

The Summary of Terminal Evaluation

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1. Outline of the Project		
Country:	Kyrgyz Republic	Project Name : The Project for the Support for the Dissemination of Biogas Technology in the Kyrgyz Republic
Sector:	Agriculture Development	
Division in Charge:	Paddy Field Based Area Group, Rural Development Department	Cooperation Scheme: Technical Cooperation Project
C/P Agency:	State Department of Chemicalization and Plants Protection, Ministry of Agriculture (*Name of the Ministry changed in 2009.)	Total Cost (at the time of Evaluation study) : 246 million Yen
Period of Cooperation:	(R/D): 19 Dec 2007 – 18 Dec 2010	Cooperating Agencies of Japanese Side: Obihiro University of Agriculture and Veterinary Medicine

1-1 Background of the Project

After independence and collapse of the Soviet Union, The Kyrgyz Republic was among other post-soviet facing great economic and social difficulties. It was especially acute in agriculture. Economic decline and reorganization left considerable part of rural population without job. Former "kolkhozes" and "sovkhozes" (collective and state farms) were destroyed, and new mechanism of doing agriculture businesses had not been created.

In the structure of gross national product of the Kyrgyz Republic, agriculture occupies 25.8% (2008). Thus, the agriculture of the Kyrgyz Republic faces considerable difficulties such as; the growing prices for energy and chemical fertilizer brought low fertility of the land, poverty of agricultural population, and deterioration of condition of the environment.

To counter these agricultural problems, development and wide use of biogas system (BGS) in practice is expected to improve the conditions of agricultural population.

Under the background mentioned above, a proposal for Technical Cooperation was forwarded to the Government of Japan from the Government of the Kyrgyz Republic in September 2007.

JICA as an implementation agency of Japanese Official Development Assistance approved the Project, and Ministry of Agriculture, Water Resources and Processing Industry was recognized as the main counterpart of JICA at the same time. Both sides signed the Record of Discussions in December 2007 in order to initiate the Technical Cooperation Project called "The Project for the Support for the Dissemination of Biogas Technologies in the Kyrgyz Republic (hereinafter referred to as "the Project")".

1-2 Project Overview

(1) Overall Goal

The biogas technologies are disseminated in rural areas and the living condition of the rural people adopting these technologies is improved.

(2) Project Purpose

The extension system of the improved biogas technologies is established.

(3) Outputs

- 1) The appropriate biogas technologies are developed.
- 2) The capacity of personnel related to extension of the biogas technologies is strengthened.
- 3) The existing financial institutions and regulations related to extension of the biogas technologies are reviewed.
- 4) The coordination among the relevant organizations for extension of the biogas technologies is improved.
- 5) The biogas technologies are widely known.

(4) Inputs (As of the end of July 2010)

Japanese side :

(Unit: Kyrgyz Som (KGS))

Long-term Experts	4 persons	60.30MM	Local Operation Cost	37 million Yen (19,145,000 KGS)
Short-term Experts	11 persons	37.60MM	Machinery & Equipment	8 million Yen (US\$ 92,000)
Training in Japan	11 persons			

1KGS=1.915Japanese Yen as of July 2010), 1 US \$=87.70 Yen

Kyrgyz side :

Counterpart Personnel	9 persons	Local Cost	0 KGS
Facility (Office space for experts, utility cost included)	2 office spaces	1 in State Department of Chemicalization and Plants Protection, and 1 in Agro-industrial Development and Nature Management Division of Issyk-Kul State	

2. Terminal Evaluation Team

Members of Evaluation Team:	Mr. Satoru Hagiwara	Leader	Deputy Director General Rural Development Department JICA HQ
	Dr. Kazutaka Umetsu	Biogas Technology/ Extension	Professor Graduate School of Obihiro University of Agriculture and Veterinary Medicine
	Ms. Noriko Ishibashi	Evaluation Analysis	Consultant IC Net Limited
	Mr. Shohei Kashiwagi	Planning Management	Paddy Field Based Farming Area Division 2 Paddy Field Farming Group Rural Development Department, JICA HQ
Period of Evaluation:	10 - 31 July 2010		Type of Evaluation: Terminal Evaluation

3. Results of Evaluation

3-1 Achievement of the Project

- (1) Project Purpose

The Project Purpose "the extension system of the improved biogas technologies is established" is not achieved yet. The prospect of achieving the Project Purpose is low. Amongst of all indicators, the last one on the establishment of an extension system of biogas technologies would not be fulfilled by the end of the Project term.

For the 1st indicator, 3 new small-sized biogas plant models of 10 to 25 cubic meters that are targeting livestock farmers become operational. Technical improvements are close to a completion. The last proof necessary is to verify its severe winter season operations for 6 biogas plants.

Secondly, the review of the financial institutions and regulations were conducted by a short-term expert in 2010, but it is limited to an analysis. Favorable conditions are yet to be created where small scale livestock farmers can make a loan for the installation of biogas facilities.

For the last indicator, the extension system of the improved biogas technologies which the Project has intended to set up is not established partly due to the absence of technical level C/P for extension and to weak public-private coordination.

(2) Overall Goal

Although it is hard to judge the achievement level of Overall Goal due to the lack of quantitative indicator, the achievement level of this indicator is judged appropriate at the time of Terminal Evaluation in July 2010.

For the 1st indicator of Overall Goal, 2 individual visitors of the pilot plants, so-called the biogas plant No.3 in Issyk-kul State and No.2 in Chui State respectively, replicated it and constructed similar steel type plants of the same digester size. There are projects requesting assistance on biogas technologies to the Project.

For the 2nd indicator, it is too early to judge the level of livelihood improvement of those who installed the improved models of biogas plants which are developed because only a few cases of replications were found so far.

(3) Outputs

1) Output 1

Output 1 is not yet achieved at the time of Terminal Evaluation. Output 1 would be achieved if the Project term would be extended by the end of winter season, which allows the proof of severe winter season operations of 6 pilot biogas plants.

- As is described in 3-1 (1), technical improvement of small scale biogas plants for livestock farmers are close to a completion. It needs operational verification in severe winter season.
- User's manual for operation and maintenance is mostly ready. This manual includes biogas utilization and is under translation work.
- User's manual on liquid fertilizer is not yet ready, but is expected to be completed as soon as a result of the currently on-going experiment by Kyrgyz Agrarian University would be summarized. The manual covering operational and maintenance of biogas as well as utilization of biogas and liquid fertilizer would be ready in December 2010, just before the end of the Project.

2) Output 2

Output 2 is not yet achieved and the prospect of achieving this Output is low.

- Regarding the 1st indicator about the number of extension staff, none of technical level C/P is

allocated nor identified, but administrative ones. During the Project period, the Project had only 5 project-hired technicians working for construction and maintenance. (Most of State level C/Ps in the list of counterpart personnel are nominal only.)

- Since there was no extension staff working in this Project, no technical training has been conducted in this Project for the 2nd indicator, nor training materials were prepared for the 3rd indicator.

3) Output 3

The achievement of the Output 3 is on a half way.

- Although a short-term expert of finance sector studied and analyzed the possible access to the preferential loan scheme for livestock farmers, it was limited to an analysis of financial feasibility.

4) Output 4

Output 4 is not achieved and would not be achieved by the end of the Project term. There is little field level collaboration found among organizations working on biogas technologies.

- Regarding the number of joint meetings written in the 1st indicator, the Project invited public and private organizations when organized seminars. However it was mostly limited to information exchange and was not for the purpose of extension either.
- Preparation of linkage/network guideline was not possible due to the absence of collaboration among private and public organizations.

5) Output 5

Although it is hard to judge the achievement level due to the lack of quantitative indicators, it is assessed that Output 5 is almost achieved and is to be achieved by the end of Project. Apart from the planned activities, the Project proactively worked on public relations activities whereby contributed to the widespread of biogas technologies and to higher presence of the Project.

- Total of 6 seminars for users and other interested parties were organized with 191 participants.
- 2 kinds of leaflets and 1 video were produced and distributed. Study tour was organized twice, but an opening ceremony of a biogas plant inviting press is pending due to a recent turmoil.

3-2 Summary of Evaluation

(1) Relevance

For the following reasons, the project is judged to be of high relevance.

- This Project is consistent with National Energy Programme of the Kyrgyz Republic 2008-2010 and Fuel Energy Complex Development until 2025, which was in approval process of the former government. It is also along with the Law on Renewable Energy Sources which was signed by the former President Kurmanbek Bakiyev in January 2010.
- Under JICA's Rolling Plan for the Kyrgyz Republic 2009-2013, the assistance to this project is referred in the Rural Development Program under Agriculture Development/Local Development issue.
- As a country giving particular focus upon the production of renewable energy sources, Japan has rich human resources of researchers and private sectors.

(2) Effectiveness

Effectiveness of the Project is judged to be moderate.

- The prospect of achieving the Project Purpose is low. 2 out of 3 indicators were achieved or likely to be achieved by the end of the Project, but the last indicator regarding the establishment of extension system for biogas technologies would not be materialized by December 2010.
- As is written in 3-1 (1), 3 new small-sized biogas plant models of 10 to 25 cubic meters that are targeting livestock farmers are operational. Although technical improvement of biogas plants is close to a completion, the extension system of the improved biogas technologies which the Project has intended to set up is not established.
- Obstructing factors in achieving the Project Purpose are such as the absence of public extension system neither in Ministry of Agriculture nor in Ministry of Energy as well as the weakness of public/private collaboration for the part of extension in the field level, and the absence of technical level C/Ps who are supposed to be the target of technical transfer and so on. Furthermore, the recent political turmoil adversely affected the progress of the activities.

(3) Efficiency

This efficiency of this Project is mixed: the achievement levels of some Outputs are high while others are low.

- For Output 1 and 5, expected outputs were mostly produced. Although the inputs of short-term Experts in the first 2 years were slow, those inputs were smoothly transferred into outputs primarily in Output 1. Also the Project's efforts on public relations (Output 5) were successful in attracting attentions of general public. Meanwhile, formulation of extension system related activities saw little success, coming to an end of the Project without achieving expected Outputs. Few public-private collaborations were found for the extension of biogas technologies (Output 4).
- The inputs of short-term Experts were mostly on construction and technical improvements of biogas plants (Output 1). Kyrgyz side provided no local cost for the Project operations, which was covered by JICA side as a whole. Kyrgyz side's inputs are limited to in-kind ones.

(4) Impact

The impact of this Project is relatively high.

2 cases of replication of small-scale and steel type biogas plants, digester size 10 and 25 cubic meters respectively, were identified so far. The positive impact is observed in a relatively short period of time given the fact that the construction of the plant No.3 completed in Feb 2009.

- For the indicators of Overall Goal, there are 2 cases of replication by 2 individuals as was described earlier. But it is too early to see any improvement of living conditions of farm household even in target areas.
- Positive impact observed beside the Overall Goal includes:
 - Effect on Climate Change
This Project also contributed to Climate Change although marginal. Professor Umetsu's provisional calculation tells an estimated annual reduction of carbon dioxide (CO₂) emission from the 10 pilot plants is 105.5t-CO₂, in case all of those plants would have operated in full capacity.
 - Possible increase in agricultural production by using liquid fertilizer
Although any scientific proof is yet to be available, 8 out of 9 owners who utilized liquid fertilizer saw the better growth in terms of height, speed of growth, number and color of leaves and so on.
- No negative social impact observed so far.

(5) Sustainability

The Team concluded that sustainability of the institutional, financial and technical aspect is low.

- Policy Aspect: Promotion of biogas was along with ‘National Energy Programme of the Kyrgyz Republic 2008-2010 and Fuel Energy Complex Development until 2025’ under Ministry of Energy, which was under approval process of the former government of Kyrgyz Republic. Biogas is expected to be listed even under the new government policies including the one in Ministry of Agriculture.
- Institutional and Technical Aspect: Institutional sustainability in carrying out the Project activities is weak. At the administrative level, Ministry of Agriculture promised to allocate a permanent staff as a contact person after the Project termination. There is no permanent technical C/Ps identified to take over the technical support provided by the Project.
- Financial Aspect: There has been no counterpart funding provided by the C/P organization neither in central nor in State level. Expansion of biogas plants construction by Kyrgyz side’s own budget has few possibilities.

3-3 Facilitating / Obstructing Factors

Obstructing Factors concerning Project structure

Obstructing factors in achieving the Project Purpose are such as the absence of public extension system neither in Ministry of Agriculture nor in Ministry of Energy, the absence of technical level C/Ps who is supposed to be the target of technical transfer, weakness of public/private collaboration for the part of extension in the field level, and so on. Furthermore, the recent political turmoil adversely affected the progress of the activities.

3-4 Conclusion

The Project Purpose has not yet been achieved at a satisfactory level in specific areas. Nonetheless, positive impact in relation to Overall Goal has been observed: 2 cases of replication of the biogas plant models by the visitors of pilot plants. The replication has already started during the Project period without going through an extension system that the Project originally intended to formulate. It is worth noting that the 2 cases of replication reflect a sign of expansion of the Project’s effects, which is a positive impact.

Major achievements are as follows:

(1) Development of the improved biogas plants; (2) Increase the awareness of people about biogas technology and successful public relations on biogas facilities; and (3) Indication of scaling up of newly developed biogas plants

3-5 Recommendations

(1) Completion of activities planned in PDM before termination of the Project

By the end of the Project, project should continue and complete following activities excluding activity 3-3 (To conduct necessary revisions of the existing financial institutions and regulations) and 4-7 (To develop guideline on linkage/networking of the organizations concerned based on the review of the pilot projects) which are impossible to conduct under the present condition of Kyrgyz side.

- To hold open forum for the public relations on the pilot project.
- To completion of ‘User’s manual’ comprehensively covering ‘operation and maintenance of biogas

plant’, ‘utilization of biogas and liquid fertilizer produced by biogas plant’, ‘extension materials’.

- To conduct terminal survey in order to assess its terminal effect of 10 pilot plants.
- To conduct ‘press tour / study tour’ to the pilot project

(2) Identification of an exclusive body to promote biogas program by the initiative of Ministry of Agriculture

In order to secure the sustainability of the Project outcome, and scaling up the individual cases of replication, it is recommended to organize an exclusive body such as inter-agency biogas promotion task group among concerned Departments, Agencies, Universities and NGOs, or internal task group by initiative of Ministry of Agriculture.

(3) Recognition of biogas program as a part of the Ministry’s policies and strategies

Biogas program should be officially recognized as a part of the Ministry of Agriculture’s policy, and biogas program needs to align with the new Ministry’s mandate also in order to clarify the department and/or the organization fully responsible to promote biogas technologies.

- i. Utilization of pilot plants of the Project
- ii. Registration of biogas plant as agricultural facility under the Ministry
- iii. Promotion of the research on liquid fertilizer and spreaders of liquid fertilizer
- iv. Identification of potential loan scheme for ordinary farmers to install biogas facilities

(4) Extension of the Project period to the end of the next winter season

In order to monitor and confirm the stable generation of gas from the plants during the freezing winter season, it is recommended to extend the Project period covering next winter season.

3-6 Lessons Learned

Identification of possible organizations being responsible for taking technical transfer and measures to diffuse such technologies is essential for technical cooperation projects.

It is essential to clarify the target group to a certain level: who takes technical transfer from JICA Experts and who is responsible for extending the technology to other groups and individuals.