart from the component 5 (Upper Catchment) consultants, and that all consultants made significant contributions to the Project. It is noted in the back-to-office report (BTOR) of the April 1999 mission that the component 5 consultants decided to open their office in Semarang, which is on the north coast of Java and outside the project area. This, combined with their reporting to the Ministry of Forestry, is likely to have caused communication and coordination difficulties with the project office and consultants for the other components. Component 5 was delayed by late consultant recruitment followed by difficulties in arranging fund flow from the Ministry of Forestry to the field offices in the provinces (BTOR of November 1999 Review Mission).

The BTOR for the September 1998 Review Mission reported that, as planned at appraisal (para. 111), the Project provided TA funds to conduct a resettlement management training program aimed at strengthening DGWRD's capacity to plan and implement resettlement. The TA was successfully completed in August 1998, and a comprehensive resettlement manual was prepared in close consultation with DGWRD and other relevant agencies. This was not reported by the ADB's or Government's PCRs. Given the need to include resettlement (which was best handled through the Directorate General of Regional Development) and the desirability of integrating catchment management (best handled by the Department of Forestry), the implementation arrangements are considered to have been appropriate despite the resulting coordination difficulties.

(v) **Performance of the Borrower and the Executing Agency.** The performances of the Borrower, EA, and implementing agency (IA) were rated satisfactory by OED while considering the fiscal constraints, decentralization, and the PWD's reorganizations. Although budgetary contributions were less than planned and the Project experienced delays, even the reduced level of performance is creditable given the country's fiscal constraints. Achieving project outputs at reduced dollar cost was significantly assisted by rupiah devaluation. Understaffing of the PMU was an issue, as only a part-time manager had been hired until May 1997 (which was 3 months in delay). A project of this magnitude required a full-time director and an adequate complement of staff. Movement of the PMU to Gombong (120 km away) in 2000, presumably due to the PWD reorganization, caused some coordination problems.

ADB review missions made several recommendations on appointing a full-time project director, but DGWRD was unwilling to comply. The reason for this is not known, but it possibly relates to the difficulty of reversing an appointment decision made by the Government. ADB was not informed of the part-time nature of the appointment, and the issue is not reported in the BTOR of the November 1997 mission. It was first referred to in August 1998. The April 1999 mission made strong representations in the matter, with DGWRD agreeing to provide its view by the end of May 1999, fully 2 years after the appointment. No more information is readily available from the project files on this matter.

Lack of counterpart funds was a problem for all components, but particularly so for component 5. No progress was made in 2001, since no local budget was available (BTOR of March 2002). The BTOR reported that "the IA for component 5 is very weak and could not submit an annual work plan for 2002. The procurement record is not in order. The Mission strongly requested to establish a coordination office in the field. Although the sufficient counterpart budget has been provided for components 1–4 in fiscal year 2002, lack of coordination among components 1–4, component 5, and component 6, hampers the smooth implementation of the Project." A review mission's BTOR in May 2003, however, reported that no activities occurred under component 5 in 2002, due to delayed disbursement of local budget.

The PCR (Basic Data) reports implementation progress as partly satisfactory from 1 December 1998 to 31 October 1999, and from 1 March 2000 to 30 April 2003. At other times, it was rated satisfactory. The BTOR of November 1999 reports, however, that implementation was rated unsatisfactory from the first quarter of 1999 and recommended that rating remain until funding was confirmed and the effects of reorganization assessed.

While this section has highlighted a number of implementation difficulties and issues, it is considered that the successful implementation of components 1, 2, and 6 and, to some degree, the other components merits an overall satisfactory rating.

(vi) **Performance of the Asian Development Bank.** OED rates ADB's performance as satisfactory. The design followed a detailed and logical process. At least annual review missions occurred over the main project period. There was a substantial midterm review and two special loan administration or portfolio review missions. Two review missions annually may have been more effective, at least in the initial years, given that project implementation was just partly satisfactory for long periods. ADB was responsive to the need to change the scope at midterm due to fiscal constraints facing the Government. Review missions agreed to changes in fund allocation (e.g., BTOR of the April 1999 mission), assisting significantly in implementation. By comparison with many ADB projects, the fact that there were only two project officers during an 8-year implementation period is highly positive.

Criticisms of ADB's project management included its imposition of changed requirements on the Project for the approval of civil works contracts and resettlement planning. While these were deemed necessary to conform with ADB systems, the Government's PCR (Section 13.3) states that these were imposed without prior discussion and caused significant problems for the Project. In relation to resettlement planning, a change of project officer compounded the problems, leading to a 1-year delay in approving the policy framework. Even after agreement, the name of the document is reported to have required protracted negotiation.

D. Evaluation of Performance (evaluator assessment)

(i) **Relevance.** The Project remained highly relevant through the implementation period and at completion. ADB's 2005 country strategy and program update[9] continues to support flood mitigation in Java and highlights Indonesia's marked susceptibility to natural disasters. River and coastal management remain extremely important in Java, particularly because of high population densities. Capacity building activities were valuable, and most equipment was useful. An exception is the telemetry system established on the Citanduy, which is unlikely to be viable. Overall, the Project is rated *highly relevant*, the same rating as given by the PCR.

(ii) **Effectiveness in Achieving Outcome.** Judging the effectiveness of each component requires such information as (a) impact of project activities on flood frequency or severity, stability of river entrances, and viability of new irrigation areas (component 1); (b) assessment of river basin institutions' capacity (component 2); (c) status of the telemetry system and automatic recorders in the Citanduy basin (component 3); (d) status of the monitoring program (component 4); (e) improvements in catchment stability and tree plantings performance (component 5); and (f) attitudes of resettled people. Only limited information is available on these and other outcome indicators.

The PCR indicates that flood control works have reduced flooding by around 24,000 ha, benefiting 270,000 residents. While the achievement is less than envisaged at appraisal (40,000 ha; and 400,000 people), this is considered to be primarily due to the setting of

[9] ADB 2005. *Indonesia: Country Strategy and Program Update*. Manila.

ambitious targets. Based on outcomes reported in the PCR, performance appears to have been sound. Substantial training and equipment was provided to the institutions responsible for river basin monitoring and management. Information is not available to assess capacity and capability in South Java's river basin institutions.

Regarding the Citanduy telemetry scheme, it seems likely that it will suffer the same fate as schemes introduced in Bali under the Capacity Building Project in the Water Resources Sector Project. Operation, maintenance, and budget problems (e.g., lack of budget to replace telemeter batteries, and theft of equipment) had prevented post-project operation of the systems. Considering the lack of O&M at the time of the PCR, a similar outcome appears likely for Citanduy. River management and characteristics monitoring is important if river health is to be maintained (e.g., by limiting coastal erosion). However, ongoing monitoring is limited due to the lack of defined responsibilities and underfunding of the balais (the primary responsible agencies) (see Government's PCR, 7.12).The target for "regreening" under component 5 was reduced by the midterm review, as mentioned above, and the revised target was marginally exceeded. Information on the program's effectiveness is unavailable. The PCR does not discuss the component in detail. The project coordination under component 6 was generally adequate but experienced some difficulties, as mentioned earlier in this report. Information on numbers resettled and their attitudes toward the resettlement program are not available.

While it is difficult to be definitive due to limited data, OED rates component 1 as likely to be effective (with some reservations about the likely long-term success of river entrance training works). Other components appear effective, apart from component 3, which is less effective. Overall, OED agrees with PCR's rating of "effective."

(iii) **Efficiency in Achieving Outcome and Outputs.** Efficiency of process was satisfactory, despite delays in local funding release and consultant recruitment. The PCR (para. 31) reports that the Project experienced minimal contractor procurement delays, as the extensive use of subcontracts for surveys, equipment, and studies under the main consulting services package reduced the potential for delay.

The PCR summarizes the economic performance of nine flood control subprojects. Overall, the economic internal rate of return (EIRR) is estimated at 20%, a high level. Performance is variable between subprojects and ranges from negative, in the case of the Wawar core subproject (also the most costly of the schemes), to 37% (excluding very high returns to one bridge subproject). It must be questioned how a scheme such as Wawar, with costs of Rp127 billion, can only generate benefits of around Rp3 billion per year while some schemes costing one-fifth as much generate more than double those benefits. The Government's PCR, however, estimates benefits at more than twice the level in the PCR and, resulting in marginal economic performance. The reason for the variation cannot be assessed from the data available to OED. If the PCR is correct, then the inclusion of Wawar as a core subproject and the quality of the economic analysis undertaken at design need to be questioned.

For all project components, and accounting for all project costs, the EIRR is estimated at 12% (PCR, Table 12.7). In this table, there are a number of issues that cannot be resolved without seeing the detailed calculations from the economic analysis. In relation to benefits, it is not clear why these increase annually by 2% per year. This appears to be due to expected further decline in the performance of flood control assets in the absence of the Project. The benefit stream appears to include benefits, of around Rp42 billion per year, from the contribution to reconstructing the Srandakan bridge across the Progo River following its collapse, which reportedly resulted from sand mining in the river. The cost of the bridge and project contributions are not quoted but probably the cost came to around Rp70 billion. Based on this estimate, and excluding the costs and benefits of the bridge while holding other benefits constant after 2006, the EIRR would be reduced to 6%.

It would rise to 7% if the 2% per year increase in benefits assumed by the PCR were applied. The difference is accounted for by the extremely high returns that the bridge generates (with a probable EIRR exceeding 50%). The Government's PCR does not include the benefits from the bridge, and it does not identify the bridge as a cost center.

Overall, OED concurs with the PCR assessment of the Project as efficient. The PCR indicates a rating of "cost-efficient," as the Project was implemented at costs lower than at appraisal, but it does not rate the Project's overall efficiency. From an economic perspective, the Project can be assessed as efficient based on the calculated EIRR (12%), but the PCR does not specify this. Implementation efficiency is not specifically discussed, although various aspects are mentioned in other sections of the PCR.

(iv) **Preliminary Assessment of Sustainability.** In principle, the types of works undertaken under component 1 should not require high levels of maintenance and should be able to continue their flood mitigation functions for many years. Individual O&M plans for each river basin were developed (PCR, para. 12) and contain financial plans, required staffing, and studies on cost recovery. An O&M manual was developed, and training seminars involving 104 trainees were conducted under the Project. A river basin organization was established under DGWRD, which has committed to giving priority to budgeting annual O&M over funding new civil works for rivers (PCR, para. 49).

Development of river GIS was a positive aspect of the Project. There will be a need to refine and update the GISs and to make use of them for O&M. The Government's PCR (pages 5–9) indicates that a river GIS manual was due to be prepared, but information is not available as to whether or not it was completed. Section 15-3 of the Government's PCR suggests that the GIS was not being used due to lack of necessary equipment because one or more GIS units were not established by district governments.

O&M of the systems was estimated by the project consultants to require around Rp100 billion per year. This is substantially above the 2% of capital costs allowed under the government budgetary system. Cost recovery can provide additional funds, but a substantial deficit will remain. This raises questions about sustainability. The Citanduy River automatic flood warning telemetry network was considered by the consultants to be at particular risk of failure. This would be unfortunate, as it has the potential to provide greatly improved flood warning to lower Citanduy inhabitants. Civil works constructed under component 5 were estimated by the component PCR, Section 4.6.3 to be "currently effective; but only on a small scale, and for a life of no more than 5 years." The component 5 PCR considered that vegetative treatments appeared promising in 2004 and should be fully effective by 2009 but that these were subject to some risks. Overall, it appears that the provincial and district authorities have not been able to capitalize on the work undertaken and systems introduced by the Project. Overall, OED agrees with the PCR rating of less likely sustainable, although this could be increased if the Government provides additional annual budget and resources on a sustainable basis.

(v) **Impact (Intended and Unintended).** In addition to the Project's impacts identified in the PCR, this evaluation noted other positive impacts that include (a) improved management of river sand extraction, and (b) knowledge of river and/or coastal linkages. Possible negative impacts may be associated with river entrance works (construction of groins, etc.), which may cause down-current erosion. No information is available that this has occurred, or is likely to occur, but it is a common issue with coastal works.

While reduction in flood damage is desirable, OED notes that flood protection can have some unintended impacts. Flood protection can provide a false sense of security to landowners, developers, and local governments, leading to increased development of the floodplain. In an extreme flood event, protection measures may not cope and flooding can

be as bad (or worse in some cases) than if the protection measures had not been implemented. In this context, control over development of the floodplains is essential. There is no indication in the project PCRs that this factor is considered significant.

E. Overall Assessment, Lessons, and Recommendations (evaluator assessment)

(i) **Overall Assessment.** The Project is rated successful. (The PCR's rating is satisfactory, although this is taken to mean successful, based on the ratings made or implied for each evaluation criterion).

Lessons. The PCR derives six lessons that are relevant and evidence-based.

OED considers that the Project's economic performance highlights the need for adequate economic pre-assessment of flood control subprojects. The economic failure of the Wawar basin works has undermined the good performance demonstrated by most of the remaining nine schemes. As a core subproject, more accurate economic analysis should have been feasible.

Government agencies are often not keen to devote necessary resources to monitoring, often giving preference instead to designing and implementing new projects. In the case of flood control and river training works, however, monitoring is essential to ensure adequate maintenance and that structured life and effectiveness are maximized.

Recommendations. The PCR's specific and general recommendations are relevant. It is particularly important that O&M budgets and (if possible) further flood control works in the basins are implemented by Indonesian government agencies. The PCR indicates that the government agencies should undertake further work or monitoring, but it indicates no reporting requirements or specific follow-up by ADB. The component 5 PCR contains numerous recommendations relevant to regreening programs in the project area and in general. However, ADB's PCR contains no recommendations on regreening.

F. Monitoring and Evaluation Design, Implementation, and Utilization (evaluator assessment)

The PCR provides little information on M&E. The Government's PCR provides more information, indicating that M&E was not a strong point of the Project. The Project set up an evaluation system early on, as required by the RRP; monitoring and evaluation units (MEUs) were established; and training was provided. However, the Government's PCR (Section 5.8) notes that "the program was never implemented, because the Provincial MEUs were disbanded in early 2000 as a consequence of the provisions contained in Law No. 22/1999 on Regional Autonomy. No alternative agency was put in place to replace the MEUs until late 2004 (following pressure from review missions). New MEUs were therefore formed by the Provincial development planning agencies (Badan Perencana Pembangunan Daerahs or BAPPEDAs) in order to tackle the issue." Thus, project monitoring systems were only established late in the Project, and the Government's PCR reports that "mixed results were achieved from the only monitoring campaign conducted in mid-2005." A recommendation was made that government agencies should continue project benefit monitoring and evaluation post-project, but there is no evidence that this would have occurred. The Project did, however, make major efforts to improve the data set on flooding and hydrology throughout implementation.

The Government's PCR (Section 14.2.3) reports that "The lack of accurate, time-series M&E of on-site and off-site erosion, sedimentation, run-off, and basic farmer socioeconomic data has prevented the Project from convincingly assessing the success (or failure) of land rehabilitation activities stabilizing the upper catchment of South Java; and eventually, reducing the frequency of lowland flooding." Monitoring of the coastal structures developed by the Project is also weak

(Government's PCR, Section 8.9), raising concerns about the impacts of the structures and their management. Monitoring of the structures' performance is highly desirable.

M&E activities appear to have generated some conflict. The Government's PCR (Section 15.4) states that, where one of the consulting groups is to carry out M&E on other groups, "the issue finally boils down to a situation whereby the Consultant tries to camouflage its own lapses and mistakes, while reporting on the performance of fellow consultants. Experience has shown that this leads to extremely unpleasant situations that benefit nobody." The consequent recommendation (not adopted in ADB's PCR) was that an external agency should be appointed to undertake M&E.

The component 5 PCR indicates that (i) M&E systems were not developed for the regreening program, (ii) no follow-up survey was undertaken after the baseline, and (iii) M&E was generally weak. Information is consequently not available on the performance and sustainability of the component outputs.

It is noted that the government completion reports for components 1–5 are comprehensive. The component 6 PCR is of limited value, however, and it contains little information on key areas such as land acquisition, people resettled, costs and resettlement outcomes. Since the consultants were required to monitor the resettled population for 2 years after resettlement, the PCR should have provided at least summary information.

G. Other (safeguards, fiduciary, unintended impacts—positive and negative)

Reportedly, resettlement planning was detailed. It is presumed that resettlement was undertaken in accordance with the plans, but the PCR does not provide information on resettlement outcomes. Environmental planning comprised environmental impact assessment (reported by the Government's but not by ADB's PCR) on all flood control subprojects (i.e., by river basin). The level of environmental assessment of river entrance works appears to have been at least adequate, and hopefully it was sufficient to define and mitigate down-current negative impacts. Based on the delayed start and lack of local budget in 2001 and 2002 for component 5, it is surprising that the area "regreened" is reported by a BTOR in February 2004 to have exceeded the revised target of 19,300 ha. Component 5's record keeping was deficient, as reported in several BTORs, but there is no suggestion of corruption.

H. Ratings	PCR	OED Review	Reason for Disagreement/Comments
Relevance:	Highly relevant	Highly relevant	Component 3 was less relevant but represented only a small proportion of project cost. While its lack of use suggests low relevance, it will nonetheless be helpful when viable telemetry systems become better established.
Effectiveness in Achieving Outcome:	Effective	Effective	Component 3 was ineffective. Flood warning system in Citanduy River not properly calibrated or working. Limited information.
Efficiency in Achieving Outcome and Outputs:	Efficient	Efficient	Component 5 was less efficient, in terms of process. No information on economic efficiency of this component. By far the major component, flood control, maintains an efficient economic rating only because of including reconstruction of Srandakan bridge, which had collapsed due to excessive sand mining.

Preliminary Assessment of Sustainability:	Less likely	Less likely	Increased allocation to flood control system O&M will be critical for scheme life and impact. Strong villager ownership of regreening activities reported, giving hope for sustainability of component 5.
Performance of Borrower and EA:	Satisfactory	Satisfactory	Lack of full-time project manager was an issue for much of the project period. Shortage of budget and poor administration of component 5 were less satisfactory. Because DGWRD did well to complete implementation in difficult financial circumstances, rating is not reduced to partly satisfactory
Performance of ADB:	Satisfactory	Satisfactory	Flexible and proactive response to project problems. Regular review missions. Only one change in project officer in 7 years.
Impacts:	Positive	Positive	Listed in 4.e above.
Overall Assessment:	Successful	Successful	
Quality of PCR:		Satisfactory	See next item.

I. Comments on PCR Quality

OED assesses the quality of the PCR as satisfactory.

There was limited detail provided on component 5 or reasons for the failure of component 3. Nonetheless, sufficient evidence was provided to substantiate claimed ratings. Project administration instruction 6.07 has generally been followed. The ratings provided against evaluation criteria are not always definitive, however, and there are terminology problems.

No information is provided in relation to resettlement and environmental assessment as required by para. 26 of the project administration instruction. However, mention was made of positive environmental outcomes from regreening. No information was provided on the performance of the piggybacked TA.

The PCR provides an excellent example of reporting progress on the project design and monitoring framework that is not seen in many PCRs.

There is some apparent discrepancy between the implementation performance ratings reported by the PCR compared to review missions' BTORs.

Lessons and recommendations are considered sound and relate well to the PCR's analysis. In relation to components 5 and 6, it is likely that the PCR has not fully considered the Government's PCRs provided to OED, which contain useful information and recommendations.

REGIONAL DEPARTMENT'S RESPONSE TO THE PROJECT COMPLETION REPORT VALIDATION REPORT

On 10 April 2008, the Operations Evaluation Department circulated a draft Project Completion Report Validation Report for interdepartmental comments. The Operations Evaluation Department received comments from the Agriculture, Environment & Natural Resources Division of the Southeast Asia Department on 21 April 2008. All comments were duly incorporated in the final report.