ADB

Completion Report

Project Number: 30292
Loan Number: 1855
January 2012

Vietnam: Second Red River Basin Sector Project

Asian Development Bank

CURRENCY EQUIVALENTS

Currency Unit – dong (D)

		At Appraisal (16 March 2001)	At Project Completion (14 February 2011)
D1.00	=	$0.000070	$0.000048
$1.00	=	D14,300	D20,875

ABBREVIATIONS

ADB	–	Asian Development Bank
ADTA	–	advisory technical assistance
AFD	–	Agence Française de Développement
CPO	–	central project office
DARD	–	Department of Agriculture and Rural Development
DWRM	–	Department of Water Resources Management
DWRHWM	–	Department of Water Resources and Hydraulic Works Management
EIRR	–	economic internal rate of return
GIIS	–	governance improvement in irrigation systems
ha	–	hectare
IWRM	–	integrated water resources management
LWR	–	Law on Water Resources
MARD	–	Ministry of Agriculture and Rural Development
MONRE	–	Ministry of Natural Resources and Environment
NWRC	–	National Water Resources Council
PIM	–	participatory irrigation management
RDS	–	rural development support
RRBO	–	Red River Basin Organization
RRDWRSP	–	Red River Delta Water Resources Sector Project
RRP	–	report and recommendation of the President
SRRBSP	–	Second Red River Basin Sector Project
SEDP	–	socioeconomic development plan
TA	–	technical assistance
TCR	–	technical assistance completion report
WSAP	–	water sector action plan

NOTE

(i) In this report, "$" refers to US dollars.

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Director General	K. Senga, Southeast Asia Department (SERD)
Director	J. Mir, Environment, Natural Resources, and Agriculture Division, SERD
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CONTENTS

BASIC DATA

A. Loan Identification

1.	Country	Socialist Republic of Viet Nam
2.	Loan Number	1855-SF
3.	Project Title	Second Red River Basin Sector Project
4.	Borrower	Socialist Republic of Viet Nam
5.	Executing Agency	Ministry of Agriculture and Rural Development
6.	Amount of Loan	SDR54.338 million
7.	Project Completion Report Number	PCR:VIE 1315

B. Loan Data

1.	Appraisal	
	– Date Started	5 March 2001
	– Date Completed	16 March 2001
2.	Loan Negotiations	
	– Date Started	12 September 2001
	– Date Completed	14 September 2001
3.	Date of Board Approval	13 November 2001
4.	Date of Loan Agreement	14 January 2002
5.	Date of Loan Effectiveness	
	– In Loan Agreement	14 May 2002
	– Actual	17 May 2002
	– Number of Extensions	0
6.	Closing Date	
	– In Loan Agreement	30 June 2008
	– Actual	14 February 2011
	– Number of Extensions	1
7.	Terms of Loan	
	– Interest Rate	1% during the grace period and 1.5% during amortization
	– Maturity (number of years)	32
	– Grace Period (number of years)	8
8.	Terms of Relending (if any)	NA
	– Interest Rate	
	– Maturity (number of years)	
	– Grace Period (number of years)	
	– Second-Step Borrower	

9. Disbursements

a. Dates

Initial Disbursement	Final Disbursement	Time Interval
09 December 2002	27 January 2011	97.6 months
Effective Date	**Original Closing Date**	**Time Interval**
17 May 2002	30 June 2008	72.5 months

b. Amount (SDR million)

Category No. (1)	Category or Subloan (2)	Original Allocation (3)	Partial Cancellations (4 = 3–5)	Last Revised Allocation (5)	Amount Disbursed (6)	Undisbursed Balance (7 = 5-6)
01	Civil works	26.29	(9.85)	36.14	36.14	0.00
02	Pumping station equipment	7.93	4.33	3.60	3.60	0.00
03	Rural development Support	12.70	5.74	6.96	6.96	0.00
04	Consulting services[a]	2.33	(2.14)	4.47	4.47	0.00
05	Equipment and vehicles	0.54	(0.22)	0.76	0.76	0.00
06	Training and awareness	0.43	0.11	0.32	0.32	0.00
07	Community mobilization	0.35	0.33	0.03	0.03	0.00
08	Incremental project implementation support	2.44	1.92	0.52	0.52	0.00
09	Interest during construction	1.13	0.28	0.85	0.85	0.00
	Unallocated	0.19	0.19	0.00	0.00	0.00
	Total (loan currency)	**54.33**	**0.69**	**53.64**	**53.64**	**0.00**
	Total $ Equivalent	**83.04**	**1.06**	**81.98**	**81.98**	**0.00**

Note: Figures in parenthesis ( ) denote negative values.

[a] The original allocation for consulting services was for part B implementation management consultants only. The funds for all part B subproject surveys, feasibility studies, technical designs, appraisal, and site supervision consultants were originally allocated to civil works. However, ADB's financing percentage for consulting services was higher than that for civil works. A reallocation of loan proceeds was required and is the reason for the significant cost increase in consulting services.

10. Local Costs (Financed)

- Amount: $76.34 million
- Percent of Local Costs: 93.12
- Percent of Total Cost: 45.37

C. Project Data

1. Project Cost ($ million)

Cost	Appraisal Estimate[a]	Actual[b]
Foreign Exchange Cost	26.54	12.38
Local Currency Cost	129.68	169.32
Total	**156.22**	**181.70**

2. Financing Plan ($ million)

Cost	Appraisal Estimate	Actual
Implementation Costs including contingencies		
Borrower Financed	45.66	44.90
ADB Financed	68.56	80.68
Agence Francaise de Developpement	30.01	45.30
Government of the Netherlands[c]	10.55	9.52
Total	**154.77**	**180.40**
IDC Costs		
Borrower Financed	0.00	0.00
ADB Financed	1.44	1.30
Other External Financing	0.00	0.00
Total	**1.44**	**1.30**

3. Cost Breakdown by Project Component ($ million)

Component		Appraisal Estimate	Actual
A.	Base cost including contingencies		
	Part A: Water Resources Management	**11.08**	**11.05**
	Part B: Water Service Investment Projects	**143.70**	**169.35**
	1. Subprojects	127.69	162.96
	2. Project implementation support	14.51	5.88
	3. Research studies	1.50	0.51
	Subtotal Base Cost before IDC	**154.78**	**180.40**
B.	Service Charge During Construction (IDC)	1.44	1.30
Total		**156.22**	**181.70**

ADB = Asian Development Bank, IDC = interest during construction.

[a] Including $10.55 million originally included in the project cost and subsequently funded on a grant basis by the Government of the Netherlands.

[b] Including $9.52 million eventually funded on a grant basis by the Government of the Netherlands

[c] Funded on a grant basis.

4. Project Schedule

Item	Appraisal Estimate[a]	Actual
Date of Contract with Consultants	NA	First contract: 29 September 2003 Last contract: 21 February 2010
Completion of Engineering Designs	NA	17 August 2009
Civil Works Contracts	NA	
First contract:		
Date of Award	NA	29 June 2004
Completion of Work	NA	14 June 2005
Last contract:		
Date of Award	NA	26 March 2010
Completion of Work	NA	26 March 2011
Equipment and Supplies	NA	
Dates	NA	
First Procurement	NA	Date of Award: 24 March 2004 Date of Completion: 09 Feb 2005
Last Procurement	NA	Date of Award: 12 August 2009 Date of Completion: 22 May 2010
Completion of the first equipment installation	NA	15 June 2007
Start of operations of the first equipment	NA	20 June 2007
Completion of tests and commissioning of the first equipment	NA	30 September 2007
Beginning of start-up of the first equipment	NA	01 October 2007
Implementation of Subprojects	Third quarter 2002	15 June 2005

[a] Most appraisal estimates could not be determined as original files were misplaced with the delegation of project administration to Viet Nam Resident Mission.

5. Project Performance Report Ratings

	Ratings	
Implementation Period	**Development Objectives**	**Implementation Progress**
From 30 Nov 2001 to 28 Feb 2010	S	S
From 28 Feb 2010 to 31 Mar 2010	PS	S
From 31 Mar 2010 to 31 Aug 2010	S	S
From 31 Aug 2010 to 31 Dec 2010	PS	S

S = satisfactory, PS = partly satisfactory.

D. Data on Asian Development Bank Missions

Name of Mission	Date	No. of Persons	No. of Person-Days	Specialization of Members[a]
SLA	27–28 May 2002	2	4	e
Inception	16–23 Nov 2002	3	6	e, i, e
SLA	13–22 Jan 2003	1	10	g
SLA	12–22 May 2003	2	11	g, g
Review	05–14 Apr 2004	3	13	g, g, e
SLA	05–07 Jul 2004	2	4	e, g
SLA	06–11 Dec 2004	3	10	g, g, i
Midterm review	13–19 Jun 2005	3	13	g, g, e
SLA	27 Oct–2 Nov 2005	1	7	g
SPA	21–26 Jan 2006	1	6	g
Review	08–20 May 2006	3	24	e, g, g
SPA	20 Sep–02 Oct 2006	2	13	g, g
SPA	23–26 Jan 2007	1	4	g
Review	20–29 Aug 2007	3	19	i, g, g
SPA	25 Aug–01 Sep 2010	2	16	g, g
SPA	05–10 Jan 2009	1	6	g
Review	13–24 Jul 2009	1	12	g
SPA	01–08 Mar 2010	1	8	g
Review	04–14 Aug 2010	2	16	e, g
Project completion review	13 Jan–18 Mar 2011	5	86	b, d, e, g, h

SLA = special loan administration, SPA = special project administration.

[a] a = engineer, b = financial analyst, c = counsel, d = economist, e = procurement consultant or specialist, f = control officer, g = project officer, h= project analyst, i = administrative staff.

I. PROJECT DESCRIPTION

1. The Second Red River Basin Sector Project (SRRBSP) in Viet Nam was a follow-up to the Red River Delta Water Resources Sector Project (RRDWRSP), a water resources infrastructure rehabilitation project that was successfully completed in 2002.[1]

2. The designs of the two projects differed significantly. While the first focused on upgrading water resources infrastructure in the Red River Delta through discrete subproject investments, the second adopted a basin-wide approach that incorporated components for both resource management and service delivery interventions. Central to this major shift in approach was support for the Red River Basin Organization (RRBO), a water resources planning body that was established in 2001 and was expected at appraisal to be fully functioning by 2002 with authority over water resources management in the basin.[2] The design assumed that once it was operational, the RRBO would manage a comprehensive, participatory river basin planning process under the guidance of the National Water Resources Council (NWRC). The NWRC and the RRBO were considered an appropriate planning framework within which to implement the resource management aspects of the project. In another departure, the basin-wide approach included service delivery investments in the basin's upper watershed catchment while the first project had been confined to the Red River Delta.

3. The project objectives laid out in the report and recommendation of the President were to increase the incomes of poorer communities in the Red River Basin by enhancing their agricultural performance through sustainable improvements in irrigation, better drainage, watershed protection, and flood protection—all within a framework of integrated water resource management. The project was also expected to promote stakeholder participation in water management at local and basin levels, with emphasis on participation by women.

4. The project's rationale rested on the assumption that to lift and keep poor households out of poverty it was necessary to raise and sustain their agricultural productivity. The ability of the country's other economic sectors to absorb more workers was not expected to keep pace with the reduction in the agricultural labor force that was considered necessary to reduce pressure on the land. For many people, being self-sufficient in rice was still the only immediate way to avoid hunger and poverty. In the poor and disadvantaged areas of the Red River Basin, inadequate irrigation and drainage services and recurrent flooding exposed farmers to lower yields and crop losses that left them with too little food and income. Improving the amount and predictability of water access was therefore considered a direct way to reduce vulnerability and impoverishment. Rehabilitating water resources infrastructure would give tail-end farmers and others who then lacked it better access to regular, predictable water service and have an immediate poverty reduction impact.

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[1] ADB. 2001. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the Socialist Republic of Viet Nam for the Second Red River Basin Sector Project*. Manila (Loan 1855-VIE, for $70 million, approved on 13 November); and ADB. 1994. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the Socialist Republic of Viet Nam for the Red River Delta Water Resources Project*. Manila (Loan 1344-VIE, for $60 million, approved on 13 December).

[2] Under the Law on Water Resources (LWR) adopted by Viet Nam in 1998, river basin organizations were to be set up to oversee planning for large rivers such as the Red River, together with a system of water abstraction rights and wastewater discharge permits, public information, and supporting measures to improve water resources management. It was expected that the RRBO would be involved in planning investments for sustainable management of natural resources, including land, water, and forest, and in coordinating water service delivery for agriculture, industry, and domestic uses.

5. At appraisal, the project was divided into two parts—Parts A and B which were designed to address the project's water resource management and service delivery aspects, respectively. Part B encompassed water service investment subprojects and accounted for $143.7 million, or 92.0% of the total estimated investment cost of $156.2 million. It involved physical investment in water resources infrastructure rehabilitation and upgrading similar to that undertaken under the RRBWRSP but included both the delta and the surrounding uplands, as well as reforestation within the watershed catchment. Components included (i) subprojects to improve irrigation systems and watershed protection in the uplands, (ii) subprojects to improve delta irrigation and drainage systems, (iii) subprojects to strengthen flood protection systems in the delta, (iv) project implementation support, and (v) research studies. In addition, each subproject under components (i) and (ii) was to comprise two complementary subcomponents: (i) improving water resources infrastructure through civil works and provision of equipment, and (ii) providing agricultural support services and small-scale water-related infrastructure at the community level through decentralized and participatory rural development support (RDS) activities. RDS activities under flood protection subprojects were optional. The expected part B outputs included (i) the improvement of upland irrigation systems and watershed protection; (ii) improved delta drainage and irrigation systems; (iii) strengthened flood protection systems; (iv) the establishment of operational subproject planning, design, and implementation capacity at all levels; and (v) enhancements in the capacity of implementing agencies and local authorities to target poverty reduction.

6. Part A was to account for $11.1 million (7.1%) of total investment and consist of (i) capacity building for the RRBO, (ii) public awareness and education programs for water resource management, (iii) a pilot water licensing and wastewater discharge permit system, (iv) a water quality monitoring network, and (v) project management support. Expected outputs included (i) enhanced institutional capacity for basin-wide management in the Red River Basin, (ii) public awareness campaigns on water resource management, (iii) establishment of a water quality monitoring network, (iv) pilot implementation of water rights licenses and wastewater discharge permits, and (v) project management support.

7. Part A and the research studies under part B were funded on a grant basis by the Government of the Netherlands. Given the relatively small size of Part A, this project completion report (PCR) focuses primarily on the implementation and evaluation of part B, while taking into account the Part A findings where they are relevant. The original project framework and achievements under the project are shown in Appendix 1.

8. The executing agency for the project was the Ministry of Agriculture and Rural Development (MARD). Part A was to be implemented by MARD's Department of Water Resources and Hydraulic Works Management (DWRHWM), while part B was to be implemented by a central project office (CPO) established within MARD. The project was to be completed over the period from 2002 to 2008.

II. EVALUATION OF DESIGN AND IMPLEMENTATION

A. Relevance of Design and Formulation

9. The project's goal and objectives were consistent with the priorities of the Government of Viet Nam and ADB at the time of approval and remain consistent now. The government was emphasizing the rehabilitation of degraded infrastructure at the time, with a particular focus on water resources infrastructure to encourage growth and reduce poverty. The planning documents that helped guide project appraisal were the government's medium-term strategy and

five-year plan for socioeconomic development.[3] These documents stressed (i) agricultural and rural industrialization and modernization, (ii) rational agricultural production, (iii) science and technology development, (iv) water conservation and resource management, and (v) industry and services development. The project goal and objectives were directly relevant to the first, second, and fourth of these priorities.

10. The project was consistent with ADB's focus on poverty reduction, as expressed in its Poverty Reduction Strategy of 1999.[4] The number of poor families in the Red River Delta area was high and many in the densely populated region had to subsist on landholdings of 0.22 hectares (ha) or less—as do many today. Poverty levels were and continue to be even higher in the less populated upland watershed areas of the Red River Basin, which are home to a large proportion of the country's ethnic minorities.[5] ADB's 1995 country operational strategy, which was current at the time of project preparation, included five areas of special emphasis: (i) policy reform and institutional development, (ii) infrastructure development, (iii) rural development, (iv) human development, and (v) resource management.[6] The project objectives were consistent with all five.

11. Current ADB policy is embodied in Strategy 2020, which sets infrastructure as a core area of operations and specifies irrigation infrastructure investment as a means to support the agriculture sector as well as to stimulate economic growth and reduce poverty.[7] Strategy 2020 also promotes sound environmental management, which includes the sound management of water resources. As such, the project objectives are still relevant to ADB priorities.

12. Despite the relevance of the project goals and priorities, its design suffered from an overly strong focus on the basin-wide approach to scope and implementation arrangements. This did not take into account the great size and complicated nature of the challenges of the Red River Basin, especially compared with the scale of project funding and the government's low implementation capacity and limited commitment to the establishment of an apex water resources planning authority.

13. Part A's design was far too ambitious, had little government ownership, and showed a flawed understanding of institutional realities. The Red River Basin covers 25 provinces and includes one of the most complex delta systems in the world, with seven rivers flowing in and a dense network of rivers flowing out to the sea.[8] In addition, much of the delta is divided into separate agricultural divisions, each with its own unique hydrological conditions and irrigation and drainage systems developed over centuries. Like the Red River itself, whose source is thousands of kilometers away in Yunnan Province in the People's Republic of China, most of the rivers flowing into the basin originate outside the country. Half of the catchment also lies beyond Viet Nam's borders. The complexity of the hydrological system is further compounded by the fact that two very large hydroelectricity reservoirs within the basin regulate their storage and release of water based on the shifting demands for electricity rather than on the needs of agriculture, industry, or domestic households. The project design was seriously unrealistic in its

[3] Government of Viet Nam, Ministry of Planning and Investment. 2001. *Strategy for Socio-Economic Development.* Hanoi; and Government of Viet Nam, Ministry of Planning and Investment. 2001. *Five Year Plan for Socio-Economic Development (2001-2005).* Hanoi.

[4] ADB. 1999. *Long Term Poverty Reduction Strategy*. Manila.

[5] Guidelines for the participation of ethnic minorities were prepared during appraisal and implemented for the two uplands pilot subprojects in Yen Binh and Nghia Lo.

[6] ADB. 1994. *Viet Nam–Country Operational Strategy (1995-2000)*. Manila.

[7] ADB. 2008. *Strategy 2020: The Long Term Strategic Framework of the Asian Development Bank*. Manila.

[8] The delta area itself covers 1.3 million ha, not counting the upper watershed.

institutional assessments when it assumed that, by virtue of a modest amount of technical assistance over a few years, 25 provinces and several ministries would forego their administrative authority over water resources and agree to overall planning and supervision by a newly created organization with few staff and no institutionally authorized mandate or funding mechanism. It was also unrealistic to think that such an organization could function effectively in such a complex physical and institutional environment when the fact was that fully integrated water resources management (IWRM), while a laudable long term goal, had not been fully adopted anywhere in the world, even in far less challenging environments.

14. A lack of realism also afflicted the design of part B. It was unrealistic to attempt meaningful interventions in both the lowland areas and the upland areas in the same project. Adopting the basin-wide approach resulted in a complex multi-component project design, with a project area spread over 25 provinces and subproject sites hundreds of kilometers apart. Three different approaches were needed for the investments in the delta, the uplands, and reforestation. In addition, it proved difficult to find water resources schemes in the upland areas that met the rigorous selection criteria prescribed at appraisal. Because terrain in the watershed is mountainous, areas where reforestation could be undertaken were also hard to find.

15. Problems in the project design led to wasted time and human resources at the outset and implementation delays that postponed the accrual of benefits by up to 4 years. The shortcomings included (i) designing the project as a group of basin-wide activities within the management framework of a functioning RRBO, an entity that was never given the planning and management authority expected at appraisal; (ii) making the initiation and implementation of part B subprojects dependent on progress under part A; and (iii) targeting 30% of subproject investment to upland areas. These issues were eventually resolved after the mid-term review, when these restrictions and limitations were removed.

16. Including RDS subcomponents within subprojects, on the other hand, was found to be favorable and, by all accounts, helped improve the positive poverty reduction, gender, and grassroots water management impacts of the project. This is despite the requirement that RDS plans were to be in place prior to civil works contracts being signed, which was an additional contributor to start-up delays. The prerequisite was also removed after the midterm review but the problem highlighted the fact that making activities in one aspect of the project, particularly civil works under part B, dependent on the completion of either part A or the RDS subcomponents of part B was an important design flaw.

17. Some responsibility for shortcomings in project design rests with the recommendations of the project preparatory TA. The TA consultants were certainly not thorough in their preparations for some core subprojects. For instance, in an area identified by the TA for several thousand hectares of reforestation, on-the-ground inspection during implementation showed potential for only 50 ha.

B. Project Outputs

18. Expected part B project outputs at appraisal included (i) 20 subprojects aimed at the improvement of upland irrigation systems on 12,000 ha and watershed protection on 8,000 ha; (ii) 10 subprojects aimed at improved delta irrigation and drainage on 80,000 ha; (iii) 10 flood protection schemes covering 1.5 million ha; (iv) the establishment of subproject planning,

design, and implementation capacity; and (v) enhancements in the capacity of implementing agencies and local authorities to target poverty reduction.[9]

19. Some of the part B output targets were not met due to the initial shortcomings in project design (paras. 13–15). Others were significantly surpassed after the project was reformulated following midterm review. Lifting the original requirement that 30% of subproject investment be in upland areas and dropping the reforestation subprojects made it possible to provide improved irrigation, drainage, and flood protection to a total of 31 subprojects. The 21 completed irrigation and drainage subprojects, including 3 in the upland areas, provide irrigation for about 152,000 ha of land and drainage for 141,000 ha. This far exceeds the overall 92,000 ha of irrigation and drainage improvement envisaged at appraisal.[10] All 10 planned flood protection subprojects, covering 1 million ha, were successfully completed.[11] RDS components were successfully implemented in all irrigation and drainage subprojects and in seven of the ten flood protection subprojects. This included providing small-scale field level irrigation and drainage infrastructure constructed under the project but managed by the beneficiaries themselves and participatory irrigation management (PIM) training at the commune level, which included many women beneficiaries. The output targets for subproject planning, design, and implementation capacity, as well as for greater institutional capacity to target poverty, were also generally achieved, although physical targets were below what was expected.

20. If the outputs are measured against those original project objectives that aimed at enhancing agricultural performance of poorer communities through sustainable improvements in irrigation, better drainage, watershed protection, and flood protection, the target outputs were not only met but substantially surpassed. By area, irrigation and drainage benefits were 200,000 ha over expectations, and three times the original target. One reason was the greater potential for development within the delta areas, where the project emphasis shifted after midterm review, compared with the upland regions, where much of the original activity was dropped. Delta irrigation and drainage schemes cover tens of thousands of hectares while upland irrigation schemes normally cover only hundreds and rarely exceed 1,000 ha in size. Delta schemes also have lower per hectare development costs.

21. These outputs were achieved later than originally planned, however. Due to the restrictions under the original project design that prevented the start-up of many individual subprojects, design and construction of most subprojects did not begin until 2007 or 2008, up to 5 years later than would otherwise have been possible. Despite this, almost all civil works had been completed by 30 October 2010, less than 3 years later than the 31 December 2007 target date. All subprojects have now been handed over to irrigation and drainage management companies (IDMCs) for operation.

22. The benefits from the completed subprojects are expected to be substantially greater than assessed at appraisal. Not only has a much larger area than expected been provided with improved irrigation and drainage facilities but the subprojects have also delivered additional

[9] The expected outputs of part A included (i) an enhanced institutional capacity for basin-wide management in the Red River Basin, (ii) public awareness campaigns on water resources management, (iii) the establishment of a water quality monitoring network, and (iv) pilot implementation of water rights licenses and wastewater discharge permits.

[10] In some areas, both improved drainage for the wet season and improved irrigation for the dry season were provided. On a cropping season basis, this means improvements of 293,000 ha, compared with the appraisal estimate of 92,000 ha in both upland and delta areas.

[11] The discrepancy in area covered (1.0 million ha completed versus 1.5 million ha shown in the project framework) was due to an overestimate at appraisal of the area to be protected by the 10 schemes.

benefits not envisaged during the original design. These include (i) improved drainage and flood prevention in urban residential areas, rather than only in rural areas; (ii) better dam safety; (iii) water supply to residential and industrial areas; (iv) improved environmental conditions due to the flushing of previously polluted rivers after dredging; (v) upgraded transport facilities through newly created locks and canals; and (vi) reduced saline intrusion in both irrigation and drinking water.

C. Project Costs

23. Because the project was designed as a sector loan, with the investment tailored to the funds available rather than the funding requirement being determined by a set scope of investment activities, project costs at completion differed little from those expected at appraisal. The project benefited from a devaluation of the US dollar against both special drawing rights and the euro and, in terms of local costs, from a devaluation of the dong against both the US dollar and the euro. This contributed to broader investments than envisaged during project preparation.

24. The estimated total project cost at appraisal was $156.22 million. Of this, $10.55 million was to be funded as a grant from the Government of the Netherlands. The balance was to be funded by ADB and Agence Francaise de Developpement (AFD) with loans equivalent to $70.00 million (equivalent to SDR54.3 million) and $30.01 million respectively, along with a contribution equivalent to $45.66 million from the government and beneficiaries. At project completion, $81.98 million had been provided by ADB, $45.30 million by AFD, and the equivalent of $44.90 million by the government. In addition, the Government of the Netherlands contributed $9.52 million. Thus, with all funding sources envisaged at appraisal taken into account, the final financed project cost amounted to $181.70 million.

25. Investment costs for many individual subprojects were affected by a sharp rise in domestic inflation, especially in 2007 and 2008 when implementation activities began to take off.[12] Subproject costs rose in local currency terms by about 15% on average and ranged from an underrun of 37% to an overrun of 41%. Cost increases were adjusted from available project funds. While such cost increases may have affected rates of return in a static economic situation, they did not impact expected economic internal rate of return (EIRR) of the subprojects in the end due to the devaluation of the dong and the fact that the international price of rice (the main basis for determining quantified benefits of the project) increased substantially over the price used at the time of appraisal.

26. The lower unit cost of development encountered by the project after the midterm review, which concentrated on delta irrigation and drainage alone after dropping most of the more expensive upland area operations originally planned, was one reason the project delivered far greater outputs than envisaged at roughly the same cost estimated at appraisal (para. 20). Another was the fact that the project preparatory TA overestimated the per hectare unit development costs.

D. Disbursements

27. Disbursements were significantly delayed by the start-up postponements forced by shortcomings in the project design (paras. 13–15). By the time of the midterm review in June 2005, implementation was only 14% complete, compared with the elapsed loan period of 50%.

[12] Three subprojects had significant cost underruns, however.

This reflected a more than 2-year delay. Cumulative contract awards under the ADB loan were only $6.7 million (8.6% of the net loan amount) and cumulative disbursements stood at $7.3 million (8.7% of the net loan amount).[13] While rates of physical completion and disbursement often lag calculations of the elapsed loan period, this situation did not augur well for the successful completion of the project. It is to the credit of staff of the CPO and the Viet Nam Resident Mission that the situation had completely changed by the time of the PCR mission in January 2011 when over 99% of the loan amount had been disbursed. The bulk of disbursements occurred in 2008–2010, the final 3 years of project implementation. This was primarily due to steps taken in response to midterm review recommendations to remove constraints to subproject approval and streamline implementation arrangements. In addition, the CPO and its consultants and contractors had accelerated the design and construction of subproject works, along with their associated RDS components. Part B of the project was implemented from 2006 to 2010 in 30% less than the time that the appraisal estimated would be required. Establishing an imprest account at the national level and subimprest accounts at the provincial levels had a positive impact. Funds were available for project activities as and when needed by the provincial governments that were responsible for physical project implementation.

E. Project Schedule

28. Project appraisal scheduled physical completion for 31 December 2007 but the project was not largely completed until 30 October 2010.[14] The delay was largely due to the shortcomings in project design (paras. 13–15) although start-up was also put back by delays in consultant recruitment.[15] The first of four main causes of delay was the requirement that all subprojects approved be part of a project-designed water sector action plan (WSAP). This condition was based on a selection criterion in the RRP that subprojects should be consistent with the river basin plan or sub-basin plan and included in the provincial or district investment plan; but it ignored the fact that the proposed subprojects had already been included in an action plan formulated by the government in the late 1980s. In the end, the Part A consultant's WSAP ranking was not accepted by the government and it was not used for subproject selection because results were not consistent with the government's investment priorities. This original requirement, which was waived after the midterm review, delayed implementation of the project by about 2 years.

29. The subproject selection criteria also proved too rigorous for the government to meet, which was a second cause of delay. Feasibility studies for most of the subprojects had been undertaken by the provincial governments with funding from the RRDWRSP but they did not meet the standards required by Part A consultants and ADB. This put many of the subprojects on hold because the governments had neither the resources nor the expertise to make the necessary improvements. The impasse ended only after the midterm review mission recommended that the selection criteria be simplified and the provincial governments be given additional national consulting services to help them meet the revised feasibility study criteria.

30. A third cause of delay was an unnecessary requirement in the loan agreement that no civil works contract for any non-core subproject could be signed until the subproject RDS plan had been prepared.[16] Since an expected grant from the Japan Fund for Poverty Reduction to

[13] Cumulative contract awards under the AFD loan stood at $5.4 million (16.0% of the net loan amount) and cumulative disbursements at $5.8 million (13.7% of the net loan amount).
[14] Minor works on a small number of subprojects were completed in December 2010.
[15] Implementation consultants were fielded only by September 2003, nearly two years after ADB's Board of Directors approved the loan.
[16] Work on the four core subprojects prepared under the project preparatory TA went ahead.

field test RDS activities and prepare guidelines had been reduced in scope and delayed by 2 years, this meant that no construction could start on these subprojects.[17] This requirement, finally removed in February 2007 on the recommendation of the midterm review mission, was unnecessary since field development and social development normally begin after the main physical works have been completed.

31. The requirement that 30% of subproject funding should be dedicated to upland areas was the fourth main cause of delay. It was impossible to find irrigation and drainage subprojects in the upland areas that met the selection criteria and no scope for reforestation existed in the designated areas. This left 30% of potential subproject funding essentially frozen. This situation was also resolved in February 2007 on the recommendation of the midterm review mission.

32. Slow processing within the executing agency of the official request based on these midterm review recommendations for a change of scope caused further delays, despite the fact that such a change had been originally requested on the initiative of its CPO. The midterm review was completed in June 2005 but the memo requesting a major change of scope was not approved by the MARD until February 2007. Once the scope change had addressed the four main issues, implementation accelerated. Actual physical completion exceeded the target set in the revised schedule by one year and 3 months.

F. Implementation Arrangements

33. The implementation arrangements for part B of the project were fundamentally sound. The MARD was the designated executing agency, with its responsibilities delegated to the CPO. The provincial departments of agriculture and rural development (DARDs) were the implementing agencies for individual subprojects. However, a requirement in the terms of reference for the project management support consultants under part A proved to be a major impediment to implementing the project efficiently. It required that the experts help to ensure that water service investment subprojects in part B be developed in accordance with Red River Basin frameworks and plans developed in part A. This made the start-up of part B, which accounted for 93% of the overall project investment, dependent on the results of Part A, which was being carried out by a different implementing agency and different consultants.[18] In addition, it gave the part A consultants—not the executing agency—final say over which subprojects were suitable for implementation and which were not. The WSAP prepared by Part A consultants for prioritizing subprojects was not completed until 2 years after the original 2002 deadline, but was rejected by the government, and abandoned for use in project selection after the midterm review. Other design shortcomings that slowed disbursements and affected scheduling also reduced the efficiency of implementation (paras. 13–15). Overall, the main flaw in the implementation arrangements was to make the implementation of individual project parts and subprojects, in particular, dependent on the achievement of actions, goals, and targets of other parts without due regard either to the necessity of this requirement or the likelihood of it being fulfilled. As a result, several of the implementation requirements negotiated at appraisal worked at cross-purposes in pursuit of the project's overall outputs with restrictions and delays in part A unnecessarily delaying progress in part B. This problem was resolved by the midterm review mission.

[17] ADB. 2008. *Implementation Completion Memorandum—VIE: Poverty Reduction in Red River Basin Irrigation Systems,* financed by the Japan Fund for Poverty Reduction. Manila (Project Number: JFPR 9046, for $820,000, approved on 15 April 2004).

[18] A series of individual consultants and consulting firms were recruited to implement part A. Initially these included individual consultants to implement the original component for the project management activities and a consulting firm to implement the remaining four components

G. Conditions and Covenants

34. With no specific requirements for loan effectiveness other than confirmation of the availability of funds from AFD and the Government of the Netherlands, the project was declared effective in May 2002, within 4 months of loan signing. The covenants and the status of compliance are in Appendix 2. Most covenants were complied with, with one set of exceptions (para. 35) and some delays. Partial compliance generally related to the provision of staff and expertise and project benefit monitoring. Failure to comply or late compliance was often due to a lack of funds or expertise in provincial government agencies, although stronger efforts by the CPO could have helped avoid these situations and the problem of project benefit monitoring, in particular. Overall, late compliance does not seem to have seriously affected the delivery of project outputs.

35. A series of covenants were tied to the water resources management activities to be undertaken under Part A. These included (i) regularly convening the National Water Resources Council (NWRC), (ii) the separation of water resources management activities from irrigation and drainage management activities, (iii) the approval of a Red River Basin framework plan, (iv) the establishment of the Red River Basin Committee of the RRBO as the project steering committee, and (v) the revision of a government decree on cost recovery for water resources projects. The first four covenants were complied with despite minor delays but became moot once responsibility for overall water resources management was transferred from the MARD to the Ministry of Natural Resources and Environment (MONRE) in 2003.[19] The fifth is also now moot because new decrees have allocated the responsibility for funding the maintenance and operation of water resources infrastructure to the government. The inclusion of these covenants may have moved the country somewhat closer to IWRM more through awareness raising than actual institutional change.

H. Related Technical Assistance

36. Part A of the project was funded by the Government of the Netherlands on a grant basis and established within ADB's management and reporting systems as an advisory TA, although financial control was carried out manually.[20] Implementation of Part A suffered initially from an inappropriate design that presumed major institutional change—the establishment of a fully functioning RRBO—that never materialized and was not fully supported by the government. Part A was stalled for four years until a series of scope revisions by the midterm review mission enabled its implementation. It delivered its revised outputs and it was ultimately effective. Outputs included (i) a draft revision to Viet Nam's Law on Water Resources (LWR); (ii) training and sample documentation on irrigation and drainage system operation and management, along with PIM and the production of irrigation maps (with direct relevance to part B of the SRRBSP), and (iii) direct, on-the-ground training in water quality management and the testing of water licensing schemes, along with improved public awareness of water quality issues and the preparation of a water atlas for the Day River Basin. A comparison of these delivered outputs with the original project framework shows that Part A met most of the original targets and indicators. It has contributed to its intended goal of establishing integrated water resources management within the Red River Basin, although at a lower level of achievement than that unrealistically envisaged originally. The institutional capacity for IWRM has been enhanced through training programs and pilot activities. It will be further enhanced if the draft LWR is

[19] These covenants should have been revised or removed at this time.
[20] ADB. 2002. *Second Red River Basin Project (NET)*. Manila (TA 3892-VIE, for $10.9 million, approved on 27 June).

approved, as expected. Public awareness has been raised through awareness campaigns and the request for public comments on the draft LWR. Pilot water quality monitoring activities have been carried out, water rights licenses and wastewater discharge permits have been piloted and provision for expansion is included in the draft LWR. All this will help achieve the ultimate goal of establishing IWRM in the Red River Basin.

37. A project designed to pilot test and prepare guidelines for the RDS subcomponents was conducted with Japan Fund for Poverty Reduction financing. An implementation completion memorandum[21] concluded that the grant was highly successful and that "the developed RDS guidelines—the main project outputs and results—are sustainable as they are being adopted under the other subprojects of SRRBSP." However, implementation was late, which seriously delayed project implementation because production of RDS guidelines had been a precondition for the start of civil works contract awards for subprojects of part B (para. 30).

I. Consultant Recruitment and Procurement

38. Two teams of international consultants were recruited to facilitate project implementation, one each for part A and part B. Recruitment was done in accordance with ADB's Guidelines on the Use of Consultants. Selection of the two teams required separate and different bidding processes and time periods and different management requirements caused difficulties in processing. As a result, part B consultants were fielded about 1 year late, in mid-2003. Procurement, including that for irrigation and drainage pumps, was done locally and internationally and followed ADB's *Guidelines for Procurement*. The PCR mission found no major procurement issues.

J. Performance of Consultants, Contractors, and Suppliers

39. The performance of the international consultants was *satisfactory*. Although the performance of the original part A consultants was less than satisfactory, those ultimately employed to implement the revised scope were able to complete their assigned tasks competently and within the agreed timeframe. Part B consultants met commitments under the contract terms of reference and coordinated with the CPO to anticipate and resolve potential bottlenecks. These consultants produced useful reports, manuals, and guidelines to facilitate project implementation as well as a project completion report for the CPO. The part B consultants completed six individual subproject sample appraisal reports, which served as models for replication and complied with the stringent ADB selection criteria for investment approval. In addition, the consultants assisted in the preparation of appraisal reports to ensure that all pre-financed subproject appraisal reports met ADB criteria for investment approval. However, much additional work was required to update and upgrade some 25 feasibility studies initially prepared under the government's guidelines. The part B consultants and a subcontracted team of additional domestic consultants helped the CPO successfully upgrade the appraisal report work to a standard acceptable to ADB.

40. The performances of the local feasibility and technical design consultants and companies differed and did not conform to ADB quality standards in the initial stages but greatly improved later in project implementation. Most consultants, companies, and institutes were able to comply with the design standards of the government as well as ADB's environmental and social assessment requirements. Generally, the performance of the local civil works contractors was satisfactory by local standards, although the quality of work differed, with some contractors

[21] ibid. footnote 17.

surpassing requirements and others not achieving an acceptable standard. Post-project clean-up was not thorough at several subproject sites and leftover machinery, vehicles, and material still littered works areas. More seriously, a number of local residents who were intended project beneficiaries and had been moved temporarily for the construction work returned to find their land in a deteriorated condition. This issue has been resolved. The performance of the local and international suppliers of equipment was generally satisfactory. No major problems occurred in commissioning or hand over. Requirements under the supply contracts for equipment testing and monitoring were enforced.

41. The PCR mission found a few cases of poor or defective construction, including the use of inappropriate materials.[22] The CPO staff have advised ADB that these works are still under warranty and that the contractors would be required to bring them up to minimum standards before the 12-month warranty period ends. However, the IDMCs should not wait to request remedies because the defects may become more serious over time.

K. Performance of the Borrower and the Executing Agency

42. The most obvious shortcoming of the borrower was the failure to establish the fully functioning RRBO it committed to under the originally agreed project design. The RRBO was established without the mandate and authority that had been expected at the time of appraisal. The situation was further complicated when the RRBO remained within the MARD even after the authority for water resources management had been handed over to the MONRE. The borrower thus agreed to a project structure that it must have known would never be put in place. It then failed to make necessary revisions to the implementation arrangements once the project had begun and it became clear that the institutional structure would not be workable.[23] For this reason the performance of the borrower is rated *less than satisfactory.*

43. The MARD's performance as the executing agency was mixed. It performed its tasks adequately for part B, acting through the CPO. The capacity of some provincial implementing agencies was weak and some were unable to prepare subprojects that met the selection criteria. Capacity improved over time, however, largely as a direct result of involvement in the project, and Part B outputs generally exceeded expectations (para. 20). This was not the case for part A. From the outset, the DWRHWM showed little interest in and took little ownership of its part of the project. It did not appoint a full-time project director. Most of the original work on part A was undertaken by consultants with little input from the MARD. The Part B research studies were finally completed but follow-up is poor and, in the wake of a recent reorganization, it is hard to find anyone in the MARD who knows much about them. The Department of Water Resources Management (DWRM) of the MONRE, which eventually was responsible for two new components of the revised part A, did perform adequately and has benefited from capacity building activities carried out during implementation and associated training sessions.

44. The performance of the MARD on part B is on the whole rated *satisfactory*. It is rated *unsatisfactory* with regard to part A.[24] The performance by the MONRE in implementing its two components of part A was *satisfactory*.

[22] For example, handrails were seriously corroded in the Tu Mai pumping station (Bac Giang) and the wall of the spiral staircase at the Nhat Doi 2 sluice in Nam Dinh Province had a major crack.
[23] Responsibility for not recognizing this falls at least as much on the appraisal mission as on the borrower.
[24] Since these two parts of the project are quite distinct and implemented by completely different parts of the MARD, there is no value in providing an overall performance rating.

L. Performance of the Asian Development Bank

45. The performance of the ADB can best be described as mixed although it improved over time from a poor start and is rated *satisfactory* overall. The original project concept was flawed by an impractical basin-wide focus that ignored the realities on the ground and within the relevant government institutions. Rather than designing a simple follow-on project based on the successful conclusion and lessons of the RRDWRSP, the scope was expanded to include upland development, reforestation, and basin-wide institutional development. Making progress on independent parts of the project contingent on another part's outputs caused implementation of the project to be further delayed. The RRP and loan agreement did not clearly distinguish the Netherlands grant-funded capacity building portion of the project (part A) from the scope of the loan-funded part of the project (part B), resulting in conceptual problems during implementation and project review. In addition, the project framework in the RRP was not prepared well, used less than precise indicators, and missed a range of potential project benefits.

46. Once the project was underway, much earlier steps should have been taken to remedy the obvious design shortcomings. Early review missions should have realized that the project had serious structural problems. ADB should also have realized very early on that a fully functioning RRBO would not become a reality and should have worked with the government to adjust the scope and implementation arrangements accordingly. Instead, much of the responsibility for project implementation supervision seems to have been handed over to the project management consultants under part A. This resulted in further confusion and delays. ADB's performance in the initial years can therefore be assessed as *unsatisfactory.* Improvements began only after a change in staffing and a full reassessment of the project at midterm review. By the second half of the extended project period, both parts A and B had been suitably reformulated and expanded and, with concerted efforts, the revised project was successfully completed. ADB performance in these later years can be rated *highly satisfactory*.

III. EVALUATION OF PERFORMANCE

A. Relevance

47. The project is considered relevant to the needs of the country and to the policies of ADB and the government. In view of its focus on increased agriculture production, poverty reduction, and improved water resources management, it might even be considered highly relevant. But the project design is considered less than relevant because it assumed changes in the institutional environment that were not likely to occur during project implementation. Its scope was overly ambitious and its implementation procedures too complex. These issues were addressed at midterm review and the subsequent reformulations of both part A and part B restored the prospects for successful implementation. The ensuing outputs are relevant both to the attainment of IWRM and to poverty reduction. As a result, the project is rated *relevant*.

B. Effectiveness in Achieving Outcome

48. The project is rated *highly effective*. Its main intended outcome was to improve agricultural performance of poorer communities through sustainable improvements in irrigation, better drainage, watershed protection and flood protection, within an integrated water resource management framework. Based on outputs to date, the project will certainly achieve its goals of increased agricultural performance. The coverage of its improved irrigation and drainage facilities is triple that envisaged at appraisal (para. 20). Ten flood protection projects covering 1 million ha have been completed as planned. The completed subprojects will have a wide range

of additional benefits, including improved drainage for residential and industrial areas, improved residential and industrial water supply, improved water transport links, enhanced environmental conditions as a result of the flushing of previously polluted rivers after dredging, improved dam safety, and reduced salinity intrusion into coastal irrigation systems and domestic water supply.

49. These improvements have taken place within a framework that promoted IWRM. The governance improvement in irrigation systems (GIIS) activities under part A directly improved operation and maintenance practices and, at the same time, instituted PIM practices.[25] Activities aimed at ambient water quality management in the Day River Basin provided training and tested practices in managing water resources that are under stress from pollution and excessive use. Finally, the revision of the LWR provided a much needed update that should form the basis of the next step of the government's institutional move towards IWRM.

C. Efficiency in Achieving Outcome and Outputs

50. Recalculated EIRRs for the subprojects of part B range from 12% to 48%, with 19 out of 31 above 18%. The reevaluated EIRRs are based on actual construction costs, production levels estimated during appraisal, and updated commodity prices of agriculture inputs and outputs.[26] These results provide an economic basis for considering the project highly efficient but the project is rated *efficient* due to the delays and inefficiencies in implementation prior to the midterm review.

D. Preliminary Assessment of Sustainability

51. Despite such adversities as annual flooding and war, Viet Nam has a long history of maintaining its water resources infrastructure in operable condition, especially in the Red River Delta. In addition, the project has contributed directly to sustainability through its formulation of operation and maintenance plans, PIM, and the preparation of irrigation maps. Whether the IDMCs, which are currently funded directly by the government, are receiving sufficient budgets is still uncertain but they appear to be receiving at least enough to keep their infrastructure operational. The optimal mechanism for operation and maintenance funding continues to be a topic of policy dialogue between the government and international development partners. Working water resources infrastructure is critically important to the well-being of local people and they will continue to place pressure on local governments to keep it functional. The project outputs and outcome are rated *likely* sustainable.

E. Impact

52. The project will have a substantially positive social impact by (i) raising community participation in small subproject planning (i.e., under the RDS), (ii) raising rural incomes through increased agricultural production, (iii) protecting the population from flood damage, (iv) providing potable drinking water to drought-prone residential areas, (v) improving local transport, (vi) improving environmental conditions as a result of higher volumes of flow in dredged rivers, and (vii) reducing water transport costs. No negative environmental effects are evident from the project and it has reduced exposure to flooding and enhanced access to potable water, particularly during the dry season. Women have also been empowered through greater representation in decision making on water management.

[25] The participation of women in the water user associations was nearly 40% of overall membership.

[26] At this point, it is not feasible to revise estimates of increases in production since most schemes were finished only in 2010 and a full cropping season, not to mention a full gestation period, has not yet passed. Actual, in field recalculation could be made during post-project evaluation.

IV. OVERALL ASSESSMENT AND RECOMMENDATIONS

A. Overall Assessment

53. Being *relevant*, *highly effective*, *efficient*, and *likely* sustainable, the project is rated *successful* overall. Despite its initial design, it was never likely that the project could be implemented under an apex water resources planning body such as the RRBO. Once this initial misstep is removed from an assessment of project success, it is equally clear that much has been achieved in terms of outputs and potential benefits. Once freed of constraints and delays imposed by a faulty project design, part B of the project was implemented smoothly. The outputs far exceeded the targets at appraisal and the benefits, once they have full gestated by 2015, are likely to do so as well. Part A also ultimately delivered outputs that have had and most likely will continue to have positive impacts on the ability of Viet Nam to manage its water resources effectively.

B. Lessons

54. The history of the project's design and implementation provide the following lessons:

(i) Project success almost always depends on simplicity of design and it is usually counterproductive to include superfluous components no matter how much they may reflect current development thinking or theories.
(ii) Whenever possible, project design should target contiguous or proximate project areas with similar physical and environmental characteristics.
(iii) To the extent possible and unless necessary, it is best to avoid making the implementation of one component of a project contingent on achievements of another component.
(iv) Pursuing long-term institutional reforms through investment projects aimed at infrastructure development needs careful design and the full ownership of the borrower.
(v) Shortcomings in project and TA design should be identified and acted upon early in implementation to avoid undue expense and a delayed accrual of benefits.

55. The use of a comprehensive design has proven successful in this type of project and should be the basis for the design of future water sector projects in the country. This entails looking at the whole hydrological system of a particular scheme and the inclusion of local community participation through a component like the RDS.

C. Recommendations

1. Project Related

56. **Future monitoring**. The CPO, through provincial irrigation and drainage management companies, should continue to monitor the status and operation of the infrastructure provided under Part B, especially during the warranty period, to ensure that any deficiencies in design or construction are repaired expeditiously. In addition, the DARDs should monitor benefits as they accrue to ensure that the expected production increases are materializing and that the operation and maintenance plan prepared and approved during technical design is implemented, including the provision of adequate budget for the purposes of each subproject.

57. **Covenants.** Since the project is completed, there is no need or leverage for covenants to be maintained.

58. **Further action or follow-up**. ADB should follow the progress of approval of the LWR closely to be in a position to provide assistance or support as needed.

59. **Additional assistance.** The SRRBSP built successfully on investments undertaken under the RRDWRSP and added value to them. ADB should favorably consider future investments in the water resources sector that build on the achievements under the SRRBSP.

60. **Timing of the project performance evaluation report**. A report should be prepared in about 3 years, which would allow for a reasonable gestation period for full benefit generation.

2. General

61. **Implementation supervision responsibilities of consultants.** The use of grant-funded consultants should not substitute for the hands-on involvement in a project by the designated ADB staff. Project management consultants under part A of the project appear to have had a strong influence over decisions affecting the implementation of part B, to the detriment of implementation progress.

62. **Financial control.** Financial administration of grants cofinanced by development partners should be done within ADB's financial system to eliminate the delays in financial reporting inherent in the manual system applied for such grants.

63. **Support for IWRM.** ADB should continue to support capacity building and institution building activities for IWRM but be realistic about what is achievable within the current institutional and administrative environment in the country.

PROJECT FRAMEWORK AND ACHIEVEMENTS

Design Summary	Performance Indicators/Targets	Achievement	Comment
Goal To protect and improve production, productivity and income of farmers in the Red River Basin	Farmers' income increased by at least 20% per year over baseline in 2001.	With the successful provision of irrigation on 157,000 ha, drainage on 141,000 ha, and flood protection on over 1 million ha, the project certainly has protected and improved the productivity and income of farmers in the Red River Basin and will continue to do so.	With full project development after a reasonable gestation period to the year 2015, the 20% increase in farmers' income will almost certainly be met. In many cases, it has already been met. Given the level of economic growth in Viet Nam since 2000, nearly everyone's income has increased by at least 20%. It would therefore be more meaningful during any future post-evaluation exercise to use a more recent baseline year than 2001. A more appropriate baseline year would be the year project construction began (in many cases 2007 or 2008).
Purpose (i) To improve agricultural performance of poorer communities through sustainable improvements in irrigation, better drainage, watershed protection and flood protection, within an integrated water resource management framework	(i) Rice production in subproject areas increased by an average of at least 20%. Collection of additional water fees sufficient to finance incremental operation and maintenance (O&M) costs of water infrastructure Economic Internal Rate of Return (EIRR) of subprojects is at least 12% after 5 years.	(i) 31 subprojects providing irrigation, drainage and flood control have been successfully completed and are in functional condition. Since most of these were only completed within the past 1 to 3 years, operations have only recently begun and the full benefits have yet to be tested and confirmed. Nonetheless, the purpose of improving agricultural performance or poorer communities through sustainable improvements in irrigation, better drainage, and flood protection has been attained. (Watershed protection activities were dropped due to lack of potential). Other benefits such as salinity control, flushing of polluted rivers, and drainage and flood	The target of a 20% increase in rice production has already been achieved in a number of subproject areas and is likely to be achieved in all subprojects after a 3-year project gestation period. This indicator does not take into account other agriculture benefits, such as the increased production of non-rice crops or of the non-agricultural benefits of improved drainage and flood control in urban and industrial areas and the provision of potable drinking water in zones of saline intrusion. All are benefits of several subprojects. The collection of additional water fees for O&M is moot as an indicator since the provision of operational costs is now the mandated responsibility of the

Design Summary	Performance Indicators/Targets	Achievement	Comment
		protection in urban areas are likely to be achieved as well. Recalculated subproject EIRRs (based on updated figures but not actual yields since it is prior to the full gestation period) indicate that all are likely to be in excess of 12%. These results were achieved within an integrated water resource management framework, to the extent possible without a fully functioning water resource management system for the entire Red River Basin. Establishing one that was up to the vast tasks proved to have been an overambitious and unrealistic goal. But integrated water use was followed within each subproject and the subprojects themselves were chosen from a coherent water resources development plan for the Red River Basin. (ii) As a result of the RDS component and activities undertaken under part A —under the governance improvement in irrigation systems component— stakeholder participation in water resources management at the grass roots level is reported to have improved significantly. Furthermore, the EA's PCR reports that 40% of the management teams of water user organization are women.	government.
(ii) To promote stakeholder participation in water management, with emphasis on women's participation			

Design Summary	Performance Indicators/Targets	Achievement	Comment
Outputs			
(i) Upland irrigation systems and watershed protection improved	(i) 20 subprojects completed and operational by 2007, covering 12,000 ha of rehabilitated irrigation area and 8,000 ha of reforestation RDS activities undertaken to increase benefits from irrigation and watershed protection	(i) Three upland subprojects were completed by 2010 with a coverage of about 2,100 ha of irrigation and 400 ha of drainage. No reforestation was undertaken. RDS activities were included in the subproject scope.	(i) After the midterm review, the requirement for least 30% of subproject investment to be in upland areas was removed due to the fact that economically viable subprojects were no found and a poverty focus would be better achieved by investments in the delta region. (iii) Subproject implementation was delayed by a requirement that subprojects to first be included in a water sector action plan being prepared under part A and by to difficulties meeting selection criteria. Costs were affected by severe increases in inflation.
(ii) Delta Irrigation and Drainage Systems Improved	(ii) 10 subprojects completed and operational by 2007, covering 80,000 ha of rehabilitated irrigation RDS activities undertaken to increase benefits from irrigation and drainage	(ii) 18 subprojects were completed by 2010 with a coverage of about 151,000 ha of irrigation and 141,000 ha of drainage. RDS activities were undertaken in all subprojects.	
(iii) Flood protection systems strengthened	(iii) 10 subprojects completed by 2007, covering a total area of 1.5 million ha	(iii) 10 subprojects were completed by 2010, covering a total area of over 1 million ha.	All of the originally intended subprojects were completed, but the area provided with flood protection differs because different parameters were used to determine the protected area.
(iv) Subproject planning, design, and implementation capacity established and operating at all levels	(iv) Subprojects prepared and formulated according to guidelines and criteria Subprojects completed within budget and schedule Measures identified for enhanced autonomy and accountability of water service providers	(iv) After some modifications, subprojects were formulated according to guidelines and criteria. All were completed but most were somewhat over budget and behind schedule.	

Design Summary	Performance Indicators/Targets	Achievement	Comment
(v) Enhanced capacity of implementing agencies and local authorities to target poverty reduction	Field manual prepared by April 2002 Central and provincial BME units established and operational by 2002 200 project implementation and management staff trained 400 district-level community organizers trained	(v) Field manuals were finalized in July 2007. Central and provincial BME units were not established. 158 project implementation and management staff have been trained. 237 district-level community organizers have been trained	
Activities No activities were indicated in the project framework for Part B			
Inputs No inputs were indicated in the project framework for Part B			

BME = benefit monitoring and evaluation, EA = executing agency, EIRR = economic internal rate of return, ha = hectares, O&M = operation and maintenance, PCR = project completion report, RDS = rural development services, TCR = technical assistance completion report.

STATUS OF COMPLIANCE WITH LOAN COVENANTS

Covenant	Reference in Loan Agreement	Status of Compliance
General Covenants		
The Borrower shall cause the Project to be carried out with due diligence and efficiency and in conformity with sound administrative, financial, engineering, environmental, water resource management and rural development practices.	Article 4 Section 4.01	Complied with. Overall, the project was implemented with due diligence and efficiency once conceptual design hurdles were removed.
The Borrower shall make available, promptly as needed, the funds, facilities, services, land and other resources which are required, in addition to the proceeds of the Loan, for the carrying out of the Project and for the operation and maintenance of the Project facilities.	Article 4 Section 4.02	Complied with, after delays. These were due to a lack of capacity at the provincial level. Ultimately, all required funds, facilities, services, land, and other resources were made available to the project.
In the carrying out of the Project, the Borrower shall cause competent and qualified consultants and contractors, acceptable to the Borrower and the Bank, to be employed to an extent and upon terms and conditions satisfactory to the Borrower and the Bank.	Article 4 Section 4.03a	Complied with. The consultants employed and contractors were generally competent. Contractors providing deficient work were required to undertake remedial action.
The Borrower shall cause the Project to be carried out in accordance with plans, design standards, specifications, work schedules and construction methods acceptable to the Borrower and the Bank. The Borrower shall furnish, or cause to be furnished, to the Bank, promptly after their preparation, such plans, design standards, specifications and work schedules, and any material modifications subsequently made therein, in such detail as the Bank shall reasonably request.	Article 4 Section 4.03b	Complied with. Plans, designs, standards, specifications, and construction methods were acceptable to ADB. Work schedules were originally delayed but ultimately in accordance with agreements made after the midterm review.
The Borrower shall ensure that the activities of its departments 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	Article 4 Section 4.04	Complied with. Policies and procedures were at par with normal practices for internationally funded projects in Viet Nam.
The Borrower shall make arrangements satisfactory to the Bank for insurance of the Project facilities to such extent and against such risks and in such amounts as shall be consistent with sound practice.	Article 4 Section 4.05a	Complied with. The Ministry of Finance requested PMUs to buy insurance for all civil works contracts.
Without limiting the generality of the foregoing, the Borrower undertakes to insure, or cause to be insured, the goods to be imported for the Project and to be financed out of the proceeds of the Loan against hazards incident to the acquisition, transportation and delivery thereof to the place of use or installation, and for such insurance any indemnity shall be payable in a currency freely usable to replace or repair such goods	Article 4 Section 4.05b	Complied with.
The Borrower shall maintain, or cause to be maintained, records and accounts adequate to	Article 4 Section 4.06a	Complied with.

identify the goods and services and other items of expenditure financed out of the proceeds of the Loan, to disclose the use thereof in the Project, to record the progress of the Project (including the cost thereof) and to reflect, in accordance with consistently maintained sound accounting principles, the operations and financial condition of the agencies of the Borrower responsible for the carrying out of the Project and operation of the Project facilities, or any part thereof		
The Borrower shall (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 the Bank; (iii) furnish to the Bank, as soon as available but in any event not later than nine (9) months after the end of each related fiscal year, certified copies of such audited accounts and financial statements and the report of the auditors relating thereto (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 the Bank such other information concerning such accounts and financial statements and the audit thereof as the Bank shall from time to time reasonably request.	Article 4 Section 4.06b	Complied with.
The Borrower shall enable the Bank, upon the Bank'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 shall authorize and require any representative of such auditors to participate in any such discussions requested by the Bank, provided that any such discussion shall be conducted only in the presence of an authorized officer of the Borrower unless the Borrower shall otherwise agree.	Article 4 Section 4.06c	Complied with. As far as is known, no such requests were made.
The Borrower shall furnish, or cause to be furnished, to the Bank all such reports and information as the Bank shall reasonably request concerning (i) the Loan, and the expenditure of the proceeds and maintenance of the service thereof; (ii) the goods and services and other items of expenditure financed out of the proceeds of the Loan; (iii) the Project; (iv) the administration, operations and financial condition of the agencies of the Borrower responsible for the carrying out of the Project and operation of the Project facilities, or any part thereof; (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	Article 4 Section 4.07a	Complied with. There is no known instance when reports or information were not supplied.

the purposes of the Loan.		
Without limiting the generality of the foregoing, the Borrower shall cause MARD to furnish to the Bank quarterly reports on the carrying out of the Project and on the operation and management of the Project facilities. Such reports shall be submitted in such form and in such detail and within such a period as the Bank shall reasonably request, and shall indicate, among other things, progress made and problems encountered during the quarter under review, steps taken or proposed to be taken to remedy these problems, and proposed program of activities and expected progress during the following quarter.	Article 4 Section 4.07b	Complied with. Quarterly reports were submitted as required in the format, which was agreed by the Ministry of Planning and Investment with five ODA Banks.
Promptly after physical completion of the Project, but in any event not later than three (3) months thereafter or such later date as may be agreed for this purpose between the Borrower and the Bank, the Borrower shall prepare and furnish to the Bank a report, in such form and in such detail as the Bank shall reasonably request, on the execution and initial operation 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.	Article 4 Section 4.07c	Complied with.
The Borrower shall enable the Bank's representatives to inspect the Project, the goods financed out of the proceeds of the Loan, and any relevant records and documents.	Article 4 Section 4.08	Complied with. The project, along with the goods financed out of the proceeds of the loan, have been inspected during a series of review missions.
The Borrower shall ensure that the Project facilities are operated, maintained and repaired in accordance with sound administrative, financial, engineering, environmental, water resource management, rural development, and maintenance and operational practices.	Article 4 Section 4.09	Complied with. Subprojects not yet handed over to IDMCs are still being adequately maintained with project funding. Those already handed over are likely to be adequately maintained, partly as a result of the GIIS activities under the project itself.
Procurement		
State-owned enterprises shall only be eligible to bid for contracts if they are financially autonomous, independently managed and operating on the basis of commercial practices, and not in any way associated with the military forces.	Schedule 4 para 7b	Complied with.
No civil works contract for any non-core subproject shall be signed until the subproject RDS plan have been prepared as described in paragraph 20 of Schedule 6 to this Loan Agreement and approved by the provincial authorities	Schedule 4 para 8a (as revised on 26 February, 2007)	Complied with.
No civil works of any subproject which involves any involuntary resettlement shall commence until the relocation activities and payment of compensation in accordance with the resettlement plan for the subproject have been satisfactorily completed and MARD shall have informed the relevant Implementing Agency accordingly	Schedule 4 para 8b (as revised on 26 February, 2007)	Complied with.

The selection, engagement and services of the consultants shall be subject to the provisions of this Schedule and the provisions of the *"Guidelines on the Use of Consultants by Asian Development Bank and Its Borrowers"* dated October 1998, as amended from time to time, which have been furnished to the Borrower.	Schedule 5 para 3	Complied with.
Execution of Project and Operation of Project Facilities; Other Matters		
DWRHWM shall be the Implementing Agency for Part A, responsible for the day-to-day implementation of Part A. The Director, DWRHWM shall be the Project Director for Part A and shall be assisted throughout project implementation by a full-time Project Manager	Schedule 6 para 1	Partly complied with. After the reformulation of part A, only one component was implemented by DWRHWM (the GIIS component). Two other components were implemented by the DWRM of the MONRE. The loan agreement should have been changed accordingly but was not.
The Director, CPO shall be the Project Director for Part B. The CPO shall through the PMO be responsible for coordinating implementation of Part B. Throughout Project implementation, the PMO shall be headed by a full-time Project Manager and staffed with senior experts in the areas of agriculture extension, forestry extension, social development, environmental assessment and management, resettlement, and financial management, assigned on a full-time basis. MARD shall complete the staffing of the PMO within one month of the Effective Date	Schedule 6 para 2	Substantially complied with. The provision of experts in some disciplines to the CPO was delayed and less than expected.
MARD shall, within twelve (12) months of the Effective Date, establish in the CPO a computerized management information system for efficient monitoring, financial management, and reporting of subproject progress and status of contracts.	Schedule 6 para 3	Complied with, after delay.
MARD shall approve and disseminate detailed Project implementation guidelines within three (3) months after mobilization of the consultants for Part B, and a field manual for Project implementation staff within six (6) months after mobilization of the consultants for Part B.	Schedule 6 para 4	Complied with, after delay.
The Project Provinces or MARD, as the case may be in accordance with paragraph 13 of this Schedule 6, shall be the Implementing Agencies for subprojects under Part B. Within one month of the Effective Date, each Project Province shall have established a PIU reporting to the provincial Department of Agriculture and Rural Development (DARD). Under the guidance of the CPO, DARD, and the Provincial People's Committees, the PIUs shall arrange for the preparation, implementation, and monitoring of subprojects and/or works that have been delegated by MARD to provinces. The Borrower shall provide PIUs with support for incremental staff, vehicles, and operation costs to carry out their tasks under the Project.	Schedule 6 para 5	Complied with.

As soon as the RRBO is fully operational, the RRBC shall serve as Project Steering Committee (PSC). The Office of the RRBC shall be staffed on a full-time basis with staff assigned from the Institute of Water Resources Planning and other relevant ministries and agencies. The PSC shall be responsible for coordination of implementation of Part A and Part B and coordination among all agencies concerned with Project activities, including VBARD, the Women's Union, the Committee for Ethnic Minorities and Mountainous Areas, the Ministry of Labor, Social Affairs and Invalids, the Steering Committee for Protection and Exploitation of the Cau River in Six Provinces, the Project Provinces and the Central Committee for Storm and Flood Control.	Schedule 6 para 6a	No longer relevant. Once the MONRE, rather than the MARD, was given the mandate for overall management of water resources, this covenant became moot and should have been revised.
Until the RRBO is fully operational, MARD shall convene PSC meetings to be chaired by a MARD Vice-Minister and comprising Chairpersons or Vice-Chairpersons of People's Committees of participating provinces and representatives of other ministries and agencies concerned.	Schedule 6 para 6b	Complied with.
Throughout Project implementation, MARD shall maintain two interdepartmental working groups, for Part A and for Part B respectively, to ensure effective coordination and cooperation between MARD's departments in implementing the Project.	Schedule 6 para 7a	Partly complied with. The interdepartmental working groups were established but they were operated in the project's early stage only (until 2007)
Throughout Project implementation, MARD shall seek the active collaboration of non-government organizations, experts, and representatives of other projects in the Red River Basin. At least twice a year, MARD shall organize consultation workshops with these stakeholders in conjunction with meetings of the RRBC or its Standing Committee.	Schedule 6 para 7b	Not complied with. No stakeholder workshops were held, in part because of the change of mandate for overall water resources management to the MONRE.
The Borrower shall regularly convene the NWRC in accordance with the Prime Minister's Decision on the Establishment of the National Water Resources Council, dated 15 June 2000 (Decision 67/2000/QD-TTg), and shall maintain a fully operational Office of the NWRC staffed on a full-time basis with staff assigned from MARD. The Borrower shall cause working groups with participants from MARD and other relevant ministries to be established under the Office of NWRC. The Borrower shall cause the NWRC and RRBC to hold special meetings whenever MARD so requires to ensure successful Project implementation.	Schedule 6 para 8	Substantially complied with. The NWRC meets regularly, although now under the auspices of MONRE rather than MARD. This covenant should have been revised in 2003 when the mandate for overall water resources management was handed from the MARD to the MONRE.
By December 2002 or such other date as may be agreed between the Bank and MARD, MARD shall, upon the recommendation of the NWRC and following endorsement by the Borrower, implement a reorganization to separate water resources management activities and responsibilities regulated by the Water Resources Law from irrigation and drainage management activities and responsibilities.	Schedule 6 para 9	Complied with. Since 2003, the MONRE has been responsible for overall water resources management while the MARD has retained responsibility for irrigation and drainage management. This covenant should have been revised when the mandate was changed.

By December 2003, RRBC shall have endorsed and the Borrower shall have approved the Red River Basin Framework Plan, taking into account the recommendations made under the Bank-financed Technical Assistance No. 2871-VIE.	Schedule 6 para 10	Complied with. This covenant is no longer relevant due to the change in MARD's mandate and should have been revised.
By March 2002, MARD shall provide the Bank with a draft revision of Decree 112/CP on cost recovery in water resources projects, for consultation. The Borrower shall cause the Decree to be approved and implemented during Project implementation.	Schedule 6 para 11	Complied with. The convenant is no longer relevant and should have been revised or dropped after Decree 112/CP was replaced by Decree 143 in October 2003.
MARD shall be responsible for appraisal of all subprojects in consultation with the respective Project Province, and for approval of all subprojects. The appraisal reports of the first two upland and the first two delta irrigation rehabilitation subprojects shall be subject to review by the Bank prior to MARD's approval. Subsequent subproject appraisal reports shall be subject to review by the Bank prior to MARD's approval, on a sample basis.	Schedule 6 para 12	Complied with.
The identification of candidate subprojects in the uplands shall be undertaken by Provincial People's Committees. MARD shall, upon request of Project Provinces that have sufficient capacity, delegate to them the responsibility for preparation and implementation of subprojects in the uplands, which are not expected to be technically complex. The identification of candidate subprojects in the delta shall be undertaken by MARD or Provincial People's Committees. The responsibility for implementation of contracts for subprojects in the delta shall be delegated by MARD to the Project Provinces on a case-by-case basis to be determined in consultation between MARD and the relevant Project Provinces for each subproject. MARD shall not delegate responsibility for implementation of (i) contracts for headworks that are technically complex and/or require interprovincial water management, (ii) contracts that require procurement through international competitive bidding, and (iii) contracts for flood protection works on national dykes.	Schedule 6 para 13	Complied with.
Each subproject feasibility study shall include a financing plan showing the percentages of the estimated subproject cost to be financed by (i) the Loan, (ii) counterpart funds from the Borrower, and (iii) contributions by the subproject beneficiaries, respectively. Promptly upon approval of a subproject, the Borrower shall, through MARD, make the required counterpart funds available to the budget of the Project Province concerned	Schedule 6 para 14	Substantially complied with. There have delays in the provision of counterpart funds to provinces and the release of payments to contractors. There are also issues with beneficiary contributions under the AFD-funded components. Full payment is expected for ADB-funded components.
In the selection of subprojects it shall be ensured that at least thirty (30) percent of the funds for subprojects are allocated for subprojects in the upland areas.	Schedule 6 para 15	This covenant was removed after approval of a major change of scope on 27 February 2007.
The initial selection of subprojects during the subproject identification stage shall be made on the	Schedule 6 paras 16 and	Complied with after revision through major change of scope

basis of the following subproject screening criteria: -- The following subproject selection criteria shall apply during the subproject appraisal stage: --	17	approved on 27 February 2007
In the preparation of subprojects it shall be ensured that the interests of poor and disadvantaged groups, especially women and ethnic minorities are taken into account through consultation with them during subproject preparation, in accordance with the Guidelines for the Participation of Ethnic Minorities in the Project and the Gender Action Plan approved by MARD and the Bank for the Project. The CPO, in close cooperation with the PIUs in the provinces concerned shall ensure that any negative social impact that may occur as a result of the implementation of any subproject will be prevented, mitigated, or resolved in accordance with the measures set out for that purpose in the feasibility study for such subproject.	Schedule 6 para 18a	Complied with. (i) The Guidelines for the Participation of Ethnic Minorities were implemented with no issues in two sample subprojects in upland areas (Yen Binh and Nghia Lo) and there were no ethnic minorities in other subprojects. The GAP was well implemented in all subprojects. Participation by women in RDS committees was 37.2% on average against the design of 40% and more than 50% of trainees who participated in RDS training courses were women.
If any subproject would involve any resettlement, a resettlement plan shall be prepared in accordance with the Bank's Handbook on Resettlement and the Guidelines for Resettlement and Land Acquisition agreed by MARD and the Bank for the Project, and the resettlement shall be undertaken and affected people shall be compensated following this plan. The Bank shall be provided with a copy of the resettlement plan before the relevant subproject is approved. In case of a significant resettlement impact as defined in the Bank's Handbook on Resettlement, an independent monitoring organization shall be invited to monitor the correct implementation of the resettlement plan.	Schedule 6 para 18b	Complied with. Resettlement plans were prepared by the EA and approved by ADB for all subprojects. Resettlement activities were monitored by an independent resettlement monitoring agency and reflected in the aide memoires of ADB review missions. These confirmed that the plans were implemented in accordance with their requirements. It was also confirmed that the implementation of plans did not negatively affect project performance and delivery of project outputs and outcomes.
As part of each subproject appraisal, the CPO shall carry out an environmental screening. Where appropriate, an initial environmental examination and, if required, an environmental impact assessment shall be carried out in accordance with the Bank's Environmental Assessment Requirements dated March 1998, as amended from time to time, and the relevant procedures of the Borrower. The CPO, in close cooperation with the PIU and Province concerned shall ensure that any negative environmental impact that may occur as a result of the implementation of any subproject shall be mitigated in accordance with the measures set out for that purpose in the feasibility study for such subproject, and that the costs of mitigation, management, and monitoring are incorporated in the subproject cost and budgets.	Schedule 6 para 19	Complied with.
The communes shall be responsible for managing the implementation of RDS activities under guidance of the relevant PIU. The relevant district, PIU, and	Schedule 6 para 20	Complied with.

Project Province shall provide technical implementation support as needed. Communes in which RDS activities will be undertaken shall, prior to the implementation of the RDS activities, establish an RDS Committee including representatives of the commune level farmers' association, cooperative, Women's Union and water users' organization, village organizers and women organizers. The relevant PIUs, commune authorities and RDS Committees shall conclude agreements regarding the scope, budget, financing and implementation arrangements for the participatory irrigation management (PIM) work and RDS activities under each subproject with an RDS component. The RDS Committees shall submit quarterly progress reports to the PIU of the relevant Project Province. The CPO shall be responsible for monitoring the RDS activities and identifying needs for implementation support.		
Within six (6) months of the Effective Date, MARD shall submit to the Bank for consultation proposals for a detailed agenda and implementation arrangements for the research studies under Part B(v). The research component shall be managed by the CPO, with guidance from the Project management support consultants under Part A to ensure the quality of the research studies and their application into subproject design.	Schedule 6 para 21	Complied with late. The convenant is considered moot. A large part of funding for research was replaced by GIIS activities.
The Project Province concerned shall ensure that the operation and maintenance of each subproject is undertaken in accordance with the operation and maintenance plan contained in the feasibility study for each subproject. Each operation and maintenance plan shall follow the Borrower's policy for cost recovery in water resources projects.	Schedule 6 para 22	Partial compliance, ongoing. Subprojects that have been handed over to provinces are being operated and maintained by provincial IDMCs. The balance are still be in operated by the CPO but will be handed over within the next 12 months.
The CPO, the relevant PIU, and the subproject beneficiaries shall be responsible for monitoring and evaluating the impact of each subproject. During appraisal of each subproject, a socio-economic baseline survey shall be carried out within the subproject area. During and after subproject implementation, benefits generated as a result of the subproject shall be measured against the data from the baseline survey. The monitoring and evaluation system for Part B shall include means to monitor and evaluate poverty alleviation impacts of the Project.	Schedule 6 para 23	Partly complied with. Baseline survey and benefits generated were done by BME consultants engaged by CPO for the selected subprojects.

BME = benefit monitoring and evaluation, CPO = central project office, DARD = Department of Agriculture and Rural Development, DWRHWM = Department of Water Resources and Hydraulic Works Management, EA = executing agency, EIRR = economic internal rate of return, GIIS = governance improvement in irrigation systems, ha = hectares, IDMC = irrigation and drainage management company, MARD = Ministry of Agriculture and Rural Development, MONRE = Ministry of Natural Resources and Environment, NWRC = National Water Resources Council, O&M = operation and maintenance, PCR = project completion report, PIM = participatory irrigation management, PIU = project implementation unit, RDS = rural development services, TCR = technical assistance completion report.