

Republic of Peru

FY2021 Ex-Post Evaluation Report of  
Japanese ODA Loan  
“Energy Renovation Infrastructure Assistance Program”

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## **0. Summary**

This program is Financial Intermediary Loan that Corporación Financiera de Desarrollo S.A. (hereinafter referred as “COFIDE”) provides the necessary funds through Intermediary Finance Institutions (hereinafter referred as “IFIs”) for sub-projects which contribute to the promotion of energy efficiency for end-users, mainly private companies. In Peru, where stable power supply in the future is a key issue, efforts to improve energy efficiency, introduce renewable energy and conduct climate change countermeasures were positioned as important policies both at the time of ex-ante and ex-post evaluations, and it is consistent with Japanese aid policy and international aid trends. So, the relevance and coherence of this program are high. Although both the program cost and period were within the plan, the number of sub-loans provided was only seven, and the distorted financing was done to a specific end-user in the renewable energy component. In addition, there is no sub-loan in the energy saving component allocated 30% of total sub-loan fund. Therefore, efficiency of the program does not correspond to the plan. The reduction of greenhouse gas (hereinafter referred as “GHG”) emissions, which was set as operational and effect indicators, was estimated that it was almost as planned, but this is the result of power generation capacity of the renewable energy sub-projects greatly exceeding the assumption made at the time of planning. Since no effect for the energy saving component was observed and the impact was limited, the effectiveness and impacts of the program are moderately low. COFIDE has a policy to continue to focus on strengthening and promoting green finance in the future, and although there is a room for improvement in the scheme for supporting energy saving sub-projects, there are basically no problem with COFIDE’s capability as a financial institution. However, the facts that the Revolving Fund (hereinafter referred as “RF”) has not been established and the secondary lending has not realized make it difficult to judge the sustainability of the effects of this program, so the sustainability is moderately low. In light of the above, this program is evaluated to be partially satisfactory.

## 1. Project Description



Project Location(s)



Wind Power Station Sub-project  
(Source: Photographed by the author)

### 1.1 Background

Due to rapid economic growth in Peru, in 2019 it was necessary to double the power generation and supply capacity compared to 2010. To increase the power generation capacity, it was an issue how to promote and maintain an energy policy that further expanded the use of renewable energy sources with low GHG emissions. Regarding energy demand by sectors, the demand in production and transportation sectors had an increasing trend. However, in the production sector, since many old-fashioned facilities were in operation, the energy efficiency became poor. So, there was an urgent need to promote the effective use of energy through energy saving by the replacement and improvement of those facilities. Also, in the transportation sector, the government of Peru has worked to diffuse the use of low-emission vehicles by promoting the fuel conversion to natural gas vehicles and tightening exhaust control for diesel vehicles. But, the spread to public buses and tracks has not progressed. Since the production and transportation sectors consume a large amount of energy and GHG emissions also increase as a result, it was required to reduce the energy consumption of those sectors as a measure to reduce GHG. In addition, since the government of Peru ratified United Nations Framework Convention on Climate Change in 1992, it has been working on climate change countermeasures comprehensively by formulating the “National Environmental Policy” in 2005 and the “Action Plan for Adaptation and Mitigation against Climate Change” in 2010.

Under this background, the government of Peru requested the government of Japan for a Financial Intermediary Loan to promote infrastructure for energy efficiency, and this program was implemented.

### 1.2 Project Outline

The objective of this program is to promote various environmental measures of end-users by

providing them (primarily private companies) with medium- and long-term financing from COFIDE through IFIs to implement sub-projects which help promote energy efficiency, as well as by providing technical assistance (consulting services) to facilitate the financed sub-projects, thereby contributing to sustainable economic development and to the mitigation of climate change.

<ODA Loan Program>

Loan Approved Amount/ Disbursed Amount	8,770 million Yen / 8,478 million Yen
Exchange of Notes Date/ Loan Agreement Signing Date	August 2012 / October 2012
Terms and Conditions	Interest Rate: 0.6% (0.01% for consulting services) Repayment Period (Grace Period): 15 years (5 years) Conditions for Procurement: General Untied
Borrower / Executing Agency	The Republic of Peru / COFIDE (Corporación Financiera de Desarrollo S.A.)
Project Completion	February 2018
Target Area	All over Peru
Main Contractor(s) (Over 1 billion yen)	---
Main Consultant(s) (Over 100 million yen)	Personal Consultant (Peru)
Related Studies (Feasibility Studies, etc.)	“Special Assistance for Project Implementation (SAPI) on the Energy Renovation Infrastructure Assistance Program Assistance Program (Financial Intermediary Loan)” in 2017
Related Project	Kreditanstalt für Wiederaufbau (KfW, Germany): Financial Intermediary Loans to COFIDE for promoting renewable energy and energy efficiency.

## 2. Outline of the Evaluation Study

### 2.1 External Evaluator

Sawai Katsunori, Global Group 21 Japan, Inc.

### 2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted with the following schedule.

Duration of the Study: January 2022 – February, 2023

Duration of the Field Study: June 25 – July 22, 2022, October 23– 30, 2022

### 2.3 Constraints during the Evaluation Study

- ✓ IFIs and end-users involved in this program were not aware of the fact that sub-loans were supported by Japanese ODA Loan<sup>1</sup> and since the sub-loans were provided 6 to 10 years ago, there was no person in charge at that time. Therefore, enough cooperation to interview them was not obtained.
- ✓ For the evaluation of sustainability, it was intended to focus on the operation of RF. However, since the RF has not been established and there is no track record of secondary lending<sup>2</sup>, the evaluation of each item under sustainability is not necessarily related to the sustainability of the effects of this program.
- ✓ COFIDE has requested to refrain from disclosing information related to sub-loans (end-user name, sub-loan conditions, etc.) due to confidentiality obligations of financial operations, so the description in this report had to take into consideration the request.

## 3. Results of the Evaluation (Overall Rating: C<sup>3</sup>)

### 3.1 Relevance/Coherence (Rating: ③<sup>4</sup>)

#### 3.1.1 Relevance (Rating: ③)

##### 3.1.1.1 Consistency with the Development Plan of Peru

In the planning stage of this program, due to rapid economic growth in Peru, energy demand continued increasing and it was an issue to keep a stable power supply. As one of the measures, the “Legislative Decree No.1002: Promotion of Investment for Generation of Electricity with the use of Renewable Energy” was established in 2008 and the target was set to cover 5% of the total electricity with renewable energy by 2013. “Action Plan for Energy Efficiency” and “Action Plan for Adaptation and Mitigation against Climate Change” were formulated in 2010 to aim at improving energy efficiency by 15% by 2018 and also work to reduce GHG emissions.

At the time of ex-post evaluation, in the “National Energy Plan (2014-2025),” in two case scenarios of annual GDP growth rate of 4.5% and 6.5%, the electric demand is forecasted to increase by 1.64 times and 2.12 times respectively in 2025 compared with the demand of 5,800 MW in 2014. So, the stable power supply remains an important issue. In terms of energy efficiency, the energy demand will be reduced by 14.8% with 4.5% of annual GDP growth rate and by 12.5% with 6.5% of annual GDP growth rate. Furthermore, the plan states that the policy targeting renewable energy to 5% of total electricity will be continued. On the other hand, regarding climate

<sup>1</sup> See “3.2.1 Financing Scheme”.

<sup>2</sup> See “3.4.7 Status of Operation and Maintenance”.

<sup>3</sup> A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

<sup>4</sup> ④: Very High, ③: High, ②: Moderately Low, ①: Low

change countermeasures, the government of Peru has been actively working on it to formulate “National Strategy for Climate Change” in 2015 and to approve “National Plan for Adaptation to Climate Change in Peru 2050” in 2021, which updated the National Strategy. In COP26<sup>5</sup>, the government of Peru announced that CO<sub>2</sub> would be reduced by 40% compared to the Business as Usual<sup>6</sup> scenario by 2030 and carbon neutrality to be achieved by 2050.

Thus, Peru has emphasized and promoted energy efficiency policy and climate change countermeasures at the time of planning and ex-post evaluation. Therefore, this program is consistent with the country’s development plan.

### 3.1.1.2 Consistency with the Development Needs of Peru

GHG emissions by sectors in 2016 were 41% for LULUCF (land use, land use change and forestry), 15% for agriculture, 15% for transport, 13% for power & heat, 6% for waste, 5% for manufacturing & construction, 3% for industry and 2% for building. Excluding LULUCF and agriculture, the situation of 41% for transport and 34% for power & heat was not changed so much between the time of planning and one of ex-post evaluation, so the need for GHG reduction in those sectors is continuously recognized.<sup>7</sup> In addition, the “National Energy Plan (2014-2025)” states that the policies would be kept to aim to ensure a stable energy supply with GHG emissions reduction in the energy sector as a whole by using renewable energy in the power generation, effective use of energy to promote the energy saving by replacement and improvement of facilities in the production sector, and by introducing public buses with natural gas and diffusion of diesel vehicles that meets the exhaust emission control in the transport sector. Furthermore, the APEC Follow-up Peer Review<sup>8</sup> on energy efficiency was implemented in 2020, and the above policies by the government of Peru was basically supported.

Thus, efforts to improve energy efficiency and reduce GHG emissions are issues that should continue to be addressed, so this program is consistent with Peru’s development needs.

### 3.1.1.3 Appropriateness of the Program Plan and Approach

In this program, 30% of the sub-loan fund were allocated for the energy saving component in order to promote and diffuse energy efficiency projects targeting the small- medium enterprises (hereinafter referred as “SMEs”). However, there were no sub-loans for them. The reasons for

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<sup>5</sup> The 26<sup>th</sup> Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change at Glasgow, United Kingdom, November 2020.

<sup>6</sup> A base scenario in case the current economic activities will continue.

<sup>7</sup> See CAIT Climate Data.

<sup>8</sup> In 2011, APEC (Asia-Pacific Economic Cooperation) leaders agreed to a target of reducing energy per unit of GDP by 45% by 2035 compared to 2005 levels. The Peer Review on Energy Efficiency is a mechanism for providing policy advice, etc. to assist APEC member countries in achieving this target. According to the Peer Review for Peru in 2020, some necessities were pointed out, for example, to review the institutional framework including public financial support, to improve the energy efficiency of vehicles by introduction of labeling that indicates energy performance, or to promote energy efficiency in the industrial sector (ISO5000 energy management system certification, etc.).

this could be considered as follows;

- There was a mismatch between COFIDE's sub-loan conditions (interest rate, repayment period, loan size, etc.) and the end-user's needs;
- For COFIDE, which has the characteristics of a "Second Floor Bank"<sup>9</sup>, the sub-loan scale should be more than 1 to US\$ 1.5 million to meet the operating cost, while the funding needs for energy saving projects for SMEs were smaller than that;
- Because of their small scale, IFIs did not need co-financing with COFIDE, and in some cases were able to provide loans at their own risk.

In other words, there was a mismatch between the financial needs of the end-users and the program scheme under this ODA loan. This mismatch might have been avoided to some extent by conducting market research on end-users and IFIs at the time of planning. However, since the ODA loan amount was fully utilized, it cannot be said that this point lowers the evaluation of the overall relevance of this program which aims to improve Peru's energy efficiency.

### 3.1.2 Coherence (Rating: ②)

#### 3.1.2.1 Consistency with Japan's ODA Policy

The government of Japan proposed "Cool Earth Promotion Program" in January 2008, and decided to actively cooperate with efforts to reduce GHG emissions by developing countries that were trying to contribute to climate stabilization. With regard to Peru, in March 2008, Mr. Yasuo Fukuda (the then Prime Minister of Japan) and Mr. Alan Garcia Perez (the then President of Peru) signed a joint statement on cooperation in environment and climate change issues at the Japan-Peru Summit Meeting. In September 2009, the Hatoyama Initiative was announced in the UN Climate Change Summit, advocating the need for finance and technology transfer for mitigation for GHG reduction and adaptation against climate change in the developing countries. Furthermore, in the rolling plan of Japanese ODA for Peru, "Addressing Global Issues" was listed as one of the priority areas, so the environmental conservation including climate change countermeasures was recognized as an important development issue. Thus, the coherence with a policy of Japanese development cooperation can be observed.

#### 3.1.2.2 Internal Coherence

As part of "Actions for Cool Earth" formulated by the government of Japan in November 2013, JICA extended the ODA loans to Peru for "Stand-by Emergency Credit for Urgent Recovery" in FY2013, and "River Basins Flood Protection Projects in Coastal Area of Peru" and "Moquegua

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<sup>9</sup> COFIDE is called "Second Floor Bank" because a three-step loan system is applied to lend to domestic SMEs through IFIs such as commercial banks.

Hydro Electric Plants Construction Project” in FY2014. Furthermore, the technical assistance has started in FY2021 for “Project for Establishment of Integrated Forest Management System Model for Conservation of Mountain Forest Ecosystems in the Andean-Amazon”, so JICA has worked on enhancement of management capacity for LULUCF sector which accounts for more than 50% of GHG emissions in Peru. Thus, JICA has continuously tackled with the climate change countermeasures in Peru, but no specific collaboration or its results have been recognized among the projects.

### 3.1.2.3 External Coherence

The government of Japan extended “Non-Project Grant Aid for Provision of Japanese Next Generation Eco-Friendly Vehicles” to Peru in FY2013. The objective of this grant aid was to diffuse the next generation vehicles with high energy efficiency and low environmental impact. In COP26, the government of Japan announced financial support of up to 10 billion US\$ over the next 5 years, encouraging the promotion of climate change mitigation and adaptation measures.

Germany’s assistance to Peru prioritizes environmental policy and protection, the sustainable use of natural resources, and sustainable urban development that addresses climate change. KfW has provided funding to promote BIONEGOCIOS<sup>10</sup> in COFDE, which had the same objective as this program, and JICA and KfW cooperated and coordinated by exchanging information appropriately and holding a workshop for program promotion.

The Inter-American Development Bank’s country strategy for Peru (2017-2021) lists environmental sustainability and climate change countermeasures as one of the priority issues, and technical cooperation related to “Support to the Peruvian Energy Sector Transformation” is currently being implemented. The World Bank’s Country Partnership Framework (2017-2021) for Peru also lists natural resource and climate change risk management as one of the three pillars of assistance, and the loan for “Transmission Investment Plan to Support Post-COVID19 Green Economic Recovery in Peru” in 2021 was extended. In the 2030 Sustainable Development Goals (SDGs), an international framework, Goal 7 includes “By 2030, increase substantially the share of renewable energy in the global energy mix”, “By 2030, double the global rate of improvement in energy efficiency” and “By 2030, promote investment in energy infrastructure and clean energy technology.” Goal 13 states “Take urgent action to combat climate change and its impacts”. Thus, the objective of this program, which is to support energy efficiency and climate countermeasures, is in the same direction as the Japanese government, other countries, international organization and international framework. There was collaboration and coordination with some other donors on the program implementation, but no concrete results have been observed.

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<sup>10</sup> BIONEGOCIOS: COFIDE’s financial product that has implemented since 2008 with the aim of promoting renewable energy and energy saving in small and medium-sized enterprises, and does not mean a special scheme.

Based on above, this program implementation is fully consistent with Peru’s development plan and development needs, and is consistent with Japan’s ODA policy. Consistency is also recognized in that JICA and other international organizations have been promoting projects related to climate change countermeasures. However, the concrete collaboration and results were not observed except for some.<sup>11</sup> Although it seems that there was a problem with the appropriateness of the program plan and approach, it cannot be said that the evaluation of the overall relevance was lowered. Therefore, its relevance and coherence are high.

### 3.2 Efficiency (Rating: ②)

#### 3.2.1 Financing Scheme

The financing scheme of this program is shown in Figure 1.

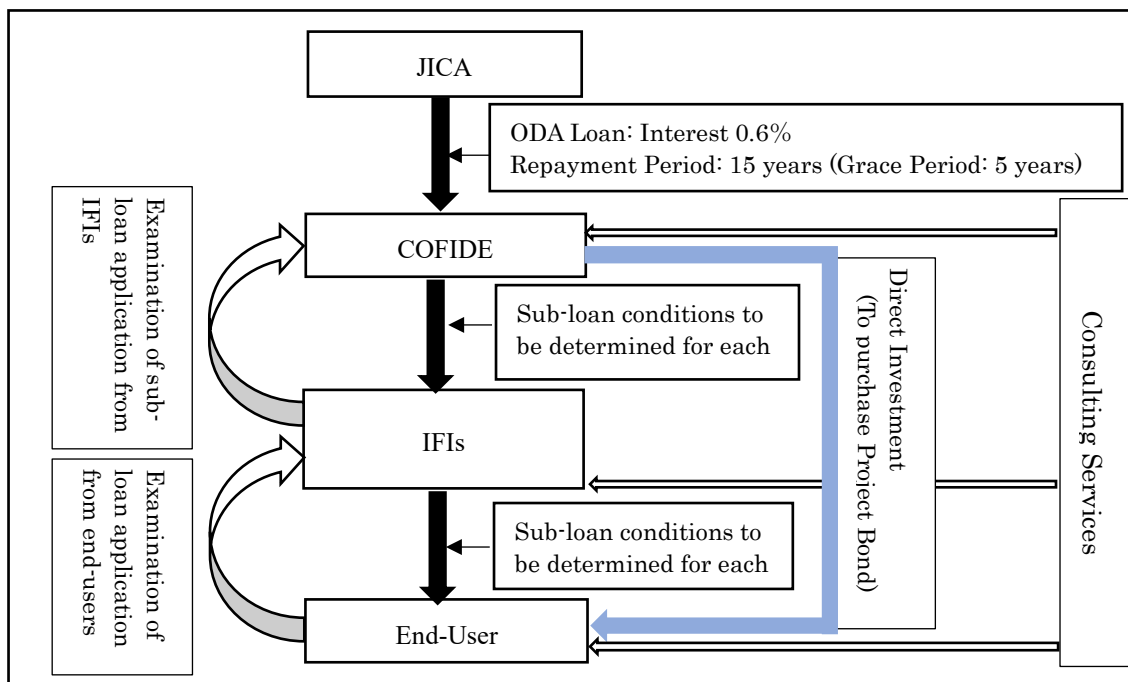


Figure 1: Financing Scheme of This Program

(Source) Created by the author from documents provided by JICA and COFIDE

As for the financing scheme in the planning stage, COFIDE extended sub-loans to end-users through IFIs. However, a method that directly provided funds to end-user without going through

<sup>11</sup> According to the FY2021 JICA External Ex-post Evaluation Reference, even if there is consistency with Japanese government and JICA development cooperation policy, the sub-rating for “Coherence” of the project is evaluated as ②, when no concrete collaboration, coordination and results are recognized among projects by JICA and other organizations, or within cooperation with international frameworks.



IFIs was added by purchasing “Project Bond”<sup>12</sup> issued by the end-user. Due to the “Basel III”<sup>13</sup> formulated in 2010, the finance cost raised for financial institutions, and long-term infrastructure investment likely became to result in accumulation of risk assets for them. It meant a difficulty for end-users to obtain loans from financial institutions. Also, the project financing methods were diversified. So, this additional change was appropriate. The direct investment to purchase “Project Bond” was applied to the sub-project of wind power station in this program.

The sub-loans were operated in accordance with the Operational Rules prepared after the Loan Agreement, the sub-loan selection criteria and the evaluation criteria of loan application. The target components of sub-loans were COFIGAS<sup>14</sup> (public buses with natural gas), low emission diesel vehicles, renewable energy and energy saving. The actual procedures to extend sub-loan were as follows;

- Step 1 : Loan application submitted from end-user to IFI
- Step 2 : Examination of the loan application by IFI. In case the IFI decides that co-financing with COFIDE is deemed desirable, the IFI submits the application to COFIDE.
- Step 3 : COFIDE examines the sub-loan application by the IFI and sets the sub-loan conditions, and then makes a decision to extend sub-loan to the IFI.
- Step 4 : The IFI extends a loan to the end-user.
- Step 5 : Thereafter, taking into consideration whole portfolio of COFIDE, if COFIDE determines to utilize the ODA loan for this sub-loan, COFIDE confirms that the sub-loan meet the eligibility of this program, and allocates the ODA loan fund to this sub-loan with JICA’s no objection.

In the procedures mentioned above, when COFIDE examined the sub-loan, it was not considered whether the ODA loan would be utilized or not. Basically, the same procedures as the existing sub-loan examination for COFIGAS or BIONEGOCIOS were taken. COFIDE recognizes that they are using the ODA loan to promote COFIGAS and BIONEGOCIOS, and that this program cannot be operated with a special scheme independently, nor does it conduct marketing for this program. In addition, since COFIDE decides whether the ODA loan fund would

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<sup>12</sup> A project bond is a bond issued by a business entity for the purpose of procuring the funds necessary to implement an infrastructure project. Unlike ordinary corporate bonds, the source of funds for repayment is limited to the profits obtained from the project.

<sup>13</sup> It stipulates the minimum capital adequacy ratio that financial institutions should maintain.

<sup>14</sup> COFIGAS: Financing scheme that transaction and settlements at each step related to natural gas conversion among vehicle owners/purchasers, manufacturers, inspection agencies, general financial institutions, gas sales facilities and COFIDE are automatically and systematically processed through an online system.

be used or not after providing sub-loans to IFIs, IFIs are not aware that COFIDE funds are supported by the Japanese ODA loan. Much more the end-users are completely unaware of the ODA loan. Under such a procedure, recognition as the Japanese ODA loan program would inevitably be low.

The interest rate for end-users was determined for each sub-loan based on the average market interest rate provided by the IFIs involved in the loan and taking into consideration the results of COFIDE's risk assessment. In the plan, the difference between the COFIDE's funding cost from the market and the concessional ODA loan was assumed to be reflected (e.g. interest rate differences of 3.5% to 5% for medium-sized enterprises and 10% or more for small and micro enterprises in sol, and 5 years repayment period), and the interest rate for end-users was expected to be enough lower than the market rate. Actually, it may be evaluated that the competitive loan conditions with interest rate generally below market rate could be provided, but looking at the difference between interest rates for end-users and the market average interest rates, the difference was 1.53% to 6.0% for dollar and -0.43% to 2.86% for sol. It was viewed that the degree of concessionality expected in the plan was not sufficiently ensured. The reason may be a burden of cost of currency swap<sup>15</sup>. Although information about the swap cost could not be obtained, it was estimated about 4.2% for the yen/dollar and about 6.4% for the yen/sol. According to COFIDE, the dollar is slightly cheaper and the sol is higher compared to raising funds from the market.

The repayment period of sub-loans were 8 to 15 years for dollars and 3.5 to 8 years for sol.

COFIDE provided sub-loans for IFIs up to 50% of the loan amount extended to end-users.

### 3.2.2 Program Outputs

Table 1 shows a comparison between plan and actual of sub-loans by components.

Table 1: Comparison between Plan and Actual of Sub-loans by Components

Component	Assumption in Plan	Actual
COFIGAS (procurement of natural gas (GNV) buses)	7 sub-loans 75 units of GNV buses	3 sub-loans 69 units
Low Emission Diesel Vehicle	8 Sub-loans 83 units of vehicles	1 sub-loan 65 units of buses
Renewable Energy	6 sub-loans Small Scale Power Generation, 30MW in total	3 sub-loans Hydro/Wind power/ Biomass
Energy Saving	105 sub-loans	no sub-loan

(Source) JICA appraisal material, Documents provided by COFIDE

JICA's estimate at the time of planning was to provide a total of 126 sub-loans to SMEs. Especially for the energy saving component, there was an intention to promote and diffuse energy

<sup>15</sup> A transaction that exchanges future cash flows (interest and principal) between different currencies. In the case of this program, a currency swap was carried out between the Yen Loan and the US Dollar/local currency Sols, and the future interest payments and principal repayment of the Yen Loan were fixed on a Yen basis.

efficiency projects to as many end-users as possible, but it seems that such an idea was not necessarily shared between JICA and COFIDE. This can be seen from the fact that COFIDE set a planned goal of providing at least 10 sub-loans after the conclusion of the L/A.

In the COFIGAS component, the number of sub-loans was three, but the number of GNV buses procured was 69, roughly matching the 75 assumed in the plan. Although there was only one sub-loan for low-emission diesel component, the number of buses procured was 65 against the 83 assumed in the plan. In the renewable energy component, the sub-loans for power generation were one wind power station (total 111.6MW) and one small hydroelectric power station (total 39.1MW), which greatly exceeded the assumed total power generation capacity of 30MW in the plan. Company F, which was extended a sub-loan as the renewable energy component, went bankrupt in 2015. The reason for bankruptcy was the global ethanol price crash.<sup>16</sup> Although the overall investment was large and multiple financial institutions were involved, it was not due to a particular problem with loan examination process, and it seems that it was difficult to anticipate bankruptcy risk. At present, another company has taken over ethanol production business.

As for energy saving component, despite this program aimed promoting and diffusing energy efficiency projects targeting SMEs, no sub-loans were provided. It is said that IFIs did not apply for the sub-loan to COFIDE, but the following reasons may be considered, from the interviews to COFIDE and the SAPI report;

- ✓ The sub-loan conditions (interest rate, repayment period) of this program were not very attractive to SMEs;
- ✓ The financing scheme that end-user has to wait COFIDE's decision after applying for loans to IFIs is complicated and it takes time for loan examination for SMEs;
- ✓ COFIDE believes that unless an amount of sub-loan is more than US\$ 1 mil. to US\$ 1.5 mil., it does not meet the administrative cost, but the loan amount is too big for an energy saving project for SMEs;
- ✓ In case the sub-loan amount is small, IFIs have no incentive to co-finance with COFIDE and can provide loans on their own.

In the future, if COFIDE promotes an energy saving business in the same way as this program, it will be required to eliminate the mismatch between end-user needs and sub-loan conditions as described above.

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<sup>16</sup> Ethanol futures closing price (Sao Paulo Commodity Exchange) averaged 2.28 US\$/gallon in 2013 when the sub-loan was extended, but it dropped sharply to 2.15US\$ in 2014, 1.50 US\$ in 2015, 1.53 US\$ in 2016, 1.49 US\$ in 2017 and 1.30 US\$ in 2018. (Source: Trading Economics)

Table 2: Summary of Sub-Projects

	End-user	Year extended Sub-loan	Sub-Project
COFIGAS Component			
1	A	2012	Company A operating public buses in the southern district of Lima metropolitan area procured 15 units of GNV buses. The repayment of loan was completed in 2016.
2	B	2012	Company B operating public buses in the northern district of Lima metropolitan area procured 24 units of GNV buses. The repayment of loan was completed in 2016.
3	C	2014	Company C operating public buses in Piura city and on routes connecting the surrounding cities procured 30 units of GNV buses. The pre-payment was done in 2021.
Low Emission Diesel Component			
4	D	2016	Company D operating medium- and long-distance buses connecting major cities in Peru, Guayaquil in Ecuador, and Bogota in Colombia procured 65 units of low emissions diesel buses that met EURO III standard. The pre-payment was done in 2018.
Renewable Energy Component			
5	E	2014	Company E constructed wind power stations, 30.6MW in Parinás district of Piura state and 81.0MW in Pacasmayo district of La Libertad state respectively. COFIDE purchased the project bond issued by Company E.
6	G	2013	Company G operating the power generation business in Junin state constructed flow-in type hydroelectric power plants with a total capacity of 39.1MW. The pre-payment was done in 2019.
7	F	2013	Company F producing ethanol in Paita district of Piura state has a series of processes of increasing sugarcane production ⇒ increasing ethanol production ⇒ bio-power generation using sugarcane residue. Of which, the sub-loan was used for the expansion of sugarcane field. However, Company F went bankrupt in 2015 due to the global crash in ethanol prices. The funds collected. Now another company has taken over the ethanol production business.

(Source) Documents provided by COFIDE

### 3.2.3 Program Inputs

#### 3.2.3.1 Program Cost

Total program cost in the plan was 10,480 mil. Yen, of which 8,332 mil. Yen for sub-loan and 438 mil. Yen for consulting services that was equivalent to 5% of sub-loan amount. Although detailed information on actual cost was not obtained, looking only at the portion covered by the ODA loan, the sub-loan/direct investment amounted 8,332 mil. Yen which was fully utilized, and consulting services amounted 146 mil. Yen against the planned 438 mil. Yen.

Table 3: Program Cost

(Unit; mil. Yen)

	Plan			Actual		
	Foreign Currency	Local Currency	Total	Foreign Currency	Local Currency	Total
Sub-loan/Direct Investment	8,332*	0	8,332*	8,332*	0	8,332*
Consulting Services	235*	203*	438*	n.a	n.a	146*
Commitment Charge	44	0	44	n.a	n.a	n.a
Tax	0	1,666	1,666	n.a	n.a	n.a
Total	8,611	1,869	10,480	n.a	n.a	n.a

\* shows the ODA loan portion. Others by COFIDE's own fund.

Exchange rates: (Plan) 1 Sol=30.8 Yen as of September, 2010,

(Actual) 1 Sol=35.7 Yen (average during the program period)

(Source) Documents provided by JICA

Regarding the fact that the fund of sub-loan/direct investment portion was fully utilized, it is necessary to analyze the background related to the final disbursement made on the disbursement expiry date in the L/A. COFIDE had purchased a project bond issued by Company E, and had already used the ODA loan funds of US\$ 25 mil. for a portion of the project bond. But the final disbursement fund was used then to replace a part of the COFIDE's own fund for the project bond with the ODA loan funds, and was treated as an additional finance for the same sub-project. It is clear that wind power station by Company E is eligible for sub-loan/direct investment under this program. However, the additional finance was not a flow to the end-user nor was a new sub-project implemented. Surplus funds generated from the concessional nature of ODA loans can be used for future financing and project formation, contributing to the soundness of COFIDE's ALM (Asset-Liability Management). It is important for Financial Intermediary Loan to ensure the soundness of the ALM of the executing agency, but that is not the original objective of this program. Therefore, it is difficult to evaluate that the program cost was used efficiently as planned just because the amount allocated for sub-loan/direct investment portion was fully disbursed.

The information on the actual annual expenditure was not obtained. Focusing on the actual use of ODA loan funds for sub-loans/direct investment, since a large amount was utilized in 2014 and 2015 for sub-loans and purchase of project bond, so it appeared to be on track in terms of amount. However, the number of sub-loan applications from IFIs had been small since 2015, and the reality was that there had been little progress in finding or forming sub-loans. It may be said that the result was behind the final disbursement mentioned above.

Table 5 shows a comparison of fund allocation by sub-loan component between the plan and actual.

Table 4: Utilization of ODA Loan by Fiscal Year (Sub-loan/Direct Investment only)

FY	No. of Sub-loan	Utilization of ODA loan funds	Remarks
2013	0	-----	
2014	4	1,811 mil. Yen	incl. US\$ 10 mil. for Company G
2015	2	2,690 mil. Yen	incl. US\$ 25 mil. for Company E
2016	1	833 mil. Yen	Company D only
2017	0	-----	
2018	(1)	2,998 mil. Yen	additional finance for Company E
Total		8,332 mil. Yen	

(Note) Fiscal year is not the year when COFIDE extended sub-loans to IFIs, but the year when COFIDE decided to allocate ODA loan funds to the sub-loans.

(Source) Documents provided by JICA and COFIDE

Table 5: Fund Allocation by Sub-loan Component

Component	Plan	Actual	
COFIGAS (procurement of GNV buses)	approx. 10%	4%	335 mil. Yen
Low-emission Diesel Vehicles	approx. 10%	10%	833 mil. Yen
Renewable Energy	approx. 50%	86%	7,164 mil. Yen
Energy Saving	approx. 30%	0%	----
Total	(8,332 mil. Yen)	100%	8,332 mil. Yen

(Source) Documents provided by JICA and COFIDE

Approximately 10% of sub-loan fund was allocated to COFIGAS, but the actual was 4%. The reason is that COFIDE financed up to 50% of sub-loan amount, while JICA calculated to assume the cost covered 100% of sub-project cost, although the number of GNV buses procured was almost in line with the assumption in the plan. For the Low-emission Diesel Vehicles, the fund was utilized as planned. Regarding the renewable energy component, in addition to the fact that the amount of each sub-loan was large compared to other components, the total amount of financing in the component expanded more as a result of the additional finance to Company E as described above. The energy saving component is as described in the section of “Program Outputs” above.

As mentioned above, although the program cost was within the plan, it can be said that the cost did not match the level of outputs produced at all, considering that the use of funds was biased toward specific end-user in the renewable energy component (Company E alone accounted for about 67% of the total) and there were no track record in the energy saving component.

### 3.2.3.2 Program Period<sup>17</sup>

According to the plan, the consultant selection process was to start in December 2012, and

<sup>17</sup> According to the FY2021 JICA External Ex-post Evaluation Reference, the month of project commencement shall be the month of L/A signing, unless otherwise specified in the project ex-ante evaluation sheet, etc. However, the third party evaluator decided to set the month in which the consultant selection procedure started as the month in which the program commenced based on the documents provided by JICA, such as the appraisal report, etc.

the program was to be completed by the expiry date of disbursement of February 2018 (63 months in total). The actual was that the consultant selection process began in January 2013 and the disbursement was completed on February 2018 (62 months in total). Although the program period was within the plan, it can be said that the period did not exactly match the level of outputs produced, considering that the progress to extend sub-loans was delayed as mentioned before.

### 3.2.3.3 Consulting Services/Technical Assistance

In the plan, in addition to the general consultant who supervised the entire program, consultants were to be employed as needed to support sub-project formation or technical examination in each component of sub-loan. The only consultants actually employed were a general consultant, four consultants for sub-project formation related to energy saving, and one consultant for sub-project formation related to rice husk power generation. However, the contract with the general consultant was cancelled in the middle of the contract period due to his unsatisfactory performance, and the results of other consulting services did not lead to the provision of concrete sub-loans, so it cannot be said that useful assistance was provided by consultants to the results. However, COFIDE recognizes that the services provided by the general consultant could be implemented by COFIDE itself and that there were no particular problems with the loan examination capability (including technical aspects) of the IFIs, so the fact that the consultants could not be employed as planned did not affect this program implementation. According to a hearing from COFIDE, since COFIDE is “Second Floor Bank”, the position is that IFIs should basically conduct sub-project finding, formation and technical review related sub-loan. So, COFIDE did not recognize their necessity by itself. In addition, the end-users had no intention of actively requesting financing, and sub-projects such as a collection of small scale projects<sup>18</sup>, that consultants attempted to formulate, involved multiple end-users, making it difficult to apply for financing under this program. These are probably the reasons why the results of consulting services were poor.

Since JICA provided a study of the Special Assistance for Project Implementation (SAPI) from March 2016 to February 2017 with the aim of supporting sub-project formation for low-emission diesel and energy saving components as the progress of COFIDE’s sub-loan provision was not good. Through the study, a list of 19 candidate sub-projects including 9 for low-emission diesel and 10 for energy saving component was made, but it did not lead to the provision of a specific sub-loan. Considering that there was only one year from the SAPI study to the disbursement expiry date in the L/A, and that the candidate sub-projects must be shared with the IFIs, as well as confirmation of end-user’s request for financing being required within such a period, and it was not easy to lead the results of study to concrete sub-loans.

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<sup>18</sup> Sub-project formulated by the consultants included energy saving and renewable energy sub-projects for farmers and those for 17 universities.

As mentioned above, the program costs related to sub-loans/direct investment were fully utilized, and the program period was within the plan, but the progress to extend sub-loans was delayed, and the program cost was completely disbursed as a result of additional finance for the same sub-project. In terms of output, the number of sub-loans totalled seven, which was less than planned, and there was no record of providing sub-loans in energy saving component allocated 30% of the total sub-loan fund. Therefore, efficiency of this program is moderately low.

### 3.3 Effectiveness and Impacts<sup>19</sup> (Rating: ②)

#### 3.3.1 Effectiveness

##### 3.3.1.1 Quantitative Effects (Operation and Effect Indicators)

In this program, GHG emission reduction was mainly set as an indicator to measure energy efficiency. The target and actual values are shown in Table 6.

Table 6: Operation and Effect Indicators

Indicator		Target	Actual2020	
		2019	2 years after program completion	
		2 years after program completion	Whole sub-project	Contribution of this program (Considering financing ratio of ODA loan)
Reduction of GHG emissions due to the introduction of low-emission vehicles (t-CO <sub>2</sub> /year)	COFIGAS	22,000	20,240	6,620 (*2)
	Low-emission diesel vehicles	(*1)	745	373 (*3)
Reduction of GHG emissions for Renewable Energy (t-CO <sub>2</sub> /year)		83,000	750,531	103,870 (*4)
Sub-Total (excluding Low emission diesel vehicles)		105,000	770,771	110,490
Total		----	771,516	110,863
Improved efficiency of sub-project under energy efficiency component (per sub-project)		10% or more		

(\*1) It was planned to be set at the start of the program, but was not set.

(\*2) Estimated using the same assumptions as planned.

(\*3) Assuming that the mileage of the procured medium- and long-distance buses is 120,000 km/ year/unit, fuel efficiency is 3 km/L, clean diesel emission factor is 2.58 kg/L, and CO<sub>2</sub> emissions are 10% better than the old diesel bus. (The clean diesel emission factor is according to Guideline for Calculating GHG Emissions Amount, Japanese Ministry of Environment, March 2017)

(\*4) For the hydroelectric power station, it is estimated based on 139,199 t-CO<sub>2</sub>/year in 2021 heard from end-user. And, for the wind power stations, it is estimated based on 305,666 t-CO<sub>2</sub>/6 months in the first half year of 2022 heard from end-user.

(Source) Documents provided by JICA and COFIDE

<sup>19</sup> When providing the sub-rating, Effectiveness and Impacts are to be considered together.



### (1) GHG Emission Reduction

In the plan, these indicators were calculated on the assumption that 100% of the sub-project cost would be covered by the ODA loan funds, but sub-project was actually co-financed by IFIs and the contribution of this program was partial. Therefore, the actual value was calculated considering the financing ratio of this program to each sub-project. As a result, GHG emission reductions were 6,620t-CO<sub>2</sub>/year (-70% from the plan) in the COFIGAS component and 103,870 t-CO<sub>2</sub>/year (+25% from the plan) in the renewable energy component, totalling 110,490 t-CO<sub>2</sub>/year (+5% from the plan), which slightly exceeding the planned figure of 105,000 t-CO<sub>2</sub>/year. In total, a GHG emission reduction of 373 t-CO<sub>2</sub>/year in the low-emission diesel component was added to this. Looking at the GHG emission reduction amount from the entire sub-projects, it was estimated that 771,516 t-CO<sub>2</sub>/year was reduced, which greatly exceeded the planned figure. The reason can be explained by the hydro and wind power generation capacity in the renewable energy component reaching 150.7 MW, which is far higher than the 30 MW assumed in the plan.

### (2) Energy Efficiency in Energy Saving Component

As for the energy saving component, the level of energy efficiency improvement through the implementation of sub-projects was used as an indicator, and an efficiency improvement of 10% or more was set as the target. However, the effect could not be recognized because of no sub-loan extended.

From the above, actual GHG emission reductions in the introduction of low-emission vehicles and the renewable energy components slightly exceeded the plan, and the effect was almost as planned, but there was no track record in the energy saving component, and no effect was obtained. Considering that the plan was to allocate 30% of the total sub-loan fund to the energy saving component, the effectiveness of this program is moderately low.

## 3.3.2 Impacts

### 3.3.2.1 Intended Impacts

As impacts of this program, (1) Improvement in the awareness of private-sector businesses for energy efficiency, (2) Strengthening of the capacity of IFIs to examine loan proposals, (3) Sustainable economic development through promotion of more efficient use of energy, and (4) Mitigation of climate change were mentioned.

#### (1) Improvement in the awareness of private-sector businesses for energy efficiency

There is no track record of sub-loans in the energy saving component in this program, the number of sub-loans in other components is limited, and the recognition of this program is low

among the stakeholders, so the concrete impact of improvement in the awareness of private-sector businesses for energy efficiency cannot be recognized. However, if looking at Peru as a whole, people’s awareness of energy and climate change is gradually increasing, and consciousness of energy saving seems to be the same.

(2) Strengthening of the capacity of IFIs to examine loan proposals

Although the necessary support for IFIs through consulting services was planned, this was not actually done. However, according to a hearing from COFIDE, since the IFIs involved in the sub-loans of this program are familiar with the business details of end-users through their daily business, and had an experience to finance similar sub-projects, it is not that there were any problems or difficulties in sub-loan examination. As for the technical issue, a system has been established in IFIs to have it checked by experts as necessary.

(3) Sustainable economic development through promotion of more efficient use of energy

From the relationship between real GDP and GHG emissions amount shown in Figure 2, it is found that since 2010, the growth of GHG emissions has been lower than the growth of real GDP, indicating that these values tend to widen gradually from year to year. That means GDP is growing with fewer GHG emissions. In other words, it shows that the economy is growing under the energy efficiency improvement. This is also supported with Figure 3 which shows that the energy intensity (energy consumption per GDP) is on downward trend.<sup>20</sup> Therefore, Peru can be evaluated as striving for sustainable economic development through the improvement of energy efficiency, but in order to position it as an impact of this program, it will be limited.

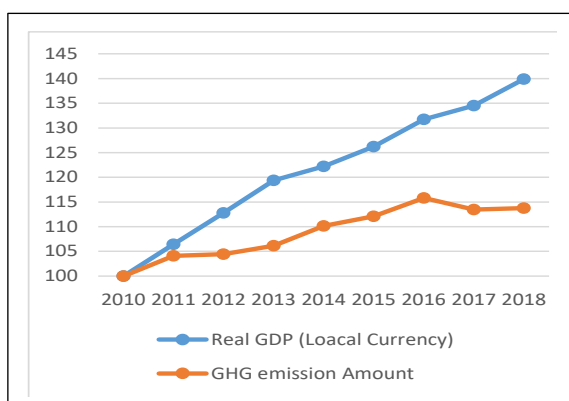


Figure 2: Real GDP and GHG Emission Amount  
(2010=100)  
(Source) World Bank Statistics

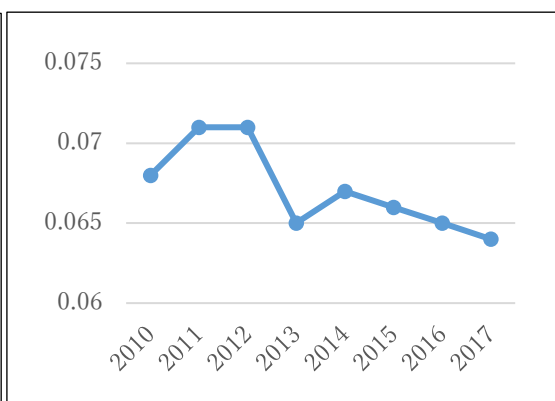


Figure 3: Energy Intensity  
(Unit: toe/1000\$ (2010PPP))  
(Source) IEA Statistics

<sup>20</sup> According to IEA statistics, the Energy Intensity figure in 2017 was 0.064 for Peru, while the world average was 0.119 and the Latin American region average was 0.092. Peru is not a country with high Energy Intensity.

#### (4) Mitigation of climate change

As shown in Figure 4, it is unavoidable that Peru's GHG emissions increase along with economic growth, but recently the rate of increase has tended to be restrained. Peru can be evaluated as making efforts to mitigate climate change, that is to reduce GHG emissions, but in order to position it as an impact of this program, it will be limited.<sup>21</sup>

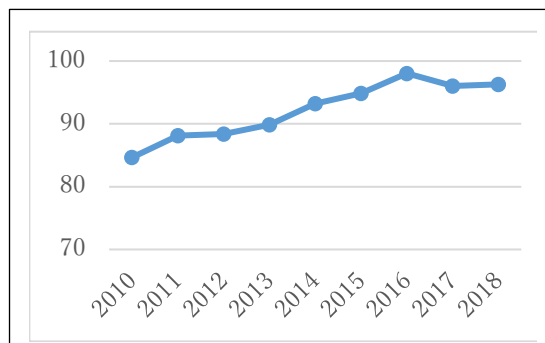


Figure 4: GHG Emission Amount (Mt)  
(Source; World Bank Statistics)

#### 3.3.2.2 Other Positive and Negative Impacts

This program was classified as Category FI<sup>22</sup> based on the JBIC<sup>23</sup> Guidelines for the Confirmation of Environmental and Social Consideration (April 2002). None of the sub-projects financed by the sub-loans corresponded to Category A in the Guidelines. The hydropower and wind power projects were classified as Category B, but appropriate environmental and social consideration were confirmed in accordance with Peru's domestic rules. In addition, none required involuntary resettlement or large scale land acquisition. No particular environmental and social impacts were recognized during the field survey.

As mentioned above, the impact of this program is considered to be limited. Considering that the effectiveness of this program was judged to be moderately low, it was only possible to confirm that the implementation of this program produced effects to a certain extent compared to the plan, and its effectiveness and impacts are moderately low.

#### 3.4 Sustainability (Rating: ②)

The Financial Intermediary Loan provides benefits to many end-users through proper operation of RF and continuous provision of sub-loans with the same policy objective as this program. This program was also designed in this way, and in the ex-post evaluation, it was decided to evaluate the sustainability of the effects of this program based on the operational status of the RF. However, as described in "3.4.7 Status of Operation and Maintenance", the RF has not actually established. On the other hand, COFIDE is continuously working on green finance for

<sup>21</sup> According to IEA statistics, per capita CO<sub>2</sub> emissions in 2017 were 5.12 tons on average in the world and 3.43 tons in Latin America, compared to 1.55 tons in Peru. Peru is not a country with large per capita CO<sub>2</sub> emissions in the world.

<sup>22</sup> Category FI: JICA's funding of the project is provided to a financial intermediary etc.; the selection and assessment of the actual sub-projects is substantially undertaken by such an institution only after JICA's approval of the funding and therefore the sub-projects cannot be specified prior to JICA's approval of funding (or assessment of the project); and those sub-projects are expected to have potential impact on the environment.

<sup>23</sup> Japan Bank for International Cooperation.

the same energy efficiency projects as this program through COFIGAS and Green COFIDE (renamed from BIONEGOCIOS). Therefore, each item under evaluation of sustainability is an analysis of the COFIDE organization working on green finance, and does not necessarily directly evaluate the sustainability of the effects of this program.

#### 3.4.1 Policy and System

The policy of the government of Peru to promote energy efficiency continues as mentioned in 3.1.1 Relevance above.

Regarding COFIDE, there is no change in promoting financial products related to green finance called COFIGAS and Green COFIDE. However, for COFIDE, a “Second Floor Bank”, there seems to be limit to the promotion of sub-loans for energy saving under this program scheme. Therefore, it can be said that there are some issues with the systems related to COFIDE’s business for energy saving component.

#### 3.4.2 Institutional/Organizational Aspect

COFIDE is a development finance institution established by the government of Peru in 1971. It raises funds from international organizations and government agencies, etc., and provide loans to domestic SMEs through IFIs. By providing medium- and long-term funds to IFIs, COFIDE will promote financing in areas where IFIs find it difficult to take risks (i.e. infrastructure, environmental conservation, agriculture, health care, facility investment for SMEs, etc.). Such an aim of COFIDE to promote those areas has not been changed. In some cases, like this program, finance is provided by directly purchasing project bonds issued by business entity. The number of employees is generally around 200. In this program, the Business Department acted as the point of contact for receiving sub-loan applications, and carried out operations in cooperation with relevant departments such as the Finance Department and the Legal Advice Department and others as necessary. Initially, there were two staffs directly in charge, so it was always pointed out that there was a shortage of personnel. But, in fact, multiple staff members from relevant departments were involved. When it is considered that the basic position of COFIDE was to review loan applications from IFIs, there are no particular problems with its system. Therefore, there are no problems with its institutional and organizational sustainability.

#### 3.4.3 Technical Aspect

This program was positioned to promote the exiting COFIGAS and BIONEGOCIOS, and there were no particular problems as the sub-loan examination was carried out following the same procedures as those. Technical review of sub-projects was primarily a matter of IFIs, and IFIs apply for sub-loans to COFIDE after technical examination was carried out by experts as appropriate. So, there is no problem with sustainability of technical aspects.

### 3.4.4 Financial Aspect

COFIDE provides financial support mainly for relatively high-risk infrastructure projects, has low margins, and is not an organization that pursues profits. Since 2011, COFIDE had increased infrastructure investment and allocated most of its portfolio to infrastructure loans. However, in 2017, a corruption scandal<sup>24</sup> related to public infrastructure projects came out in Peru, and the projects financed by COFIDE were cancelled or postponed. Then, COFIDE was exposed to the risk of an increase in operating costs. As a result, the non-performing loan ratio increased significantly in 2017. COFIDE had been intensively disposing of non-performing loans from 2017 to 2018, and there was also an injection of funds from the government, so financial indicators of COFIDE have been improving since then.<sup>25</sup> Since 2020, net income has declined due to the impact of the COVID19 pandemic, which has slightly depressed the Peruvian economy. The foreign currency rating in October 2021 was BBB (negative) by S&P and BBB (stable) by Fitch, which was almost the same as the credit rating of the government of Peru. Although COFIDE's financial situation may be affected by changes in the business environment and Peru's economic situation, it can be said that there are no particular financial problems.

Table 8: Main Indicators of COFIDE Financial Statement

(Unit: mil. US\$)

	2017	2018	2019	2020	2021
Total Asset	3,695	3,296	3,155	3,438	3,141
Net Loan	1,768	1,447	1,263	1,536	1,233
Liability	3,077	2,702	2,537	2,864	2,581
Total Equity	618	577	618	574	560
Net Income	1.4	5.0	8.0	5.7	10.3
Growth Rate of Net Income	▲94.2%	277.8%	55.7%	▲28.8%	101.0%
Equity Ratio	16.7%	17.5%	19.6%	16.7%	17.8%
Return on Asset (ROA)	0.04%	0.15%	0.25%	0.16%	0.33%
Return on Equity (ROE)	0.2%	0.9%	1.3%	1.0%	1.9%
Nonperforming Loan Ratio	18.2%	6.3%	7.7%	9.6%	6.5%
Exchange Rate (Sol/US\$)	3.240	3.373	3.312	3.620	3.987

(Source) COFIDE Financial Statements

### 3.4.5 Environmental and Social Aspect

COFIDE introduced the Environmental and Social Risk Management System (SARAS :

<sup>24</sup> Corruption case caused by Brazilian construction company, Odebrecht S.A.. In Peru, a total 22 cases were contracted between 2004 and 2015, and the funds that requested the padding flowed to politicians. (“Odebrecht Corruption Case and Its Impact on Latin America” by Naotoshi Kinoshita and Yasufumi Hayashi, Risho University Economics Quarterly, Vol.67, No.4, pp.69-95, March 2018)

<sup>25</sup> See Fitch Rating Report (September 2018) [https://www.cofide.com.pe/COFIDE/pdfs/relacion\\_FITCH-JUN2018.pdf](https://www.cofide.com.pe/COFIDE/pdfs/relacion_FITCH-JUN2018.pdf)

Sistema de Administración del Riesgos Ambientales y Sociales) in February 2016 to strengthen checks on environmental and social impact assessments. Basically, it provides guideline related to screening, evaluation, monitoring, etc., and since they are to be applied to all financing projects of COFIDE, there is no problem with the system.

### 3.4.6 Preventative Measures to Risks

COFIDE had a policy to finance up to 50% of loans and 100% for project finance until 2016. From 2017, the policy was changed to 25% of loans and 50% for project finance. This is due to the guidance of FONAFE (Fondo Nacional Financiamiento de la Actividad Empresarial del Estado) which is in a position to supervise COFIDE, after many infrastructure loans became non-performing ones in 2017. Originally, COFIDE was a public institution that supported high-risk businesses, but due to the strict response to business risks, recently both the number of loan applications from IFIs and the amount of loans seem to be on the decline. However, it is considered that COFIDE’s creditworthiness in the market has been kept, so there are no problems with regard to risk management.

### 3.4.7 Status of Operation and Maintenance

Of the six sub-loans, two were paid off as planned in 2016 and three were prepaid by IFIs between 2018 and 2021. Regarding the loan to Company F, which went bankrupt, collection of funds from IFIs has been completed. Prepayment was a decision based on the ALM of the IFIs, but since the interest rate had declined since May 2017 compared to the interest rate level at the time the sub-loan was received from COFIDE, the IFIs decided the sub-loan refinancing. Although one of characteristics of COFIDE’s sub-loan was that the repayment period was relatively long, this prepayment was unavoidable considering interest rate fluctuations at that time.

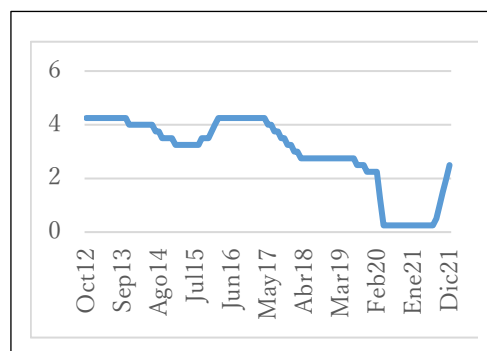


Figure 5: Official Discount Rate in Peru  
(Source) SBS Statistics

RF has not been established even after four years have passed since the final disbursement of ODA loan was made, and there is no track record of secondary lending. Also, according to the L/A, it is supposed to report the utilization results of RF to JICA for five years (until February 2023) after the final disbursement of ODA loan, but there is no report. For a reason why the RF was not established, it was told by COFIDE that the first lending included a sub-loan to Company F, which had gone bankrupt, and it was waiting until a good sub-project could be replaced with. Basically, the RF is used to accumulate the repaid principal and the paid interest from the sub-loans and to promote energy efficiency projects for the same purpose as this program. In addition, since this is a financial business, it is possible that the borrower would go bankrupt and it is

unavoidable even if the first lending includes a bankruptcy case. Therefore, there is no persuasiveness in the above reason why the RF has not established. From 2013 to 2021, COFIDE received repayments of principal of over 3.3 billion Yen from sub-loans, which should be managed in RF, but were actually managed in COFIDE's general account. So, it is unclear how the repayment amount was used in COFIDE. However, COFIDE has used more than 3.5 billion Yen to repay the ODA loan by 2021, which exceeds the repayment from sub-loans. (The shortage was financed with COFIDE's own funds.) In other words, even if RF was established, it would not have accumulated enough funds to make a secondary lending. It means no revolving of funds. The reason for this was the short grace period of ODA loan of five years after the conclusion of the L/A, so there is a structural problem that the repayment of the ODA loan starts before sufficient funds are accumulated in the RF. There is no prospect that RF will be utilized in the future, and the situation is not such that the characteristics of Financial Intermediary Loan, that is RF, will be used to promote and diffuse further energy efficiency projects.

As mentioned above, COFIDE has been continuously working on and strengthening green finance, and there are no problems with COFIDE's operational management capabilities as a financial institution. However, there is a problem from the perspective of the sustainability of this program as a Financial Intermediary Loan, because the RF was not established and there is no track record of secondary lending. Also, the prospects for improvement and resolution of sub-loan operation for energy saving component will be dim. So, the sustainability of the effects produced by this program is moderately low.

#### **4. Conclusion, Lessons Learned and Recommendations**

##### **4.1 Conclusion**

This program is Financial Intermediary Loan that COFIDE provides the necessary funds through IFIs for sub-projects which contribute to the promotion of energy efficiency for end-users, mainly private companies. In Peru, where stable power supply in the future is a key issue, efforts to improve energy efficiency, introduce renewable energy and conduct climate change countermeasures were positioned as important policies both at the time of ex-ante and ex-post evaluations, and it is consistent with Japanese aid policy and international aid trends. So, the relevance and coherence of this program are high. Although both the program cost and period were within the plan, the number of sub-loans provided was only seven, and the distorted financing was done to a specific end-user in the renewable energy component. In addition, there is no sub-loan in the energy saving component allocated 30% of total sub-loan fund. Therefore, efficiency of the program does not correspond to the plan. The reduction of GHG emissions, which was set as operational and effect indicators, was estimated that it was almost as planned, but this is the result of power generation capacity of the renewable energy sub-projects greatly

exceeding the assumption made at the time of planning. Since no effect for the energy saving component was observed, and the impact was limited, the effectiveness and impacts of the program are moderately low. COFIDE has a policy to continue to focus on strengthening and promoting green finance in the future, and although there is a room for improvement in the scheme for supporting energy saving projects, there are basically no problem with COFIDE's capability as a financial institution. However, the facts that the RF has not been established and the secondary lending has not realized make it difficult to judge the sustainability of the effects of this program, so the sustainability is moderately low. In light of the above, this program is evaluated to be partially satisfactory.

## 4.2 Recommendations

### 4.2.1 Recommendations to the Government of Peru

In this program, 30% of sub-loan was allocated to finance in the energy saving component, aiming to promote and diffuse energy efficiency projects targeting SMEs, but there was no track record of sub-loans in the energy saving component. It is thought that the reasons for this were the mismatch between COFIDE's sub-loan conditions (interest rate, repayment period, sub-loan amount, etc.) and the end-users' needs, as well as the limitations of COFIDE's operations as a "Second Floor Bank". In other words, even if COFIDE tries to support energy saving sub-projects with the same scheme as this program in the future, there will be many issues concerned. There has been a demand for funds in the energy saving sub-projects, and the APEC Follow-up Peer Review has pointed out the necessity of reviewing institutional frameworks including public financial support. So, it is expected that the government of Peru will promptly consider the institutional framework including COFIDE's roles and other supporting methods.

### 4.2.2 Recommendations to JICA

None.

## 4.3 Lessons Learned

### To minimize the mismatch between end-user's financial needs and sub-loan scheme

In this program, there were no sub-loans in the energy saving component for SMEs that was allocated 30% of the total sub-loan funds. The reasons for this are that the sub-loan conditions provided by COFIDE, the executing agency, did not necessarily meet the needs of SMEs, and that COFIDE as a "Second Floor Bank" thinks that if the amount of sub-loan is not more than US\$ 1 to 1.5 million, it will not be worth the operating cost. While, the funding needs for energy saving were smaller than that. So, it can be considered that IFIs did not need co-financing with COFIDE due to small-scale financing, and there were cases where IFIs were able to provide loans at its own risk. In other words, there was a mismatch between the financial needs of end-users and the



program scheme under this ODA loan. This mismatch could have been understood to some extent if the financial needs of end-users and IFIs had been investigated at the time of planning, and it seems that the mismatch could have been minimized. Therefore, it is important to conduct market research as much as possible at the time of planning and reflect the results in the program scheme.

Sustainability of Financial Intermediary Loan, which are not expected to utilize Revolving Funds from the beginning

It is needless to say that whether or not the RF is being operated and secondary lending is being continuously provided is an important factor in evaluating the sustainability of Financial Intermediary Loan. However, in the case of this program, since there was a structural problem such that the grace period of the ODA loan is relatively short at five years, and the repayment of the ODA loan starts before the repayment amount of sub-loans principal is sufficiently accumulated in the RF, the RF was not utilized at all. Although the utilization of RF shall be reported for five years after final disbursement of the L/A, if it is clear from the beginning that the utilization of RF will not be sufficient from the conditions of ODA loan and sub-loan, it is also a good idea to evaluate the sustainability of the program from the perspective of how similar operations with the purpose of the ODA loan in question are being undertaken by the executing agency rather than evaluating the sustainability with only the results of RF utilization.

## **5. Non-Score Criteria**

### 5.1 Performance (Subjective perspectives (Look-back))

None.

### 5.2 Additionality

None.

Comparison of the Original and Actual Scope of the Program

Item	Plan	Actual
1. Program Outputs		
(1) Providing Funds for Energy Renovation Infrastructure	No. of sub-loans: 126 (according to JICA's appraisal)  Sub-loan: 8,332 million Yen of which: -Fuel Conversion approx.10% -Low Emission Diesel approx.10% -Renewable Energy approx.50% -Energy Saving approx.30%	No. of sub-loans: 7  Sub-loan: 8,332 million Yen of which: -Fuel Conversion 4% -Low Emission Diesel 10% -Renewable Energy 86% -Energy Saving 0%
(2) Consulting Services	General consultant for project supervision and consultants for technical supports in each area of fuel conversion, low emission diesel, renewable energy and energy efficiency (438 million yen in total)	Employment of general consultant and consultants for renewable energy and energy efficiency (146 million yen in total)
(3) Other Technical Support	Dispatch of a Japanese expert and ODA Loan's technical assistance for training in Japan, related to energy efficiency components	Special Assistance for Project Implementation (SAPI) for project preparation of low emission diesel and energy efficiency components
2. Program Period	Dec. 2012 – Feb. 2018 (63 months)	Jan. 2013 – Feb. 2018 (62 months)
3. Program Cost		
Amount Paid in Foreign Currency	8,611 million Yen	n.a
Amount Paid in Local Currency	1,869 million Yen (61 million Sol)	n.a
Total	10,480 million Yen	n.a
ODA Loan Portion	8,770 million Yen	8,478 million Yen
Exchange Rate	1 sol = 30.8 Yen (As of September 2010)	1 sol = 35.7 Yen (Average between January 2013 and February 2018)
4. Final Disbursement	February 2018	