

Validation Report
July 2020

Socialist Republic of Viet Nam: Renewable Energy Development and Network Expansion and Rehabilitation for Remote Communes Sector Project

Reference Number: PVR-672
Project Number: 42182-013
Loan Number: 2517
Grant Number: 0384



Raising development impact through evaluation

ABBREVIATIONS

ADB	–	Asian Development Bank
CSP	–	country strategy and program
EIRR	–	economic internal rate of return
EMDP	–	ethnic minority development plan
EVN	–	Vietnam Electricity
MHP	–	mini-hydropower plant
MOIT	–	Ministry of Industry and Trade
MW	–	megawatt (1,000 kilowatts)
PCR	–	project completion report
PMU	–	project management unit
TA	–	technical assistance

NOTE

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

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PROJECT BASIC DATA

Project number	42182-013	PCR circulation date	8 Aug 2019	
Loan/Grant numbers	2517 and 0384	PCR validation date	Jul 2020	
Program name	Renewable Energy Development and Network Expansion and Rehabilitation for Remote Communes Sector Project			
Sector and subsector	Energy	Electricity transmission and distribution Renewable energy generation - small hydro		
Strategic agenda	Environmentally sustainable growth Inclusive economic growth			
Safeguard categories ^a	Environment		B	
	Involuntary resettlement		B	
	Indigenous peoples		B	
Country	Socialist Republic of Viet Nam		Approved (\$ million)	Actual (\$ million)
ADB financing (\$ million)	ADF: 151.00	Total project costs	201.02	197.17
	OCR: 0.00	Loan/Grant L2517	151.00	139.56
		Borrower	47.02	55.78
		Beneficiaries	0.00	0.00
		Others	0.00	0.00
Cofinancier	Clean Energy Fund	Total cofinancing G0384	3.00	1.83
Approval date L2517 G0384	30 Mar 2009 9 Apr 2014	Effectiveness date L2517 G0384	16 Dec 2009 2 Mar 2016	21 Dec 2009 29 Apr 2016
Signing date L2517 G0384	17 Sep 2009 30 Nov 2015	Closing date L2517 G0384	30 Jun 2016 31 Dec 2017	22 Feb 2019 24 May 2018
Project Officers	E. Baardsen P. Hattle R. Kausar A. Wanniachchi A. Tuan	Location ADB headquarters ADB headquarters ADB headquarters ADB headquarters Viet Nam Resident Mission	From Dec 2009 Jun 2011 Nov 2011 Mar 2012 Aug 2013	To Jun 2011 Nov 2011 Mar 2012 Jul 2013 Feb 2019
IED review Director Team leader	N. Subramaniam, IESP S. Ibrahim, Principal Evaluation Specialist, IESP ^b			

ADB = Asian Development Bank, ADF = Asian Development Fund, IED = Independent Evaluation Department, IESP = Sector and Project Division, OCR = ordinary capital resources, PCR = project completion report.

^a The project was initially categorized as A for indigenous peoples and recategorized as B during implementation.

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I. PROJECT DESCRIPTION

A. Rationale

1. During project preparation stage, access to electricity in Viet Nam increased rapidly from 51% of households in 1996 to more than 91% in 2008. In 2007, more than 97% of the country's communes were connected to the national grid. However, about 278 communes in mountain

areas and island districts were unconnected, and some, though electrified, received power only through the commune center. Also, the low-voltage system, previously under provincial and district governments, was poorly constructed and unreliable in some rural areas, with inferior service quality and high distribution losses.¹ Thus, to expedite the electrification of these remote areas, where poor and vulnerable ethnic minorities lived, the Government of Viet Nam tapped Vietnam Electricity (EVN) to develop low-voltage networks.²

2. The Renewable Energy Development and Network Expansion and Rehabilitation for Remote Communes Sector Project aimed to provide affordable electricity to communities living in mountainous and remote poor communes. The grid-connected mini-hydropower projects in the four provinces,³ with the least access to electricity in the country, were to use locally available hydro resources to supply electricity to these communes and provide excess electricity to the national grid. The cash surplus from sales to the national grid was to be utilized to indirectly subsidize network expansion into remote areas. The project was also geared to support the expansion of medium- and low-voltage networks in communes to villages without electricity through concessionary financing, as the financial returns to utility of rural electrification were deemed not attractive.

B. Expected Impact, Outcome, and Outputs

3. The project's envisaged impact, as stated in the design and monitoring framework, was the promotion of pro-poor and balanced economic development of remote mountainous and poor communes through the sustainable use of electricity and renewable energy in an affordable manner. Its expected outcome was the provision of reliable and affordable supply of electricity to remote, mountainous, and poor communes.

4. The project originally had two target outputs: first, 5 to 10 mini-hydropower plants (MHPs) installed to provide electricity to mountainous communes; and second, 1,000 villages with electricity through grid expansion. The third output was added as a result of the additional financing (para. 6) to connect poor and vulnerable families in the project areas to the expanded electricity grid. The design and monitoring framework was updated after the Asian Development Bank's (ADB) approval of additional financing in 2014 to reflect the output indicators pertaining to the grant financing.⁴

C. Provision of Inputs

5. ADB's Board of Directors approved the loan in March 2009. It became effective in December 2009 and financially closed in February 2019, with about 1.6 years of delay and one extension. The project completion report (PCR) attributed the delay to poor performance of the consulting firm engaged under the technical assistance (TA) and rebidding of some power plant equipment and major civil works packages. There were also unexpected unstable geotechnical conditions found during construction of some MHPs.

¹ ADB. 2019. *Completion Report: Renewable Energy Development and Network Expansion and Rehabilitation for Remote Communes Sector Project in the Socialist Republic of Viet Nam*. Manila.

² ADB. 2009. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the Socialist Republic of Viet Nam for the Renewable Energy Development and Network Expansion and Rehabilitation for Remote Communes Sector Project*. Manila.

³ These provinces were Dien Bien and Lau Chau in the North and Soc Trang and Tra Vinh in the South.

⁴ ADB. 2019. *Completion Report: Renewable Energy Development and Network Expansion and Rehabilitation for Remote Communes Sector Project in the Socialist Republic of Viet Nam*, Appendix 1. Manila.

6. The project's total appraisal cost was \$197.6 million, of which about 76% was to be financed by ADB, with counterpart financing from power companies covering the balance. These counterpart funds were to finance resettlement costs and project management expenses. Additional financing of \$3.4 million was provided during project implementation, including a \$3.0 million grant from Clean Energy Fund under the Clean Energy Financing Partnership Facility. The PCR indicated that an additional \$0.4 million counterpart funds subsidized the service connections to poor households. Thus, the estimated project cost was around \$201.0 million. At completion, the total actual project cost was around \$197.2 million, slightly lower than the estimated project cost. ADB funded 71% of total cost, the Clean Energy Fund financed about 1%, and the power companies contributed about 28%. ADB canceled around \$8.9 million of the loan amount and around \$1.2 million (about 40%) of the grant amount.

7. Both the report and recommendation of the President and the PCR did not indicate the planned and actual number of consulting services under the project. However, the PCR discussed that the project recruited a consulting firm in 2010 to provide 110 person-months of services. However, ADB agreed with the power companies' recommendation to cancel the contract in December 2012 in view of the firm's poor performance during pre-construction. Thereafter, the project engaged several international and national individual consultants to help implement the project, including monitoring implementation of social and environmental safeguards plans.

8. The project was classified category B for environment, in line with ADB's Environment Policy (2002) and Environment Assessment Guideline (2003). The PCR indicated that at appraisal, the power companies prepared the environment assessment and review framework. These companies also prepared rapid environment assessment for each subproject during implementation.

9. The project was classified category B for involuntary resettlement and category A for indigenous peoples during project preparation stage. However, the project was reclassified as category B for indigenous peoples during implementation since the adverse impacts of the subprojects on ethnic minority people were found to be limited to minor land and crop losses. For resettlement, the power companies developed resettlement plans or resettlement and ethnic minority development plan (EMDP) for each of the subprojects.⁵

10. Moreover, the project was classified as effective gender mainstreaming at appraisal. The PCR indicated that the gender strategy was mainstreamed through EMDPs prepared for subprojects under output 2, targeting 224 communes. It also indicated that at completion, around 12,672 households or 100% of women-headed households in the targeted communes gained access to the national grid, including free service connections.

11. Likewise, ADB approved an advisory TA associated with the loan to support the drafting of the renewable energy law and decrees, guide the implementation of the law, and provide capacity building in mini hydropower development. The TA also aimed to promote productive and efficient energy use and income-generating activities for people receiving electricity under the project.⁶ The PCR indicated that TA activities helped enhance the capacity of the power

⁵ The project acquired 1.8 million square meters of land for output 1, affecting 647 households, including 10 severely affected households and 120 households belonging to vulnerable groups, resulting in D40.7 billion in compensation and assistance. It affected 55,842 households under output 2, none severely. Output 2 acquired 0.4 million square meters of land and paid D125.9 billion in compensation and assistance.

⁶ ADB. 2019. *Completion Report: Renewable Energy Development and Network Expansion and Rehabilitation for Remote Communes Sector Project in the Socialist Republic of Viet Nam*, Appendix 12. Manila.

companies and project management units (PMUs), thus resulted in successful mini hydropower development under the project.

D. Implementation Arrangements

12. The Ministry of Industry and Trade (MOIT) and EVN had general implementation responsibility. MOIT was to approve communes to be included under output 2. EVN was to approve the feasibility study and technical design of output 1 and two subprojects. The power companies were the executing agencies, while their power network's PMUs and provincial subsidiaries were the implementing agencies. The implementation arrangement involved local committees of project provinces that participated in subproject selection and implementation. The PCR indicated that implementation arrangements were adequate since it generated strong ownership and there were no major changes in the institutional set-up. This validation notes that the institutional arrangements were suitable to carry out the project's activities.

13. Of the 21 loan covenants, 20 were fully complied and the covenant on tariff adjustment was partially complied. All 15 grant covenants were fully complied. However, for the 15 particular project covenants, the PCR indicated that these were complied except on the covenant requiring the power companies to submit audited project financial statements. These power companies did not submit audited project financial statements for fiscal years 2009–2011. This was rectified beginning 2012 and up to project completion. ADB-approved independent auditors checked the project accounts.

II. EVALUATION OF PERFORMANCE AND RATINGS

A. Relevance of Design and Formulation

14. The PCR rated the project relevant since it was aligned with the government's Sixth Power Development Plan for 2006–2015.⁷ It was also aligned with ADB's Energy Policy and country strategy and program (CSP), 2007–2010 for Viet Nam.⁸ The PCR also indicated that the project remained consistent with Viet Nam's Seventh Power Development Plan for 2011–2020 with vision to 2030 and, ADB's energy sector assessment, strategy, and road map for Viet Nam.⁹ Likewise, the PCR noted that the use of the sector modality, with the flexibility to select and prepare priority subprojects, helped to target remote and poor communities across a wide geographical area.

15. This validation notes that the project scope remained unchanged during project implementation. The project design was appropriate, especially that electrification of remote areas combined with the development of relatively bigger MHPs enhanced synergy. Likewise, the choice of modality was suitable since it allowed better flexibility in selecting subprojects in the widely dispersed targeted area. The project was aligned with the government's 5-year national development plan that aimed to improve the quality and expansion of electricity in rural, remote, and mountainous areas.¹⁰ According to CSP, energy sector had the largest share of ADB lending.

⁷ Government of Viet Nam. 2007. Approving the Planning on National Electricity Development in the 2006–2015 Period, with a Vision to 2025 Taken into Consideration. *Prime Minister Decision* No.110/2007/QĐ-TTg. Ha Noi.

⁸ ADB. 2009. *Energy Policy of the Asian Development Bank*. Manila.

⁹ ADB. 2015. *Viet Nam: Energy Sector Assessment, Strategy, and Road Map*. Manila; Government of Viet Nam. 2011. Approval of the National Master Plan for Power Development for the 2011–2020 Period with the Vision to 2030. *Prime Minister Decision* No. 1208/QĐ-TTg. Ha Noi; and Government of Viet Nam. 2016. Approval of the Revised National Power Development Master Plan for the 2011–2020 Period with the Vision to 2030 (PDP VII Revised). *Prime Minister Decision* No. 428/QĐ-TTg. Ha Noi.

¹⁰ Ministry of Planning and Investment, Viet Nam. 2006. *The Five-Year Socio-Economic Plan 2006–2010*. Ha Noi.

It envisaged developing new and renewable energy sources particularly in remote and mountain areas.¹¹ Based on the above discussion, this validation assesses the project relevant.

B. Effectiveness in Achieving Project Outcome and Outputs

16. The PCR rated the project effective since it substantially achieved its intended outcomes, with four of the five indicators surpassing their performance targets. The outcome target to generate annually 100 gigawatt-hour of energy and abatement of 125,000 tons of annual greenhouse gas emissions by 2016 was deemed substantially achieved.

17. Two of the project's three original output indicators were achieved. The output target to install mini hydropower capacity of 30 megawatts (MW) was substantially achieved. The PCR indicated that 25 MW (about 83% of target) of mini hydropower was installed and the additional 7.5 MW was to be completed in December 2019, adding a total of 32.5 MW. The performance targets from the additional financing that provided electricity to minimum 48,333 poor households and reduced more than 60,000 tons of carbon dioxide emission annually were achieved. This validation notes that most outcome and output targets were achieved. Thus, this validation assesses the project effective.

C. Efficiency of Resource Use

18. The PCR rated the project efficient. It indicated that the economic internal rates of return (EIRRs) recalculated for each MHP ranged from 9.35% to 23.72% for the five subprojects. It also indicated that, although not all EIRRs exceeded the target rate of 12%, the EIRRs were in aggregate reasonable, especially in the context of providing renewable electricity generation in remote mountainous areas and connecting relatively poor and low density households to the grid.

19. This validation notes that the methodology used in reestimating the EIRRs was unclear. For instance, the extent to which shadow pricing was undertaken in converting financial to economic prices could not be determined. The PCR indicated that the foreign exchange content of project costs was relatively low and applying such a factor would have no material effect. This implied that all investment costs were domestically sourced or had little traded or tradable component. This validation also notes that three out of the five subprojects had EIRRs higher than the 12% social discount rate. Despite the lack of information on the economic scale and magnitude of operation of these subprojects, and the difficulties of quantifying some benefits, it is difficult to ascertain the project's economic viability as a whole. This validation considers that the project is process efficient since it incurred a delay of only 1.6 years. Likewise, the loan was substantially disbursed. On the whole, this validation assesses the project efficient.

D. Preliminary Assessment of Sustainability

20. The PCR rated the project likely sustainable. It indicated that the reevaluated financial internal rates of return remained above the 5.1% weighted average costs of capital, except that of the Nam Pay MHP's 4.0%. This lower financial internal rate of return was attributed to various factors. The construction period, now extended beyond the loan closing date, required a higher proportion of project costs funded from counterpart equity funds and a higher cost of counterpart equity funds compared to ADB loan financing. The construction delays caused a comparatively high revised capital cost compared to total gigawatt-hours generated. Also, interest rates were higher. The PCR indicated that the executing agency staff has substantial experience in operating

¹¹ ADB. 2007. *Viet Nam: Country Strategy and Program, 2007–2010*, paras. 63 and 119. Manila.

and maintaining lines, hydropower plants, and other project assets assuring institutional sustainability.

21. The PCR indicated that the EVN was in breach of the debt–service coverage ratio during 2009–2015 and of its self-financing ratio and debt–equity ratio in some years. Tariff that did not cover the full cost of providing power was one of the reasons for these breaches. It appears that timely tariff adjustments are required to ensure EVN's commercial sustainability. Despite this, budgetary resources may have to be allocated to cover the operation and maintenance costs of the five MHPs. Based on these, this validation assesses the project less than likely sustainable.

III. OTHER PERFORMANCE ASSESSMENTS

A. Preliminary Assessment of Development Impact

22. The PCR rated the project's development impact satisfactory, with its significant positive economic, poverty, and social impacts and achievements. It indicated that the impact target of reducing poverty rates by over 20% in the districts to be provided with electricity under the project was achieved in 2017, 3 years earlier than what was scheduled.

23. This validation notes that with the commissioning dates for the MHPs between January 2016 and June 2019, coupled with the TA for output 3 being in effect from August 2015 to December 2017, the subsequent impacts on poverty reduction could not be immediate. There could have been other factors that contributed to reduce poverty rates in the project area. On the whole, this validation assesses the project's development impact satisfactory based on the improved social well-being of households through the provision of more reliable grid-supplied electricity in their areas.

B. Performance of the Borrower and Executing Agencies

24. The PCR rated the performance of the borrower satisfactory in view of the complexity of the project, the firm commitment of the central and provincial government, and MOIT's efforts to monitor and guide the project. The PCR rightfully highlighted the early stages of project implementation, with some PMUs deficient in procurement, safeguard compliance, and allocation of counterpart funds. Only later in the project did they ramp up the resources required to improve project performance and meet ADB governance requirements. This would have required senior officials' strong communication networks and effort to acknowledge and also evaluate on the ground conditions to improve the project performance and implementation. Thus, this validation assesses the performance of the borrower and executing agency satisfactory.

C. Performance of the Asian Development Bank and Cofinanciers

25. The PCR rated the performance of ADB satisfactory, detailing the coordination effort with the central and local governments, EVN, executing agencies, and the PMUs to effectively monitor implementation of 31 subprojects. The PCR also indicated that ADB responded to the borrower's request, supported the power companies and PMUs, and guided them to comply with ADB requirements. This validation notes that ADB conducted timely loan review missions to ensure smooth project implementation. It assesses ADB's performance satisfactory.

IV. OVERALL ASSESSMENT, LESSONS, AND RECOMMENDATIONS

A. Overall Assessment and Ratings

26. The PCR rated the project successful. It assessed the project relevant, effective, efficient, and likely sustainable. This validation assesses the project successful, but it assesses the project less than likely sustainable due to insufficient tariff adjustment and reliance on the government's budgetary support.

Table: Overall Ratings

Validation Criteria	PCR	IED Review	Reason for Disagreement and/or Comments
Relevance	Relevant	Relevant	
Effectiveness	Effective	Effective	
Efficiency	Efficient	Efficient	
Sustainability	Likely Sustainable	Less than likely sustainable	Tariff rates are not enough to cover operation and maintenance costs and the need to rely on government's budgetary support.
Overall Assessment	Successful	Successful	
Preliminary assessment of impact	Satisfactory	Satisfactory	
Borrower and executing agency	Satisfactory	Satisfactory	
Performance of ADB	Satisfactory	Satisfactory	
Quality of PCR		Satisfactory	Para. 32.

ADB = Asian Development Bank, IED = Independent Evaluation Department, PCR = project completion report.
Source: ADB (IED).

B. Lessons

27. The PCR indicated several project-level lessons. First, a sector loan modality with a phased approach was appropriate for large number of subprojects. It helped to formulate subprojects, deal with changes, and use funds efficiently leading to successful project outcomes and outputs. Second, the project developed strong economic and financial viability, with surplus MHP power production being sold to the national grid while the government's commitment across the project activity draw success and ongoing ownership. Third, land compensation disputes, initial TA consultants' and other contractors' poor performance, and procurement complications led to more delays. All could have been avoided with better safeguards and procurement planning. Fourth, executing agencies submitted their calculations for the missing financial ratios from 2009 to 2012 that failed to address the covenant risks or compliance requirements. These have been evaluated and included in the PCR. Lastly, lack of gender mainstreaming capacities resulted in the executing agencies initially not giving due attention to implementing the gender strategy and EMDP. This could have been avoided if capacity building was provided during project preparation.

28. This validation offers additional lessons.

- (i) **Country-level lesson.** In designing a project, a more realistic assessment of the expected roles and responsibilities of the executing agencies and PMUs could have been undertaken to establish capacities of the entities.

- (ii) **Project-level lesson.** Devoting sufficient attention to the gender action plan and EMDP during project implementation through resource support and provision of expertise could result in substantial results on the performance of the project.

C. Recommendations for Follow-Up

29. The Nam Pay MHP was commissioned in June 2019 and to be operational in 2020. Thus, to ensure that the subproject is operating as intended, a site visit should be conducted along with a performance evaluation. This would provide a good opportunity to also meet with the executing agencies and PMU staff to evaluate if capacity building achievements of the project were sustained.

30. A baseline capacity assessment of executing agencies and PMUs could have been internally established to help prepare them in meeting ADB requirements of progress reporting, financial statements delivery, and safeguard frameworks implementation. With guidance from ADB, undertaking adequate resource assessments to better prepare counterparts to meet ADB requirements are recommended.

V. OTHER CONSIDERATIONS AND FOLLOW-UP

A. Monitoring and Reporting

31. The project clearly required more attention toward monitoring and reporting across various components, which the PCR did not identify or discuss in detail. An improvement in monitoring and reporting might not have changed certain project results but would have aided in better understanding the issues in a timely manner.

B. Comments on Project Completion Report Quality

32. The quality of the PCR is satisfactory. The report was well written, clear, and concise. It provided an appropriate overview of the project along with insights leading to the delivery of project results. The lessons were drawn from the findings and the recommendations were sound. However, the PCR could have expounded more on the economic analysis methodology.

C. Data Sources for Validation

33. The sources of information used for this validation were the PCR, the report and recommendation of the President, the loan and project agreements, the amended project agreement, back-to-office reports and aide-mémoires, the project safeguard assessment, and ADB's CSP, 2007–2010 for Viet Nam as well as its Socio-Economic Development Plan 2007–2010.

D. Recommendation for Independent Evaluation Department Follow-Up

34. This validation does not recommend additional Independent Evaluation Department follow up in relation to this project.