



# Completion Report

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Project Number: 40238-023  
Loan Number: 3032  
July 2021

## Viet Nam: Productive Rural Infrastructure Sector Project in the Central Highlands

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**Asian Development Bank**

## CURRENCY EQUIVALENTS

Currency unit      –      dong (D)

		<b>At Appraisal</b>	<b>At Project Completion</b>
		1 February 2013	31 December 2019
D1.00	=	\$0.00004804	\$0.00004316
\$1.00	=	D20,815	D23,172

## ABBREVIATIONS

ADB	–	Asian Development Bank
APMB	–	Agricultural Projects Management Board
CHP	–	central highlands province
CPMU	–	central project management unit
DARD	–	Department of Agriculture and Rural Development
DED	–	detailed engineering design
DMF	–	design and monitoring framework
EIRR	–	economic internal rate of return
EMP	–	environmental management plan
FBS	–	fixed budget selection
GAP	–	gender action plan
IEE	–	initial environmental examination
IMC	–	irrigation management company
LIC	–	loan implementation consultant
M&E	–	monitoring and evaluation
MARD	–	Ministry of Agriculture and Rural Development
MTR	–	midterm review
NCB	–	national competitive bidding
O&M	–	operation and maintenance
ODA	–	official development assistance
PIM	–	participatory irrigation management
PPC	–	provincial people's committee
PPMU	–	provincial project management unit
PPTA	–	project preparatory technical assistance
PRI	–	productive rural infrastructure
SIR	–	subproject investment report
SPS	–	Safeguard Policy Statement (2009)

## NOTE

In this report, "\$" refers to United States dollars.

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## BASIC DATA

### A. Loan Identification

1.	Country	Viet Nam
2.	Loan number and financing source	L 3032-VIE (COL)
3.	Project title	Productive Rural Infrastructure Sector Project in the Central Highlands
4.	Borrower	Socialist Republic of Viet Nam
5.	Executing Agency	Ministry of Agriculture and Rural Development
6.	Amount of loan	SDR53,041,000
7.	Financing modality	Sector loan

### B. Loan Data

1.	Appraisal	
	– Date started	14 January 2013
	– Date completed	1 February 2013
2.	Loan negotiations	
	– Date started	12 June 2013
	– Date completed	13 June 2013
3.	Date of Board approval	25 September 2013
4.	Date of loan agreement	16 October 2013
5.	Date of loan effectiveness	
	– In loan agreement	A date 90 days after the date of loan agreement
	– Actual	17 January 2014
	– Number of extensions	0
6.	Project completion date	
	– Appraisal	31 December 2018
	– Actual	31 December 2019
7.	Loan closing date	
	– In loan agreement	30 June 2019
	– Actual	30 June 2020
	– Number of extensions	1
8.	Financial closing date	
	– Actual	28 April 2021
9.	Terms of loan	
	– Interest rate	2% per annum
	– Maturity (number of years)	25
	– Grace period (number of years)	5
10.	Terms of relending (if any)	N/A
	– Interest rate	
	– Maturity (number of years)	
	– Grace period (number of years)	
	– Second-step borrower	

## 11. Disbursements

## a. Dates

<b>Initial Disbursement</b> 7 May 2014	<b>Final Disbursement</b> 5 February 2021	<b>Time Interval</b> 80.0 months
<b>Effective Date</b> 17 January 2014	<b>Actual Closing Date</b> 30 June 2020	<b>Time Interval</b> 77.5 months

## b.1 Amount (\$ million)

<b>Category <sup>a</sup></b>	<b>Original Allocation (1)</b>	<b>Increased <sup>b</sup> during Implementation (2)</b>	<b>Canceled during Implementation (3)</b>	<b>Last <sup>c</sup> Revised Allocation (4=1+2-3)</b>	<b>Amount <sup>c</sup> Disbursed (5)</b>	<b>Undisbursed Balance (6 = 4-5)</b>
1	62.205	1.251	0.000	63.456	62.206	1.250
2	4.960	(4.690)	0.000	0.270	0.269	0.001
2A	3.029	(3.029)	0.000	0.000	0.000	0.000
2B	1.151	(1.151)	0.000	0.000	0.000	0.000
2C	0.370	(0.370)	0.000	0.000	0.000	0.000
2D	0.350	(0.080)	0.000	0.270	0.269	0.001
2E	0.060	(0.060)	0.000	0.000	0.000	0.000
3	0.496	(0.170)	0.000	0.326	0.326	0.000
3A	0.300	(0.075)	0.000	0.225	0.225	0.000
3B	0.196	(0.095)	0.000	0.101	0.101	0.000
4	3.503	0.088	0.000	3.591	3.457	0.133
5	2.178	(1.449)	0.000	0.729	0.699	0.029
6	0.297	(0.270)	0.000	0.027	0.027	0.000
7	3.923	0.011	0.000	3.934	3.057	0.877
7A	1.178	0.007	0.000	1.185	0.872	0.313
7B	2.745	0.004	0.000	2.749	2.185	0.564
8	0.120	(0.027)	0.000	0.093	0.062	0.031
9	2.318	(0.179)	0.000	2.139	2.139	0.000
<b>Total</b>	<b>80.000</b>	<b>(-5.435)</b>		<b>74.565</b>	<b>72.243</b>	<b>2.322</b>

( ) = negative

<sup>a</sup> 1 = works; 2 = construction services; 2A = subproject detailed designs; 2B = construction supervision; 2C = subproject special studies and quality assurance; 2D = subproject safeguard reviews; 2E = bid preparation; 3 = vehicle, equipment and accounting software; 3A = vehicle; 3B = equipment and accounting software; 4 = consulting services; 5 = training; 6 = study tours; 7 = project management; 7A = central level; 7B = provincial level; 8 = project financial auditing; 9 = interest charges.

<sup>b</sup> Including increase and/or decrease because of exchange rate fluctuation and reallocation of loan proceeds during implementation.

<sup>c</sup> Conversion of special drawing rights to dollars as of 22 March 2021.

## b.2 Amount (SDR million)

Category <sup>a</sup>	Original Allocation (1)	Increased during Implementation (2)	Canceled during Implementation (3)	Last Revised Allocation (4=1+2-3)	Amount Disbursed (5)	Undisbursed Balance (6 = 4-5)
1	41.243	4.063	0.000	45.306	44.447	0.859
2	3.288	(3.093)	0.000	0.195	0.195	0.001
2A	2.008	(2.008)	0.000	0.000	0.000	0.000
2B	0.763	(0.763)	0.000	0.000	0.000	0.000
2C	0.245	(0.245)	0.000	0.000	0.000	0.000
2D	0.232	(0.037)	0.000	0.195	0.195	0.001
2E	0.040	(0.040)	0.000	0.000	0.000	0.000
3	0.329	(0.117)	0.000	0.212	0.212	0.000
3A	0.199	(0.054)	0.000	0.145	0.145	0.000
3B	0.130	(0.064)	0.000	0.066	0.066	0.000
4	2.323	0.141	0.000	2.464	2.372	0.092
5	1.444	(0.946)	0.000	0.498	0.480	0.018
6	0.197	(0.180)	0.000	0.017	0.017	0.000
7	2.601	0.145	0.000	2.746	2.134	0.612
7A	0.781	0.053	0.000	0.834	0.614	0.219
7B	1.820	0.093	0.000	1.913	1.520	0.393
8	0.080	(0.014)	0.000	0.066	0.045	0.021
9	1.536	0.000	0.000	1.536	1.536	0.000
<b>Total</b>	<b>53.041</b>			<b>53.041</b>	<b>51.438</b>	<b>1.603</b>

() = negative

<sup>a</sup> 1 = works; 2 = construction services; 2A = subproject detailed designs; 2B = construction supervision; 2C = subproject special studies and quality assurance; 2D = subproject safeguard reviews; 2E = bid preparation; 3 = vehicle, equipment and accounting software; 3A = vehicle; 3B = equipment and accounting software; 4 = consulting services; 5 = training; 6 = study tours; 7 = project management; 7A = central level; 7B = provincial level; 8 = project financial auditing; 9 = interest charges.

<sup>b</sup> Including increase and/or decrease because of exchange rate fluctuation and reallocation of loan proceeds during implementation.

## C. Project Data

## 1. Project cost (\$ million)

Cost	Appraisal Estimate	Actual
Foreign exchange cost	8.51	7.79
Local currency cost	79.07	79.11
<b>Total</b>	<b>87.58</b>	<b>86.90</b>

## 2. Financing plan (\$ million)

Cost	Appraisal Estimate	Actual <sup>a</sup>
Implementation cost		
Borrower financed	7.58	14.66
ADB financed	77.68	70.10
Other external financing		
<b>Total implementation cost</b>	<b>85.26</b>	<b>84.76</b>
Interest during construction costs		
Borrower financed	0.00	0.00
ADB financed	2.32	2.14
Other external financing		
<b>Total interest during construction cost</b>	<b>2.32</b>	<b>2.14</b>

<sup>a</sup> Exchange rate applied for costs incurred in local currency: D1,000 = \$0.043

## 3. Cost breakdown by project component (\$ million)

Component	Appraisal Estimate	Actual
<b>A. Base cost</b>		
1. Improvement of productive rural infrastructure	73.45	76.52
2. Capacity development	2.01	0.73
3. Project management	6.76	7.52
<b>Subtotal A</b>	<b>82.22</b>	<b>84.77</b>
<b>B. Contingency</b>		
Physical	0.47	0
Price	2.57	0
<b>Subtotal B</b>	<b>3.04</b>	<b>0</b>
<b>C. Financial charges during implementation</b>	<b>2.32</b>	<b>2.14</b>
<b>Total</b>	<b>87.58</b>	<b>86.90</b>

## 4. Project schedule

Item	Appraisal Estimate	Actual
Date of contract with consultants		
Loan implementation consultants	Q4 2014	5 May 2015
Monitoring and evaluation		24 January 2017
Baseline studies		22 May 2017
Project financial audit (first auditor)		10 June 2016
Completion of engineering designs		
Completion of first engineering design	Q3 2014	28 September 2015
Completion of last engineering design		12 April 2019
Civil works contract		
Date of first contract award	Q4 2014	3 August 2016
Date of last contract award		5 March 2020
Completion of work	31 December 2018	30 June 2020
Equipment and supplies		
Dates		
First procurement		15 July 2014
Last procurement		15 July 2014
Completion of equipment installation		15 August 2014
Start of operations		
Completion of tests and commissioning		
Beginning of start-up	Q1 2016	30 December 2018
Other milestones		
ADB loan closing date	30 June 2019	30 June 2020
Project completion date	31 December 2018	31 December 2019

Q = quarter.

## 5. Project performance report ratings

Implementation Period	Ratings
From 17 January 2014 to 31 December 2014	Potential problem
From 1 January 2015 to 31 December 2015	On track
From 1 January 2016 to 31 December 2016	On track
From 1 January 2017 to 31 December 2017	Potential problem
From 1 January 2018 to 31 December 2018	On track
From 1 January 2019 to 31 December 2019	Potential problem
From 1 January 2019 to 30 June 2020	On track



## D. Data on Asian Development Bank Missions

Name of Mission	Date	No. of Persons	No. of Person-Days	Specialization of Members <sup>1</sup>
Loan fact-finding mission	14 Jan–1 Feb 2013	13	195.0	a, b, c, d, e, f, g, h, i, j, k, l, m, n, o
Loan inception mission	18–26 Feb 2014	2	9.0	a, h
Loan review mission	30 Nov–5 Dec 2014	1	6.0	a
Special loan administration mission	13–25 Apr 2015	1	11.0	i
Special loan administration mission	10–17 Aug 2015	1	7.0	o
Loan review mission	13–19 Nov 2015	2	12.0	h, i
Loan review mission	12–19 May 2016	7	17.0	h, i, k, m, n, o
Loan review mission	16–22 Nov 2016	5	30.0	h, i, k, m, o, q
Loan midterm review mission	23 May–2 Jun 2017	7	47.0	h, j, k, n, o, p, p
Loan review mission	14–23 Nov 2017	5	36.0	h, i, k, o, q
Loan review mission	11–21 Jun 2018	5	38.0	h, i, n, o, q
Loan review mission	11–20 Dec 2018	5	39.0	h, i, m, n, o
Loan review mission	7–21 Jun 2019	5	42.5	h, i, n, o, q
Loan review mission	6–20 Dec 2019	5	25.5	h, i, k, o, q
Loan review mission	3–16 July 2020	6	15.0	r, h, i, n, o, q
Project completion review	7–12 Jan 2021	7	39.0	e, h, i, o, p, r

a = natural resources and agriculture specialist, b = counsel, c = economist, d = environment specialist, e = financial specialist, f = gender specialist, g = procurement specialist, h = project analyst, i = project officer, j = resettlement specialist, k = environmental consultant, l = procurement analyst, m = gender officer, n = environment officer, o = resettlement officer, p = resettlement consultant, q = gender consultant, r = evaluation consultant.

## I. PROJECT DESCRIPTION

1. The Productive Rural Infrastructure Sector Project in the Central Highlands aimed to regenerate and upgrade underdeveloped or outdated productive rural infrastructure (PRI), targeting areas with existing irrigation schemes that had good potential for agricultural production. PRI investments were to include irrigation and associated rural access infrastructure upgrades in Viet Nam's central highland provinces (CHPs) of Dak Lak, Dak Nong, Gia Lai, Kon Tum, and Lam Dong. The Ministry of Agriculture and Rural Development (MARD) was the executing agency and participating provincial people's committees (PPCs) were the implementing agencies.

2. The project impact was: increased rural incomes and sustained livelihoods in the CHPs. The outcome was: improved rural and agricultural productivity in the CHPs. There were three outputs: (i) improved PRI; (ii) enhanced capacity to develop, manage, and use PRI; and (iii) efficient project management.

3. The rationale for undertaking the project was sound, as rehabilitating and upgrading PRI was expected to have a positive impact on the lives and livelihoods of 3.75 million rural residents (71% of the CHP population, of which 34.3% were ethnic minorities and 22.4% were considered poor) by facilitating access to inputs (including irrigation water), markets, health services, education, and employment opportunities while reducing production and marketing costs.

## II. DESIGN AND IMPLEMENTATION

### A. Project Design and Formulation

4. Project design was relevant at appraisal and completion. It was consistent with Viet Nam's National Target Program for New Rural Development 2010–2020<sup>1</sup> and the Asian Development Bank (ADB) country partnership strategy for Viet Nam, 2012–2015 which emphasized inclusive growth, enhancing economic efficiency, and environmental sustainability with agriculture and natural resources as a priority sector.<sup>2</sup> The project also supported the government's National Water Resources Strategy (2006–2020) objectives to update the water resources policy and strengthen water sector institutions.<sup>3</sup> Use of the sector modality was appropriate because a clear sector development plan was in place, institutional arrangements to implement the plan were considered adequate, and policies to strengthen rural development and water management were being improved (footnotes 1 and 3).

5. The project was justified by (i) the CHPs' 22.4% rural poverty rate, with poverty as high as 70.0%–80.0% in some isolated areas; (ii) frequently underperforming PRI due to inappropriate designs for anticipated use and limited maintenance budgets; and (iii) consistency with the National Targeted Program for New Rural Development 2010–2020. Project locations were appropriate given that CHPs were underdeveloped, had good potential to boost agricultural productivity, and were populated predominantly with poorer ethnic minorities.

6. Investments selected for inclusion in the project were pre-identified in the participating provinces' socioeconomic development plans and met eligibility criteria agreed with the

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<sup>1</sup> Government of Viet Nam. Prime Minister. 2010. *Decision No.800/QD-TTg dated 4 June 2010 Approving National Target Program for New Rural Development 2010–2020*. Ha Noi.

<sup>2</sup> ADB. 2012. [Country Partnership Strategy: Viet Nam, 2012–2015](#). Manila.

<sup>3</sup> Government of Viet Nam. Prime Minister. 2006. *Decision No.81/2006/QD-TTg dated 14 April 2006 Promulgating the National Water Resources Strategy towards the Year 2020*. Ha Noi.

government.<sup>4</sup> This screening exercise was effective in identifying relevant subprojects and minimizing any negative social and environmental impacts.

7. ADB and the government worked closely in formulating the project using a \$1.0 million project preparatory technical assistance (PPTA) and counterpart resources to carry out the required economic, environmental, financial, social, and technical due diligence.<sup>5</sup> The PPTA financed 21.0 person-months of international consultant inputs and 32.5 person-months of national consultant inputs, along with in-depth social surveys and stakeholder consultations that contributed to designing the aforementioned subproject eligibility criteria. During implementation local beneficiaries were further consulted, and their views were incorporated into detailed subproject designs.

8. While the project's design and monitoring framework (DMF) was well-prepared, the target output indicators were modified after the midterm review (MTR) when more accurate information was forthcoming after the baseline socioeconomic survey and detailed engineering design of subprojects were completed.<sup>6</sup> The number of training courses in project management was reduced from 50 to 20, training in development and management of PRI was increased from 75 to 263 individuals, and training in the optimal use of PRI was reduced from 210 to 59 courses. The gender participation indicators were also modified to reflect more realistic counterpart staff composition. To ensure compliance with ADB and government requirements, the project design included resources to properly conduct and monitor environmental management, involuntary resettlement, ethnic minority development, and gender mainstreaming.

9. In line with the sector modality, the PPTA consultants developed a long list of 29 subprojects that were screened against the agreed eligibility criteria and prioritized for project financing over three phases. Three representative subprojects were to be implemented in phase 1, 12 subprojects in phase 2, and 8 subprojects in phase 3. Of the 23 subprojects implemented, only one was not included in the long list.<sup>7</sup> Selected subprojects targeted irrigation facilities together with associated rural roads to improve market access. Apart from minor DMF output indicator modifications for infrastructure and training (para. 8), there were no changes in project scope. The adjusted DMF output targets and achievements at completion are presented in Appendix 1.

## B. Project Outputs

10. **Output 1: Productive rural infrastructure improved.** This output was fully achieved. Subprojects covered 40 irrigation schemes and associated low-volume rural roads. Irrigation rehabilitation and expansion covered 19,738 hectares (ha) of command area compared with the revised target of 17,500 ha. Rural road investments (dedicated rural road subprojects and those linked to irrigation scheme development) completed 254.4 kilometers (km) of low-volume rural road construction compared to the target of 130.0 km. Through these civil works contracts, 2,583 local unskilled workers were employed (40.3% being women).

<sup>4</sup> Eligibility criteria included (i) economic internal rate of return above 12%; (ii) procurement packages clearly identified; (iii) financial sustainability with detailed financing plan for operation and maintenance (O&M), sources of funds, and schedule of fund commitment; (iv) public consultations on the subproject proposal held in concerned locations; (v) no major negative environmental or social impacts; (vi) no significant resettlement impact; and (vii) no significant impact on ethnic minorities.

<sup>5</sup> ADB. 2011. *Technical Assistance to the Socialist Republic of Viet Nam for Preparing the Productive Rural Infrastructure Development Project in the Central Highlands*. Manila.

<sup>6</sup> Such changes are common for a sector modality design as output targets are not known in detail at project preparation.

<sup>7</sup> Cu M'gar subproject in Dak Lak province. The inclusion of the subproject was approved by ADB on 17 April 2017.

11. **Output 2: Enhanced capacity to develop, manage, and use productive rural infrastructure.** This output was partially achieved. The project organized 10 project management training courses (half the target) covering project planning and implementation, financial management and accounting, procurement and contract management, and monitoring and evaluation (M&E) that included 482 trainees (23% women). Operation and maintenance (O&M) plans were prepared for all subprojects and 3,405 farmers (42% women) trained in participatory irrigation management (PIM). These were supplemented by irrigation scheme management training for 263 officials and farmers (11.4% women), of which 2.7% were ethnic minorities, and 37 water user group trainings that involved 2,147 farmers, of which 43.7% were women and 20.4% ethnic minorities. The project's HIV/AIDS awareness campaign organized 13 training courses for community focal points and 124 awareness raising activities that reached 5,858 people, of which 64.4% were women and 42.7% ethnic minorities. As envisaged, the project prepared three knowledge products documenting water-saving technologies, sustainable exploitation and management of irrigation works, and PIM. However, only water-saving technology pilots were implemented in Lam Dong and Dak Lak provinces (Appendix 1).

12. **Output 3: Efficient project management.** This output was achieved with delays. The central and provincial project management units were established 1 year later than planned. This delayed the completion and approval of subproject investment reports (SIRs) and subproject construction by 1–3 years. Given the delayed completion of several civil works contracts, the project was extended by 12 months.<sup>8</sup>

### C. Project Costs and Financing

13. The project cost estimate at appraisal was \$87.58 million and the total cost at completion was \$86.90 million. Infrastructure-related costs were \$73.45 million at appraisal and \$76.52 at completion, while capacity building costs were \$2.01 million at appraisal and \$0.73 million at completion.<sup>9</sup> The actual cost of infrastructure O&M was higher at completion (\$3.54 million compared with \$3.01 million at appraisal), indicating the priority accorded by the provinces to maintain the operation of rehabilitated and new PRI. The costs for project implementation management at appraisal were \$6.76 million but increased to \$7.52 million at completion as a result of the loan extension. Cost estimates at appraisal and actual costs are in Appendix 2.

14. In October 2017, the government imposed a ceiling on official development assistance (ODA) disbursement and approved the annual project budget late, which delayed project financing for several activities. Budget approval was also significantly delayed in 2019, exacerbating the ongoing implementation delays. MARD was able to partially address this issue by reallocating uncommitted funds from other MARD-implemented projects.

15. In October 2019, the Ministry of Finance requested to decrease ADB financing for subproject detailed designs, construction supervision, subproject special studies and quality assurance, and bid preparation. Other small reductions were made to safeguards monitoring, vehicle equipment and accounting software, training and study tours, and project financial auditing as the initial allocations would not be fully utilized (Appendix 3, Tables A3.1–A3.2). Small increases were made to the consulting services and project management categories, and the allocation to works was significantly increased.<sup>10</sup> In 2019, the project had a \$2.179 million

<sup>8</sup> An 12-month extension to the loan closing date was requested by Ministry of Finance on 7 October 2019 and approved by ADB on 15 October 2019.

<sup>9</sup> Prime Minister's Directive No. 18/CT-TTg dated 19 June 2019 disallowed the use of ODA for capacity development.

<sup>10</sup> The initial allocation was for SDR41,243 million and increased to SDR45,306 million in 2019.

medium-term ODA budget shortage for works payments in Dak Nong and Lam Dong provinces. Additional medium-term ODA budget was allocated to cover the shortage but not until 23 October 2020.<sup>11</sup>

## **D. Disbursements**

16. The loan proceeds were disbursed in accordance with ADB's *Loan Disbursement Handbook* (2012, as amended from time to time). Despite the completion of three representative subproject feasibility studies at approval the contract award and disbursement estimates proved to be ambitious. As seen in the projected and actual disbursement table in Appendix 4, projected figures were about 12 months behind those achieved.<sup>12</sup> This was mainly because of (i) start-up delays in the first 2 years of project implementation, (ii) the time taken to prepare and approve subproject documentation before bidding could begin, and (iii) the limitations placed on the utilization of ODA funds by government. The limitations on disbursement from ODA loans slowed works progress and, in some cases, resulted in work stoppages while contractor's awaited payment. The use of advance accounts to finance operations of the central project management unit (CPMU) and provincial project management units (PPMUs) provided an effective cushion against the delayed release of ADB loan funds. The final disbursement was delayed while documentation for outstanding withdrawal applications were completed. The capacity of staff at central and provincial levels to manage the project effectively were enhanced through output 3 trainings.

## **E. Project Schedule**

17. ADB's Board of Directors approved the project on 25 September 2013. The loan agreement was signed on 16 October 2013 and became effective on 17 January 2014 with a closing date of 30 June 2019. Of the 23 subprojects, 11 remained incomplete as of the initial project completion date (31 December 2018). The 11 subprojects were subsequently completed following a 12-month loan extension to 30 June 2020. Delays in implementation can largely be attributed to the time taken to satisfactorily complete SIRs and detailed engineering designs (DEDs) (para. 20) and obtain approvals to issue bidding documents.

## **F. Implementation Arrangements**

18. MARD was the executing agency and the PPCs of Dak Lak, Dak Nong, Gia Lai, Kon Tum, and Lam Dong provinces were the implementing agencies. MARD assigned the responsibility for overall implementation management to its Agricultural Projects Management Board (APMB), while in the provinces PPCs assigned this responsibility to the respective Departments of Agriculture and Rural Developments (DARDs). A CPMU was established within the APMB to attend to day-to-day implementation, while in the provinces PPMUs were established under provincial DARDs to coordinate implementation in the provinces. The CPMU and each PPMU were staffed by a project director and technical and administrative staff needed for implementation. Loan implementation consultants (LICs) were recruited through a firm to support the CPMU and PPMUs implement the project.

19. As all eligible subprojects had been identified during appraisal but only three representative subprojects had SIRs (feasibility studies) prepared by the PPTA consultants, local

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<sup>11</sup> This was a contributing reason for the extension of the financial closing of the loan.

<sup>12</sup> Baseline projections were changed for the first time on 13 June 2017 after the midterm review, and for the second time on 15 October 2019 because the loan was extended.

consulting firms were recruited to prepare the remaining 20 SIRs. Once SIRs were approved by provincial PPCs, consultants were recruited to prepare DEDs. Based on approved DEDs, PPMUs tendered and awarded works contracts for subproject construction, with completed subprojects being handed over to the relevant government institution for subsequent operation and management.<sup>13</sup> Supervising engineers were recruited to ensure adherence to approved designs, confirm construction progress, and certify material variations during construction.

20. With SIRs requiring ADB no-objection (particularly in regard to safeguards requirements), some delays resulted from the limited capacities of national consultants and their inexperience with ADB's Safeguard Policy Statement (2009) (SPS). This matter was cited in quarterly progress reports on numerous occasions as the reason for the lengthy time taken to prepare and approve SIRs. Similar observations were leveled at DED consultants concerning their lack of familiarity with national design standards and their unwillingness to respond to technical issues raised by LICs.

## **G. Technical Assistance**

21. With a sector modality design, the PPTA prepared three representative subproject SIRs (feasibility documents) to facilitate early start-up and disbursement (footnote 5). These were implemented as phase 1 subprojects because of their advanced state of readiness. While advanced in preparation, phase 1 subprojects still required DEDs and bidding documents. Cumbersome engineering design approval procedures went on to delay contract awards, even though feasibility studies had been prepared in advance. The PPTA's representative subprojects were, however, useful examples of how to prepare the remaining subproject feasibility studies, particularly with respect to social and environmental safeguards.

## **H. Consultant Recruitment and Procurement**

22. Consultants were recruited by the CPMU in accordance with ADB's Guidelines on the Use of Consultants (2013, as amended from time to time). These included (i) start-up consultants (four individual consulting contracts using fixed budget selection [FBS]), (ii) water-saving irrigation and public-private partnership management studies (three individual consulting contracts using FBS), (iii) LICs (one contract using quality- and cost-based selection [80:20]), (iv) a safeguards consultant to prepare and monitor safeguards (one contract using FBS), (v) independent auditors (two contracts; phase 1 consultants recruited under least cost selection, phase 2 adopted FBS), (vi) baseline survey consultants (FBS), and (vii) project monitoring and evaluation (M&E) consultants (FBS). The request for expressions of interest for recruitment of LICs was issued on 10 October 2013 and the consulting firm was mobilized on 15 May 2015—the long recruitment period (572 days) was attributable to lengthy government approval procedures. The total consulting inputs of the LICs at completion (416.6 person-months) were higher than at appraisal (360 person-months) because of additional national inputs as a result of the loan extension.

23. PPMUs recruited counterpart-financed national consultants to prepare (i) SIRs, (ii) unexploded ordnance clearance confirmation, (iii) DEDs, (iv) bidding documents, and (v) construction supervision. These consultants were recruited using single-source selection in accordance with Viet Nam's procurement law and regulations.

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<sup>13</sup> Irrigation subprojects were handed over to provincial IMCs while road alignments were handed over to commune administrations for management.

24. The CPMU or PPMUs procured all ADB-financed goods and works following ADB's Procurement Guidelines (2010, as amended from time to time). Forty-five works packages with multiple contracts (67 contracts with a combined value of \$62.2 million compared to 57 contracts as estimated at appraisal) were procured using national competitive bidding (NCB).<sup>14</sup> Among those, two packages were rebid—one in Gia Lai and the other in Dak Lak.<sup>15</sup> Some bidding documents for works contracts contained restrictive qualification criteria resulting in reduced numbers of bidders. Additional capacity building was provided by ADB and the CPMU to address initially weak PPMU procurement capacity, including hands-on clinics. E-procurement was introduced in March 2019 under the national e-procurement system, and significantly improved transparency and reduced bidding times. By project completion, eight packages (valued at about \$7.5 million) in four provinces were procured using this system. Items financed by counterpart funds (para. 23) followed government procurement laws and procedures.<sup>16</sup>

25. In the initial procurement plan, the first works contract was to be awarded in 2014. This schedule was clearly ambitious and unrealistic. The first civil works contract was not awarded until the third quarter of 2016, with about 75% of works contracts (\$53 million) awarded in 2016–2017. This significant gap between the projected and actual contract award dates was a cumulative result of the government's lengthy and cumbersome procedures for approving SIRs, technical designs, bidding documents, and bid evaluation results.

26. The quality of consultants recruited by the PPMUs had an impact on the timely completion of works. Initially, subproject documents were of mixed quality with considerable variation between provinces. This delayed subproject approvals for tendering, contract awards, and commencement of works and ultimately contributed to a 12-month loan closing date extension. The CPMU-recruited LICs are considered to have provided less-than-effective support in that (i) technical recommendations were not always taken into account in final subproject designs,<sup>17</sup> and (ii) progress reports drafted by LICs were of inadequate quality, lacking accurate information on works progress and training. This necessitated additional effort and resources from the CPMU and ADB to rectify anomalies.

## I. Gender Equity

27. The project was classified *effective gender mainstreaming*. A gender action plan (GAP) was developed during preparation and it was revised at the midterm review in 2018.<sup>18</sup> The project had 31 actions including 13 quantitative performance targets in the GAP and the DMF at approval.<sup>19</sup> At project completion, 18 actions and 12 targets in the GAP and DMF were assessed, of which 83.3% (15 out of 18) of the actions were completed and 83.3% (10 out of 12) of the targets were achieved.<sup>20</sup>

<sup>14</sup> Additional packages were the result of repurposed procurement savings and the loan extension.

<sup>15</sup> Package GL02-XL05 in Gia Lai was rebid because no qualified bids were received. Package DL01-XL01 in Dak Lak was rebid because bids were prevented from being submitted.

<sup>16</sup> Government procurement and construction laws were revised in 2017 to change appraisal and approval procedures and to accommodate e-procurement. This caused some confusion in PPMUs that was addressed by additional training organized by the CPMU.

<sup>17</sup> This might also be attributed to Vietnamese standards being overridden in engineering designs.

<sup>18</sup> Revisions were made to the gender targets as initial figures were considered unrealistic because of (i) the gender balance of employees in target institutions and (ii) the government decision that prevented loan funds from being used to finance capacity building.

<sup>19</sup> The project GAP originally comprised 30 actions (18 activities and 12 targets). However, target (vii) was dropped in the midterm review. There was one additional gender target in the DMF that was not in the GAP.

<sup>20</sup> There were 11 targets in the GAP and one related to gender in the DMF.

28. Implementation of the GAP is rated *successful*. The project developed a sex-disaggregated M&E database of all project activities that were reported in each quarterly progress report. Details of GAP implementation and achievements are included in Appendix 7.

## **J. Safeguards**

29. The project was classified category B for both involuntary resettlement and indigenous peoples based on ADB's SPS. Land acquisition totaled 862,508.3 square meters and 2,976 households were affected. Of the affected households, 57 were severely affected (losing 10% or more of their productive land). There were 310 vulnerable households.

30. Subproject compensation, assistance, and resettlement commenced in 2015 and was completed in 2019. The implementation of compensation and resettlement activities for the 23 subprojects required payment of D51.43 billion to affected households. Implementation of social safeguards activities complied with ADB's SPS. Affected people's lives are stable and are improving, consistent with development trends in their communities. No household is worse off compared to their pre-project status. All project-related social safeguard documents were uploaded to ADB's website and disclosed in Vietnamese to affected households in accordance with ADB's SPS. All affected households (including vulnerable households) received compensation and allowances as specified in the respective resettlement plans.

31. As required in the project resettlement and ethnic minority development framework, a four-step grievance redress mechanism was available for all subprojects. While complaints by affected people could be lodged at various levels, all were solved at the commune level; none were referred to higher authorities. Most complaints related to land ownership verification and the level of entitlement due (especially for vulnerable groups). Compensation, assistance, and resettlement committees solved complaints amicably on a case-by-case basis in cooperation with LICs, PPMUs, and local authorities. At project completion, there were no unresolved issues.

## **K. Environmental Assessment**

32. The project was classified category B for the environment. Three representative subproject initial environmental examinations (IEE) and an environmental assessment and review framework were prepared, approved by government, and uploaded on ADB's website during project preparation. These guided preparation of subproject IEEs, their approval, and monitoring of environmental management plans (EMP). Subproject selection criteria included criteria to ensure that only subprojects categorized B or C for environment were eligible for project financing.

33. The LICs included one national environment consultant to support the preparation of subproject IEEs and implementation of EMPs. Environment safeguards officers were appointed—one to the CPMU and one to each of the five PPMUs—to coordinate and oversee EMP implementation. PPMUs incorporated subproject EMPs in bidding and contract documents with support from LICs. Construction supervision consultants recruited by the PPMUs worked closely with LICs and PPMU staff to support the implementation of environmental mitigation measures during construction. Environmental safeguard training was provided by the LICs and ADB to strengthen EMP implementation capacities of CPMU and PPMU staff, construction supervision consultants, and contractors.

34. There were six performance indicators related to environmental safeguards: (i) subproject design and preparation; (ii) occupational and community health and safety; (iii) biodiversity; (iv) community-based monitoring; (v) outcomes of public consultation, community values, and



safety; and (vi) hydrology and/or water pollution. The indicators were used to address potential subproject impacts and the monitoring of such indicators was properly supervised during EMP implementation. Performance against these indicators was assessed for each subproject to guide corrective actions when needed and assist in the supervision of EMP implementation. Results were incorporated into semiannual environmental monitoring reports (six were prepared during subproject construction) that were, in turn, uploaded onto ADB's website. Mitigation measures implemented by contractors focused on (i) reducing dust and water pollution, (ii) addressing risks of occupational and community accidents caused by construction activities, and (iii) mitigating excavated soil and water pollution that could impact adjacent agricultural activities. The CPMU and all PPMUs reported that there were no outstanding environmental issues when subprojects were handed over to respective operators. Notable environmental benefits included (i) improved dam safety in upgraded reservoirs, (ii) improved traffic signage along upgraded rural roads, and (iii) improved awareness of pollution prevention along irrigation canals and road alignments.

## **L. Monitoring and Reporting**

35. The loan agreement had 24 covenants. No covenant was modified, suspended, or waived. By loan closure, all covenants had been complied with. Appendix 6 shows the status of compliance with loan covenants.

36. Results monitoring was guided by baseline surveys conducted in August 2017 for phase 1 and 2 subprojects and in May 2018 for phase 3 subprojects. The end-line survey was completed in December 2018, which provided useful information for the project completion reports. Although a digital monitoring system was established for the project, and PPMU staff trained in its use, the information included in quarterly progress reports was sometimes inaccurate.

37. Most audited project financial statements were received on time and acceptable, with minor delays (less than 1 month) for fiscal years 2015 and 2016 submissions. The first annual audit identified concerns regarding (i) cash management, (ii) management of advances, (iii) financial invoices and supporting documentation, (iv) segregation of duties, and (v) bidding processes compared with procedures specified in the loan agreement. In addition, the auditor identified weaknesses in the accounting software, in that the transfer of end-of-year balances to opening balances the following year could not be accommodated. Subsequent audit reports reiterated some of the same issues, which were rectified by PPMU financial management capacity development that was supported by the CPMU and software consultants.<sup>21</sup>

## **III. EVALUATION OF PERFORMANCE**

### **A. Relevance**

38. The project is rated *relevant*. It was consistent with both national development strategies and ADB's country partnership and strategy for Viet Nam. Selective upgrading of priority public infrastructure had immediate and clear impacts on the lives and livelihoods of beneficiary farmers within the respective catchment areas through improved productivity and better access to inputs and markets. The use of a sector modality design was appropriate given a clear sector development plan was in place, and policies and institutional arrangements to implement the plan were considered adequate. Establishing eligibility criteria for subprojects was helpful in guiding provinces in selecting priority investments that supported local development policies of poverty

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<sup>21</sup> The 2019 audit noted that accounting software being used in the Gia Lai PPMU was still different from that used in other project cost centers.

reduction (particularly among ethnic minority communities) in areas with good potential for agricultural expansion while minimizing the risk of negative social and environmental impacts.

39. The project design was sound as it focused on issues that constrained agricultural productivity including incomplete and dilapidated irrigation infrastructure along with associated rural access roads that were no longer fit for purpose, given the levels of economic activity found in participating CHPs and the limited maintenance regimes.<sup>22</sup> The design also recognized (i) the need to promote sustainable development and capabilities of local maintenance groups (irrigation management companies [IMCs] and beneficiary communities); (ii) the importance of building confidence among beneficiaries, particularly the ethnic minority population and women; and (iii) the need for institutional strengthening at all levels of local government. The design was appropriate at preparation and, without need for significant amendment during implementation, remained appropriate at project completion.

40. The DMF was revised once after the MTR, modifying target crop areas to reflect the actual irrigation and road subprojects selected (rice areas decreased and perennial crop areas increased) and adjusting the number of training activities and the participation levels of women in training. Initial targets for women's participation did not reflect the current gender balance in target institutions being offered training, rendering it impossible to achieve initial gender targets. For project management output targets, dates for the approval of subproject designs and works completion were also deferred to accommodate implementation delays.

41. The initial DMF was structured well to measure infrastructure outputs, however capacity building initiatives lacked qualitative indicators, mechanically tracking only the number of training activities and gender balance of participants. Of greater relevance would have been how training changed behavior, which could be gleaned from a knowledge, attitude, and practice survey before and after training. It is noteworthy that no outcome indicators were developed for capacity building initiatives. As the capacity building output planned to utilize 3% of the project cost, this is considered a weakness in the initial DMF and was also overlooked in revisions made at the MTR.

42. The inclusion of two irrigation subprojects that demonstrated piped delivery systems and water-efficient application technologies will serve as an example for other irrigation interventions in these provinces and is pertinent to crop diversification in the future. This is particularly so in Lam Dong and Dak Lak where higher valued annuals, perennials, and industrial crops abound, but water resources remain limited.

## **B. Effectiveness**

43. The project is rated *effective*. The project substantially achieved its outcome to improve agricultural productivity through improved irrigation infrastructure and improved market access by upgrading low-volume rural roads in productive agricultural areas, benefiting poor and ethnic minorities. There were two outcome targets. The first relating to improved crop yields for rice, coffee, and pepper was substantially achieved. The second target was exceeded, with 390,370 people benefiting from access to improved rural roads compared to the target of 267,727 people.

44. For output 1, all targets (as adjusted at midterm) were achieved or exceeded. A total of 14,913.0 ha of irrigated crop area was expanded to an irrigated command area (from both expansion and rehabilitation) of 21,859.4 ha with increased areas of rice (two crops) coffee,

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<sup>22</sup> This is particularly the case for Dak Nong, which was excised from Dak Lak in 2004. Being predominantly rural in nature, it had low road densities and rudimentary irrigation systems.

pepper, and fruit trees as well as vegetables and cash crops. O&M plans are in place for all irrigation subprojects and are being implemented by provincial IMCs.<sup>23</sup> Rural roads upgraded under the project have been transferred to commune councils that have incorporated road assets into local inventories, and the roads are being maintained by commune organizations. Project outputs are being used as intended at the project design stage.

45. The achievement of output 2 indicators was more varied, even after the adjustments made at the MTR. There were six indicators monitored to gauge the success of output 2 (enhanced capacity to develop, manage, and use PRI). One was not achieved, three were partially achieved, and two were achieved. The indicator not achieved concerned the establishment of condition inventories and O&M plans. These were not completed as the CPMU considered that detailed O&M plans for the asset were included in the feasibility studies. The intent of this output was misinterpreted by the CPMU. For the two training outputs assessed partly achieved, (i) 10 of the planned 20 project management training courses were delivered (the number of trainees was not specified in MTR targets); and (ii) only 37 of a planned 59 courses in water user group and optimal use of PRI training were delivered, with fewer trainees reflecting the reduced number of events. The two training output indicators considered achieved related to (i) development and management of PRI (institutional bodies—MARD, DARDs, IMCs) with 263 staff trained and (ii) training in HIV/AIDs and road and dam safety awareness. All gender indicators in training activities were achieved.

46. The GAP and safeguard measures were generally effectively implemented, contributing to project achievements. Environmental and social safeguard measures were also properly implemented, as documented and disclosed in the project's semiannual safeguard monitoring reports. The livelihoods of all affected people were improved, or at least restored to pre-project levels following safeguards policy requirements.

### C. Efficiency

47. Overall, the project is rated *efficient*. The economic reanalysis reviewed benefits from irrigation expansion and rehabilitation and from upgrading of low-volume rural roads. Benefits from irrigation were based on incremental productivity and changing land-use or cropping patterns for the main crops (rice [two crops]), maize (representing cash crops), cabbage (representing vegetables), and coffee, pepper, and fruit trees. For low-volume rural roads, benefits were estimated from reduced vehicle operating costs with improved surface conditions along the alignments (254.4 km) and changing vehicle use patterns. Costs in the analysis were extracted from the actual contract values and allocated to the respective years of implementation and converted to economic terms. Routine maintenance costs were estimated at 2% of the initial investment cost while periodic maintenance every 8 years was estimated at 30% of the initial investment cost. Details of the analysis are presented in Appendix 8.

48. At appraisal, subproject investment proposals were prepared for three representative subprojects to facilitate early contract award and disbursement. Based on the then quantifiable benefits, economic internal rates of return (EIRR) for the three subprojects were 18.9%, 20.0%, and 20.2%. The EIRR estimates from the subsequent 20 SIRs prepared by national consultants ranged from 13.0% to 58.2% with an average of 21.6%. The aggregated evaluation of EIRR for the project was 20.7%, confirming the project has positive benefits for Viet Nam's economy. However, delays in the preparation of subproject documentation and complex approval

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<sup>23</sup> The O&M charges in relation to the two piped and pumped irrigation subprojects are still being developed, yet the principle of user pays has been accepted among the beneficiary farmers.

procedures are considered the main reasons for the delayed realization of project benefits that could otherwise have further increased the overall economic benefit if avoided.

49. Efficiency is also reflected by the reduced actual works costs compared with the cost estimates in the SIRs. Following DED and associated bills of quantities, the cost of works were significantly reduced, freeing up funds for additional investment to improve technical aspects in nine existing subprojects. This most likely resulted from detailed review of DEDs by PPMU engineers, DARD technical staff, and LIC engineers.

## **D. Sustainability**

50. The likelihood of sustainability is higher for irrigation subprojects as farmers appreciate direct benefits from reliable water supplies, and provincial IMCs are responsible for system O&M, albeit the budget allocation for O&M is based on the government cost norm and varies by command areas. Historically, farmers have been responsible for pumping water from public delivery canals to their individual properties and, in so doing, have borne this cost. With the introduction of pressurized piped delivery systems that have residual head to drive water application devices, this cost is automatically transferred back to the government unless a mechanism for charging can be introduced. The project placed significant emphasis on PIM with capacity building for beneficiary farmers and O&M institutions alike. While government cost norms remain at their present level, only essential maintenance can be expected and progressive deterioration of irrigation structures is inevitable, exacerbated by more extreme climate events.<sup>24</sup> For the two subprojects that involve pressurized pipe distribution systems, there is no agreed mechanism for beneficiary farmers to finance pumping costs. Nevertheless, farmers interviewed stated that they would be prepared to contribute to routine operational costs, although at levels that may not meet the full requirement. Where upgraded irrigation systems provide a higher level of service with greater reliability, there is a significant incentive for farmers to contribute to operating costs (particularly with higher-value crops). Periodic maintenance is likely to be needed more often under the impact of climate change and this remains the responsibility of limited provincial budgets. In the case of irrigation, IMCs offer both an established mechanism and institutional structure with responsibility for system O&M.

51. Being low-volume rural roads, responsibility for their maintenance has been handed over to commune councils. As commune budgets are limited and community groups are difficult to mobilize for routine maintenance, road maintenance is less than satisfactory. Given the climatic conditions in the CHPs, vegetative growth alongside road alignments is aggressive and requires regular control. Already, project-upgraded alignments are showing signs of inadequate maintenance along their verges and/or shoulders as well as damaged surfaces caused by higher volumes of traffic with heavier axle loads.<sup>25</sup> Institutional arrangements for road O&M are less well-organized than with irrigation infrastructure. Transferring responsibility to a professional management organization (similar to IMCs) is likely to improve sustainability. However, rural road O&M remains problematic, with funding likely to remain inadequate for lower-level rural alignments. Rural roads upgraded under the project are therefore less likely to be sustainable.

52. Overall, the project is rated *less than likely sustainable*.

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<sup>24</sup> Current rates have been estimated based on traditional gravity-fed flood irrigation rice production systems with very different water service requirements compared with that of perennial tree crops for example.

<sup>25</sup> Upgraded roads invariably attract higher traffic volumes as transport operators change their routes, preferring roads with superior surface conditions.

## **E. Development Impact**

53. The expected impact of the project was increased rural incomes and sustained livelihoods through improved rural and agricultural productivity in the CHPs. With 23 subprojects spread over five target provinces, the project contributed to (i) a reduced poverty rate, that declined from 14.95% (2012) to 6.81% (2018) among direct subproject beneficiaries; (ii) rehabilitation and extension of major works, including headworks and primary and secondary canals; (iii) increased average household incomes in the subproject areas to D20.2 million, up 53.5% from 2013 (the baseline year); and (iv) improved access to markets, input suppliers, and other public services (e.g., health and education facilities).<sup>26</sup> The project's development impact was enhanced by its focus on promoting gender equity and facilitating participation of ethnic minorities in areas where they represented more than 40% of the population. The project development impact is rated *satisfactory* even though there are concerns over the sustainability of rural roads.

## **F. Performance of the Borrower and the Executing Agency**

54. The project essentially complied with 24 loan covenants and all safeguards and fiduciary requirements. Participating government entities' ownership and assumption of responsibility were adequate during implementation, although provincial recruitment of SIR and DED consultants using single source selection (para. 23) may explain the weaker capacities of firms engaged. Despite cumbersome internal approval procedures at provincial and national levels, counterpart funding and yearly ODA allocation delays, and the limited budget allocations for O&M in the provinces, the performance of the borrower was *satisfactory*. The performance of MARD through its APMB was *satisfactory* in that it (i) mobilized adequate financial resources for the operations of the APMB; (ii) provided ongoing support to PPMUs in (a) fiduciary requirements, (b) safeguard requirements, (c) procurement, and (d) technical areas; (iii) provided adequate financial and human resources to manage the project; (iv) effectively managed project finances; and (v) flexibly reallocated loan funds from other MARD-implemented projects to accommodate the tighter fiscal controls.

55. The performance of the borrower and executing agency is rated *satisfactory*.

## **G. Performance of the Asian Development Bank**

56. ADB provided CPMU and PPMU staff with appropriate training on project management, financial management, and procurement, including the use of Viet Nam's e-government Procurement System.<sup>27</sup> ADB delegated project administration to the Viet Nam Resident Mission in April 2015, which resulted in more efficient document processing and capacity building support for the CPMU/PPMUs. ADB undertook 16 review missions with a total of 569 person-days. It accommodated changes in government procurement arrangements and helped the CPMU and PPMUs navigate disbursement ceilings and complex ODA budgeting procedures.

57. Overall, the performance of ADB is rated *satisfactory*.

<sup>26</sup> One would anticipate that poverty levels had reduced further since the end-line survey conducted in 2018.

<sup>27</sup> The Viet Nam e-government Procurement system (<http://muasamcong.mpi.gov.vn>) was launched in 2009 and enhanced in 2018. It uses standard bidding documents for goods and civil works based on the harmonized ADB–World Bank NCB standard bidding document for Viet Nam.

## H. Overall Assessment

58. The project is considered *relevant* because of its consistency with both national development strategies and ADB's country partnership and strategy. The project design was sound as it focused on issues that constrained agricultural productivity. It is considered *effective* because of substantial achievement of the outcome and all outputs. It is considered *efficient* because the aggregated EIRR for the project is 20.7%, which is higher than that at appraisal. Finally, it is considered *less than likely sustainable* because the rural road O&M remains problematic, with funding likely to remain inadequate for lower-level rural alignments. Overall, the project is rated *successful* (Table 1).

**Table 1: Overall Ratings**

Criteria	Rating
Relevance	Relevant
Effectiveness	Effective
Efficiency	Efficient
Sustainability	Less than likely sustainable
<b>Overall assessment</b>	<b>Successful</b>
Development impact	Satisfactory
Borrower and executing agency	Satisfactory
Performance of the Asian Development Bank	Satisfactory

Source: Asian Development Bank.

## IV. ISSUES, LESSONS, AND RECOMMENDATIONS

### A. Issues and Lessons

59. **Sustainability.** Tremendous pressures persist on provincial administrations to achieve economic development in their province. With this all-consuming objective, investments tend to prioritize the expansion of PRI, which is often designed on outdated standards and cost norms. Irrigation and road designs typically result in lower capacity with structural weaknesses, consequently requiring repair and/or upgrade shortly after commissioning. This rehabilitation mentality is made worse by the fact that funding for ongoing O&M to sustain whatever is constructed is limited by provincial revenue-raising capacities. There are examples among the 23 subprojects where design capacities are below that required. Significant periodic maintenance was required for the Buon Tria – Buon Triet communes of Lak district within the first 2 years after commissioning. This highlights the importance of design standards in relation to current risk factors, particularly under expected climate change scenarios, as well as future capacities of infrastructure that change with changing surrounding land-use patterns.

60. **Institutional arrangements for operation and maintenance.** Based on observations during field visits, irrigation infrastructure was better maintained than low-volume rural roads. Budget allocations to IMCs provide for a minimum level of service—people are engaged on a part-time basis to maintain canals and keep gates in operating condition. The situation with low-volume rural roads is considerably worse as not only are commune funds more limited than provincial sources, but the institutional structure to maintain alignments is inadequate. Often commune people's committees engage voluntary groups (youth or women's associations) to carry out basic maintenance, but these are essentially manual operations whereas the scale of vegetation control requires mechanical intervention. Without a formal organization and institutional arrangement to carry out the work, it is often left undone or is done too late.

61. **Subproject supervision.** All works contracts were supervised by consulting engineers appointed to ensure DEDs were followed, and contractors' progress claims were legitimate. However, supervision of some subprojects was insufficient to ensure timely completion and handover of fully operational, quality works. Of note are (i) a nonfunctioning pressurized piped irrigation system in Cu M'Gar, Dak Lak; and (ii) a poorly constructed irrigation system in Ea Soup, Dak Lak.

62. **E-procurement.** Eight NCB civil works packages were procured successfully using Viet Nam's e-procurement system. All eight e-procured packages achieved high efficiency with an average of 50 days end-to-end procurement time.<sup>28</sup> However there were only one or two bids per package. This may be because of the new procedure but also may reflect the smaller values of those contracts (less than \$1 million per contract).

## **B. Recommendations**

63. **Monitoring and evaluation.** A comprehensive M&E system and training in its use should be done at or before project inception. M&E software should incorporate survey material that generates information on outcome target indicators. Furthermore, the end-line survey should be undertaken when subprojects are operational, and benefits are evident. In this project, delays in the completion of works delayed benefits, which were not fully captured in the in the end-line survey.

64. **Infrastructure design standards.** As risk factors are increasingly fluctuating in rural environs because of climate change, greater tolerances should be built into design standards to accommodate such risk. Furthermore, anticipated use of rural infrastructure should be incorporated into designs, rendering them more appropriate for long-term utilization patterns (e.g., design alignments with greater capacities with regard to widths and axle loads).

65. **Future monitoring.** This relates primarily to the establishment of mechanisms to collect farmers' contributions for irrigation system operating expenses, particularly in pumped irrigation schemes. The concept of PIM was promoted extensively during subproject design and implementation and there is an increased awareness of its importance. Yet at the time of the project completion report, the two subprojects with pressurized delivery pipes had not established an agreed mechanism to meet system operating costs. This should be closely monitored in the respective provinces (Dak Lak and Lam Dong). Once established, a special study of adequacy and affordability should be undertaken for future reference.

66. **Covenants.** Covenants concerning fund allocations to maintain project assets should be strengthened to extend the effective economic life of these assets.

67. **Timing of the project performance evaluation report.** With the delayed completion of works and the number of outstanding issues in terms of completion of works, the project performance evaluation report should be deferred until at least 2023. This will enable the durability of project benefits and O&M practices to be more thoroughly evaluated.

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<sup>28</sup> Period from advertisement date until notice to award.

## DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Indicators and Targets	Project Achievements
<b>Impact</b> Increased rural incomes and sustained livelihoods in the CHPs.	<p>By 2024 (from subproject baselines measured in 2012):</p> <p>Rural individual average annual income (D17.65 million) will increase by 4% in constant price.</p> <p>Annual incremental demand for agricultural labor will increase by an average of 85 days per household.</p>	<p>Based on socioeconomic survey conducted in November 2018.</p> <p><b>Achieved.</b> Per capita incomes in surveyed households increased from D20.2 million/year to D31.0 million/year in 2012–2018, an increase of 53.5% in current terms. This is equivalent to 14% taking account of inflation (1.342% between 2012 and 2018).</p> <p><b>Data not yet available.</b> Annual on-farm labor increased from 2.22 to 2.28 person/year between 2012 and 2018 – the equivalent of 3 days per annum per household.</p>
<b>Outcome</b> Improved rural and agricultural productivity in the CHPs.	<p>By 2018 (from baselines in 2013):</p> <p>Annual average increase in agricultural productivity (t/ha): rice 4 to 8; coffee 2.7 to 3.5, pepper 2.7 to 3.8.</p> <p>Around 225,000 more people will have access to improved project PRI.</p>	<p><b>Substantially Achieved.</b> Rice yield increased to 6.76 t/ha; coffee yield increased to 5.46 t/ha; pepper yield increased to 3.17 t/ha.</p> <p><b>Achieved.</b> Number of direct beneficiaries from project PRI rural road investments was 390,000.</p>
<b>Outputs</b> 1. Productive rural infrastructure improved.	<p>By 2018 (from baselines in 2012)</p> <p>Irrigation improved in at least 15 irrigation structures across 17,500 ha (8,600 ha of paddy, 5,000 ha of coffee and pepper, and 3,900 ha of cash crop).</p> <p>Better access by upgrading 130 km of low volume rural roads.</p> <p>Workdays of employment in civil works: (a) 30% unskilled works are dedicated for women under equal pay and conditions as men, and (b) in areas where EMs constitute the majority of the population, 40% unskilled works are for ethnic minority people.</p>	<p><b>Achieved.</b> Forty irrigation structures upgraded serving 9,764 ha of paddy land, 5,769 ha of land planted to coffee and pepper, and 4,205 ha of land planted to cash crops.</p> <p><b>Achieved.</b> A total of 254.4 km of low volume rural roads upgraded in productive rural areas.</p> <p><b>Achieved.</b> (a) A total of 2,583 local unskilled laborers were hired at subproject building sites of which 1,040 (40.3%) were women. (b) 1,525 unskilled ethnic minority laborers were employed, of which 648 (42.4%) were ethnic minority women, in 14 subprojects where ethnic minorities constituted a majority of the population.</p>
2. Enhanced capacity to develop, manage and use productive rural infrastructure.	<p>At least 20 training courses completed on project management (at least 20% female participation).</p> <p>For all subprojects implemented, condition inventories and operation and management plans established with training for implementation of the</p>	<p><b>Partially achieved.</b> Ten training courses on project management were organized (project planning and implementation, financial management and accounting, procurement and contract management, and monitoring and evaluation) with 482 trainees, of which 23% were women.</p> <p><b>Not achieved.</b> O&amp;M plans were an integral part of subproject feasibility studies, yet condition inventories were misunderstood and not implemented. Instead, training was</p>



Design Summary	Performance Indicators and Targets	Project Achievements
	<p>plans (35% female participation in management).</p> <p>263 staff of MARD, CHP partners, and IMCs trained in the development and management of PRI (11.4% women).</p> <p>59 training courses for 2,950 PRI users, with special focus on water user groups, and beneficiaries to optimally use the upgraded PRI (minimum 40% female participation).</p> <p>HIV/AIDS, road and dam safety awareness campaigns carried out in all subproject areas.</p> <p>Three special studies, pilots, and demonstrations of improved PRI and irrigation scheme management.</p>	<p>provided in PIM, commune level O&amp;M and irrigation management and use with 3,405 trainees of which 42% were women.</p> <p><b>Achieved.</b> Five training courses in irrigation scheme management and use were delivered to 263 trainees of which 11.4% were women and 2.7% were EMs.</p> <p><b>Partially achieved.</b> Thirty-seven training courses were delivered to 2,147 trainees of whom 43.7% were women and 20.4% EMs.</p> <p><b>Achieved.</b> Thirteen training courses and 124 awareness raising campaigns were delivered to 5,858 individuals with 64.4% being women and 42.7% being EMs.</p> <p><b>Partially achieved.</b> Studies were prepared for (i) water saving technologies, (ii) sustainable exploitation and management of irrigation works, and (iii) PIM. Only the water-saving technology demonstration pilot was fully implemented.</p>
3. Efficient project management.	<p>CPMU and five PPMUs set up and fully functional by January 2015.</p> <p>Feasibility studies completed and approved in two phases: September 2015 for phase 1 and 2 subprojects, and March 2018 for phase 3 subproject.</p> <p>Construction works completed in two phases: December 2018 for phase 1 and phase 2 subprojects, and June 2019 for phase 3 subprojects.</p>	<p><b>Achieved.</b></p> <p><b>Achieved, with delay.</b> Fifteen phase 1 and phase 2 subproject feasibility studies were completed and approved in 2015. Five phase 3 subproject feasibility studies were completed and approved in 2017 and three phase 3 feasibility studies were completed by end 2018.</p> <p><b>Achieved, with delay.</b> Eight of 12 phase 1 and phase 2 subprojects were constructed by December 2018. The remaining three phase 1 and phase 2 subprojects and all phase 3 subprojects were completed in 2020.</p>

CHP = Central Highland provinces, CPMU = Central Project Management Unit, EM = ethnic minority, ha = hectare, HIV/AIDS = human immunodeficiency virus / acquired immunodeficiency syndrome, FS = feasibility study, IMC = irrigation management company, km = kilometer, MARD = Ministry of Agriculture and Rural Development, O&M = operations and management, PIM = participatory Irrigation management, PPMU = provincial project management unit, PRI = productive rural infrastructure, t/ha = ton per hectare.

Notes: The following output indicators were adjusted following the midterm review (i) the target area of irrigation rehabilitated was reduced from 18,500 ha to 17,500 ha with an associated change in cropped area for rice coffee, pepper, and cash crops; (ii) project management training courses reduced from 50 to 20 with women trainees reduced from 35% to 20%; (iii) training in development and management of PRI increased from 75 staff to 263 staff from MARD, IMCs, and CHP partners; (iv) training in the optimal use of upgraded PRI decreased from 210 courses with 6,500 PRI users to 59 courses for 2,950 participants; (v) special studies, pilots and demonstration conducted on improved PRI reduced from four to three; and (vi) completion dates for feasibility studies and construction works were extended from the original estimates by 2 years and 3 years, respectively.

Source: Asian Development Bank.

## PROJECT COST AT APPRAISAL AND ACTUAL

(\$'000)

Item	Appraisal Estimate			Actual		
	Foreign Exchange	Local Currency	Total Cost	Foreign Exchange	Local Currency	Total Cost
<b>A. Investment Costs</b>						
1. Land Acquisition and Resettlement	0.0	1,400.0	1,400.0	0.0	2,229.85	2,229.85
2. Civil Works	6,192.3	49,008.7	55,201.0	5,655.14	50,896.22	56,551.36
3. Construction Services						
a. Subproject Feasibility Studies	0.0	1,522.2	1,522.2	0.0	1,605.11	1,605.11
b. Subproject Detailed Designs	0.0	2,543.1	2,543.1	0.0	1,944.50	1,944.50
c. Subproject Special Studies and Quality Assurance	0.0	304.0	304.0	0.0	1,570.98	1,570.98
d. Subproject Safeguards Reviews	0.0	288.8	288.8	0.0	244.74	244.74
e. Bid Preparation	0.0	49.3	49.3	0.0	174.55	174.55
f. Construction Supervision	0.0	914.5	914.5	0.0	1,044.27	1,077.27
g. Province-based Construction Services	0.0	865.5	865.5	0.0	1,189.48	1,189.48
<b>Subtotal 3. Construction Services</b>	<b>0.0</b>	<b>6,487.4</b>	<b>6,487.4</b>	<b>0.0</b>	<b>7,773.62</b>	<b>7,773.62</b>
4. Vehicles, Equipment and Accounting Software						
a. Vehicles	0.0	222.0	222.0	0.0	204.95	204.95
f. Equipment and Accounting Software	0.0	144.5	144.5	0.0	91.54	91.54
<b>Subtotal 4. Vehicles and Equipment</b>	<b>0.0</b>	<b>366.5</b>	<b>366.5</b>	<b>0.0</b>	<b>296.49</b>	<b>296.49</b>
5. Implementation Consulting Services	0.0	2,779.7	2,779.7	0.0	3,142.80	3,142.80
6. Training	0.0	1,776.8	1,776.8	0.0	635.60	635.60
7. Study Tours	0.0	232.1	232.1		24.58	24.58
8. Project Management						
a. Central level (ADB Financed)	0.0	1,147.0	1,147.0	0.0	792.51	792.51
b. Central level (Government financed)	0.0	139.9	139.9	0.0	557.50	557.50
c. Provincial level	0.0	2,235.0	2,235.0	0.0	1,986.55	1,986.55
<b>Subtotal 8. Project Management</b>	<b>0.0</b>	<b>3,522.4</b>	<b>3,522.4</b>	<b>0.0</b>	<b>3,336.55</b>	<b>3,336.55</b>
9. Infrastructure O&M During Implementation	0.0	2,409.9	2,409.9	0.0	3,214.66	3,214.66
10. Project Financial Auditing	0.0	89.3	89.3	0.0	56.52	56.52
11. Duties and Taxes	0.0	7,957.0	7,957.0		7,503.22	7,503.22
<b>Total Baseline Costs</b>	<b>6,192.3</b>	<b>76,029.8</b>	<b>82,222.1</b>	<b>5,655.14</b>	<b>79,110.13</b>	<b>84,765.27</b>
Physical Contingencies	0.0	474.8	474.8	0.0	0.0	0.0
Price Contingencies	0.0	2,565.7	2,565.7	0.0	0.0	0.0
<b>Total Project Costs</b>	<b>6,192.3</b>	<b>79,070.3</b>	<b>85,262.6</b>	<b>5,655.14</b>	<b>79,110.13</b>	<b>84,765.27</b>
Interest During Implementation	2,317.4	0.0	2,317.4	2,138.81	0.0	2,138.81
<b>Total Costs to be Financed</b>	<b>8,509.7</b>	<b>79,070.3</b>	<b>87,580.0</b>	<b>7,793.94</b>	<b>79,110.13</b>	<b>86,904.08</b>

ADB = Asian Development Bank, O&amp;M = operation and maintenance.

Source: ADB.

**PROJECT COST BY FINANCIER**  
**Table A3.1: Project Cost at Appraisal by Financier**  
(\$'000s)

Item	The Government		Project Provinces		ADB		Total Cost	
	Amount (A)	% of Cost Category (A/D)	Amount (B)	% of Cost Category (B/D)	Amount (C)	% of Cost Category (C/D)	Amount (D)	Taxes and Duties (E)
<b>I. Investment Costs</b>								
<b>A. Land acquisition and resettlement</b>	0	0.0	1,400.0	100.0	0.0	0.0	1,400.0	0.0
<b>B. Civil works</b>	0	0.0	0.0	0.0	62,205.1	100.0	62,205.1	6,220.5
<b>C. Construction services</b>								
Subproject Feasibility Studies	0	0.0	1,800.0	100.0	0.0	0.0	1,800.0	180.0
Subproject Detailed Designs	0	0.0	0.0	0.0	3,029.3	100.0	3,029.3	302.9
Subproject Special Studies and Quality Assurance	0	0.0	0.0	0.0	370.0	100.0	370.0	37.0
Subproject Safeguards Reviews	0	0.0	0.0	0.0	350.0	100.0	350.0	35.0
Bid Preparation	0	0.0	0.0	0.0	60.0	100.0	60.0	6.0
Construction Supervision	0	0.0	0.0	0.0	1,150.6	100.0	1,150.6	115.1
Province-based Construction Services	0	0.0	1,170.0	100.0	0.0	0.0	1,170.0	117.0
<b>Subtotal: Construction services</b>	<b>0</b>	<b>0.0</b>	<b>2,970.0</b>	<b>37.5</b>	<b>4,959.9</b>	<b>62.5</b>	<b>7,929.9</b>	<b>793.0</b>
<b>D. Vehicles, equipment, and accounting software</b>								
Vehicles	0	0.0	0.0	0.0	300.0	100.0	300.0	30.0
Equipment and Accounting software	0	0.0	0.0	0.0	195.9	100.0	195.9	19.6
<b>Subtotal Vehicles and Equipment</b>	<b>0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>495.9</b>	<b>100.0</b>	<b>495.9</b>	<b>49.6</b>
<b>E. Implementation Consulting Services</b>	0	0.0	0.0	0.0	3,503.2	100.0	3,503.2	350.3
<b>F. Training</b>	0	0.0	0.0	0.0	2,178.1	100.0	2,178.1	70.0
<b>G. Study Tours</b>	0	0.0	0.0	0.0	297.2	100.0	297.2	29.7
<b>H. Project management</b>								
Central level (ADB financed)	0	0.0	0.0	0.0	1,177.7	100.0	1,177.7	117.8
Central level (Government financed)	200.0	100.0	0.0	0.0	0.0	0.0	200.0	20.0
Provincial level	0	0.0	0.0	0.0	2,745.3	100.0	2,745.3	274.5
<b>Subtotal: Project management</b>	<b>200.0</b>	<b>4.9</b>	<b>0.0</b>	<b>0.0</b>	<b>3,923.0</b>	<b>95.1</b>	<b>4,123.0</b>	<b>412.3</b>
<b>I. Infrastructure O&amp;M during Implementation</b>	0	0.0	3,010.0	100.0	0.0	0.0	3,010.0	301.0
<b>J. Project financial auditing</b>	0	0.0	0.0	0.0	120.1	100.0	120.1	12.0
<b>K. Financial Charges During Implementation</b>	0	0.0	0.0	0.0	2,317.4	100.0	2,317.4	0.0
<b>Total Project Cost</b>	<b>200.0</b>		<b>7,380.0</b>		<b>80,000.0</b>		<b>87,580.0</b>	<b>8,238.4</b>
<b>% Total Project Cost</b>		<b>0.23</b>		<b>8.43</b>		<b>91.34</b>		<b>100.00</b>

Note: Numbers may not sum precisely because of rounding.

Source: Asian Development Bank.

**Table A3.2: Project Cost at Completion by Financier**  
(\$'000s)

Item	The Government		Project Provinces		ADB		Total Cost	
	Amount (A)	% of Cost Category (A/D)	Amount (B)	% of Cost Category (B/D)	Amount (C)	% of Cost Category (C/D)	Amount (D)	Taxes and Duties (E)
<b>I. Investment Costs</b>								
<b>A. Land acquisition and resettlement</b>	0.0	0.0	1,421.50	100.0	0.0	0.0	2,229.85	0.0
<b>B. Civil works</b>	0.0	0.0	0.0	0.0	62,206.50	100.0	62,206.50	5,655.14
<b>C. Construction services</b>								
Subproject Feasibility Studies	0.0	0.0	1,765.62	100.0	0.0	0.0	1,765.62	160.51
Subproject Detailed Designs	0.0	0.0	2,138.95	100.0	0.0	0.0	2,138.95	194.45
Subproject Special Studies and Quality Assurance	0.0	0.0	1,728.08	100.0	0.0	0.0	1,728.08	157.10
Subproject Safeguards Reviews	0.0	0.0	0.0	0.0	269.21	100.0	269.21	24.47
Bid Preparation	0.0	0.0	192.01	100.0	0.0	0.0	192.01	17.46
Construction Supervision	0.0	0.0	1,148.70	100.0	0.0	0.0	1,148.70	104.43
Province-based Construction Services	0.0	0.0	1,308.42	100.0	0.0	0.0	1,308.42	118.95
<b>Subtotal: Construction services</b>	<b>0.0</b>	<b>0.0</b>	<b>8,281.78</b>	<b>96.85</b>	<b>269.21</b>	<b>3.15</b>	<b>8,550.09</b>	<b>777.36</b>
<b>D. Vehicles, equipment, and accounting software</b>								
Vehicles	0.0	0.0	0.0	0.0	225.45	100.0	225.45	20.50
Equipment and Accounting software	0.0	0.0	0.0	0.0	100.70	100.0	100.70	9.15
<b>Subtotal Vehicles and Equipment</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>326.14</b>	<b>100.0</b>	<b>326.14</b>	<b>29.65</b>
<b>E. Implementation Consulting Services</b>	0.0	0.0	0.0	0.0	3,457.08	100.0	3,457.08	314.28
<b>F. Training</b>	0.0	0.0	0.0	0.0	699.16	100.0	699.16	63.56
<b>G. Study Tours</b>	0.0	0.0	0.0	0.0	27.04	100.0	27.04	2.46
<b>H. Project management</b>								
Central level (ADB financed)	0.0	0.0	0.0	0.0	871.76	100.0	871.76	79.25
Central level (Government financed)	613.25	100.0	0.0	0.0	0.0	0.0	613.25	55.75
Provincial level	0.0	0.0	0.0	0.0	2,185.20	100.0	2,185.20	198.65
<b>Subtotal: Project management</b>	<b>613.25</b>	<b>16.7</b>	<b>0.0</b>	<b>0.0</b>	<b>3,056.96</b>	<b>83.29</b>	<b>3,670.21</b>	<b>333.66</b>
<b>I. Infrastructure O&amp;M during Implementation</b>	0.0	0.0	3,536.13	100.0	0.0	0.0	3,536.13	321.47
<b>J. Project financial auditing</b>	0.0	0.0	0.0	0.0	62.17	100.0	62.17	5.65
<b>K. Financial Charges During Implementation</b>	0.0	0.0	0.0	0.0	2,318.81	100.0	2,138.81	0.0
<b>Total Project Cost</b>	<b>613.25</b>		<b>13,239.41</b>		<b>72,243.07</b>		<b>86,904.08</b>	<b>7,503.22</b>
<b>% Total Project Cost</b>		<b>0.71</b>		<b>16.16</b>		<b>83.13</b>		<b>100.00</b>

Note: Numbers may not sum precisely because of rounding.

Source: Asian Development Bank.

## DISBURSEMENT OF ADB LOAN AND GRANT PROCEEDS

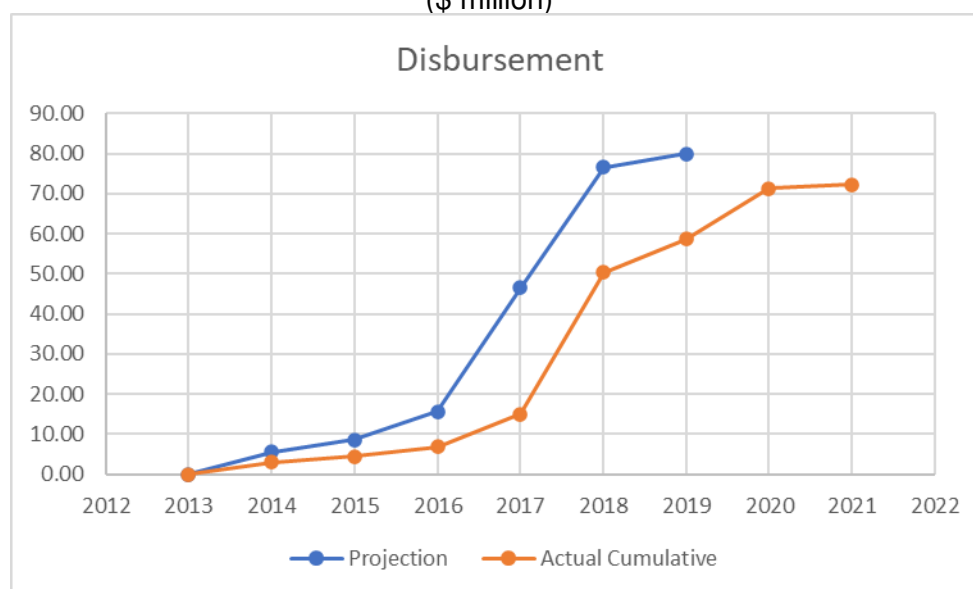
**Table 4.1: Annual and Cumulative Disbursement of ADB Loan Proceeds**  
(\$ million)

Year	Annual Disbursement		Cumulative Disbursement	
	Amount (\$ million)	% of Total	Amount (\$ million)	% of Total
2014	3.00	4.2	3.00	4.2
2015	1.40	1.9	4.40	6.1
2016	2.52	3.5	6.92	9.6
2017	8.05	11.1	14.97	20.7
2018	35.45	49.1	50.42	69.8
2019	8.35	11.6	58.76	81.3
2020	12.59	17.4	71.35	98.8
2021	0.90	1.2	72.24	100.0
<b>Total</b>	<b>72.24</b>	<b>100.0</b>		

ADB = Asian Development Bank.

Source: ADB.

**Figure 4.1: Projection and Cumulative Disbursement of ADB Loan Proceeds**  
(\$ million)



ADB = Asian Development Bank.

Note: The baseline projections were changed for the first time on 13 June 2017 after the midterm review and for the second time on 15 October 2019 due to loan extension.

Source: ADB.

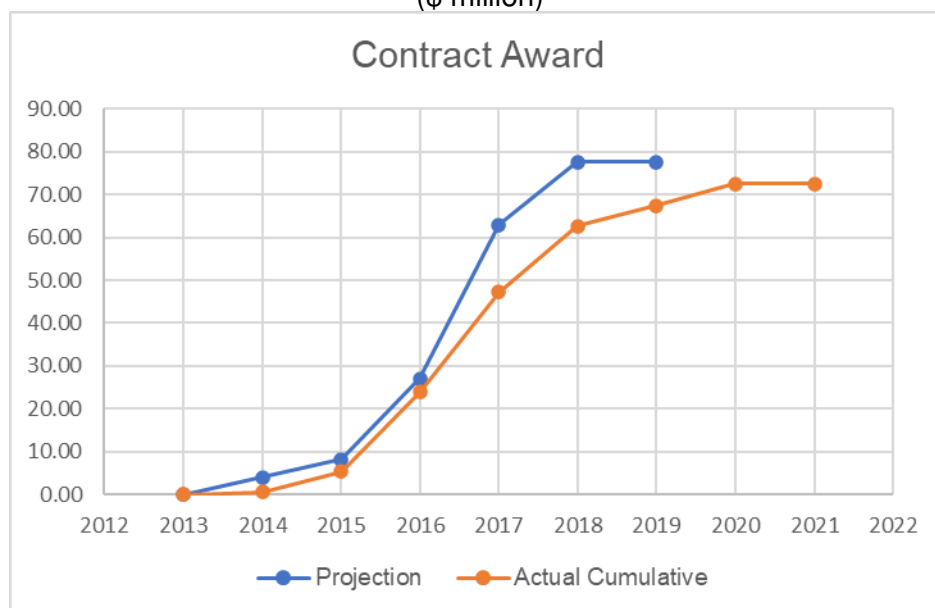
## CONTRACT AWARDS OF ADB LOAN PROCEEDS

**Table 5.1: Annual and Cumulative Contract Awards of ADB Loan Proceeds**  
(\$ million)

Year	Annual Contract Awards		Cumulative Contract Awards	
	Amount (\$ million)	% of Total	Amount (\$ million)	% of Total
2014	0.50	0.7	0.50	0.7
2015	4.83	6.7	5.32	7.3
2016	18.60	25.6	23.93	33.0
2017	23.38	32.2	47.30	65.2
2018	15.34	21.1	62.64	86.3
2019	4.75	6.5	67.39	92.9
2020	5.16	7.1	72.55	100
2021	0.00	0	72.55	100
<b>Total</b>	<b>72.55</b>	<b>100.0</b>		

Source: Asian Development Bank.

**Figure 5.1: Projection and Cumulative Contract Awards of ADB Loan Proceeds**  
(\$ million)



ADB = Asian Development Bank.

Note: The baseline projections were changed for the first time on 13 June 2017 after the midterm review and for the second time on 15 October 2019 due to loan extension.

Source: ADB.

### STATUS OF COMPLIANCE WITH LOAN COVENANTS

Covenant	Reference in Loan Agreement	Status of Compliance
The Borrower shall (i) maintain separate accounts and records for the project; (ii) prepare annual financial statements for the project in accordance with accounting principles acceptable to ADB; (iii) have such financial statements audited annually by independent auditors whose qualifications, experience and terms of reference are acceptable to ADB, in accordance with international standards for auditing or the national equivalent acceptable to ADB; (iv) as part of each such audit, have the auditors prepare a report (which includes the auditors' opinion on the financial statements, use of the Loan proceeds and compliance with the financial covenants of this Loan Agreement as well as on the use of the procedures for impress fund(s) and statement of expenditures) and a management letter (which sets out the deficiencies in the internal control of the project that were identified in the course of the audit, if any); (v) furnish to ADB, no later than 6 months after the end of each related fiscal year, copies of such audited financial statements, audit report and management letter, all in the English language, and such information concerning these documents and the audit thereof as ADB shall from time to time reasonably request.	Loan Agreement, Article. IV, Section 4.02, (a)	<b>Complied with.</b> Accounts and records of the project are being maintained separately. Audited financial statements, the audit report, and management letter were submitted to ADB for financial years of 2015, 2016, 2017, 2018, and 2019-2020.
ADB shall disclose the annual audited financial statements for the project and the opinion of the auditors on the financial statements within 30 days of the date of their receipt by posting them on ADB's website.	Loan Agreement, Article. IV, Section 4.02, (b)	<b>Being complied with.</b> ADB has disclosed the audited project financial statements and the opinion of the auditors on financial statements for 2015, 2016, 2017, 2018, and 2019-2020.
The Borrower shall enable ADB, upon ADB's request, to discuss the financial statements for the project and the Borrower's financial affairs where they relate to the project with the auditors and the Borrowers' financial affairs where they relate to the project with the auditors appointed pursuant to subsection (a) (iii) hereinabove, and shall authorize and require any representative of such auditors to participate in any such discussions requested by ADB. This is provided that such discussions shall be conducted only in the presence of an authorized officer of the Borrower, unless the Borrower shall otherwise agree.	Loan Agreement, Article. IV, Section 4.02, (c)	<b>Complied with.</b>
The Borrower shall enable ADB's representatives to inspect the project, the Goods and Works, and any relevant records and documents.	Loan Agreement, Article. IV, Section 4.03	<b>Complied with.</b>
<b>Implementation Arrangement</b>		
The Borrower shall ensure that the project is implemented in accordance with the detailed arrangements set forth in the PAM. Any subsequent change to the PAM shall become effective only after approval of such change by the Borrower and ADB. In the event of any discrepancy between the PAM and this Loan Agreement, the provisions of this Loan Agreement shall prevail.	Loan Agreement, Schedule 5, para. 1	<b>Complied with.</b> The project was implemented in accordance with the detailed arrangements set forth in the Loan Agreement and PAM and the changes agreed among the parties during the MTR.

Covenant	Reference in Loan Agreement	Status of Compliance
<b>Environment</b>		
The Borrower shall ensure and cause the project provinces to ensure that the preparation, design, construction, implementation, operation and decommissioning of each Subproject and all project facilities comply with (a) all applicable laws and regulations of the Borrower relating to environment, health, and safety; (b) the Environmental Safeguards; (c) the EARF; and (d) all measures and requirements set forth in the respective IEE and EMP, and any corrective or preventive actions set forth in a Safeguards Monitoring Report.	Loan Agreement, Schedule 5, para. 2	<b>Complied with.</b> The preparation and design of each subproject and all project facilities are being complied with (a), (b), (c) and (d).
The Borrower shall further ensure that (a) no Subprojects with significant adverse environmental impacts are financed under the project; and (b) Subprojects are carried out in accordance with environmental assessment procedures provided in the EARF as agreed between the Borrower and ADB.	Loan Agreement, Schedule 5, para. 3	<b>Complied with.</b>
<b>Resettlement</b>		
The Borrower shall ensure and cause the project provinces to ensure that all land and all rights-of-way required for each Subproject and all project facilities are made available to the Works contractor in accordance with the schedule agreed under the related Works contract and all land acquisition and resettlement activities are implemented in compliance with (a) all applicable laws and regulations of the Borrower relating to land acquisition and involuntary resettlement; (b) the Involuntary Resettlement Safeguards; (c) the RF; and (d) all measures and requirements set forth in the respective RP, and any corrective or preventative actions set forth in a Safeguards Monitoring Report.	Loan Agreement, Schedule 5, para. 4	<b>Complied with.</b>
The Borrower shall further ensure and cause the project provinces to ensure that no Subprojects which meet the category A resettlement criteria as defined in the SPS, are included in the list of the Candidate Subprojects, and that no Subproject with category A resettlement criteria is financed under the project. Should actual resettlement relate costs for the project be in excess of the agreed amount to be financed by the Loan proceeds, the Borrower shall cause the project provinces to provide the necessary additional funds to cover such excess.	Loan Agreement, Schedule 5, para. 5	<b>Complied with.</b> There are no category A resettlement subprojects.
Without limiting the application of the Involuntary Resettlement Safeguards, the RF or the RPs, the Borrower shall ensure and cause the project provinces to ensure that no physical or economic displacement takes place in connection with the respective Subprojects until: (a) Compensation and other entitlements have been provided to affected people in accordance with the RP; and (b) A comprehensive income and livelihood restoration program has been established in accordance with the RP.	Loan Agreement, Schedule 5, para. 6	<b>Complied with.</b> All subprojects have completed payment of compensation and allowances for APs before any construction begins. Moreover, comprehensive and livelihood restoration programs have been established in accordance with this clause.



Covenant	Reference in Loan Agreement	Status of Compliance
<b>Ethnic Minorities</b>		
The Borrower shall ensure and cause the project provinces to ensure that the preparation, design, construction, implementation and operation of the project, each Subproject and all project facilities comply with (a) all applicable laws and regulations of the Borrower relating to ethnic minorities; (b) the Indigenous People Safeguards; (c) the EMDF; and (d) all measures and requirements set forth in the respective EMDPs, and any corrective or preventative actions set forth in a Safeguards Monitoring Report.	Loan Agreement, Schedule 5, para. 7	<b>Complied with</b> for all (a), (b), (c) and (d) at present. EMDP is combined with RP in REMDP for implementation.
<b>Human and Financial Resources to Implement Safeguards Requirements</b>		
The Borrower shall make available and cause the project provinces to make available necessary budgetary and human resources to fully implement the EMPs, the RPs and the EMDPs.	Loan Agreement, Schedule 5, para. 8	<b>Complied with.</b> Budgetary and human resources are available for implementation of EMPs, RPs and EMDPs.
<b>Safeguards-Related Provisions in Bidding Documents and Works Contracts</b>		
The Borrower shall ensure and cause the project provinces to ensure that all bidding documents and contracts for Works contain provisions that require contractors to: <ul style="list-style-type: none"> <li>(a) Comply with the measures and requirements relevant to the contractor set forth in the respective IEEs, EMPs, RPs, and EMDPs (to the extent they concern impacts on affected people during construction), and any corrective or preventative actions set out in a Safeguards Monitoring Report;</li> <li>(b) Make available a budget for all such environmental and social measures;</li> <li>(c) Provide the Borrower, through the respective project provinces, with a written notice of any unanticipated environmental, resettlement or ethnic minority risks or impacts that arise during construction, implementation or operation of the project that were not considered in the IEE, the EMP, the RP or the EMDP;</li> <li>(d) Adequately record the condition of roads, agricultural land and other infrastructure prior to starting to transport materials and construction; and</li> <li>(e) Fully reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition upon the completion of construction.</li> </ul>	Loan Agreement, Schedule 5, para. 9	<b>Complied with</b> for all (a), (b), (c), (d) and (e) at present.
<b>Safeguards Monitoring and Reporting</b>		
The Borrower shall do or shall cause the project provinces to do the following: <ul style="list-style-type: none"> <li>(a) Submit semiannual Safeguards Monitoring Reports to ADB and disclose relevant information from such reports to affected persons promptly upon submission;</li> <li>(b) If any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of</li> </ul>	Loan Agreement, Schedule 5, para. 10	<b>Complied with</b> for items (b) and (c). For item (a) all semiannual Safeguard Monitoring Reports have been submitted, including those of Q1, Q2 of 2020.

Covenant	Reference in Loan Agreement	Status of Compliance
<p>the project that were not considered in the IRRs, the EMPs, the RPs or the EMPDs, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the events and proposed corrective action plan; and</p> <p>(c) Report any actual or potential breach of compliance with the measures and requirements set forth in the EMPs, the RPs, or the EMPDs promptly after becoming aware of the breach.</p>		
<b>Prohibited List of Investments</b>		
<p>The Borrower shall ensure or cause the project provinces to ensure that no proceeds of the Loan are used to finance any activity included in the list of prohibited investment activities provided in Appendix 5 of the SPS.</p>	<p>Loan Agreement, Schedule 5, para. 11</p>	<p><b>Complied with.</b> No activities included in the list of prohibited investment activities is financed by the loan proceeds.</p>
<b>Gender and Development</b>		
<p>The Borrower, through MARD shall ensure that the GAP is fully implemented and that the gender mainstreaming activities are incorporated into the project design and undertaken during annual project implementation planning and project implementation with sufficient budget. Such activities shall include: (a) women's participation in the design consultation; (b) the inclusion of the representatives of the commune level women's union to the commune supervision board; (c) the employment opportunity of women to participate in subproject construction activities on the basis of equal pay with men for equal work; (d) the opportunities for women to participate in post-construction Subproject operation and maintenance activities on the basis of equal pay with men; (e) pro-poor activities specifically focused on women's needs; (f) equal opportunity for men and women to attend training courses and sessions of the capacity building component; (g) the appointment of CPMU and PPMUs' gender focal points and the inclusion of a social and gender specialist in the project implementation consulting team to support CPMU and PPMUs to address gender issues as and where necessary; (h) the proposed use of gender – disaggregated data in the benefit monitoring aspects of project monitoring and evaluation; and (i) reporting to ADB on the above activities implementation on regular basis.</p>	<p>Loan Agreement, Schedule 5, para. 12</p>	<p><b>Complied with.</b> Details are as follows:</p> <ul style="list-style-type: none"> <li>(a) Complied with;</li> <li>(b) Complied with;</li> <li>(c) Complied with;</li> <li>(d) Complied with (40.4% of women participated in post-construction subproject operation and maintenance activities, higher than target of 35%);</li> <li>(e) Complied with (civil work employment opportunities for women available and taken);</li> <li>(f) Complied with;</li> <li>(g) Complied with;</li> <li>(h) Complied with; and</li> <li>(i) Complied with.</li> </ul>
<b>Works Contract</b>		
<p>The Borrower, through the project provinces, shall ensure that (a) Works contractors comply with all applicable Viet Nam's labor laws and related international treaty obligations, and (b) the bidding document for Works contracts shall include provision to require the contractors to (i) provide equal pay for equal work (ii) provide the timely payment of wages; (iii) use local unskilled labor, as applicable; (iv) comply with core labor standards and the applicable Viet Nam's labor laws and regulations, including stipulations related to employment; and (v) not employ child labor or trafficked labor for any activities. The Borrower shall</p>	<p>Loan Agreement, Schedule 5, para. 13</p>	<p><b>Complied with.</b> Clauses applied and monitored by PPMUs with the support of works' Supervisors and CSBs.</p>

Covenant	Reference in Loan Agreement	Status of Compliance
cause each of the project provinces to ensure that its relevant records of labor employment (disaggregated by gender and ethnic minority groups) are properly maintained and tracked in the project performance monitoring system, and compliance is strictly monitored.		
<b>Community Awareness and Beneficiary Participation</b>		
The Borrower, through MARD, shall ensure that project province promote active community awareness and stakeholder participation in the design, implementation and performance monitoring of Subprojects, through (a) disseminating the nature of the proposed Works in open public forums, (b) establishing a mechanism for public consultation, and (c) financing the operations of the respective commune supervision board during project physical implementation activities.	Loan Agreement, Schedule 5, para. 14	<b>Complied with.</b>
<b>Disbursement to a Particular Project Province</b>		
The Borrower shall ensure that prior to any disbursement of the Loan proceeds to a particular project province, in such a project province, a PPMU has been established within each DARD, with key staff acceptable to ADB, appointed including safeguard officers who will be responsible for monitoring safeguard compliance during Subproject design and implementation, together with other administrative support staff.	Loan Agreement, Schedule 5, para. 15	<b>Complied with.</b> All PPMUs were established within each DARD, with key staff acceptable to ADB prior to any disbursement of the loan proceeds.
<b>Subproject Eligibility and Priority</b>		
The Borrower shall ensure that (a) only Candidate Subprojects are considered for financing under the project; (b) Candidate Subprojects in each project province are taken up in the order of priority as indicated in the PAM; (c) feasibility studies and detailed design for such Candidate Subprojects are carried out in accordance with the relevant provisions under PAM; and (d) only Candidate Subproject which meets feasibility criteria as provided in the PAM is financed as a Subproject under the project.	Loan Agreement, Schedule 5, para. 16	<b>Complied with.</b>
<b>Operation and Maintenance of Project Facilities</b>		
The Borrower shall ensure that before approval of the relevant Subproject investment reports, each project province executes with MARD a memorandum of understanding, acceptable to ADB, providing such project province shall (a) prepare a maintenance management plan that includes estimated of the physical works and associated costs required for routine and periodic maintenance, as well as provisions for emergency repairs for the whole life of the project facilities; (b) include the maintenance management plans in its annual budgets and provide adequate funds in a timely manner from provincial budgets to implement the maintenance management plan; and (c) establish mechanisms for the safe and proper use for each of the project facilities in accordance with national regulations and practices, including, but not limited to, posting signs on roads and bridges of maximum weight limits, and as necessary alerting users of hazards or	Loan Agreement, Schedule 5, para. 17	<b>Complied with.</b> All five project provinces have undersigned with MARD the mentioned MOU in December 2015 and are therefore committed to fully apply this clause 21 as stated in each individual SIR.

Covenant	Reference in Loan Agreement	Status of Compliance
establishing physical barriers that prohibit vehicles above a certain size to pass.		
The Borrower shall cause each project province to (a) allocate, from 2018 to 2034, an annual budget equal to the amount to be calculated based on the whole life asset analysis of the concerned project facilities for project – related operation and maintenance work; (v) ensure that its respective provincial irrigation and drainage company receives adequate budget allocations for the operation and maintenance work under its responsibility.	Loan Agreement, Schedule 5, para. 18	<b>Complied with.</b>
<b>Governance and Anticorruption</b>		
The Borrower shall comply and cause the project provinces to comply with ADB's Anticorruption Policy (1998, as amended to date) and the Combating Money Laundering and the Financing of Terrorism Policy (2003)/ The Borrower (a) acknowledges ADB's rights to investigate, directly or through its agents, any alleged corrupt, fraudulent, collusive or coercive practices relating to the project; (b) agrees to cooperate fully with, and to cause each of the project provinces to cooperate fully with, any such investigation and to extend all necessary assistance, including providing access to all relevant books and records, as may be necessary for the satisfactory completion of any such investigation; and (C) agrees to refrain, and cause each of the project provinces to refrain, from engaging in money laundering activities or financing of terrorism and shall allow, and cause each of the project provinces to allow, ADB to investigate any violation or potential violation of these undertakings.	Loan Agreement, Schedule 5, para. 19	<b>Complied with.</b>
The Borrower shall disclose, through MARD's Agriculture Projects Management Board's website, information concerning the project, including general project information, procurement, project progress, and contact details in the English and Vietnamese languages. The website shall also provide a link to ADB's Integrity Unit ( <a href="http://www.adb.org/Integrity/complaint.asp">http://www.adb.org/Integrity/complaint.asp</a> ) for reporting to ADB any grievances or allegations of corrupt practices arising out of the project and project activities. With regard to procurement, the website shall include information on the list of participating bidders, name of the winning bidder, basic details on bidding procedures adopted amount of contract awarded, and the list of Goods, Works and Consulting Services procured.	Loan Agreement, Schedule 5, para. 20	<b>Complied with.</b> The project website has provided a link to ADB's Integrity Unit ( <a href="http://www.adb.org/Integrity/complaint.asp">http://www.adb.org/Integrity/complaint.asp</a> ) for reporting to ADB any grievances or allegations of corrupt practices arising out of the project and project activities.

## **GENDER ACTION PLAN ACHIEVEMENTS**

### **A. Project Description**

1. The Productive Rural Infrastructure Development Project in the Central Highlands was financed by a loan from the Asian Development Bank (ADB), approved on 25 September 2013. The Loan Agreement was signed on 16 October 2013 and became effective 17 January 2014 with a closing date of 30 June 2020. The project aimed to regenerate and upgrade existing but underdeveloped or outdated productive rural infrastructure (PRI). It targeted areas with good agricultural productive potential and with existing irrigation schemes. The PRI investments include irrigation infrastructure and associated rural access infrastructure and intended to benefit 225,000 people (around 50% being women and girls) in the project areas. The project areas cover the Central Highland provinces (CHP) of Dak Lak, Dak Nong, Gia Lai, Kon Tum, and Lam Dong.

2. The project impact was to increase rural incomes and sustained livelihoods in the CHPs. The project outcome was to improve rural and agricultural productivity by improving access to, and use of, water, materials, knowledge, production inputs, and markets. The project has three main outputs: (i) improved PRI; (ii) enhanced capacity to develop, manage, and use PRI; and (iii) efficient project management.

3. The project gender classification was effective gender mainstreaming (EGM). A gender action plan (GAP) was developed during project design. The detailed GAP implementation and DMF gender targets and results are presented in Table A7.1 and Table A7.2. A review of achievements of the full GAP as modified after the midterm review is presented in this appendix.

### **B. Gender Analysis and Project Design Features**

#### **1. Gender Issues and Gender Action Plan Features**

4. The government has a strong policy framework and institutional setup to support gender equality and women's empowerment. Despite this, gender inequality still exists in rural areas, and in the CHPs in particular. Women have limited control over productive resources. In the majority of households, land-user right certificates bear only the name of the husband. Women also lack adequate access to skills development training such as agriculture extension programs. In most cases, men are selected to attend technical extension training (though in theory they share information with female members of the household). Women's role in decision making within the community is limited, as usually household representatives—primarily men—are invited to these meetings. Within households, decision making is more equitable—in over two-thirds of the households interviewed, decisions are made jointly by husband and wife, e.g., decisions on investment in assets. Although both men and women are involved in farming and work together in PRI maintenance, women are less active than men in the positions of irrigation technicians and community irrigators. This is mainly due to women's time constraints, or to the perception that the work is either too technical or too "heavy" for women to take on.

5. A GAP was developed to promote gender equality, women's participation and equitable benefit distribution. The GAP proposed the following key gender targets : (i) women account for 50% of design consultation meeting participants; (ii) at least 35% of participants of community construction supervision boards (CSBs) are women; (iii) at least 30% women in construction or rehabilitation for unskilled labor category; (iv) at least 40% female participation in training courses for PRI users; (v) 40% of facilitators of road and dam safety education campaigns are female; and (vi) all CPMU and provincial project management unit (PPMU) staff are provided gender training and roles and responsibility training on implementing the GAP. The GAP further includes awareness campaigns related to gender and PRI issues, and setup and maintenance

of a sex-disaggregated monitoring system to register progress in achieving project implementation targets.

### C. Overall Assessment of Gender-Related Results and Achievements

6. Implementation of the GAP is rated successful. The project had a total of 31 actions including 13 quantitative performance targets<sup>1</sup> in the GAP and the design and monitoring framework (DMF) at approval. At project completion, there were 18 actions and 12 targets<sup>2</sup> in GAP and DMF, of which 83.3% (15 out of 18) of the actions were implemented and 83.3% (10 out of 12) targets were achieved.

7. Key GAP targets include (i) women account for 50% of design consultation meeting participants; (ii) minimum 35% of community construction board members are women; (iii) local contractors will employ at least 30% women in construction or rehabilitation for unskilled labor; (iv) in areas where ethnic minorities make up majority of the population, 40% of employment for works is prioritized for ethnic minorities; (v) women to comprise 35% of PRI inventory training and 35% of those employed for irrigation O&M; (vi) 20% female participation in training courses on project management; (vii) at least 30% female participation from the Ministry of Agriculture and Rural Development (MARD), CHP counterparts, and IMCs for in-service training to upgrade formal qualifications; (viii) at least 40% female participation in training courses for PRI users (with special focus on water user groups and beneficiaries) to optimally use upgraded PRI; (ix) at least 50% participation of women in resource user group members; (x) at least 40% women participation in all agriculture extension and pro-poor services as part of ethnic minorities development plan; (xi) ensure 40% of facilitators of road and dam safety education campaigns are female; and (xii) central project management units (CPMU) and PPMUs will facilitate communities' access to at least four organizations active in the areas for rural social services.

8. The key GAP achievements include: (i) 3,188 women among 6,146 participants took part in the consultation meetings (51.7% against a target of 50%); (ii) 222 women among 507 were appointed as CSBs members (43.5% against a target 35%); (iii) 1,040 women among 2,583 local unskilled laborers were hired at civil works building sites (41.3% against a target of 30%); (iv) 648 ethnic minority unskilled laborers of 1,525 local unskilled laborers were hired by contractors in areas where ethnic minority populations exceeded 40% of the total (42.4% against a target of 40%); (v) 450 women participated in O&M inventory training of a total of 995 trainees (45.2% against a target of 35%), while 72 women of a total of 178 irrigation maintenance positions were engaged in 23 subprojects handed over to participating provinces (40.4% against a target of 35%); (vi) 193 women out of 918 CPMUs, PPMUs, and the Department of Agriculture and Rural Development staff participated in project management training (21% against a target of 20%); (vii) 1,207 women out of a total of 2,991 received training in the optimal use of upgraded PRI (40.2% against a target of 40%); (ix) 61 women from 150 affected households received training in cultivation and animal husbandry (40.5% against a target of 45%) while 219 women out of the 521 people from 521 affected households were recruited as unskilled laborers by contractors (42% against a target of 45%); and (x) 33 women among the 82 facilitators assisted in the delivery of road and dam safety education campaigns (40.2% against a target of 40%)..

<sup>1</sup> The project GAP originally comprised 18 activities and 12 targets. However, Target 7 was dropped after the midterm review. Actions 10, 13, and 14 were not implemented and target 9 was not achieved due to new government policies that prevented the use of official development assistance loan funds to finance capacity building activities (Project Review Mission Memorandum of Understanding, 11 – 21 June 2018).

<sup>2</sup> This includes eleven targets in GAP and one target related to gender in the DMF because one target was removed after the midterm review.

## D. Gender Equality Results

### 1. Participation, Access to Project Resources, and Practical Benefits

9. The project promoted effective participation and practical benefits of project resources for women. The practical benefits for women include:

- (i) 3,188 (51.7%) women among 6,146 participants participated in the consultation meetings including public disclosure, resettlement planning and environment;
- (ii) 1,040 (41.3%) women among 2,583 local unskilled labor were hired by the contractors at the civil work sites. This work helped women access income-generating opportunities;
- (iii) 2,047 (37.9%) women among 5,407 participants<sup>3</sup> received the training courses on establishment and implementation of the condition inventories and O&M plans, project management, participatory irrigation management (PIM), dam safety management, and community supervision, etc.;
- (iv) 3,601 (65.8%) women among 5,472 participants participated in 124 campaigns on HIV/AIDS prevention and 3,641 (62.5%) among 5,872 participants participated in road safety and dam safety campaigns.<sup>4</sup> This facilitated local people in the project area, especially women, to improve their knowledge of road and dam safety as well as HIV/AIDS prevention;
- (v) 61 (18.2%) women of 335 participants from CPMU, PPMUs, representative of CPCs, and contractors have improved their gender awareness through attending the gender training and GAP implementation orientation sessions; and
- (vi) In project areas where road and canals were completed, local people, especially women, benefit from improved road and irrigation systems. Beneficiaries reported improving their lives through reduced travel time to markets for selling produce, less time to collect water for rice and coffee, and reduced cost of water pumping and travel.

#### Box 1: Project Impact - Improved Income and Mobility for Women



Nguyen Thi Duyen, 40 years old, and Nguyen Thi Son, 41 years old, both live in village 2, Sa Son commune, Sa Thay district, Kon Tum. In Sa Son commune, with the project investment, two irrigation schemes covering 85 hectares (ha) of paddy and coffee farms and a 3.8 kilometer (km) rural road to production areas were upgraded in 2019. According to Ms. Duyen and Ms. Son, thanks to the investment, the people in the commune, especially women, have benefited greatly. Previously, the road was bad, it was so hard and difficult for women to reach the production area and they had to depend on their husbands' help to go there. After the road was upgraded, the women can travel on their own and transport fertilizers to the production area. Their travel time was significantly reduced by 45 minutes. According to Ms. Duyen, her family has 10 ha of rubber in which 1 ha of rubber is mature for harvesting. Thanks to the easier access to the production area, she could take better care of the rubber, which helped increase her latex yield. Before the project, her family's income from latex was about D3 million–D4 million per month per ha, (about \$130–\$170). Now, the income has increased to D5 million–D7 million per month per ha (about \$220–\$300). In addition, the improvement of the canal system has enabled her family to replace paddy cultivation with coffee plantations, bringing higher economic efficiency by saving money from D3 million–D4 million per year per ha for irrigation, and reducing time for watering. Both women shared that thanks to

<sup>3</sup> Total of Targets 5,6,8, and Action 11.

<sup>4</sup> The training courses on HIV/AIDS awareness raising, road safety and dam community safety awareness were conducted by LIC's consultants. Due to MARD's budget reduction in implementing training activities, there were no NGOs involved in these activities.

reduced travel times from road and irrigation improvements they have more time to take care of their children and participate in community activities. Increased income from rubber and coffee have boosted their confidence as they now have more control over income, savings, and investment for their children's education. Ms. Duyen and Ms. Son are among the 1,050 women in the communes that benefitted from the project.

## 2. Strategic Changes in Gender Relations

10. The project promoted strategic changes in gender relations and women's empowerment in many aspects:

- (i) The project has developed construction supervision capacity for CSB members, including for female members. It enhanced the participation of women in decision-making processes through the representatives of local women or the commune Women's Union who participated the CSBs. These women became confident supervisors during civil works and raised the concerns of women in the community;
- (ii) At the commune level, women acted as community facilitators of the communications campaigns on road and dam safety, HIV/AIDS prevention. This had created a sense of confidence to those women involved in public decision making of the community;
- (iii) The project promoted women's participation in training courses on dam safety and participatory irrigation management (PIM). This helped to ensure that women played an important role in decision making on the canal layouts, and in the placement of other on-farm structures to minimize negative impacts while improving knowledge in the management of hydraulic systems for farming work. This helped to build women's confidence in dealing with issues regarding on-farm irrigation systems at the later stage.

### Box 2: Project Impact - Women's Empowerment



**Ms. Doan Thi Nham, 62 years old, Village 3, Tan Lap commune, Kon Tum**

Doan Thi Nham participated in a project training on community construction supervision and helped supervise the subproject "Repairing and upgrading Dak Snghé irrigation scheme and rural infrastructure of Tan Lap Commune." Thanks to the training, all construction and supervision board (CSB) members understood the simple technical requirements for monitoring. During construction of civil works, she and other CSB members participated in monitoring to ensure design standards were met. They also monitored the contractor's implementation of social and environmental safety measures. In addition to participating in the CSB, Ms. Nham was also a project facilitator in HIV/AIDS prevention dissemination for the local people. Ms. Nham feels that opportunities to be involved in such project activities have boosted her confidence to participate in other social activities and in raising voice in other community decision making process. Ms. Nham was one among 224 female CSB member (of 57 CSBs) that were trained and are able to carry out construction supervision tasks actively and effectively.



**Box 3: Project impact - Improving Women's Roles****Ms. Tran Thi Hang Nga, 33 years old, operation and maintenance worker of Lak district irrigation branch under IMC Dak Lak.**

Tran Thi Hang Nga has been working for 10 years in the Lak District Irrigation branch. Her team was tasked to manage 10-kilometers (km) of canals and 5 dams including project irrigation canals and dams in two communes (Buon Tria and Buon Triet) in Lak District, Dak Lak. The project upgraded an irrigation scheme covering 502 hectares of paddy and coffee and 8 km of rural roads in the communes.

Before the subproject investment, the operation and maintenance of the canal was difficult and unsafe because of slippery roads, especially in the rainy season. Ms. Nga is very happy that the project upgraded the canals, making the maintenance of the canals easier and safer. The project helped train workers on dam safety management and enabled women to become irrigation workers. Thanks to the training, Ms. Nga feels confident in managing dam operations, and address basic technical issues. She feels now very comfortable to attend and discuss technical issues in the monthly water regulation planning and canal maintenance meetings.

**3. Contribution of Gender Equality Results to Outcome and Effectiveness**

11. **Relevance.** The project, in general, adequately addressed gender issues in project design through the inclusion of gender targets in DMF outputs. The DMF included eight gender related output indicators (seven of them overlapped with GAP targets). In addition, the GAP (consisting of 30 actions, including 12 actions with quantitative targets) generally aligned with the DMF and includes relevant gender actions and targets.

12. **Effectiveness.** These gender equality results contributed to achieving project outputs. GAP implementation has helped to improve women's economic empowerment through construction jobs, and boosted women's confidence in PRI-related decision making through consultation during design, construction supervision during civil work, and post-construction O&M. Specific contributions of gender mainstreaming to achieve the DMF outputs are as follows:

- (i) **Output 1: Productive rural infrastructure improved.** The main activities of this output are to improve irrigation infrastructure, and construction of rural roads to support the mobility and transport needs of the population in and around the irrigation schemes. The GAP measures under this output included creating jobs during civil works that benefit local people, including women and ethnic minorities. Achievement of the GAP targets under this output included the hiring of 1,040 (41.3%) women among 2,583 local unskilled labor for the civil work building sites. In areas where ethnic minorities constitute majority of the population, 648 (42.5%) ethnic minority unskilled labor out of 1,525 local unskilled labor were hired by the contractors. These economically empowered women by increasing their income.
- (ii) **Output 2: Enhanced capacity to develop, manage, and use productive rural infrastructure.** The main activities of this output were to enhance capacity for the staff of MARD and irrigation management companies (IMC), and PRI users to develop manage, and use PRI effectively. The GAP actions under this output were to ensure women's equal participation in the training and workshops. Results included: (i) 193 (21%) women among 918 participants from CPMU, Departments of Agriculture and Rural Development and PPMUs participated in the training on project implementation management; (ii) 72 (40.4%) women among 178 IMC staff participated in the training on condition inventories and

- O&M plans; (iii) 30 (11.4%) women among 263 staff of MARD, CHP counterparts, and IMCs had been trained the development and management of PRI; (iv) 1,207 (40.4%) women among 2,991 PRI users participated in the training on PIM, dam safety management, etc. to best use the upgraded PRI; (v) HIV/AIDS, and road and dam safety awareness campaigns carried out in all subproject areas with the participation of 7,242 (64.1%) women among 11,299 participants; and
- (iii) **Output 3: Efficient project management.** The main activities under this output were to strengthen the planning, implementation, and management capacities of the implementing agencies. The achievement of GAP actions under this output included 335 staff including 61 women (18.2%) from CPMU, PPMUs, commune people's committees and women's unions and the contractors improved their gender awareness to implement the GAP and monitor and report on its implementation.

## **E. Lessons Learned and Recommendations**

### **1. Crucial Factors that Contribute to Success of GAP Implementation**

13. The CPMU developed and maintained a comprehensive sex-disaggregated monitoring and evaluation (M&E) database for all project activities and coordinated with stakeholders and participating PPMUs to update data and report to ADB on GAP implementation progress. These helped the CPMU to monitor and improve GAP implementation more effectively.

14. The project introduced the GAP implementation requirement in the early stage (within 1-year of project implementation)<sup>5</sup> to the PPMUs and stakeholders (local authorities and contractors) to emphasize the importance of GAP implementation. This was one of the key factors contributing to the success of the GAP implementation.

15. The active collaboration of the commune women's union was a crucial factor for GAP implementation success. The union actively planned and implemented communication campaigns to raise awareness on HIV/AIDS prevention, and road and dam safety for their members and local people in the project areas. This facilitated the project GAP's targets achievement.

## **F. Constraints Faced by the Project During GAP Implementation**

16. Some targets were overambitious, such as (i) Target 6: at least 35% of the women involved in project management training. The PMU positions required staff with technical backgrounds and few female candidates came forward; (ii) Target 7: at least 30% women in MARD, implementing partners in CHPs and IMCs participate in on-the-job training courses, but none requested in-service training to upgrade formal qualifications.

17. The consulting package of the special studies, pilots, and demonstrations for the improved PRI and irrigation scheme management was cancelled by MARD in accordance with government policy (introduced after project approval) that prevented the use of official development assistance resources to finance capacity building. Therefore, several actions and targets could not be implemented accordingly. These include agricultural extension training for farmers (Actions 10) or PRI research projects and pilots (Actions 13 and 14, and Target 9).

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<sup>5</sup> Memorandum of understanding for the review mission in November 2015: Loan implementation consultant conducted training on GAP.

## G. Sustainability

18. The following elements of gender equality promoted under this project will likely be sustainable beyond the project life:

- (i) 33 trained community female facilitators and women's union staff who have developed facilitation capacity will be capable of leading and facilitating other road safety and HIV/AIDS prevention campaigns funded by the government;
- (ii) 224 female members among 507 CSB members who were trained on public works community supervision will be capable of playing a role of CSB members for other government and public-funded projects; and
- (iii) 2,991 PRI users (including 1,207 women) who were trained on PIM and dam safety management participated actively in irrigation and drainage services management during the project and will continue doing so.

## H. Recommendations

19. **Improvement of the gender action plan design at midterm review.** While most of GAP actions and targets were set realistically, the development context evolved during project implementation. To ensure that all GAP targets are realistic in the new context, the project team and CPMU/PPMUs reviewed the GAP closely during the MTR and appropriately revised some targets. GAPs should be reviewed and updated to reflect changing circumstances without undermining project objectives to promote gender equality and women empowerment.

20. **Adequate resource allocation.** Because of the new government regulations that restricted the use of official development assistance for capacity building s (introduced in 2018), project teams should coordinate with executing and implementing agencies to ensure that the GAP activities are financed with adequate counterpart resources or other sources to ensure effective implementation.

Table A7.1: GENDER ACTION PLAN MONITORING TABLE

Date of update: 5/2/2021

Project Outputs	Proposed Targets and/or Actions	Progress to Date	Issues/Challenge and Recommendations
<b>Output 1: Productive rural infrastructure improved</b>	<b>Target 1:</b> Women account for 50% of design consultation meeting participants.	<b>Achieved:</b> Public consultations in the early stages and the detail design of the subproject informed the people about the objectives, scope, content, design, level of impact and the safeguard policy of the project. <sup>1</sup> A total of 188 consultation meetings were conducted in five project provinces with 3,188 women among 6,146 participants (51.9%) .	
	<b>Action 1:</b> Consultation with women to include only women groups, if requested in collaboration with local women's unions.	<b>Completed:</b> Loan implementation consultants (LICs) and Provincial Project Management Units (PPMUs) collaborated to hold meetings with only women's groups to discuss (i) measures to promote women's participation in construction and supervision boards (CSBs), unskilled labor in construction projects; (ii) international experience with increasing the participation of women in the project; 55 consultation meetings with only women groups were conducted in five provinces with 1,498 female participants. <sup>2</sup>	
	<b>Action 2:</b> Meetings to be held at times and in locations convenient for women.	<b>Completed:</b> Meetings were usually held at 7:00–8:00 PM in community house of village or in village head house, thus many women could participate. <sup>3</sup>	
	<b>Action 3:</b> Meetings to be held in languages understood by ethnic minority communities.	<b>Completed:</b> The main language used in the meetings was Vietnamese which most villagers, including women can understand. In some villages where people know little Vietnamese, the PPMU used ethnic minority officers of Commune People's Committee, local village heads, or commune	

<sup>1</sup> Source: Interview Mr. Nguyen Van Tạc and Mrs Ho Thi Dung, Quang Thanh village, Dao Nghia Commune, Dak Rlap District, Dak Nong; Mrs. Do Thi Lan, village 3, Dak Rve town, Kon Ray District, KonTum; Nguyen Khac Dung, Phu Can Commune, Krongpa District, Gia Lai; Mr. Gion and Mr Duong, Tiem village, Dak Doa town, Dak Doa district. Ms. Zen, villager/road user, Dak Doa town, Dak Doa District, Gia Lai.

<sup>2</sup> Confirmed by Mr. Le Thanh Loc, leader of Village 2, Buon Tria Commune; Mrs. Truong Thị Thuy in Tan Giang village, Buon Tria Commune; Ms. Le Thi Ly, chairwomen of the Sa Son Women's Union, Sa Thay District, Kon Tum; and Ms. Hoang Thi Quyen, chairwoman of Dak Sin Commune People's Committee.

<sup>3</sup> Source: Interview Mrs. An Thi Nhan (Dak Rve town, subproject Kon Ray District); Mr. Son (Boi village, Glar Commune - Dak Doa subproject); Mrs. Nguyen Thị Kim Hien (village No.4, Ea Le Commune, subproject Ea Soup, Dak Lak).

		staff to interpret project information, so the ethnic minorities understood and contributed ideas. <sup>4</sup>	
	<b>Target 2:</b> Minimum 35% of community construction boards are women.	<b>Achieved:</b> Fifty-seven project of communes set up CSBs, 224 women out of 507 members in the CSBs (44.2%). The CSB members of subprojects have participated in the training courses on community supervision and monitored the simple technical, environment and social issues.	
	<b>Target 3:</b> Local contractors will employ at least 30% women in construction/ rehabilitation for unskilled labor category. Mobilization of female workers will be done through local women unions at various levels. <b>Design and Monitoring Framework (DMF):</b> Workdays of employment in civil works: (a) 30% are dedicated for women under equal pay and conditions as men	<b>Achieved:</b> A total of 1,040 local unskilled female workers out of 2,583 local unskilled labor were hired by contractors (40.3%). <sup>5</sup> Female workers worked as cooks, cleaners, and masons assistants.	
	<b>Target 4:</b> In areas where ethnic minorities constitute majority of the population, 40% are prioritized for the ethnic minority. <b>DMF:</b> (b) in areas where ethnic minorities constitute majority of the population, 40% are prioritized to ethnic minority women and men.	<b>Achieved:</b> In 14 subprojects <sup>6</sup> where ethnic minority people constitute the majority of the population, 648 EM unskilled laborers out of 1,525 local unskilled laborers were hired by the contractors (42.5%).	
	<b>Action 4:</b> Equal pay for men and women for work of equal type.	<b>Completed:</b>	

<sup>4</sup> Source: Interview Mrs Hoang Thi Nhuc, village 4, subproject Ea Kao; Mr. Le Duy Ninh, local worker in My Duc Commune, subproject Da Teh; Mrs. Y Xun Nie, local worker in Nam Da, subproject Krong No; Mr. A Gio – Head of Biom village, Dak Doa town – Dak Doa subproject.

<sup>5</sup> Source: Interview with female workers: Mrs. Nguyen Le Quyen, in Nam Dong construction site (DN 02); Ms. Le Thi Trang, (KT01) and Construction supervision consultant (KT01); Contractors (KT01, KT02), Nguyen Huy Thanh – Contractor (DL01); The name of 15 subprojects with female local unskilled labor are: Kon Tum =KT 01, KT 02 ; Gia Lai= GL 02; Dak Lak= DL 01, DL 02 and DL 03; Dak Nong= DN 01, DN 02, DN 03 and DN 04 and Lam Dong=LD 01; LD 02, LD 03 and LD 04.

<sup>6</sup> The rate of ethnic minority unskilled labor in subprojects are Kon Tum- KT 01; Gia Lai-GL 01; GL 2 and GL 03; Dak Lak- DL 01; DL 02 and DL 03; Dak Nong- DN 01, DN 02 and DN 03 and Lam Dong- LD 1 and LD 02.

		Contractors paid men and women equally for work of equal type. Female workers confirmed to be paid equally for equal work. <sup>7</sup>	
	<b>Action 5:</b> All construction/civil works will adhere to gender-specific labor codes, and separate or segregated makeshift toilets will be provided for men and women workers; also separate quarters for men and women workers.	<b>Completed:</b> Workers were provided with protective clothing, helmets, and boots. Latrines and separate makeshift toilets were provided for men and women workers. Medical kits available in workers' rented houses or camps include basic medicine. <sup>8</sup>	
	<b>Action 6:</b> Child labor will not be employed in any civil works.	<b>Completed:</b> Child labor was not used in any of the construction sites. <sup>9</sup>	
	<b>Action 7:</b> Rural road and irrigation upgrading designs to consider features such as signage, road shoulders for nonmotorized transport, (bicycles, animal carts, pedestrian sidewalks, etc.,) as well as linking paths to transport hubs, markets, and services.	<b>Achieved:</b> PPMU and LIC have reviewed the designs of the subprojects and all have gender-sensitive features in (reflecting women's opinion in design, such as location of the possible vehicle u-turning spots, material waste dumping areas, etc.). <sup>10</sup>	
<b>Output 2: Gender-sensitive capacity to develop, manage, and use productive rural infrastructure</b>	<b>Target 5:</b> Ensure irrigation scheme condition inventories are established, with 35% target for women's participation in PRI management committee/ employment in O&M. <b>DMF:</b> For all subprojects implemented, condition inventories and operation and management plans established with training for implementation of the plans (35% female participation in management).	<b>Achieved:</b> Irrigation scheme condition inventories and operation and maintenance (O&M) plans established, and training conducted for implementation of the plans. A total of 23 training courses on establishment and implementation of the condition inventories and O&M plans were organized for 995 participants, including 450 women (45.2%). A total of 178 members including 72 women (40.4%) participated in O&M at 23 irrigation works in five project provinces.	
	<b>Target 6:</b> At least 35% female participation in training courses.  <b>Adjusted:</b> 20% female participants participate in the training courses on project	<b>Achieved:</b> 20 training courses on project management were organized for 918 participants including 193 women (21%) from CPMU, Departments of Agriculture and Rural Development (DARDs) and PPMUs, and other stakeholders.	

<sup>7</sup> Source: Interview Mrs. Dam Thi Hanh, 8B village, Dateh town; Mrs. Vu Thi Thoan, cooking labor of My Duc construction site; Ms. Le Thi Trang (KT 03-XL 05), a female worker (cook) reported to be paid D3,500,000/month and Mr. Truong Vu- Technical staff (KT03-XL05), Ms. Nguyen Thi Phung, Nguyen Thi Dung (DL03-Dak Lak): D220,000/day.

<sup>8</sup> Subprojects: Lam Dong 01; Gia Lai 01, Dak Lak 03.

<sup>9</sup> Source: Interview Ms. Tran Thi Hue and Mr. Pham Van Dinh in village 20, Ea Rok Commune, Ea Soup District, Dak Lak; Mr. Siu Ro Ma Herry – construction supervisor (Tan Son subproject – GL01) and Mr. Dao Tan Ti – contractor of Thuan Nguyen Company (GL01).

<sup>10</sup> Subprojects: Lam Dong 01 (Da Teh construction site); Gia Lai 02 (Dak Doa District), Kon Tum 02 (Dak S Nghe Irrigation System); Dak Nong 03 (Dao Nghia construction site).

management. (Midterm review mission [MTR]). <b>DMF</b> (adjusted in MTR): At least 20 training courses completed on project management (at least 20% female participation).			
<b>Target 7:</b> At least 30% female participation from MARD, CHP counterparts, and IMCs for in-service training to upgrade formal qualifications. <b>DMF:</b> 80 staff of MARD, CHP counterparts, and IMCs provided opportunities for in-service training to upgrade formal qualifications (minimum 30% women).		<b>Not implemented.</b> This target was dropped following the MTR Mission.	No staff of MARD, CHP counterparts and IMCs requested support for in-service training to upgrade formal qualifications.
<b>Target 8:</b> At <sup>11</sup> least 40% female participation in training courses for PRI users, with special focus on water user groups, and beneficiaries to optimally use the upgraded PRI. <b>DMF:</b> 59 training courses for 2,950 PRI users, with special focus on water user groups, and beneficiaries to optimally use the upgraded PRI (minimum 40% female participation).		<b>Achieved:</b> 65 training courses on PIM, dam safety management were organized for 1,207 (40.4%) women out of 2,991 PRI users to optimally use the upgraded PRI.	
<b>Action 8:</b> All community/ beneficiary level training will response to female as well as male farmers' needs (designed based on needs identification with women and men, to be held at times and in locations convenient for women, to be conducted in languages understood by ethnic minority communities and with participation targets clearly informed to both groups).		<b>Completed:</b> LICs and CPMU conducted training needs assessments. Both men and women applied skills learned in training courses such as: use of fertilizer and pesticide; household finance management. Women attended courses on childcare and food safety. Their suggestion to organize the training in the commune boosted women's participation.	
<b>Action 9:</b> Ensure all poor female-headed household (FHHs) in a community are included as beneficiaries of the project		<b>Completed:</b> A total of 67 poor FHHs among 310 vulnerable households by the subprojects participated in all the activities of the project, including the meetings, training and received a special support by the project (D2 million per household)	

<sup>11</sup> ADB MTR MOU dated 22 May – 1 June 2017.

	<b>Target 9:</b> At least 50% participation of women on resource user groups.	<b>Not achieved.</b>	The consulting package for this activity was cancelled by MARD as water user groups are not appropriate in the Central Highland region, where IMC or CPCs are responsible for on-field irrigation management. <sup>12</sup>
	<b>Target 10.</b> At least 40% women participation in all agriculture extension and pro-poor services as part of EMDP.	<b>Achieved:</b> To support ethnic minority households affected by project in their livelihood restoration, during the project implementation, PPMUs have supported ethnic minority households to access jobs as unskilled labor for construction of civil works and participate in training courses on cultivation and animal husbandry funded by government. <sup>13</sup> The following results. <sup>14</sup> (i) 521 people from 521 affected households were recruited as unskilled labor by contractors including 219 (42%) women. (ii) 150 affected household members including 61 women (40.5%) have been trained in cultivation and animal husbandry.	
	<b>Action 10:</b> Agricultural extension training will address specific training needs identified by women farmers on enhancing productivity, diversification of produce (including crops which require less water supply to increase crop returns for women farmers on marginal land), and new income generating activities.	<b>Not completed:</b>	This activity was cancelled by MARD <sup>15</sup> following new government policy that disallowed the use the official development assistance (ODA) loans to finance capacity building activities.
	<b>Action 11:</b> HIV/AIDS awareness-raising campaigns will be delivered to construction workers and community people, especially women and women of ethnic minority groups	<b>Completed:</b> A total of 124 campaigns on HIV/AIDS prevention and road safety were conducted for workers and community people <sup>16</sup> in all subprojects, with 3,601 (65.8%) women among 5,472 participants including 2,489 ethnic minorities (1,469 women)..	

<sup>12</sup> Aide Memoire (AM) of the review mission (11-21 June 2018) and AM for the review mission (6-20 Dec. 2019).

<sup>13</sup> National program for sustainable poverty reduction in ethnic minority community and mountainous areas (according to Decision No. 1722/QĐ-TTg dated September 2, 2016 of the Prime Minister) and specific policies to support socio-economic development in ethnic minority community and mountainous areas in the period 2017 - 2020 (according to Decision No. 2085/ QĐ-TTg dated October 31, 2016 of the Prime Minister).

<sup>14</sup> Part C. Assessment on Issues of Ethnic Minority Households (page 32)- Land Acquisition and Resettlement Completion Report, Dec. 2020 prepared by MARD.

<sup>15</sup> This issue was mentioned in Aide Memoire of the review mission (11-21 June 2018).

<sup>16</sup> Interview Ms. Doan Thi Nham, Tan Lap commune (Dak S Nghe subproject – KT02), Mr. Nguyen Huy Thanh – Contractor – DL01 (Ha Tinh company), Mr. Pham Van Phu –member of CSB, Tu Tra Commune, Don Duong district, Lam Dong.



	<p>in ethnic minority areas prior to the start of civil works.  <b>DMF:</b> HIV/AIDS, and road and dam safety awareness campaigns carried out in all subproject areas.</p>																		
	<p><b>Action 12:</b> Post-construction road and dam safety education will be delivered to subproject sites. Road and dam safety campaign materials will be gender sensitive and in languages understandable to ethnic minority communities.</p>	<p><b>Completed:</b>  Post-construction road and dam safety education were delivered to subproject sites involving 3,641 (62.5%) women among 5,827 participants. .</p> <table border="1"> <thead> <tr> <th>Campaigns</th><th>Total</th><th>Women</th><th>% Women</th></tr> </thead> <tbody> <tr> <td>Road safety</td><td>5,472</td><td>3,601</td><td>65.8</td></tr> <tr> <td>Dam safety</td><td>355</td><td>40</td><td>11.3</td></tr> <tr> <td><b>Total</b></td><td><b>5,827</b></td><td><b>3,641</b></td><td><b>62.5</b></td></tr> </tbody> </table> <p>Road safety material used common and gender-sensitive languages (Kinh language).<sup>17</sup> In the villages where people know little Vietnamese, PPMU used ethnic minority officers of Commune People's Committee, local village heads, or commune staff to interpret into ethnic languages.</p>	Campaigns	Total	Women	% Women	Road safety	5,472	3,601	65.8	Dam safety	355	40	11.3	<b>Total</b>	<b>5,827</b>	<b>3,641</b>	<b>62.5</b>	
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Dam safety	355	40	11.3																
<b>Total</b>	<b>5,827</b>	<b>3,641</b>	<b>62.5</b>																
	<p><b>Target 11:</b> Ensure 40% of facilitators of road and dam safety education campaigns are female.</p>	<p><b>Achieved:</b>  A total of 33 women out of 82 facilitators (40.2%) were trained as trainers and became facilitators of road and dam safety education campaigns.</p>																	
	<p><b>Action 13:</b> All PRI research projects will include analysis of gender dimensions, and women participation will be prioritized in PRI research projects (to be measured as share of female participation).</p>	<p><b>Not completed.</b></p>	<p>The consulting package for this activity was cancelled by MARD<sup>18</sup> following new government policy that disallowed the use the ODA loans to finance capacity building activities.</p>																
	<p><b>Action 14:</b> Any public private partnership approaches piloted in providing and managing rural infrastructure will explore and address gender dimensions.</p>	<p><b>Not completed.</b></p>	<p>The consulting package for this was cancelled by MARD in accordance to the new government new policy that disallowed the use of ODA loans for capacity building</p>																

<sup>17</sup> Source: 2016, PRICHP 3032. Communication materials on Road safety awareness. "Women and their family members shall have to propagate, educate and remind other members to abide by the land-road traffic law" (p7); Where there is no road mark for pedestrians, the driver must observe, if the pedestrians, pregnant women, children, wheelchairs of people with disabilities are crossing the road, the speed must be reduced. (P8)

<sup>18</sup> This issue was mentioned in Aide Memoire of the review mission (11-21 June 2018).

			activities. Therefore, no PPP pilot was implemented.
<b>Output 3: Gender sensitive project management</b>	<b>Target 12:</b> CPMU and PPMUs will facilitate communities' access to at least four organizations active in the areas for rural social services.	<b>Not achieved.</b>	Same as above, consultancy package was cancelled.
	<b>Action 15:</b> PPMU GAP will be prepared and introduced to each subproject stakeholder for implementation of targets based on project overall GAP framework.	<b>Completed.</b> PPMUs introduced GAP implementation and monitoring to each subproject stakeholder. A total of 335 participants including 61 women (18.2%) from the CPMU, PPMUs and stakeholder groups (commune women's unions, local authorities, contractors, etc.) participated in this training.	
	1. <b>Action 16:</b> Ensure that all CPMU and PPMU staff are provided gender training and roles and responsibility training on implementing the GAP.	<b>Completed:</b> All 91 CPMU and PPMU staff including 26.2% women participated in gender training and GAP implementation, in which 35 staff participated in two training courses on gender training.	
	2. <b>Action 17:</b> Annual GAP review, planning, and budgeting workshops will be conducted for CPMU and PPMU key concerned staff.	<b>Completed:</b> GAP implementation status was reviewed quarterly and bi-annually and planning for follow up are included upon mission's recommendations.	
	3. <b>Action 18:</b> Ensure that gender indicators are integrated in the project M&E framework: CPMU and PPMUs will develop and maintain sex-disaggregated and ethnicity-disaggregated M&E system for data collection and reporting on project targets (GAP and DMF) to ADB regularly.	<b>Completed:</b> Gender targets were integrated in the project monitoring and evaluation framework. CPMU and PPMUs collected and reported sex-disaggregated and ethnicity-disaggregated data (CSBs members, local workers, participants in the meetings, training, and campaigns on awareness raising HIV/AIDS prevention and road safety, etc.) on GAP and DMF targets to ADB regularly.	

Source: Asian Development Bank.

**Table A7.2: Indicator Related to Gender in Design and Monitoring Framework Not Included in the Gender Action Plan**

Outputs	Target Related to Gender in the Design and Monitoring Framework	Results
<b>Output 2</b> Enhanced capacity to develop, manage, and use productive rural infrastructure.	Target 13: Seventy-five staff of the Ministry of Agriculture and Rural Development (MARD), Central Highland provinces (CHP) counterparts, and irrigation management companies (IMCs) trained in the development and management of productive rural infrastructure (PRI) (minimum 30% women). <i><b>Revised at midterm review:</b></i> “263 staff of MARD, CHP counterparts, and IMCs trained in the development and management of PRI (11.4% women).”	<b>Achieved</b> Thirty (11.4%) women among 263 staff of MARD, CHP counterparts, and IMCs had been trained in five training courses on the development and management of PRI.

Source: Asian Development Bank.

## ECONOMIC ANALYSIS

### A. Introduction

1. The Productive Rural Infrastructure Sector Project in the Central Highlands aimed to regenerate and upgrade underdeveloped or outdated productive rural infrastructure (PRI), targeting areas with good potential for agricultural production with existing irrigation schemes. PRI investments included irrigation and associated access rural infrastructure. The project was implemented using a sector modality design in Viet Nam's Central Highland provinces (CHPs) of Dak Lak, Dak Nong, Gia Lai, Kon Tum and Lam Dong over 6 years through the implementation of 23 subprojects. The project impact contributed to increased rural incomes and sustained livelihoods in the CHPs. The outcome was improved rural and agricultural productivity. Three project outputs included (i) improved PRI, with activities carried out by implementing subprojects; (ii) enhanced capacity to develop, manage and use PRI, with activities in all subprojects; and (iii) efficient project management by successfully meeting implementation and reporting timelines. Subprojects covered 40 irrigation schemes and associated low volume rural roads. The economic analysis of the combined project investments is intended to assess their likely contribution to the economy of Viet Nam as an indication of project efficiency.

### B. Methodology

2. Two main sources of benefits analyzed were (i) improved productivity and expanded production areas of cropping made possible from rehabilitated and expanded irrigation facilities, and (ii) reduced transport costs from upgraded low volume rural roads associated with irrigation facilities. Five crops were included in the analysis (i) winter-spring rice, (ii) summer-autumn rice, maize, cabbage; and coffee, pepper and fruit trees. Unit 1 ha models for these crops were prepared (in economic terms) and applied to the changing land-use patterns under the 'with' and 'without' project scenarios. Table A8.1 presents the changed cropping areas before and after implementation.

**Table A8.1: Incremental Cropped Area**  
(hectares)

	<b>Crops</b>	<b>WOP</b>	<b>WP</b>	<b>+/-</b>
1	Rice (Winter-Spring)	6,353.5	9,595.0	3,241.5
2	Rice (Summer-Autumn)	7,508.0	9,899.0	2,391.0
3	Vegetables	82.0	747.0	665.0
4	Maize	970.0	1,618.4	648.4
5	Coffee, Pepper and Fruit Trees	4,892.8	6,776.0	1,883.2
	<b>Total</b>	<b>14,913.5</b>	<b>21,859.4</b>	<b>6,945.9</b>

WOP = without project, WP = with project.

Source: Asian Development Bank.

3. Cropping benefits under the "with" and "without" scenarios were compared to provide an estimate of incremental benefit from the project. Under the "without" project scenario, the effective irrigated area is reduced by 2% of the 2025 area per annum to reflect the declining condition of irrigation infrastructure—a direct consequence of inadequate maintenance allocations.

4. Benefits from rural road rehabilitation and upgrading were estimated from (i) the reduced operating costs of vehicles using the upgraded surface along the alignments, and (ii) the changing pattern of vehicular use resulting from the upgraded road – bicycle traffic was partially replaced by motor bikes for example. "With" and "without" traffic patterns were obtained from the respective

subproject investment proposals, the reduction in vehicle operating costs (VOC) were obtained from the “Roads Economic Decision Model for the Economic Evaluation of Low Volume Rural Roads,”<sup>1</sup> and changing modes of vehicular transport were based on observed trends for larger vehicles using the alignments and a reduction of bicycle use. Additional benefits from improved access (health and education, input supplies and markets) were not incorporated in the analysis.

5. To assess the net contribution to the economy, financial values were converted into their economic equivalents. Economic values excluded transfers from one part of society to another (i.e., taxes, subsidies, and payments for resettlement compensation) and attempt to facilitate the comparison of project benefits and real opportunity costs to the economy of Viet Nam by translating all prices onto a common, undistorted, footing.<sup>2</sup> Basic assumptions used in the economic analysis include:

- (i) The use of a border price numeraire.
- (ii) In the case of major tradable commodities economic values are based on border parity prices.
- (iii) For non-traded goods and services, a standard conversion factor (SCF) of 0.9 is used.
- (iv) Transfer payments such as taxes and subsidies are excluded in the calculation of economic values.
- (v) To calculate the economic net present value (ENVP) of the subproject a discount rate of nine percent was used representing the opportunity cost of capital invested.
- (vi) Values are expressed in constant 2020 prices to exclude inflation. Financial prices used in this analysis were identified through field visits conducted by the PCR team. These prices have been cross-checked with prices identified in other projects and secondary sources.
- (vii) The Vietnamese Dong is the unit of account. The exchange rate used is D23,260 per US dollar, the average exchange rate for 2020.

### **C. Subproject Benefits**

6. Benefits analyzed from the irrigation investments in subprojects include:

- (i) Enhanced crop yields due to increased and more reliable water during the dry season. Yield increases are expected to occur due to the crops’ response to more reliable water supplies as well as to farmers’ willingness to increase inputs (such as fertilizers) when they have confidence in the water supply. Incremental yields adopted were extracted from project monitoring data collected by the Central Project Management Unit (CPMU).
- (ii) Conversion of land growing lower valued crops (such as rain-fed rice) and fallow to the cultivation of higher valued crops (HVC - such as coffee). Areas for each of these before and after the project have been obtained from the CPMU records.
- (iii) Benefits from changing land-use patterns and incremental crop yields were phased based on the completion of the subprojects with expanded cropping areas introduced the year immediately following subproject completion.

<sup>1</sup> World Bank. 2015. *Roads Economic Decision Model for the Economic Evaluation of Low Volume Rural Roads*. Washington, D.C. The analysis assumes reduction in the international rural road roughness index of mountainous topography from CZ20 (earth road with bad condition) to CX3 (concreted/asphalt road with good condition).

<sup>2</sup> All values were converted to constant 2020 Viet Nam Dong in the analysis.

**Table A8.2: Summary of Project Cropping Benefits**

		2015	2016	2017	2018	2019	2020	2021	2025	2030	2035
<b>Incremental Benefit from Cropping</b>											
Rice (Winter-Spring)	D million	0	0	0	12,783	32,697	60,445	64,584	52,022	37,464	39,697
Rice (Summer-Autumn)	D million	0	0	0	8,101	14,230	32,532	35,416	26,734	15,479	15,969
Maize (cash crops)	D million	0	0	0	6,749	8,000	6,358	6,620	7,586	8,689	8,689
Vegetables	D million	0	0	0	0	62,091	62,091	62,091	62,091	62,091	62,091
Coffee, Pepper and Fruit Trees	D million	0	0	0	18,181	-99,102	-143,566	-195,453	163,954	277,949	366,362
<b>Net Benefit from Cropping</b>	<b>D million</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>45,814</b>	<b>17,916</b>	<b>17,860</b>	<b>-26,742</b>	<b>312,387</b>	<b>401,673</b>	<b>492,808</b>

Source: Asian Development Bank

7. The net value has been estimated by comparison of the “with” vs “without” project’s incremental crop production for each year throughout the expected life of the subproject (to 2035 in this analysis). At project commencement, there was a period when pre-project productivity would have continued while detailed designs, approvals, and bidding documentation preparation were undertaken. This has been taken into account in the analysis by analyzing incremental productivity on existing areas as well as increased production from new plantings.<sup>3</sup> Incremental benefits in Table A8.2 reflect the economic price fluctuations as predicted by the World Bank in their commodity outlook series.<sup>4</sup> The declining value of incremental rice production in Table A8.2 reflects its declining international price. The negative value of incremental coffee production in 2021 reflects the 3-year establishment phase for coffee and the relatively high cost of establishing coffee plantations. The estimated 2030 and 2035 net value of coffee production show significant increases in the value of production, again assessed at World Bank international price projections.

8. Benefits analyzed from the low volume rural road investments in subprojects include:

- (i) Savings in VOCs with the improved alignment surface conditions, and
- (ii) The benefit from changing the transport mode from lower capacity vehicles with lighter axle load limits to heavier vehicle capacities and the associated reduction in transport costs.

9. VOC savings were based on the traffic counts for the alignments for individual subprojects and aggregated for the overall project. Initial traffic counts were recorded in the subproject investment reports (SIRs) in the year in which the subproject was completed until the full 254.4 kilometers (km) had been achieved. Traffic counts were then assumed to increase at a rate of 5% per annum immediately following rehabilitation then increasing at a rate of an assumed 3% per annum of 2020 traffic volumes linearly thereafter, reflecting the anticipated economic growth rate of the rural gross domestic product in these locations.<sup>5</sup> Unit VOC costs were obtained from estimates that reflected road surface conditions (footnote 1), the terrain of the alignment and the type of vehicle that was assumed to apply to all locations prior to rehabilitation. VOC costs for upgraded alignments were adopted from the same source but reflected improved surface conditions—again applied uniformly for all project locations. As road users are unlikely to utilize the full length of the upgraded alignment each time it was used, the length of utilization was assumed: (i) for sedan cars – 30%, (ii) buses – 50%, (iii) light trucks – 50%, (iv) medium trucks – 50%, (v)

<sup>3</sup> As works can only be undertaken in the dry season, minor yield reduction may have eventuated during construction although wet season would most likely remain unchanged from the without project scenario. The impact from works in the dry season is considered negligible and not taken into account in the analysis.

<sup>4</sup> World Bank <http://pubdocs.worldbank.org/en/854731609876300889/CMO-Pink-Sheet-January-2021.pdf>.

<sup>5</sup> Based on interviews with roadside residents during PCR field investigations.

motor bikes – 20%, and bicycles – 10% of the rehabilitated distance at each use. The savings in VOC was estimated by taking the difference “with” and “without” project VOC rates for each type of vehicle and applying the forecast traffic counts for 260 days each year then adjusting for the percentage of the alignment travelled to give the incremental net benefit from the low volume rural road rehabilitation. Projected traffic counts and VOC net incremental benefits are summarized in Table A8.3 below.

**Table A8.3. Summary of Vehicle Operating Cost Incremental Net Benefits**

Year	2016	2017	2018	2019	2020	2021	2025	2030	2035
Daily Traffic Count/Projections (vehicles per day)									
Sedan	26	40	54	55	72	74	84	94	104
Bus	5	4	20	20	20	20	24	29	34
Light truck	82	59	257	264	283	291	335	380	425
Medium truck	25	8	118	121	124	127	146	166	186
Motor bike	1,288	1,392	3,861	3,976	4,325	4,454	4,679	4,794	4,909
Bicycle	536	579	1,536	1,582	1,652	1,701	1,752	1,752	1,752
Cumul. roads rehabilitated (km)	62.80	129.10	243.62	243.62	254.52	254.52	254.52	254.52	254.52
Difference WP and WOP VOCs (VND/km)									
Sedan	468.1	1,497.7	3,815.3	3,886.0	5,314.7	5,462.4	6,200.5	6,938.7	7,676.8
Bus	149.9	226.1	2,133.5	2,133.5	2,229.0	2,229.0	2,674.8	3,232.0	3,789.2
Light truck	2,543.6	3,780.7	31,077.3	31,923.8	35,752.4	36,763.1	42,321.8	48,006.8	53,691.8
Medium truck	963.9	645.7	17,973.4	18,430.3	19,732.3	20,209.7	23,233.2	26,415.9	29,598.5
Motor bike	3,577.1	7,949.4	41,608.4	42,847.7	48,694.1	50,146.5	52,679.7	53,974.5	55,269.2
Bicycle	746.5	1,657.2	8,296.1	8,544.5	9,321.8	9,598.3	9,886.1	9,886.1	9,886.1
Incremental VOC savings									
(D million)	8,449.0	15,756.8	104,904.0	107,765.8	121,044.4	124,409.0	136,996.1	148,453.9	159,911.7

cumul. = cumulative, km = kilometer, VOC = vehicle operating cost, WP = with project, WOP = without project.

Source: Initial traffic counts extracted from subproject investment reports and projections based on field observations during project completion report mission. Key variables included the changing traffic composition using the roads, the increased use immediately after rehabilitation and then future growth rates linked to agricultural gross domestic product growth rates extrapolated lineally.

Source: Asian Development Bank

## D. Subproject Costs

10. The total financial cost of the 23 subprojects was D1,449.5 billion (\$62.3 million). For the 19,737.3 hectares (ha) of command area and the 254.4 km of low-volume rural road rehabilitated in the 23 subprojects, the average cost is \$2,066/ha and \$91,200/km respectively. In economic terms the total cost of subprojects is D1,304.5 billion.

11. Costs include the preparation of subproject feasibility studies, detailed engineering design, construction supervision, construction of works and operation and maintenance (O&M) during the construction period. The cost for connecting beneficiary farmers to the two subprojects with piped water distribution systems was included in the subproject cost as this differs from standard practice where farmers pay the connection to irrigation water. O&M is estimated at 2% of capital investment included in summarized subproject costs. Every eighth year, it is assumed there will be a major maintenance effort estimated at 30% of the construction cost (periodic maintenance). Actual subprojects costs were analyzed in the year in which the costs were incurred with all values being converted to economic terms using the SCF. As subprojects comprised both irrigation and drainage works and in most cases, the upgrading of associated rural roads, subproject cost estimates include both items. Benefits were similarly estimated in aggregate.

## E. Economic Analysis Results

12. A brief synopsis of the overall project analysis is presented here. A summary table (Table A8.4) of selected results appears following the text of this analysis.

**Table A8.4: Summary Economic Analysis**

(D million)

Year	Project Costs			Total	Project Benefit		Total	Incremental Net Benefit
	DED and CS	Works	O&M		Cropping	VOCs		
2014	2,089.1	0.0		2,089.1	0.0	0.0	0.0	-2,089.1
2015	9,010.6	0.0		9,010.6	0.0	0.0	0.0	-9,010.6
2016	19,346.5	103,645.4		122,991.8	0.0	8,449.0	8,449.0	-114,542.8
2017	0.0	534,603.1		534,603.1	0.0	15,756.8	15,756.8	-518,846.3
2018	15,630.7	335,663.5		351,294.2	45,814.3	104,904.0	150,718.3	-200,575.9
2019	5,505.9	207,159.2		212,665.0	17,915.7	107,765.8	125,681.6	-86,983.5
2020	12,344.2	34,157.1		46,501.3	17,860.3	121,044.4	138,904.6	92,403.3
2021			24,304.6	24,304.6	-26,741.7	124,409.0	97,667.3	73,362.7
2022			24,304.6	24,304.6	149,256.6	127,829.8	277,086.4	252,781.8
2023			24,304.6	24,304.6	198,580.4	130,121.4	328,701.8	304,397.3
2024			24,304.6	24,304.6	278,698.3	132,413.0	411,111.2	386,806.7
2025			24,304.6	24,304.6	312,387.0	134,704.5	447,091.5	422,786.9
2026			364,568.5	364,568.5	438,480.5	136,996.1	575,476.6	210,908.2
2027			24,304.6	24,304.6	413,949.2	139,287.6	553,236.8	528,932.3
2028			24,304.6	24,304.6	415,776.9	141,579.2	557,356.1	533,051.6
2029			24,304.6	24,304.6	444,411.2	143,870.8	588,282.0	563,977.4
2030			24,304.6	24,304.6	401,672.5	146,162.3	547,834.9	523,530.3
2031			24,304.6	24,304.6	377,656.3	148,453.9	526,110.2	501,805.6
2032			24,304.6	24,304.6	366,729.2	150,745.5	517,474.6	493,170.0
2033			24,304.6	24,304.6	350,066.3	153,037.0	503,103.3	478,798.7
2034			364,568.5	364,568.5	576,854.7	155,328.6	732,183.3	367,614.8
2035			24,304.6	24,304.6	492,807.6	157,620.1	650,427.8	626,123.2
<b>Benefit/Cost Ratio</b>			<b>NPV Benefits</b>	<b>2,200,808</b>			<b>EIRR</b>	<b>20.7%</b>
<b>1.93</b>			<b>NPV Costs</b>	<b>1,137,617</b>			<b>ENPV (at 9%)</b>	<b>1,063,191</b>

CS = construction supervision, DED = detailed engineering designs, EIRR = economic internal rate of return, ENPV = economic net present value, NPV = net present value, O&M = operation and maintenance, VOC = vehicle operating cost. Source: Asian Development Bank

13. With the delays experienced at commencement, the early costs related to preparation of phase 1 subproject bidding documents and phase 2 subproject documentation. Certainly, the fact that three representative subprojects could proceed to bidding was a significant advantage to the overall outcome as it permitted the early realization of benefit streams—including the valuable VOC savings that was the main contributor in the early years—without which, the EIRR would have been further reduced. Crop benefits were immediate in the case of annual crops—rice, vegetables, and cash crops but only occurred the year after completion of the works. As coffee was the main impacted or expanded crop (a perennial crop), its establishment phase further delayed the realization of benefits. For this reason, the net cash flow remained low until 2020 when coffee production came into effect. Nevertheless, the benefits generated a positive benefit: cost ratio of 1.93 and similarly a strong EIRR estimated at 20.7%. This suggests the project was of significant value to the Vietnamese economy and returned a higher return from the investment compared to the opportunity cost of capital. As there were other benefits not included in the assessment (e.g., access to markets, public services etc.) the project was rated efficient in the use of the borrowed funds.



14. Sensitivity tests were carried out to price fluctuations for the main crops evaluated and to the traffic volumes and VOC savings—but not to costs as these are given. The EIRR proved robust to reductions in cropping benefits of both 10% and 20% reducing the EIRR estimate to 19.9% and 18.5% respectively. Similarly, the investment was robust to reductions in benefits from reduced VOCs with a 10% reduction in VOC benefits reducing the EIRR to 19.8% and a 20% reduction to 19.0%. Table A8.5 over presents the results of the sensitivity assessment.

**Table A8.5: Sensitivity to Benefit Fluctuations Analysis**

Sensitivity Tests		EIRR	NPV	B/C ratio
	<b>Base Case</b>	20.7%	1,063,191	1.93
	Crop benefits decline by 10%	19.9%	997,596	1.89
	Crop benefits decline by 20%	18.5%	804,708	1.72
	VOC benefits reduced by 10%	19.8%	993,510	1.88
	VOC benefits reduced by 20%	19.0%	915,171	1.82
	Both benefits reduced by 20%	16.6%	639,859	1.57

B/C = base case, EIRR = economic internal rate of return, NPV = net present value, VOC = vehicle operating cost.  
Source: Asian Development Bank