Japanese ODA Loan

Ex-Ante Evaluation (for Japanese ODA Loan)

1. Name of the Project

Country:	Republic of Peru
Project:	Energy Renovation Infrastructure Assistance Program
Loan Agreement:	October 12, 2012
Loan Amount:	8,770 million yen
Borrower :	Republic of Peru

2. Background and Necessity of the Project

(1) Current State and Issues of the Energy Sector and Development for Climate Change Measures in Peru

In Peru, the rapid economic growth of recent years led to energy demand (final consumption) increasing by an annual average of 8% during the five-year period 2005-09. The main energy source used to meet this demand was natural gas. Assuming that the demand for energy continues to increase at a pace of 7-9%, the current capacity for power generation and supply will need to be almost doubled by 2019. In strengthening power generation capacity, a pressing issue is the promotion and maintenance of energy policies that further expand the use of hydroelectric power and other renewable energy sources which involve lower emissions of greenhouse gases (hereinafter referred to as “GHG”).

Looking at the demand for energy in different sectors, demand in the production and transport sectors is trending upward. Demand in the production sector has grown at an average annual rate of 4% over the last 20 years. Given that the majority of this energy has been consumed by outdated equipment, two challenges for this sector are energy savings based on the replacement and improvement of equipment, and the effective use of energy such as through the recovery of waste heat. The transport sector has shown an average annual growth in demand of 5.4% over the last 20 years. Due to the fact that about 40% of all imported vehicles are used vehicles (of which most are gasoline/diesel cars), as well as that most vehicles are, on average, older than twenty years and have poor fuel efficiency, air pollution is another issue that has emerged. In response, the government of Peru has promoted the dissemination of low-emission vehicles by initiating a project in Lima, which has particularly heavy traffic, for the conversion of vehicles to natural gas. While good progress has been made for small vehicles, such as taxis and private vehicles, there has not been enough progress in conversions for medium and large vehicles, such as public buses and trucks. Outside of Lima, because much of the land is covered in steep terrain, there is strong demand for high-horsepower diesel vehicles; and since the exhaust emission regulations for diesel vehicles, which were instituted in 2001, was to be progressively applied starting in 2011, few vehicles comply with the latest standards. With current plans for the establishment of stricter standards nationwide, there is an urgent need to reduce exhaust emissions by promoting the replacement of vehicles with low-emission gas-fueled vehicles that conform to these standards. The transport sector accounts for 40% and the production sector accounts for 30% of the total volume of GHG emissions among those sectors that consume fuel in the energy sector. Given that the volume of GHG emissions increases as energy consumption increases, reduction of energy consumption in these sectors is needed as a measure for decreasing GHG emissions.

(2) Development Policies for the Energy Sector and Climate Change Measures in Peru, and Priority of the Project

The government of Peru has ratified the 1992 United Nations Framework Convention on Climate Change and the 1997 Kyoto Protocol. In addition, it is also taking comprehensive measures against

climate change as a nation by enacting laws and plans such as the National Environmental Policy (2005) and the Action Plan for Adaptation and Mitigation against Climate Change (2010), as well as creating organizational structure to address the issue. Of the measures raised by the government of Peru for mitigation against climate change, the Project is regarded as being consistent with the action plans for the energy sector.

(3) Japan and JICA's Policy and Operations in the Energy Sector and Climate Change Measures

In March 2008, the government of Japan signed a joint statement on cooperation in environment and climate change issues at the Japan-Peru Summit Meeting between Mr. Yasuo Fukuda (the then Prime Minister of Japan) and Mr. Alan Garcia Perez (the then President of Peru). Furthermore, through the Hatoyama Initiative of September 2009 and other such announcements, Japan has declared that it will actively cooperate in climate change initiatives in developing countries. "Dealing with global issues" is listed as one of the priority areas in Japan's rolling plan for Peru, and based on this, JICA has been engaged in support for Peru with environmental conservation as a priority development issue. Thus, implementation of the Project is in accord with Japan and JICA's aid policy. Thus far, 39 Japanese ODA loans have been agreed for Peru, totaling about 373.4 billion yen. Of these, eight loans have been targeted at the energy sector, providing a total of 71.2 billion yen. This Project is the first ODA loan extended for climate change measures.

(4) Other Donors' Activities

Kreditanstalt für Wiederaufbau (hereinafter referred to as "KfW") has focused support on climate change measures and on areas promoting private-sector activity. At present, it is preparing a credit line for the promotion of improvements in energy efficiency and use of renewable energy. The priority areas listed by the Inter-American Development Bank (hereinafter referred to as "IDB") include support for various measures aimed at correcting and/or eliminating disparities between urban and rural areas and at improving the living environment for local residents. In the energy sector, it currently provides technical cooperation for the promotion of clean energy and improvements in energy efficiency, aimed at tiny, small and medium enterprises. The World Bank has a focus on support for the correction of inequalities, and in the energy sector, it currently provides support for the Rural Electrification Project, and small hydropower projects financed through the Global Environment Facility.

(5) Necessity of the Project

The Project, as described above, aims to promote implementation of the efficient use of energy, which is stated in the government of Peru's "Action Plan for Adaptation and Mitigation against Climate Change," supporting and promoting private-sector efforts for climate change measures. The Project is also in accord with Peru's development policies and with Japan and JICA's aid policy. Consequently, it is highly necessary and relevant that JICA should support implementation of the Project.

3. Project Description

(1) Project Objective

The Project aims to contribute to sustainable economic development and to the mitigation of climate change. Various environmental measures of end users will be promoted by providing end users (primarily private companies) with medium- and long-term financing from Corporación Financiera de Desarrollo S.A. (COFIDE) through intermediary financial institutions to implement

sub-projects which help promote energy efficiency, as well as by providing technical assistance (consulting services) to facilitate the financed sub-projects.

(2) Project Site/Target Area

All of Peru

(3) Project Components

(i) Sub-loans (Target fields: fuel conversion (conversion of public buses to natural gas), low-emission diesel vehicles, renewable energy, and energy efficiency)
(ii) Consulting services

(4) Estimated Project Cost (Loan Amount)

10,480 million yen (yen loan amount: 8,770 million yen)

(5) Schedule

Planned for the period between August 2012 and May 2017 (58 months in total). The Project will be completed at the completion of disbursement (May 2017).

(6) Project Implementation Structure

1) Borrower: Republic of Peru (Republic of Peru)
2) Executing Agency: COFIDE
3) Operation and Maintenance System: The repayments from intermediary financial institutions will be accumulated in a revolving fund controlled by COFIDE, and used for secondary loans.

(7) Environmental and Social Considerations/Poverty Reduction/Social Development

1) Environmental and Social Considerations

(i) Category: FI

(ii) Reason for Categorization
The project is designed to provide loans to financial intermediaries and involves sub-projects which cannot be specified prior to JICA's approval for financing, while they are likely to have environmental impacts under the Environmental Guidelines.

(iii) Other
Under this Project, COFIDE will categorize each project based on the legal system in Peru and on the Environmental Guidelines, while receiving assistance from consultants employed under the Project, and it will carry out any measures required for the relevant categories. Loans will not be provided for any sub-projects classified as Category A.

2) Promotion of Poverty Reduction

None in particular

3) Promotion of Social Development (gender perspective, measures for infectious diseases including HIV/AIDS, participatory development, consideration for persons with disabilities,

etc.)

None in particular

4) Climate Change

The aim of the Project is to improve energy efficiency and promote renewable energy. Since the Project contributes to the control of GHG emissions, it is expected to have a mitigating effect on climate change.

(8) Collaboration with Other Donors

Some of the results from the study on the credit line currently being prepared by KfW to support renewable energy and improvements in energy efficiency, and the interim results of the technical cooperation currently being provided by the IDB to small and medium-sized enterprises (SMEs) for improved energy efficiency will be used as reference when forming programs.

(9) Other Important Issues

None in particular

4. Targeted Outcomes

(1) Quantitative Effects

1) Performance Indicators (Operation and Effect Indicator)

Indicator		Baseline (2010)	Target (2019) [2 years after project completion]
Reduction of GHG emissions due to the introduction of low-emission vehicles (t-CO_2/year)	Conversion of public buses to natural gas	-	22,000
	Low-emission diesel vehicles	-	To be calculated at the beginning of the project[1]
Reduction of GHG emissions for Renewable Energy (t-CO_2/year)		-	83,000
Reduction of GHG emissions (excluding low-emission diesel component) (t-CO_2/year)		-	105,000
Improved efficiency of sub-project under energy efficiency component (% per sub-project)		-	10 or more

2) Internal Rates of Return

The internal rate of return has not been calculated because the sub-projects have not been specified.

(2) Qualitative Effects

Improvement in the awareness of private-sector businesses for energy efficiency, strengthening of the capacity of intermediary financial institutions to screen proposals, sustainable economic development through promotion of more efficient use of energy, and mitigation of climate change.

[1] Target to be confirmed when the project starts or when the sub-project is approved, while receiving assistance from consultants employed under the yen loan, and in consideration of the potential for COFIDE to access data.

5. External Factors and Risk Control

Any deterioration in the political or economic situation and any natural disasters in Peru or in the vicinity of the target areas.

6. Results of Evaluations and Lessons Learned from Past Projects

(1) Results of Evaluations of Similar Past Projects

The results of the ex-post evaluation reports such as that of the Environmental Infrastructure Support Credit Program (I) in the Philippines suggest that strengthening awareness and promotion activities is important for uncovering the environmental investment needs of SMEs and leading to the effective use of revolving fund accounts.

(2) Lessons for the Project

In view of the above suggestions, the capacity of COFIDE and intermediary financial institutions to conduct loan screening and supervision will be enhanced through consulting services, and support will be provided through the Project for the formation of sub-loans such as for energy efficiency projects and awareness campaigns among end-users.

7. Plan for Future Evaluation

(1) Indicators to Be Used

(i) Reduction of GHG emissions due to the introduction of low-emission vehicles (t-CO_2/year)
(ii) Reduction of GHG emissions related to Renewable Energy (t- CO_2/year)
(iii) Reduction of GHG emissions (t- CO_2/year)
(iv) Improved efficiency of sub-project under energy efficiency component (% per sub-project)

(2) Timing

Two years after project completion.