

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

59806

Project Name	CPF-Hebei Livestock Waste Management Project
Region	EAST ASIA AND PACIFIC
Sector	Renewable energy (80%), Agriculture extension and research (20%)
Project ID	P119124
Borrower(s)	
	Government of China
Implementing Agency	
	Hebei Province New Energy Office
Environment Category	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> FI <input type="checkbox"/> TBD (to be determined)
Date PID Prepared	January 20, 2011
Estimated Date of Appraisal Authorization	December 31, 2011
Estimated Date of Board Approval	Not applicable

I. Key development issues and rationale for Bank involvement

1. China's economy has experienced remarkable growth in the past several decades, but this has been accompanied by an increase in emissions of greenhouse gases (GHGs). As one of the largest emitters of GHGs in the world, China has being made great efforts in reducing carbon emissions. China is one of the signatories of the United Nations Framework Convention on Climate Change (UNFCCC), which ratified the Kyoto Protocol on August 30, 2002 and it is also one of most active countries in the Clean Development Mechanism (CDM) sector. The evidence that agricultural activities can contribute to GHG emission reduction has long been recognized, but because of the technical challenge to monitor the process, the low cost-benefits in this sector and the lack of a policy incentives, few actions have been taken. Although the CDM carbon market has experienced rapid development worldwide during last five years, there are only a few agriculture projects registered as CDM project under UNFCCC scheme.

2. The social and environmental challenges faced by China are also interconnected with its rapid economic growth. For example, the expansion of livestock production is considered a viable means for creating rural income and employment. However, its rapid expansion and concentrated management approach also pose a threat to the local environment and public health. The pollution mainly comes from the by-product of livestock manure treatment. Traditionally, livestock manure is stored in open lagoons on the farms. The discharge from the livestock waste affects the surface and ground water quality. It also transfers zoonotic diseases from the handling of manure and the noxious gases released by the excrement. The gaseous discharge from these waste storage lagoons also includes methane – a greenhouse gas. The inadequate disposal of animal waste gives rise to diseases link to wildlife, domestic animal receptors, as well as people, thus, creating public health risks such as *Highly Pathogenic Avian Influenza (HPAI)*, *Escherichia*

coli (E. coli), salmonella, anthrax, gastrointestinal parasites, etc. Excessive levels of nitrates in ground water are known to *blue baby syndrome* in infants. Environmental discharge and accumulation of persistent constituents such as arsenic and heavy metals can lead to serious health consequences, including cancer.

3. The problem of livestock manure pollution in local communities has drawn great attention from China's government agencies. The Chinese Government believes that changing the traditional manure management practices in local farmers can be accomplished by installing and operating biogas projects. This would be an effective way to reduce livestock waste pollution, significantly improve the rural environment and reduce greenhouse gas (GHG) emissions. Similarly the Government of Hebei Province also sees biogas utilization as a means of addressing the problem of rural environmental degradation and improving the living conditions of rural households, as well as an important tool to facilitate climate change mitigation process. However, due to financial limitations and lack of incentive mechanism to the investors, majority of existing livestock farms have not undertaken biogas program, which are still face the outstanding environmental challenges resulting from traditional manure management practices. Without biogas development, the common practice of using open lagoons to store animal waste will continue to emit methane gas directly into the atmosphere and causes pollutions to rural areas. Therefore, the Hebei Government is seeking for an incentive mechanism that would generate financing source to encourage livestock farms to set up biogas digesters to reduce ER and pollution, as well as to strengthen technical support and provide a monitoring system to biogas digester operations, which would ensure a sustainable approach to livestock waste management and environmental protection.

4. The World Bank launched the Carbon Partnership Facility (CPF) in October 2008 with the primary objective of encouraging the continuous development of carbon ER activities for long term. During the period of that the conclusion of the Kyoto Protocol Commitment period is approach and the future of the post-2012 agreements is under negotiation. This new facility will promote the stable development of a carbon market. As agreed by the Ministry of Finance (MOF), the National Development and Reform Commission (NDRC) and the World Bank (WB), the WB will support to develop and demonstrate approaches for biogas-based CPF-Programmatic Clean Development Mechanism (P-CDM) in order to establish a replicable carbon trade programs in the agriculture sector. The CPF will then purchase ERs from farm level biogas pilot programs up to 2020. The piloted P-CDM program will provide project entities with a reliable and long-term stable revenue flow from the emission reductions; it will also provide the livestock farm sustainable waste management and increase the institutional capacity to reduce greenhouse gas emission as required.

5. The World Bank is the most experienced agency in the area of biogas CDM and has received a strong request from the Chinese government to help extending the impact of the experience to broader areas. It is anticipated that the techniques and mechanisms to be developed under the project would be replicated and applied to the government ongoing programs in Hebei as well as in other provinces throughout China. It will also demonstrate the initiative in other developing countries with similar biogas potential.

II. Proposed objective(s)

6. The Project aims to demonstrate the technical and methodological approaches for biogas based P-CDM operation by establishing a sustainable livestock waste management that would significantly improve rural environment and reduce greenhouse gas emissions.

7. A monitoring plan, including the formulation of key results, indicators and a suitable M&E methodology, will be developed during the project preparation. Tentatively, the following results are expected from the implementation of the project:

- (a) bio-digester/biogas installed in 10-20 farms for power/heat facilities for the first phase of this Program;
- (b) technical and methodological approaches for a biogas based P-CDM program would be demonstrated;
- (c) certified carbon emission reduction (CER) by changing traditional livestock waste management (LWM) approaches;
- (d) an innovative operation and maintenance system including monitoring and evaluation system for farm waste management established to ensure the sustainable LWM and stable CER.

III. Preliminary description

7. The WB will support the development and implementation of a biogas based P-CDM in Hebei Province in order to establish a replicable carbon trade process in the agriculture sector. The pilot program will provide assurance of a significant, long-term, and stable revenue through enable credited CER trade process to support the sustainable waste management in the selected livestock farms and build-up institutional capacity in extending the mitigation of greenhouse gas emission efforts as required scale sector-wide. It is proposed that 10-20 farms will be included in the project in Hebei Province. The CPF will purchase ERs from the pilot program up to 2020 and the conservative target ER amount is estimated approximately to be 120,000 tons of CO₂ per year. The WB project management experience could be built into project technical design, implementation and management arrangements.

8. Tentatively, the project would encompass the following components and main activities.

- (a) Component one: Construction and Operation of the Improved Biogas Digesters. This component would include the installation of biogas digester to treat livestock manure and produce biogas for heating or power generation for the livestock farms and communities. The selection criteria of target farms have been defined during the project identification stage.

(b) Component Two: Technical Services, Monitoring and Carbon Finance Transaction. This component would provide the technical services and training to the project participating farms in order to promote the standardized farm livestock waste management practice, build capacity in biogas operation/ monitoring (O&M) and digested slurry application. This component would also support the project validation, verification and CERs transaction between Project Entity and the World Bank managed CPF during project crediting period.

IV. Safeguard policies that might apply

9. The project is an Environment Category B project. The project objective is to improve rural environment conditions and reduce carbon emissions. It is expected that the significant positive environment benefits will be generated. During project preparation an *Environmental Assessment* and *Environmental Management Plan, as well as a specific Social Assessment and related Safeguards reviews* would be undertaken to ascertain that project impacts on the environment and social aspects. The necessary mitigation measures will be developed to address the identified or potential adverse effects.

V. Tentative financing

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Source:	
Borrower (Approximately)	16
International Bank for Reconstruction and Development (Approximately Certified Carbon Emission Reduction Purchase)	14
Total	30

VI. Contact point

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