

**PROJECT INFORMATION DOCUMENT (PID)
APPRAISAL STAGE**

Report No.: PIDA8967

Project Name	Hebei Rural Renewable Energy Development Demonstration Project (P132873)
Region	EAST ASIA AND PACIFIC
Country	China
Sector(s)	Other Renewable Energy (50%), General agriculture, fishing and forestry sector (50%)
Theme(s)	Rural services and infrastructure (50%), Climate change (50%)
Lending Instrument	Investment Project Financing
Project ID	P132873
Borrower(s)	People's Republic of China
Implementing Agency	Hebei Provincial Agriculture Department
Environmental Category	B-Partial Assessment
Date PID Prepared/Updated	25-Jun-2014
Date PID Approved/Disclosed	26-Jun-2014
Estimated Date of Appraisal Completion	15-Jul-2014
Estimated Date of Board Approval	19-Feb-2015
Decision	

I. Project Context

Country Context

China's economy has experienced remarkable growth over the past several decades. This growth, however, has been accompanied by an increase in social and environmental challenges. For example, while intensive agricultural farming and an expansion of livestock production in rural areas are considered viable means to create rural income, employment and secured food supply, the agricultural sector's rapid development poses a threat to the local environment and public health. Every year, around 690 million tons of crop residues are produced by farming and many are used by households as fuel or burned in open fields. This is causing significant indoor and outdoor air pollution. In addition, every year livestock farms in the rural areas produce around 840 million tons of livestock manure and the discharge of livestock waste is affecting surface and ground water quality. The National Agricultural Development 12th Five-year Plan (FYP) for 2011-2015 proposed detailed strategies to address rural pollution in China. One of the priorities of FYP is to promote the development of biogas and other facilities, which would effectively use rural waste (mainly crop residue and livestock manure) as feedstock to produce biogas and other renewable energy for rural residents and other local needs.

Sectoral and institutional Context

Hebei, as one of China's leading agricultural provinces, is endowed with abundant resources for agricultural biomass and has a large production of livestock. The negative environmental impacts of the intensive farming and concentrated livestock production in Hebei basically reflect the overall situation in China, with Hebei experiencing even heavier pollution as a result of its rapid agricultural growth. Each year, around 61.8 million tons of crop residues are produced as a result of the wheat, corn, and cotton production in the province. Around two third of the crop waste is used as fertilizer (thus returning to the cropland) and as feed for livestock. The remainder is mainly burned in open fields or used as fuel for household cooking and heating, causing indoor and outdoor air pollution. In addition, each year around 30.7 million tons of livestock waste from concentrated livestock farms is not treated appropriately, causing water pollution and leading to a transfer of diseases in the rural areas.

Hebei's limited access to clean energy in the rural areas further contributes to the serious air pollution. The province has around 50 million rural residents, which means 54.5% of its total population lives in the rural areas. Few natural gas pipelines, however, reach the province's rural areas and access to clean energy in those areas is very limited, though the use of rural energy has been increasing by about 4% annually over the last decade. The rural households largely use coal, crop residue, and wood-fuel for individual household cooking and heating, which in 2011 accounted for about respectively 48%, 22%, and 12% of total energy used by rural households. Reliance on solid fuel for cooking and heating results in heavy indoor pollution and serious health problems, and also contributes to outdoor air pollution.

Reducing pollution is in fact one of the top priorities for the government of Hebei and biogas utilization is considered an effective approach to address both rural pollution and the lack of access to clean energy in the rural areas. Over the last five years, with the support of national subsidy programs for biogas development, hundreds of medium and large-sized biogas digesters and millions of household-based biogas digesters have been installed in the province. Despite these developments, more than 50% of crop waste and livestock waste are still not treated appropriately. In addition, the lack of clean energy services in rural areas is considered to be a matter of inequity in the provision of public services. The Hebei government considers that increasing access to clean energy to meet the basic livelihood needs of households in the rural areas is its responsibility. The proposed project would support the Government to achieve the objectives of its 12th FYP, which targets to develop 400 large-scale biogas facilities during the period of 2011 to 2015 to improve environmental conditions and increasing access to renewable energy in rural areas.

China's success with biogas technology has been mainly with its household-based biogas program. However, due to the rapid concentrated livestock farm development and gradually reduced livestock raising by individual households, the large scale replication of household-based biogas program has become more difficult. At the same time, however, the development of large-scale biogas program has become increasingly important for rural development. Those large-scale programs do now have a potential for large scale replication, but a number of barriers are preventing their effective operation. These barriers relate to technology, operational skills, financial viability, and availability of quality technical services. As a result, many of the large-scale biogas facilities are currently suffering from low productivity and poor operation. To address these challenges, the Government of China is seeking the Bank's support to develop and demonstrate best

practice models of large scale biogas program, and to provide guidance and experience to sustainable biogas production and utilization in Hebei as well as in China.

II. Proposed Development Objectives

The proposed Project Development Objective (PDO) is to demonstrate sustainable biogas production and utilization to reduce environmental pollution and supply clean energy in rural areas.

III. Project Description

Component Name

Component 1: Large-scale biogas facilities management and renewable energy supply

Comments (optional)

This component will support demonstration of the national and international best practice in developing large-scale biogas facilities. Series of biogas facilities will be installed and operated in Hebei to effectively convert agricultural wastes (specifically crop residue and livestock manure) to biogas, to provide stable clean energy to local rural residents. It is expected that annually the project will produce around 60 million m³ of biogas and around 327,000 ton crop residues and 338,000 ton livestock manure will be appropriately treated as feedstock for the biogas production. The biogas will be provided to around 134,500 rural residents mainly for cooking energy. The remaining biogas, after supplying the target rural residents, will be upgraded and used as vehicle fuel.

Component Name

Component 2: Technical support, project management and monitoring

Comments (optional)

This component will support technical services, training, monitoring and evaluation, and project management. Specifically, (a) an expert team will be contracted by provincial project management office to provide technical assistance to the project implementation; (b) on each of the subprojects a sample laboratory will be established for day-to-day biogas facilities performance monitoring; (c) a monitoring system will be established both at subproject and provincial levels to monitor project biogas system operation, project performance and its impacts; (d) trainings will be arranged for project technical and management staff at provincial and subproject levels, and (e) operational manuals for biogas digester operation and biogas digestate application will be developed.

IV. Financing (in USD Million)

Total Project Cost:	211.60	Total Bank Financing:	100.00
Financing Gap:	0.00		
For Loans/Credits/Others			Amount
Borrower			111.60
International Bank for Reconstruction and Development			100.00
Total			211.60

V. Implementation

Project areas are in rural areas of Hebei Province with vast agricultural land and a large number of concentrated livestock farms. The first batch of subprojects under the project include six biogas facilities (with required financing of around 71.5% of total project IBRD Loan) and they are located in six counties in Hebei, including Anping, Yutian, Zunhua, Linzhang, Chengde, and Laoting Counties. Around 6 provincial and county energy/biogas companies and livestock farms are

proposed as the project entities/project implementation units.

Hebei Provincial Agriculture Department (HPAD) is the project implementation agency and the project management office (PMO) was established within the HPAD. The PMO is responsible for coordinating and providing technical assistance to PIUs implementing their own subprojects under the project design and management framework. While each PIU will be responsible for implementing their subprojects, PMO is also responsible for the project technical assistance, supervision, monitoring and evaluation. Project Leading Group has been established at provincial level to ensure inter-agency coordination. It is expected that the project implementation period will be 6 years from January 1, 2015 to December 31, 2020.

The successful project implementation will contribute to reducing water and ground pollution caused by current inappropriate livestock manure treatment in concentrated livestock farms and air pollution caused by burning crop residue in rural areas. It will also bring benefits to rural residents through increasing access to clean and easy-to-use energy to replace the use of coal and crop residue as cooking fuel.

VI. Safeguard Policies (including public consultation)

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	x	
Natural Habitats OP/BP 4.04		x
Forests OP/BP 4.36		x
Pest Management OP 4.09		x
Physical Cultural Resources OP/BP 4.11		x
Indigenous Peoples OP/BP 4.10		x
Involuntary Resettlement OP/BP 4.12	x	
Safety of Dams OP/BP 4.37		x
Projects on International Waterways OP/BP 7.50		x
Projects in Disputed Areas OP/BP 7.60		x

Comments (optional)

The project environmental and social assessments were conducted. The assessments indicate that the project will generate significant positive social and environmental benefits. The adverse environmental and social impacts have also been identified and mitigation measures have been developed and incorporated into the project design, which will be implemented during the project implementation period.

VII. Contact point

World Bank

Contact: Jin Liu
 Title: Senior Rural Development Specialist
 Tel: 5788+7687
 Email: jliu@worldbank.org

Borrower/Client/Recipient

Name: People's Republic of China
 Contact: Mr. Licheng Yao

Title: Director, International Department, Ministry of Finance
Tel: 86 10 68551174
Email: yaolicheng@mof.gov.cn

Implementing Agencies

Name: Hebei Provincial Agriculture Department
Contact: Wang Xiangxue
Title: PMO Director
Tel: 86-311-67661793
Email: wb-hebei2012@163.com

VIII. For more information contact:

The InfoShop
The World Bank
1818 H Street, NW
Washington, D.C. 20433
Telephone: (202) 458-4500
Fax: (202) 522-1500
Web: <http://www.worldbank.org/infoshop>