

PROJECT COMPLETION REPORT

ON THE

**CYCLONE EMERGENCY REHABILITATION PROJECT
(Loan 1684-VAN[SF])**

IN THE

REPUBLIC OF VANUATU

December 2001

CURRENCY EQUIVALENTS

Currency Unit – Vatu (Vt)

	At Appraisal	At Project Completion
	(March 1999)	(April 2000)
Vt100	= \$0.77	\$0.67
\$1.00	= Vt129.95	Vt149.85

ABBREVIATIONS

ADB	– Asian Development Bank
AFD	– Agence Francaise de Developpement
APM	– assistant project manager
AusAID	– Australian Agency for International Development
DMC	– developing member country
EU	– European Union
MFEM	– Ministry of Finance and Economic Management
OM	– <i>operations manual</i> Section 24
PWD	– Public Works Department
RRP	– Report and Recommendation of President
SDR	– special drawing rights

NOTE

- (i) The fiscal year of the Government coincides with the calendar year.

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BASIC DATA

A. Loan Identification

1.	Country	Vanuatu
2.	Loan Number	1684-VAN(SF)
3.	Project Title	Cyclone Emergency Rehabilitation Project
4.	Borrower	The Government of Republic of Vanuatu
5.	Executing Agency	Public Works Department
6.	Amount of Loan	SDR1,464,000 (\$2.0 million equivalent) ¹
7.	PCR Number	PCR: 664

B. Loan Data

1.	Appraisal	
	– Date Started	2 March 1999
	– Date Completed	31 March 1999
2.	Loan Negotiations	
	– Date Started	29 March 1999
	– Date Completed	31 March 1999
3.	Date of Board Approval	20 April 1999
4.	Date of Loan Agreement	10 May 1999
5.	Date of Loan Effectiveness	
	– In Loan Agreement	20 July 1999
	– Actual	5 August 1999
	– Number of Extensions	One
6.	Closing Date	
	– In Loan Agreement	30 September 2000
	– Actual	19 December 2000
	– Number of Extensions	Nil
7.	Terms of Loan	
	– Interest Rate	1%
	– Maturity	32 years
	– Grace Period	8 years

¹ Net loan amount of SDR1,440,595.35 (\$1.93 million equivalent) after partial cancellation of SDR23,406 (\$30,179.13 equivalent) on 19 December 2000.

8. Disbursements

a. Dates

Initial Disbursement	Final Disbursement	Time Interval
3 September 1999	19 December 2000	1 year 3 months
Effective Date	Original Closing Date	Time Interval
5 August 1999	30 September 2000	1 year 2 months

b. Amount (\$)

Category	Original Allocation	Final Allocation	Amount Added/ Canceled	Net Amount Available	Amount Disbursed
Civil Works and Consulting Services	2,000,000	1,936,450	(30,179)	0	1,926,450
Total	2,000,001	1,926,450	(30,179)	0	1,926,450

9. Local Costs (Asian Development Bank-Financed) Nil

C. Project Data

1. Total Project Costs (\$ million)

Item	Appraisal Estimate	Actual
Foreign Exchange Cost	2.00	1.93
Local Currency Cost (Equivalent)	Not Provided	0.72
Total	2.00	2.65

2. Financing Plan: Implementation Costs (\$ million)

Item	Appraisal Estimate	Actual
Borrower-Financed	Not Provided	0.72
Asian Development Bank-Financed	2.00	1.93
Total	2.65	2.65

3. Cost Breakdown by Project Components (\$ million)

Component	Appraisal Estimate ^a			Actual		
	Foreign	Local	Total	Foreign	Local	Total
Civil Works				1.75	0.72	2.47
Consulting Services				0.18	0.00	0.18
Total				1.93	0.72	2.65

a No breakdown provided for emergency loans except for financing of an unqualified list of materials

4. Project Schedule

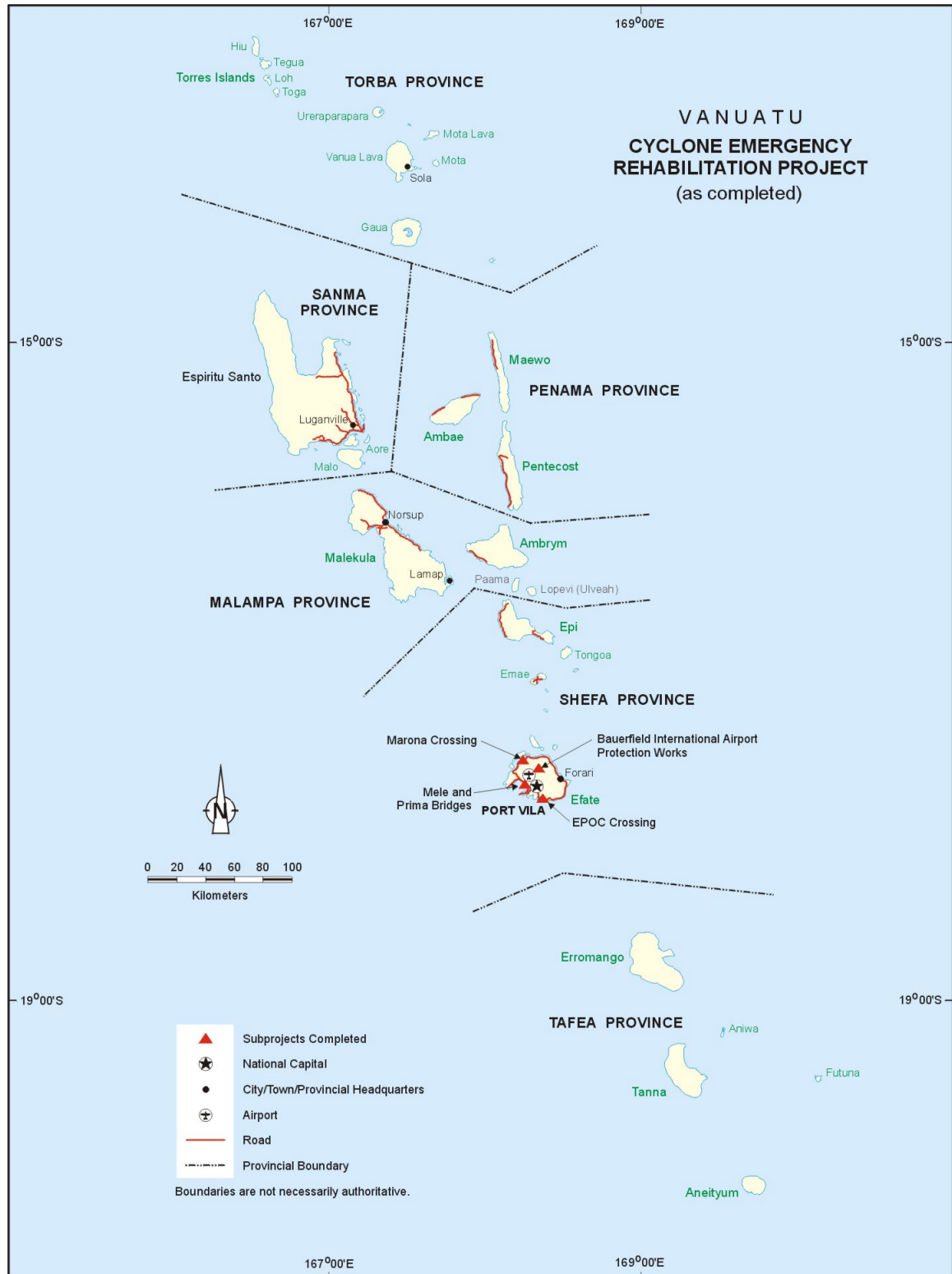
Item	Appraisal Estimate	Actual
Civil Works		
Started	Jul 1999	Mar 2000
Completed	Mar 2000	Sep 2000
Consulting Services		
Started	Apr 1999	Sep 1999
Completed	Sep 1999	Sep 2000

D. Data on Asian Development Bank Missions

Name of Mission	Date	No. of Persons	No. of Person-Days	Specialization of Members ^a
Appraisal	2-31 Mar 1999	3	30	a, b, c
Review	11-18 Nov 1999	1	8	a
Review	27-31 Mar 2000	2	10	c, d
Review	19-26 Oct 2000	2	16	c, d
Project Completion Review ^b	27-31 Mar 2001	3	15	c, d, e

^a a-project engineer, b-project specialist, c-project implementation officer, d-project assistant, e-project economist/financial analyst.

^b The Project Completion Review Mission comprised R. R. Adhar, Senior Project Implementation Officer/Mission Leader and S. E. Toara, Project Assistant; assisted by G. B. Hayes, Economist and Financial Analyst, Staff Consultant.



I. PROJECT DESCRIPTION

1. Cyclone Dani struck Vanuatu on 19 and 20 January 1999 and the subsequent flooding associated with it caused extensive damage to infrastructure on the islands of Efate, Malekula, and Espiritu Santo.¹ Roads, bridges and river crossings were heavily damaged, and the only international airport in Vanuatu was left vulnerable after the La Colle River cut a new course close to the end of the runway.² The Government of Vanuatu quickly moved to implement its disaster management processes and the National Disaster Management Committee assessed the damage caused by cyclone Dani. Following the assessment of the damage, the Government convened an aid coordination meeting and sought emergency assistance for relief supplies as well as rehabilitation of damaged infrastructure.

2. The Government requested assistance from the Asian Development Bank (ADB) on 25 February 1999. ADB fielded the Appraisal Mission from the South Pacific Regional Mission on 2 March 1999. ADB approved a loan of \$2.0 million equivalent for the Cyclone Emergency Rehabilitation Project under its Emergency Rehabilitation Assistance for Small Developing Member Countries (DMCs) facility.³ The Project was designed to help restore normal transportation services on Efate Island and thus to assist the speedy recovery of the economy. It aimed to rehabilitate four damaged bridges that formed an essential part of the infrastructure underpinning tourism and agriculture in Vanuatu, to protect the international airport at Bauerfield, and to develop a flood mitigation plan to protect Mele village. A brief history of the Project is presented in Appendix 1. The Project complemented emergency assistance provided by other funding agencies, as detailed in Appendix 2.

II. EVALUATION OF IMPLEMENTATION

A. Project Components

3. At appraisal the Project was envisaged as comprising consulting services, rehabilitation of bridges and river crossings, and construction of retaining structures and river training works. The Project also included development of a flood prevention and protection plan for Mele catchment basin, from which the floodwaters affected the coastal village at Mele, the bridges at Mele and Prima, and the Bauerfield International Airport. In accordance with the modified appraisal process (footnote 3), the scope of the Project was not precisely defined but the Report and Recommendation of the President (RRP)⁴ included a list of works that could be financed under the Project for the reconstruction of bridges, river crossings, and river training and retaining structures. The works actually carried out during the Project were similar to those envisaged at appraisal and the project scope was not changed significantly during implementation. ADB approved a minor change in project scope to provide for continued engagement of the assistant project manager (APM). Australian Agency for International Development (AusAID) had previously supported the APM, but delays in the Project necessitated a 4.5-person-months extension of the position.

¹ The 24-hour rainfall total from midnight 19 January 1999 was 539 millimeters, the highest recorded since rainfall records commenced at the Bauerfield International Airport in 1985.

² The riverbank was 45 meters from the end of the runway compared with the desirable minimum buffer zone of 70 meters required for airport security.

³ ADB 1998. *Operations Manual*, Section 24. Manila.

⁴ Loan No. 1684-VAN: *Cyclone Emergency Rehabilitation Project*, for \$2.0 million approved on 20 April 1999.

1. Consulting Services

4. The Project provided for the services of two international consultants to assist the Public Works Department (PWD) in planning for and implementing the rehabilitation activities. A hydrologist was engaged to define the hydraulic requirements for the various bridge works and low-level river crossings, prepare a flood protection plan for the Mele catchment, and establish a preventative action and flood warning plan for the flood-prone parts of the Mele catchment area. No previous detailed hydrological studies had been conducted on Efate Island and the hydrologist had difficulty locating adequate meteorological and river flow data to prepare a flood protection plan.⁵ As a result, the assignment was extended by 1.5 person-months (additional 25 percent input) to complete the work. The hydrologist prepared a flood protection plan including a number of techniques as measures against flood damage. However, at project completion, no action had been taken to implement the flood protection plan owing to lack of appropriate institutional arrangements and funds to implement such measures. The hydrologist concluded that the dissemination of flood warnings and cyclone alerts through radio broadcast were the standard procedures and appeared to work efficiently in Vanuatu. Moreover, the local people were aware that most floods occur during cyclones and the use of any other systems for flood warnings and monitoring were not required.

5. The second international consultant engaged was a bridge engineer who assisted PWD in preparing bid documents, conducting bidding processes, and reviewing and evaluating the contractor's engineering design work. The bridge engineer appointed for this work prepared design and build bid documents for the Mele and La Colle bridges and helped evaluate the bids. Although the original terms of reference required this engineer to assist in the monitoring and administration of the contract, PWD terminated his services two months earlier than planned, after they made alternative arrangements for the appointment of an employer's representative for the site supervision and quality control of the contract works.⁶

2. Civil Works

6. The civil works comprised (i) restoration of the river bank at Bauerfield International Airport, (ii) rehabilitation of the Prima bridge on the La Colle River, (iii) rehabilitation of the Mele bridge on the Tepwukoa River, (iv) rehabilitation of the Epoc River crossing, and (v) provision of river training works upstream of Marona crossing and installation of debris fenders at Marona crossing. Although only minor modifications were made to several of these works compared with the work envisaged at appraisal, these modifications did not significantly change the project costs, time schedule, or expected benefits.

a. Bauerfield International Airport

7. As a result of the flooding associated with cyclone Dani and the subsequent unusually heavy rainfall during the remainder of the wet season, the La Colle River cut extensively into its southwestern bank and encroached to within 45 meters of the runway apron at Bauerfield International Airport. Since the continuing riverbank erosion threatened the safe operations of the airport, PWD, using Government funding, opened a new channel to divert the river away

⁵ Hourly or continuously recorded rain gauge data was not statistically significant apart from only one stream gauging site with very limited streamflow and flood level data.

⁶ In March 2000, AusAID provided finance enabling the Government to appoint a local engineering firm as employers representative to supervise all civil works on Efate, including those funded under the Project.

from the airport apron and to safeguard the runway apron from erosion. Based on the studies, site investigations, and the technical design parameters completed by the hydrologist, a design and build contract was let for works under the Project to protect the southwestern bank of the La Colle River from erosion and to reconstruct the airport perimeter fence and the local access road. The work involved the construction of a 200-meter long, 4.5-meter high gabion retaining wall, and placement of over 10,000 cubic meters of fill. The retaining wall has a self-launching rock-filled reno mattress apron to protect against scour. Other works involved river training works to divert the river away from the bank, planting of vegetation to stabilize the river bank and bed, restoration of the damaged access road and drainage facilities, and erection of a crash barrier at the top of the gabion wall.

8. The works were carried out successfully and the airport apron now appears to be well-protected against further flood damage.⁷ The retaining structure is sound and has showed no signs of failure against various floods that occurred after its completion. Some initial delays and subsequent cost escalation resulted from the need to obtain a suitable fill material from a site more distant from the works than originally envisaged. However, neither the delay nor the cost increases were substantial.

b. Prima Bridge

9. The Prima bridge on the La Colle River is located about 6 km west of Port Vila on the main Efate ring road. It links the largest periurban population center of Mele to Port Vila and carries the major share of traffic associated with tourism and agriculture on Efate Island. As a result of the flooding associated with cyclone Dani, the bridge abutments were scoured out and the gabion protection for the abutment collapsed. This caused further scouring of the fill under the approach slab,⁸ which left the bridge vulnerable to additional damage. Using its own funds, the Government installed a temporary steel bridge span to restore the link for traffic flow. The Project involved the restoration of gabion protection to the bridge abutments. Because of the availability of some loan savings ADB approved some refurbishment and antirust protection of the bridge itself to improve its operational life.⁹

10. The design and build bid documents prepared by the bridge engineer provided specifications for reinstatement of the original form of abutment protection based on the use of rock-filled gabions with adequate scour protection against any undermining processes. The contractor was required to obtain PWD's approval of the final design for the bridge protection prior to commencing permanent works on-site, and submitted the detailed designs in mid-May 2000.¹⁰ Owing to incompatibility between the software used by the bridge engineer and that used by the contractor's design consultant, the bridge engineer was unable to complete a review of the design until mid-June 2000. The bridge engineer drew attention to shortcomings in the design drawings and noted that the scour protection did not comply with the specifications, in that the founding depth did not extend below the anticipated depth of scour. Notwithstanding this concern, the bridge engineer, after consultation with the hydrologist, concluded that the use

⁷ Based on the hydrological study, the protection should be adequate to prevent flood damage with an annual flood recurrence interval of at least 20 years.

⁸ Reinforced concrete slab cast on top of the fill behind the abutment linking the approach road and the bridge deck.

⁹ This comprised a sandblasting rust removal process, spray repainting, and replacement of missing deck plate bolts and nuts.

¹⁰ This was about one week later than the 35 days stipulated in the contract.

of self-launching rock-filled reno mattresses proposed by the contractor's design consultant was an acceptable alternative to deeper scour protection. However, he noted that since river engineering was a very sensitive and specialized activity, special care would be required to construct and launch the gabion baskets and reno mattresses. The works as constructed comprised (i) construction of a new approach slab at the western abutment, (ii) gabion and reno mattress protection to both bridge abutments, (iii) the tying-in of existing gabion protection works, (iv) backfill at the back of the gabion baskets under the new slab at the western abutment, and (v) provision of concrete cover to the gabion wall at the western abutment.

11. The works were completed by the contractor in September 2000 and certified for acceptance by the employer's representative as meeting the requirements of the contract. On 1 March 2001, cyclone Paula struck Efate Island, and, although it was a less intense than cyclone Dani,¹¹ the subsequent flooding caused damage to some elements of the project works that were provided for the protection of the bridge's western abutment. Although the bridge did seem not to be damaged, the abutment protection was severely damaged and the western approach road to the bridge was left vulnerable to damage in the event of another cyclone or flood. As soon as the flood-waters receded, the contractor examined the damage and accepted responsibility for measures to restore the abutment protection through permanent remedial works. The site investigation and design for remedial works were completed by end July 2001. The proposed works comprised (i) complete removal of the entire gabion protection works at the western abutment and reconstruct two sets of gabion walls in front as well as at the back of the piles (ii) reinforcement of the undamaged eastern abutment protection with additional gabions; and (iii) excavation of the full river bed to suitable level, and placement of 150 millimeter thick layer of gravel covered with geotextile material and a double layer of 230 millimeter thick rock-filled reno mattresses spread with suitable upstream and downstream cutoff measures. The contractor mobilized resources in August 2001 and the proposed remedial works have been substantially completed. The contractor has claimed and PWD has concurred that the scour protection being provided will exceed a reasonable assessment of the contract requirements and is deemed sufficient for all events experienced to date at the bridge site. This is assumed to include scour from a 20-year recurrence interval event.¹² Since these works are substantially completed, the abutment protection for the bridge is assessed to have been fully restored to its pre-cyclone Dani condition.

c. Mele Bridge

12. The Mele bridge is located on the main Efate ring road about 2 km west of the Prima bridge. During cyclone Dani the approaches to the single-span bridge were washed out, but the main structure and the abutments remained intact. A temporary crossing was built downstream of the bridge to provide access to transport. The site investigations and study completed by the bridge engineer and the hydrologist recommended addition of another span to increase the waterway width under the bridge, gabion protection to the abutments, and river training works upstream of the bridge. The bridge was rehabilitated under a design and build contract in accordance with the technical specification prepared by the bridge engineer. The works comprised an additional 10-meter span, a new piled abutment, scour protection for both abutments comprising a self-launching rock-filled reno mattress, and construction of a terramesh retaining wall along the northeastern flank of the approach road. The river training

¹¹ The 24-hour rainfall at Bauerfield International Airport associated with cyclone Paula was 256 millimeters or about 50 percent of that recorded during cyclone Dani.

¹² URS Consulting Firm, Auckland. Technical Report on Prima and Mele Bridges: Vanuatu: Revised Scour Protection Measures, Page 4-1.

works comprised excavation of a new river channel and installation of three retard fences on the eastern riverbank to deter migration of the river away from the upstream entrance to the bridge. Works included rehabilitating the approach roads and installing crash barriers and other road safety devices.

13. The bridge works under the Project were completed in September 2000 and were certified for acceptance by the employer's representative as meeting the requirements of the contract. As a result of cyclone Paula, the subsequent flooding caused minor damage to the abutment protection on the western bank, but the bridge remained structurally sound and fully operational. As a result of some heavy scouring, about one third of the length of the gabion wall on the upstream end of the western abutment subsided along with the rock-filled reno mattresses. The contractor has proposed remedial work, which will restore the abutment protection, comprising (i) truncation of the leading edge of the reno mattresses, (ii) addition of extra gabion baskets to the reno mattresses to promote the required downwards collapse of the mattresses under flood conditions, (iii) filling of the erosion void behind the gabions, and (iv) restoration of parts of the embankment protection with adequate rock fill and top-soil vegetation. The remedial works are expected to be completed by December 2001 and the bridge will have been restored to its condition prior to cyclone Dani. PWD is confident, that the remedial works proposed by the contractor will achieve this objective.

d. Epoc River Crossing

14. The Epoc River crossing is located on what was the main Efate ring road about 12 km east of Port Vila. Following the construction of a new section of the ring road in 2000, the crossing is now located on a secondary road serving several villages, a golf course, and a few tourist resorts. The original crossing was completely destroyed during cyclone Dani. To restore immediate transport links, PWD installed a temporary vented ford crossing immediately after the cyclone. The Project improved this temporary crossing by constructing reinforced concrete headwalls, and safety barriers, realigning the approach roads, and installing warning signs. The works were completed in September 2000 and the new crossing is fully functional.

e. Marona River Crossing

15. The Marona crossing is located on the main Efate ring road at Port Havannah in the north part of Efate, about 30 km from Port Vila. During cyclone Dani, the river outflanked and overtopped the single-lane, 12-meter span bridge. As a result of overtopping, the approach roads were completely washed away and the riverbanks at the bridge site severely eroded and widened. With Government funding, the crossing was rehabilitated and the structure extended on the western bank with a series of larger diameter pipes encased in concrete.¹³ The river course is unstable and the Project provided for river training works by installing steel groins upstream of the crossing and debris fenders to prevent blockage of the culverts. The effect of the river training works cannot be assessed until several flood events are experienced, but, at this stage, the crossing remains fully functional.

¹³ The crossing now consists of a 20-meter long vented ford with a sheetpile curtain providing protection from scouring and a 12-meter bridge section based around the original bridge, for low level flows.

B. Implementation Arrangements

16. The implementation arrangements were essentially as envisaged at appraisal. PWD was the Executing Agency and provided a project manager to oversee the initial implementation stages. The APM who worked principally on the Project, and was funded by AusAID for 12 months starting in May 1999. Owing to initial delays associated with the project implementation and the conclusion of AusAID's support for the APM, ADB financed the APM position for a further 4.5 months to complete the Project. AusAID also financed site supervision and geotechnical services that were provided by local consulting firms.

C. Project Costs

17. At appraisal, the total cost of the Project was not known but the total cost of the rehabilitation works to be financed by ADB was estimated to be \$2.00 million equivalent. At project completion, the actual cost of the Project was estimated to be \$2.65 million including taxes and duties. ADB financed \$1.93 million of the total costs representing 73 percent of the total project costs. Although provision for retroactive financing was provided under the loan, this facility was not used as the Government used its own funds for all temporary restoration works as well as the rehabilitation of Marona crossing. This approach enabled effective utilization of the loan funds for more permanent rehabilitation works through proper designs and documentation processes. The underfunding from the loan was also due to earlier than expected termination of the bridge engineer.

D. Project Schedule

18. The Project was implemented over 18 months rather than the 12 months planned at appraisal. Almost all of the slippage occurred in the first nine months. Loan effectiveness was delayed by one month to August owing to delays associated with ADB's acceptance of the Government's legal opinion on approval of the Loan Agreement.¹⁴ Although provision had been made for advance procurement under the loan, this facility was little used, since the process of recruiting consultants took much longer than envisaged. The hydrologist and bridge engineer were not mobilized until July 1999, which delayed the preparation of the tender documents to November 1999, 10 months after the cyclone. The tendering process for civil works extended over 4 months owing to the need to provide an additional four weeks for bidders and the multilevel clearances required by the Government before tenders could be awarded.¹⁵ The civil works were completed by the end of September 2000, within 6 months of the award of contracts in March 2000 and after a contract variation was approved to accelerate the works in order to meet ADB's requirement that all works under an emergency assistance loan be completed within 12 months of loan effectiveness.¹⁶

¹⁴ The State Law Office issued its opinion on 3 June 2000, but ADB did not respond until 13 July, when it suggested that a more formal opinion was required. The Attorney General's Office provided a revised opinion on 22 July and ADB accepted this with reservations on 28 July. The legal opinion referred to a ratification bill that was to be passed at the next session of Parliament, ADB suggested that the Government should modify its process to avoid relying on pending ratification.

¹⁵ All contracts in excess of Vt5 million must be approved by a tender board, cleared by the Development Committee of Officials, and approved by the Council of Ministers.

¹⁶ The Operations Manual (footnote 3) indicates that the loan should be utilized within 12 months of the disaster.

E. Engagement of Consultants and Procurement of Goods and Services

19. Consultant selection was delayed by two months, owing to the Government's failure to make effective use of the advance procurement facility provided under the loan. The two individual consultants were recruited through a firm in accordance with ADB's *Guidelines on the Use of Consultants*. The contract for the hydrologist was extended by 1.5 person-months (para. 3) and the contract for the bridge engineer was reduced by 2 person-months (para. 3) by mutual agreement between PWD and the consultants. The reduction in the bridge engineer's contract meant that PWD assumed responsibility for contract administration. This may have implications for the failure of works constructed at Prima bridge (para. 11).¹⁷ PWD under AusAID financing appointed a local consulting firm that assumed overall responsibility for contract administration, site supervision, and quality control.

20. The procurement of major civil works and materials under the Project was carried out through ADB's international shopping procedures in accordance with ADB's *Guidelines for Procurement*. The major civil works were packaged and constructed under two design and build contracts, which were carried out by a single contractor. Minor civil works for river training and the Epoc and Marona crossings were undertaken by prequalified local contractors procured under local competitive bidding procedures.

F. Performance of Consultants, Contractors, and Suppliers

21. The performance of the consultants was generally satisfactory. The hydrologist met his terms of reference, but the reliability of the rating curve¹⁸ (footnote 10) provided in the bid specifications for the Prima bridge has since been questioned by the contractor's design engineer. Poor data availability was likely a major contributing factor to any shortcomings in the hydrologist's work. In reviewing the contractor's designs for the protection of Prima bridge, the bridge engineer did draw attention to the potential problems of scour damage but concluded that the design was acceptable. With the benefit of hindsight, this conclusion may not have been warranted, but the bridge engineer was working with a rating curve that now appears to have been inaccurate. The international contractor responsible for the major civil works completed the contracts on schedule and the works were accepted as complete by PWD. Although some of the works have since been damaged (paras. 9 and 11), this damage has occurred within the defects liability period. The contractor has accepted the damage as being its responsibility and has been undertaking remedial works, which are substantially complete. Provided the contractor meets its obligations in relation to the damage, its performance is judged to be satisfactory. The international contractor subcontracted labor-intensive works for the gabion retaining wall as well as rock filling of river mattresses. The subcontractor's workers comprised were mostly unskilled laborers. Although the works subcontracted were completed on schedule, the quality of the finished work was not high, as the workers were poorly supervised. Since most of the works were carried out under contracts, the contractors directly procured the materials from the suppliers. The promptness of the suppliers in shipping the materials led to completion of major civil works contracts within six months.

¹⁷ Bourne, Brian. 2000, Cyclone Dani Rehabilitation Project Final Report: *Structural Bridge Engineering Mele and La Colle Bridges*. Overseas Projects Corporation of Victoria, Melbourne.

¹⁸ Represented by a graph of the depth of flow in a river as a function of the estimated flow.

G. Covenants

22. Compliance with the loan covenants has been satisfactory, as indicated in Appendix 3.

H. Disbursements

23. Following the procedures set down by ADB for emergency loans, 50 percent of the loan was disbursed and deposited in the imprest account on 3 September 1999. Utilization of the funds in the imprest account was slow as only the consultancy contract was in place by July 1999. Moreover, the Government utilized its own funds for all temporary restoration works and the rehabilitation of Marona crossing, and chose not to draw on the ADB loan to finance these works. Subsequently, PWD arranged direct payment for most suppliers and contractors, with the result that the imprest account was initially underutilized. Major contracts under the loan were only awarded in April 2000 and implemented over six months, which resulted in almost complete disbursement of the loan funds. At project completion, the imprest account was fully liquidated and only 3 percent of the loan amount was undisbursed. This amount was subsequently canceled.

I. Environmental and Social Impacts

24. No significant adverse environmental impacts were associated with the Project. The river training works are helping to minimize riverbank erosion in the locations where they were installed, although erosive forces are still likely to cause erosion at other locations downstream. Although the effect would be small, in the longer term the works should help reduce the entrance of sediment into coastal waters, thus avoiding adverse effects on marine life. Implementation of recommendations in the Mele Floodplain Management Study for land use planning would have beneficial effects on the urban environment. The diversion of the main river channel at Bauerfield airport (para. 7) may initially have had adverse environmental effects, since the straightening of the river course lead to rapid widening and deepening of the new channel, with associated additional erosion and sedimentation. Once the new channel has stabilized, the level of erosion and sediment transfer is expected to return to normal. While it might have been preferable to return the river to its original course after the works have been completed, this would have been a costly exercise and might not have been warranted in terms of reduced erosion or sedimentation. The Project has had a beneficial social impact for the people located on or living by the Efate ring road, as they are assured that the bridges will remain passable after future flood events, as was evident in March 2001 despite the damage caused by cyclone Paula.

J. Performance of the Borrower and the Executing Agency

25. The Borrower met its obligations satisfactorily. PWD's performance was also satisfactory, but PWD was heavily dependent on the contributions of the APM and other specialists outside PWD for project implementation. PWD assigned duties to the APM beyond the scope of the Project, with the result that some of the contributions of other consultants and specialists were not supervised as closely as was desirable. PWD's decision to curtail the inputs of the bridge engineer by two months appears with hindsight to have been inappropriate. Part of the reason for the failure of the protection works at Prima bridge appears to have been related to disturbance of the river flow as a result of excavation of fill material from the riverbed immediately downstream of the bridge. The domestic consultant engaged as the employer's representative (para. 5) could have been expected to direct the contractor to avoid such excavation. At appraisal, ADB had accurately assessed the limitations of PWD's implementation

capacity, and planned for contributions by other advisers and consultants. During implementation, ADB was obliged to provide assistance to PWD by extending the contract for the APM (para. 3). The Project, as designed, did not include measures to strengthen PWD's implementation capacity, but in the latter stages of implementation, staff from the South Pacific Regional Mission encouraged the adoption of a management improvement plan that PWD was developing.¹⁹ At project completion, PWD's implementation capacity remains limited.

K. Performance of the Asian Development Bank

26. ADB's performance was generally satisfactory. The location of the South Pacific Regional Mission in Vanuatu enabled a particularly rapid response after the cyclone resulting in quick processing of the loan and valuable contributions to aid coordination efforts. Similarly, ADB staff at the regional mission gave timely attention to various matters. However, given that the intent of the emergency rehabilitation assistance is to provide for rapid disbursement, ADB's performance could have been improved in two areas (i) the processing of loan effectiveness documents by ADB (para. 18), where delays contributed to the initial delay, and (ii) the time taken to approve the design and build draft bid documents for Prima and Mele bridges.²⁰

III. EVALUATION OF INITIAL PERFORMANCE AND BENEFITS

27. At project completion, all transport services associated with the works on Efate Island were functioning normally. Some traffic disruption has been associated with the remedial works on Prima bridge planned for completion in the last quarter of 2001, but this will be of only short duration and will not severely inconvenience road users. Provided the remedial works are completed as planned, the Prima and Mele bridges will be protected against subsequent cyclones of a magnitude similar to that of cyclone Dani. A financial analysis has not been conducted for this emergency assistance project because the benefits are impossible to quantify in the absence of any baseline information. The project framework matrix in the RRP²¹ proposed that the attainment of the longer-term goal, namely "return to prior levels of production and productivity," would be evidenced by the return of economic indicators to normal within one year of project completion. The trends in the economic indicators used at appraisal are shown in Appendix 4, but such gross indicators of economic performance cannot reasonably be used as evidence that the goal was achieved. The indicators do show that gross domestic product growth resumed in 2000, after negative growth in the year of the cyclone, but this cannot be attributed to the Project, since the works were not completed until September 2000.

28. The immediate project objective, namely "resumption of normal transport services," has apparently been achieved. Although no traffic data is available to support this assessment, people living in the affected areas and tourism and transport operators reported satisfaction with the rehabilitated bridges and crossings.²² No alternative routes link Port Vila and Mele or points further west on the Efate ring road, and hence the rehabilitation of the bridges has restored the

¹⁹ This management improvement plan includes measures to strengthen the organization, management, and staffing of PWD in relation to road sector management.

²⁰ The South Pacific Regional Mission sought approval from ADB's Office of the General Counsel on 24 September 1999 and received comments 22 October 1999. The changes required to the bidding documents concerned additional provisions that had not been reflected in ADB's standard bidding documents provided to PWD. PWD made the required changes and ADB approved the bidding documents 4 November 1999.

²¹ Loan 1684-VAN(SF): *Cyclone Emergency Rehabilitation Project*, Report and Recommendations of the President, April 1999 Appendix 2. Manila.

²² Based on discussions with the APM (April 2001).

only transport link for those who need access to or from Port Vila. The river training works upstream of the Prima and Mele bridges and Marona crossing are all in place and appear to be functioning as designed, but their impact cannot be assessed for several years. The protection and river training works at Bauerfield International Airport appear to be fully functional and have minimized the risk of erosion and enabled airport security to be restored. These river training works will also minimize the likelihood of future scouring of approach roads and loss of dwellings and agricultural land adjacent to the works.

29. The Mele flood management study and the La Colle River management plan, which were prepared under the Project, provide suggestions for future management of the river system in these catchments. Mele, which has a population of approximately 4,000 and is the largest village outside Port Vila, is subject to flooding from the Tepwukoa River. The study found that, owing to the nature of the catchment, a specific flood warning system for the Mele River was not practical.²³

30. The achievements of the Project to date can be sustained, provided the damage incurred (paras. 7 and 11) is remedied as proposed by the contractor.

IV. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

31. The Project was completed largely as planned and within the budget, but implementation took 50 percent longer than envisaged. It has achieved its immediate objective and generated all expected outputs other than establishing flood warning systems in the Mele catchment area. Based on ADB's *Criteria for Assessment of Project Performance/Success*, the Project is judged successful, as indicated in Appendix 5. The Project's goals are judged to be highly relevant to ADB's new Pacific Strategy, in that they addressed the susceptibility of Vanuatu to natural disasters by protecting essential infrastructure against cyclone damage. By providing the means to reduce maintenance costs for four important bridges or crossings, the Project is also highly relevant to the Government's efforts to maintain the functionality of its transport infrastructure. The Project has been efficacious since it has largely achieved its immediate objectives, and is judged to have efficiently used the inputs. Project sustainability is judged to be likely at this stage, based on the expected completion of remedial works on the two Project bridges at the contractor's expense. The institutional development impact of the Project is judged to be small, as the Project relied almost completely on consultants and advisers provided under external assistance and did not lead to any permanent capacity building in PWD. It did provide the opportunity for several domestic consultants, subcontractors, and suppliers to expand their capacities and this will benefit the nation in the longer term.

B. Lessons Learned

32. A key feature of ADB's emergency rehabilitation assistance loans is that they are based on a rapid project preparation process and are intended to be completed within 12 months of the disaster. If small island DMCs are to take full advantage of this facility, they need to have comparably rapid internal processes to assist in preparing and implementing projects. Although

²³ The catchment is small (23 square kilometers) and the river is short (16 km), with the result that obtaining any advance warning of potential flood risk is difficult.

the Government has greatly improved its disaster management planning in recent years,²⁴ it runs the risk of losing full value from the support available from ADB and other aid providers following a disaster, since it does not have a streamlined process for all aspects of emergency project implementation. ADB's appraisal missions for emergency loans must rapidly carry out several tasks in the field, including the conduct of loan negotiations and loan signing. These requirements may place a significant burden on government departments and agencies at a time when they are already faced with a heavy load. Pacific island countries often have limited capacities to meet ADB's loan processing requirements. To accelerate loan effectiveness, appraisal and follow-up missions must be prepared to provide governments with a greater than usual degree of support. Sufficient resources should be made available at ADB's headquarters to ensure that appraisal missions receive timely support and guidance, in order to reduce the potential for delays in loan effectiveness.

33. In many cases the agency implementing the emergency assistance loan may not be fully aware of ADB's procurement procedures. To address this potential cause for delay, ADB should issue, as part of the package of assistance offered immediately following a disaster, the latest revised standard bidding documents suited to the procurement of goods and services. This would avoid delays associated with the need to incorporate new legal or other requirements into bidding documents prepared by the Borrower.

34. For Vanuatu and other small DMCs, the 12-months period for completion of an emergency rehabilitation assistance loan may be insufficient to ensure efficient use of the facility. Although the suggestion has been made that this facility should be restricted to works that do not require "detailed new design or technical work", the situation faced by small DMCs after a cyclone is that some of the rehabilitation works will require design work to ensure that the rehabilitated infrastructure is sustainable in the longer term. The fact that the infrastructure was damaged by the disaster suggests that its rehabilitation should not simply restore what was in place previously. Some time will be needed if this redesign process is to be carried out thoroughly, and would not be attempting to carry out such analysis and design when the country is still attempting to restore basic services is not appropriate. The needs of small DMCs after a disaster likely comprise two broad types of support (i) short-term financial support to offset the costs of temporary repairs and restoration activities, and (ii) support for more substantial infrastructure rehabilitation. An emergency rehabilitation assistance loan to meet both these needs would be particularly valuable as small DMCs are unlikely to have any other opportunities to address the more substantial infrastructure needs.

35. Within ADB uncertainty seems to continue as to whether loans formulated under OM 24 are intended to follow normal project formulation standards with clearly specified project components or whether they are intended to serve as an old-style program loan based on import financing. Reference in the Operational Procedures to "a negative list of imports" and to "the executing agency, usually the ministry of finance" (see Operational Procedures attached to OM 24, para. 3) seem more appropriate to a program loan approach. On the other hand, the internal review process for this Project noted that the indicative list of works included in an early draft of the RRP was too vague, suggesting that a normal project formulation approach was required. This uncertainty should be removed from ADB guidelines.

²⁴ Vanuatu is receiving assistance from the South Pacific Applied Geoscience Commission in disaster management, and is about to develop a comprehensive hazard and risk management program.

36. Since cyclones are a regular phenomenon in the South Pacific, capacity-building efforts are needed to assist small island DMCs in dealing more effectively with rehabilitation after such disasters. In this Project, almost all of the capacity devoted to rehabilitation after cyclone Dani was provided by consultants, and no capacity was built within PWD or any other agency to deal with future disasters of this nature. While attempting to build permanent capacity across all required skill areas would be impractical, incorporating training for an APM counterpart in all emergency projects should be considered.

37. The rapid response needed to formulate and implement rehabilitation projects has exposed the poor system of “institutional memory” that exists in many agencies in Vanuatu and elsewhere in the Pacific. In this Project, meteorological data were difficult to locate or no longer available; inventories of infrastructure status and condition were unavailable; and past engineering, hydrology, and other studies of possible value were not categorized nor available from a central collection center. If projects are prepared without the benefit of such “institutional memory,” they are likely to be more costly and less effective than they might otherwise have been. The underestimation of the scour protection needed for the bridges in this Project was mainly the result of poor hydrological data. Consideration should be given to developing and maintaining an up-to-date and comprehensive centralized data center as part of sound disaster management and development planning.

C. Recommendations

1. For Future Monitoring

38. The Borrower should ensure that the damage to the project works at Prima and Mele bridges is promptly remedied and that all precautions are taken to avoid road accidents that could occur while the Prima bridge is operated without secure guardrails on its western approach. Given the proximity of the regional mission, the Borrower with ADB staff should regularly review progress in relation to the remedying of that damages.

2. Covenants

39. No changes in project covenants are proposed.

3. Further Action

40. The Government should ask the National Disaster Management Office to work with other agencies including PWD to formulate a streamlined process to assist implementation of all emergency projects. This process should include fast-track approaches to identify, select, approve, and procure the services of consultants and contractors. The Government should consider ways to speed up emergency project approvals.

41. ADB should issue revised standard bidding documents suited to the procurement of goods and services as part of the package of assistance following a disaster. ADB should ensure that sufficient resources are made available to provide its appraisal missions with timely guidance, to enable them, to provide adequate support in turn to Government departments and agencies to achieve loan effectiveness in a timely manner. The Government and ADB should jointly review and revise the time frames of the Government's multi-level approval system to minimize delays in the implementation of future projects.

42. ADB should consider extending the loan period for emergency rehabilitation assistance loans to 18 months when infrastructure damage is significant and detailed investigation and redesigns may be required. This would be preferable to the alternative of excluding such works, because small DMCs would find it difficult to locate alternative sources of financing for such works.

43. ADB should clarify the level of expected detail to be associated with the specification of project components in emergency rehabilitation assistance loans for small DMCs. If such loans are to be sufficiently flexible to provide for broad-scale import financing in addition to more conventional project financing, this should be reflected in the *Operations Manual* and Operational Procedures.

44. Governments and ADB should incorporate training for an APM counterpart in all emergency projects.

45. Governments should develop and maintain an up-to-date and comprehensive centralized data center to improve “institutional memory” as part of sound disaster management and development planning. In addition, in view of the critical need for sound hydrological data to underpin the design of sustainable road infrastructure, governments should provide budget support for a network of water level recorders and associated rain-gauges.²⁵

4. Additional Assistance

46. PWD would clearly benefit from external assistance to support future planning and implementation of rehabilitation activities, but such assistance would only be warranted if it would clearly lead to a permanent improvement in capacity.

5. Timing of Project Performance Audit Report Preparation

47. A project performance audit report would be most useful if it is timed to enable assessment of the impact of the river training works, i.e., not earlier than 2004.

²⁵ The Department of Geology, Mines and Water Resources has developed a proposal “Expanding the Capacity of Vanuatu’s Water Resource Assessment Program,” which warrants support from the Government and aid providers.

APPENDIXES

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PROJECT HISTORY

A. Project Processing to Loan Closing Dates

19–20 Jan 1999	Cyclone Dani struck Vanuatu.
25 Feb 1999	Government of the Republic of Vanuatu requested assistance from the Asian Development Bank (ADB).
2–31 Mar 1999	Appraisal mission fielded.
29–31 Mar 1999	Loan negotiated.
20 Apr 1999	Loan approved.
10 May 1999	Loan Agreement signed.
5 Aug 1999	Loan declared effective.
30 Sep 2000	Original loan closing date.
19 Dec 2000	Actual loan closing date.

B. Consulting Services for the Project

30 Mar 1999	Invitation letter issued.
4 May 1999	ADB approved the Government's evaluation report on the selection of individual consultants.
17 May 1999	Assistant Project Management recruited, to be funded by the Australian Agency for International Development (AusAID).
13 May 1999	ADB approved consultants financial package.
20 Jun 1999	Council of Ministers approved minutes of contract negotiations and award of contract.
7 Jul–3 Aug 1999	Hydrologist mobilized for first input for initial investigation.
19 Jul–11 Aug 1999	Bridge engineer mobilized for first input on site investigation and preparation of draft design and build bid documents.
13 Oct–5 Nov 1999	Hydrologist's second input.
26 Jan–28 Feb 2000	Hydrologist's third input.
9–16 Feb 2000	Bridge engineer's second input.
20 Mar 2000	Site supervisor appointed (AusAID funded).
Sept 2000	Hydrologist's final input.

C. Procurement of Goods and Services: Civil Works by International Shopping

30 Mar 1999	Prequalification of contractors advertised.
17 May 1999	Prequalification of contractors closed.
16 Jun 1999	Contractors prequalified.
8 Nov 1999	Bid documents for Mele and La Colle bridges issued.
22 Nov 1999	Bid documents for Bauerfield International Airport protection issued.

25 Jan 2000	Bids closed.
9–15 Feb 2000	Bids evaluated. ADB approved the Government's bid evaluation report.
29 Feb 2000	Bids for award of contracts approved by Public Works Tender Board.
20 Mar 2000	Bid for award of contracts approved by Council of Ministers.
31 Mar 2000	Contract awarded and signed. Contract variation number one issued. Contract variation number two issued.
30 Sep 2000	Contracts completed.

D. Procurement of Goods and Services: Civil Works by Local Competitive Bidding

27 May 2000	Notice of advertisement for Epoc crossing issued.
14 Jun 2000	Bids for Epoc crossing closed.
15–17 Jun 2000	Bids evaluated and only one bid was responsive.
24 Jun 2000	ADB approved for rebid.
5–7 Jul 2000	Bids evaluated. ADB approved the bid evaluation report.
13 Jul 2000	ADB approved contract variation for Marona river training works.
14 Aug 2000	Epoc river crossing contract awarded and signed.
28 Aug 2000	ADB approved estimates for debris fenders at Marona crossing.
1 Sep 2000	ADB approved contract variation for the installation of debris fenders at Marona crossing.
30 Sep 2000	Contracts completed.

E. Project Implementation

8 Jul 1999	Imprest account established.
12 Aug 1999	Government requested initial advance.
6 Sept 1999	Initial advance of US\$1,000,000 deposited.
10–18 Nov 1999	Review mission fielded. Mission identified slow implementation of the project.
27–31 Mar 2000	Review mission fielded. Mission recommended extension of the services of the hydrologist by 1.6 person-months and ADB consideration of financing for the Assistant Project Manager.
26 Apr 2000	The Government requested minor change in project

	scope for continued engagement of AusAID-funded APM due to AusAID's funding constraints.
10 May 2000	ADB approved minor change in project scope and extended the services of the APM by 4.5 person-months.
19–26 Oct 2000	Review mission fielded. Project completed.
27–31 Mar 2001	Project completion review mission fielded.

EMERGENCY ASSISTANCE FUNDED BY OTHER EXTERNAL ASSISTANCE

1. The Cyclone Emergency Rehabilitation Project assisted by the Asian Development Bank (ADB) was one of four projects or project activities comprising the Cyclone Dani Emergency Recovery Project undertaken to assist in the recovery after the cyclone. A very concerted and well-coordinated approach by the Government was undertaken to seek support and assistance from the aid providers for the Cyclone Dani Emergency Recovery Project. ADB agreed to provide support for the rehabilitation of damaged infrastructure on Efate Island, and Agence Francaise de Developpement (AFD) on Malekula island and south Santo, and the European Union (EU) on Santo Island. In support, the Australian Agency for International Development (AusAID) agreed to provide consulting services for site survey, design, and supervision of civil works. The Government was already undertaking restoration works. A description of the contributions of the Government as well as the three main other financing agencies follows. Table A2.1 summarizes the activities and their associated costs.

A. Government of Vanuatu

2. The Government funded all works related to the clean-up after the cyclone and the construction of temporary crossings to replace those damaged by the cyclone. It also funded the construction of a temporary river diversion bank and a channel at Bauerfield International Airport to safeguard the runway approach. Government contributions included the reconstruction of the Marona river crossing; additional costs for design work of the AFD and EU-funded programs; office, administrative, and local transport support for the assistant project manager (APM) and consultants; and land and crop compensation for the Mele River diversion.

B. Australian Agency for International Development

3. AusAID provided grant assistance for (i) aerial surveys including survey aircraft and aerial photography, (ii) contract costs for the APM for a 12 months to assist in implementing the ADB project, (iii) geotechnical investigations at all sites considered under the Cyclone Dani Emergency Recovery Project, and (iv) site supervision, contract administration, and quality control through the contracting of a local consulting firm for all contract works on Efate Island.

C. Agence Francaise de Developpement Recovery Program

4. The French embassy provided financing for an initial aerial reconnaissance by helicopter around the islands of Efate, Malekula, and Santo for damage assessment. AFD provided financing for the initial ground control and restitution of the aerial survey through existing technical assistance grants, and subsequently provided a EUR 2.1 million grant for the repair and reconstruction of river crossings located on the islands of Malekula, Espiritu Santo, and Maewo. The project includes the reconstruction of two river crossings, rehabilitation of one crossing, repairs to three other crossings, and the rehabilitation of three sections of coastal road. The work comprised (i) ground control and completion of the aerial survey, (ii) bid evaluation, design, and supervision, and (iii) a contractor for civil works, procured in August 2001 following AFD's international competitive bidding procedures and on-site supervision of undertaking the works.

5. Implementation of the AFD-funded recovery program has suffered delays due to the time required to mobilize funds (grant agreement signed in September 1999), delays in the hiring of

the consulting firm due to slow government approvals, and the inadequate performance of the local consultant during the evaluation and design phases.

D. European Union Recovery Program

6. The EU is providing grant financing for the repair and reconstruction of river crossings on the Big Bay road on Espiritu Santo Island. This road was completed in 1996 using EU funds and was damaged by the cyclone. The project includes the reconstruction of three major river crossings, repair works to another five, and rehabilitation of an area suffering from slope instability. The evaluation, design and supervision are being undertaken by a local consulting firm engaged through international competitive bidding. Prequalification of eligible contractors was completed in July 1999. The contracts for civil works were procured in July 2001 following the EU's guidelines for procurement under international competitive bidding procedures. The contractors are on-site undertaking the works. The EU is also financing the cost of the APM's contract for 15 months to cover the construction phase of the AFD and EU-funded works. Execution of the EU program has also been delayed for reasons similar to those affecting the AFD program and detailed above.

TABLE A1: DETAILS OF CYCLONE DANI REHABILITATION PROGRAM

Funding Agency	Date	Estimate (Vt million)	Actual (Vt million)	Description of Works
Asian Development Bank	31 Mar 99	305.00	271.00	Rehabilitation of damaged road infrastructure on Efate island and consulting services.
Australian Agency for International Development	19 Mar 99	4.00	3.50	Aerial survey.
	2 Jun 99	5.00	4.20	Geotechnical investigation of all sites under consideration.
	26 May 99	4.00	4.70	12-month funding for assistant project manager.
	7 Mar 00	11.00	9.70	Site supervision of Efate civil works.
European Union	6 Aug 99	13.75	14.40	Consulting services for the evaluation, design and supervision of Big Bay road project.
		121.00	101.00	Civil works Big Bay road project.
French Government Agence Francaise de Developpment	1 Oct 00		6.90	15-month funding for assistant project manager.
	26 Jan 99		5.80	Initial aerial reconnaissance by helicopter.
	13 Apr 99	6.00	5.40	Aerial survey ground control and restitution.
	23 Nov 99	16.00	20.30	Evaluation, design, and supervision Malekula and South Santo.
		255.00	261.00	Civil works Malekula and South Santo.
Vanuatu Government	1999		75.00	Immediate recovery costs and additional reconstruction costs.
	2000		18.00	Reconstruction and project management costs.
	2001		40.00	Reconstruction and project management costs.
		740.75	840.90	

Source: Information provided by Public Works Department.

COMPLIANCE WITH MAJOR LOAN COVENANTS

No.	Covenant	Status
1.	The Borrower will ensure the Project is carried out with due diligence and efficiency and in conformity with sound administrative, financial, engineering, environmental, and education practices (Loan Agreement Section 4.01).	Complied with.
2.	The Borrower will make available, promptly as needed, the funds, facilities, service, and other resources that are required, in addition to the Loan proceeds, for the carrying out of the Project and for the operation and maintenance of the project facilities (Loan Agreement Section 4.02).	Complied with.
3.	In carrying out the Project, the Borrower will ensure competent and qualified consultants acceptable to the Asian Development Bank (ADB) are employed, to an extent and upon terms and conditions satisfactory to ADB (Loan Agreement Section 4.03 (a)).	Complied with.
4.	The Borrower will ensure the Project is carried out in accordance with plans, specifications, work schedules, and construction methods acceptable to ADB, and furnish to ADB promptly such plans, specifications, work schedules, and material modifications subsequently made therein, in such detail as ADB may reasonably request (Loan Agreement Section 4.03 (b)).	Complied with.
5.	The Borrower will ensure that all activities of its department and agencies with respect to the carrying out of the Project and operation of the project facilities are conducted and coordinated in accordance with sound administrative policies and procedures (Loan Agreement Section 4.04).	Complied with.
6.	The Borrower will make arrangements satisfactory to ADB for insurance of the project facilities to such an extent and against such risk and in such amounts as are consistent with sound practice (Loan Agreement Section 4.05 LA).	Complied with.
7.	The Borrower will maintain records and documents adequate to identify the eligible items financed out of the proceeds of the loan, to disclose their use in the Project, and to record the progress and cost of the Project (Loan Agreement Section 4.06 (a)).	Complied with.

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| 8. | <p>The Borrower will (i) maintain, or cause to be maintained, separate accounts for the Project, (ii) have such accounts and related financial statements audited annually, in accordance with appropriate auditing standards consistently applied, by independent auditors whose qualifications, experience, and terms of reference are acceptable to ADB, (iii) furnish to ADB, as soon as available but in any event not later than six months after the end of each related fiscal year, certified copies of such audited accounts and financial statements and related reports of the auditors (including the auditors' opinion on the use of the loan proceeds and compliance with the covenants of this Loan Agreement, as well as on the use of the procedures for imprest account/statement of expenditures), all in the English language, and (iv) furnish to ADB other information concerning these accounts, financial statements, and audits as ADB may from time to time reasonably request (Loan Agreement Section 4.06 (b)).</p> | Complied with. |
| 9. | <p>The Borrower will enable ADB, upon ADB's request, to discuss the Borrower's financial statements for the Project and its financial affairs related to the Project from time to time with the Borrower's auditors, and will authorize and require any representative of each auditors to participate in any such discussions requested by ADB, provided that any such discussion is conducted only in the presence of an authorized officer of the Borrower unless the Borrower otherwise agrees (Loan Agreement Section 4.06 (c)).</p> | Complied with. |
| 10. | <p>The Borrower will provide ADB with all reports and information as ADB requests concerning (i) the loan, and the expenditure of the proceeds, and maintenance of the services thereof, (ii) goods and services financed out of the proceeds of the loan, (iii) implementation of the Project, (iv) administration, operation, and financial condition of the agencies of the Borrower responsible for carrying out the Project and operation of the project facilities, (v) financial and economic conditions in the territory of the borrower and the international balance of payments position of the Borrower, and (vi) any other matters relating to the purposes of the loan (Loan Agreement Section 4.07 (a)).</p> | Complied with. |
| 11. | <p>The Borrower will furnish or cause to be furnished, to ADB quarterly reports on the carrying out of the Project and on the operation and management of the project facilities. Such reports will be submitted in such form and in such detail and within such a period as ADB reasonably requests, and will indicate, among other things, progress made and problems encountered during the quarter under review, steps taken or proposed to be taken to remedy these</p> | Complied with. |

problems, and the proposed program of activities and expected progress during the following quarter (Loan Agreement Section 4.07 (b)).

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| 12. | Promptly after the closing date for withdrawals from the loan account, but in any event not later than three months thereafter or such date as may be agreed for this purpose between the Borrower and ADB, the Borrower will prepare and furnish to ADB a report, in such form and in such detail as ADB may reasonably request, on the carrying out of the Project, including its cost, the performance by the Borrower of its obligations under this Loan Agreement, and the accomplishment of the purposes of the loan (Loan Agreement Section 4.07 (c)). | Complied with.
Borrower submitted its project completion report on 31 December 2000. |
| 13. | The Borrower will enable ADB's representatives to inspect the project facilities and any relevant records and documents (Loan Agreement Section 4.08). | Complied with. |
| 14. | The Borrower will ensure that the project facilities are operated, maintained, and repaired in accordance with sound administrative, financial, engineering, environmental, and maintenance and operational practices (Loan Agreement Section 4.09 LA). | Complied with. |
| 15. | The Borrower and ADB mutually intend that no other external debt owed a creditor other than ADB will have any priority over the loan by the way of a lien on the assets of the Borrower. To that end, the Borrower undertakes (i) that, except as ADB may otherwise agree, if any such lien is created on any assets of the Borrower as security for any external debt, such lien will <i>ipso facto</i> equally and rateably secure the payment of the principal of, and interest charge and any other charge on, the loan, and (ii) that the Borrower, in creating or permitting the creation of any lien, will make express provision to that effect (Loan Agreement Section 4.10 (a)). | Complied with. |
| 16. | The provisions of paragraph (a) of this section will not apply to (i) any lien created on property, at the time of purchase thereof, solely as security for payment of the purchase price of such property, or (ii) any lien arising in the ordinary course of banking transactions and securing a debt maturing not more than one year after its date (Loan Agreement Section 4.10 (b)). | Complied with. |

17. The term “assets of the Borrower” as used in paragraph 9(a) of this section includes assets of any administrative subdivision or any agency of the Borrower and assets of any agency or any such administrative subdivision, including the Reserve Bank of Vanuatu and any other institution performing the functions of a central bank for the Borrower (Loan Agreement Section 4.10 (c)).
- Complied with.

TRENDS IN ECONOMIC INDICATORS

Item	1995	1996	1997	1998	1999	2000
A. Income and Growth						
1. GDP per capita (dollars, current)	1,280	1,276	1,225	1,176	1,143	1,179
2. GDP Growth (% in constant prices)	3.2	0.1	0.6	4.4	-2.4	4.0
Agriculture	6.4	4.6	4.9	6.8	-9.3	2.9
Industry	6.4	4.6	4.9	6.8	-9.3	12.9
Services	1.4	0.7	2.1	3.0	1.6	3.1
B. Savings and Investment (Percent of GDP)						
1. Gross Domestic Investment	30.5					
2. Gross Domestic Savings	23.0					
C. Money and Inflation (Annual Percentage Change)						
1. Consumer Prices (Average)	2.2	0.9	2.8	3.3	1.9	4.1
2. Broad Money (M2)	8.5	3.4	1.9	14.5	0.2	6.1
D. Government Finance (Percent of GDP)						
1. Total Revenue	26.6	23.5	23.0	25.8	26.4	23.8
2. Total Expenditure & Net Lending	29.4	25.3	23.0	37.0	27.7	26.0
3. Overall surplus/deficit (-)	(2.7)	(1.8)	(0.7)	(10.3)	(1.4)	(8.1)
E. Balance of Payments						
1. Merchandise Trade Balance (% GDP)	(23.5)	(24.3)	(20.9)	(19.9)	(24.5)	(24.6)
2. Current Account Balance (% GDP)	(2.1)	(1.9)	(5.2)	4.8	(11.6)	5.1
3. Export (Vt) growth (annual % change)	9.0	6.2	21.3	5.8	(25.4)	3.1
4. Import (Vt) growth (annual % change)	2.5	5.2	0.1	4.0	2.5	9.0
F. External Payments Indicators						
1. International Reserves (Vt million)	5,513.0	4,872.0	4,599.0	5,755.0	5,509.0	5,020.0
- Months of imports	7.6	5.6	4.7	6.5	5.1	5.7
2. External Debt Service (% of exports of goods & services)	1.5	1.4	1.5	1.6	1.6	1.3
3. External Debt (% of GDP)	20.3	18.6	18.5	24.7	26.1	36.4

G. Memorandum Items:

1. GDP (Current Prices, Vt million)	26,633	28,231	24,999	27,291	28,330	29,379
2. Exchange Rate (Vt per \$, annual average)	113.0	111.6	115.9	127.5	129.1	137.82
3. Population (thousand)	168	173	177	182	186	191 ^a

GDP = gross domestic product, M2 = Classification of broad money, Vt = Vatu

Source: Republic of Vanuatu, 2000, Fiscal Strategy Report, Port Vila, Reserve Bank of Vanuatu, *2000 Quarterly Economic Review*, Statistics Office. Statistical Indicators Government of Vanuatu, Port Vila.

^a Estimate

ASSESSMENT OF INITIAL PROJECT PERFORMANCE

Project Assessment Criterion	Evidence	Weighting	Score	Weighted Score
Relevance	<p>Judged to be highly relevant to Asian Development Bank both at the time of appraisal – Vanuatu's agricultural and tourism industries are important and adversely affected by damaged transport infrastructure (see RRP para. 12) and at the time of evaluation – All Pacific countries are vulnerable to natural disasters (see New Pacific Strategy) and Vanuatu is highly dependent on tourism and is vulnerable to cyclones. (see Country Assistance Plan Vanuatu (2001 – 2003) paras. 2 & 13).</p> <p>Judged to be highly relevant to Government at the time of appraisal – the total cost of cyclone rehabilitation was beyond the Government's capacity (see RRP para. 16) and ex-post-maintenance of road infrastructure is a major issue and the Government's current maintenance budget is only 25% of what is needed. (Vanuatu Infrastructure Master Plan, page 11).</p>	0.20	3.00	0.60
Efficacy	<p>Judged to be efficacious because two of the three project outputs have been generated. (The bridges and crossings were restored and the threat of flooding at Bauerfield International Airport was removed. The flood warning system planned for the Mele catchment was not established).</p>	0.25	2.00	0.50

Project Assessment Criterion	Evidence	Weighting	Score	Weighted Score
Efficiency	Judged to be efficient because the Project achieved its intended outputs without significant cost over-runs although there were time over-runs. Use of gabions and reno mattresses for protection works were approximately half the cost of the alternative of sheet piling.	0.20	2.00	0.40
Sustainability	Judged to be likely based on the undertaking of the contractor to reinstate the abutment protection at two of the three major civil works.	0.20	2.00	0.40
Institutional Development	Judged to be small but it was never intended as an objective of the Project.	0.15	1.00	0.15
Overall Assessment				2.05