ADB ASIAN DEVELOPMENT BANK

# Bangladesh: Financing Brick Kiln Efficiency Improvement Project

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| Project Name | Financing Brick Kiln Efficiency Improvement Project |
| Project Number | 45273-001 |
| Country | Bangladesh |
| Project Status | Approved |
| Project Type / Modality of Assistance | Loan |
| Source of Funding / Amount | **Loan 2865-BAN: Financing Brick Kiln Efficiency Improvement Project**<br>Ordinary capital resources — US$ 30.00 million<br>**Loan 2866-BAN: Financing Brick Kiln Efficiency Improvement Project**<br>Asian Development Fund — US$ 20.00 million |
| Strategic Agendas | Environmentally sustainable growth<br>Inclusive economic growth |
| Drivers of Change | Private sector development |
| Sector / Subsector | Finance - Infrastructure finance and investment funds |
| Gender Equity and Mainstreaming | Some gender elements |
| Description | Brick manufacturing process is energy intensive and a main source of greenhouse gas (GHG) emission and fine particulate pollution in Bangladesh. The proposed project intends to establish an equivalent of $50 million credit facility in local currency at Bangladesh Bank (central bank) for relending to participating financial intermediaries (PFIs) to construct more energy efficient and environmentally superior brick kilns. The credit facility has two components: one is to upgrade existing polluting brick kilns to a transitional design as an immediate measure to comply with the government directive (footnote 11) and reduce pollution, and the other is to promote the most advanced brick kiln pilots to demonstrate their operational and commercial viabilities in Bangladesh. The combined efforts, along with concerted donor assistances, will help catalyze domestic finance and leverage the demonstrative effect to build up sizeable clean brick manufacturing capacity in Bangladesh to eventually replace the existing pollution brick kilns and modernize the brick sector. |

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| Project Rationale and Linkage to Country/Regional Strategy | Promotion of energy efficiency and conservation is a part of Bangladesh's national strategy for accelerated poverty reduction II (2009-2011). From 1990 to 2011, Bangladesh's real gross domestic product (GDP) grew consistently at around 5% per annum. During the same period, the population grew from 109 million to 159 million. As a result, the country's primary energy consumption rose from 0.25 quad (1015 British thermal unit) in 1990 to 0.87 quad in 2008. With increased consumption of carbon-based fuels, the country's carbon dioxide (CO2) emission per capita doubled from 40 metric tons in 1990 to 80 metric tons in 2008. High energy intensity from the growing inefficient industrial operations is a major contributor to GHG emission and fine particulate pollution in Bangladesh. Brickfields are among the largest industrial polluters.<br>Brick making is a major business sector in Bangladesh, contributing to about 1% of GDP. However, due to the lack of relevant policy and legislations, the brick sector is also poorly regulated. Instead of a small number of highly efficient modern brickfields, a large number of unqualified small businesses operate on the back of outmoded technologies, severe industrial pollution, and poor labor standards. With the current rate of economic growth, the brick sector will continue to expand at about 8% per annum, and burns about 6 million tons of coals and emits about 9.8 million tons of carbon dioxide (CO2). In the capital city of Dhaka, the brick sector contributed to the most fine particulate pollution during the operating season (from November to April). There is an additional land-use change emission from deforestation by burning firewood and loss of farmlands and other natural habitats from extracting fertile top soils for brick making.<br>There are six basic types of brick kilns in Bangladesh (table 1): (i) bull's trench kiln (BTK), (ii) fixed chimney kiln (FCK), (iii) improved zigzag kiln, (iv) vertical shaft brick kiln (VSBK), (v) Hoffman kiln, and (vi) tunnel kiln. From (i) to (vi), BTK is the least energy efficient and most polluting, and tunnel kiln is among the most energy efficient and least polluting. In addition, there are modified (or improved) zigzag and hybrid Hoffman kilns (HHKs), which are based on traditional designs but more energy efficient than their prototypes. FCK can be upgraded to improved zigzag kiln because of the similar technical design. Currently, 92% of the 4,880 brickfields in Bangladesh are using the highly polluting FCK design. Improved zigzag kilns, VSBKs, HHKs, and tunnel kilns are rare because of the lack of awareness of these technologies and inadequate market funding support.<br>To improve the environmental condition, the Government of Bangladesh (government) plans to transform and modernize the brick sector by (i) establishing a minimum operating standard (e.g. technologies and CO2 emission) to phase out existing polluting FCKs and (ii) providing designated funding support to construct advanced, more energy efficient brick kilns. Ministry of Environment and Forests (MOEF) issued a directive on 15 July 2010, requiring that (i) no annual FCK licenses be renewed after September 2012, (ii) environmental clearance favor more energy efficient improved zigzag kilns, VSBKs and HHKs and (iii) all FCKs cease to exist from September 2013. However, given the tightening liquidity and credit condition in the financial system, there is a lack of targeted finance to complement the government effort to help construct more energy efficient brick kilns and facilitate an orderly transformation of the brick sector.<br>The proposed project is exactly designed to help catalyze domestic capital and provide the targeted finance to build up energy efficient brick kiln replacement capacity to best support the government initiative. The proposed credit facility will establish a revolving credit facility of (i) up to 25 years in equivalent local currency of $30 million from ADB's ordinary capital resources (OCR) for the upgradation cost of FCKs to improved zigzag kilns and (ii) up to 32 years in equivalent local curency of $20 million from ADB's Special Funds resources for the construction of more advanced VSBKs, HHKs, and tunnel kilns.<br>The proposed project will be supported by a capacity building technical assistance (CDTA) that backstops project implementation and provide policy and regulatory support, awareness raising, business support, research and development, and alternative livelihood program to minimize the negative social impact. The CDTA is designed to coordinate with relevant development partners and complement the lending assistance to effectively support a more comprehensive brick sector development program. The CDTA concept paper is attached as a supplementary appendix.<br>The demand for fund to upgrade FCKs to improved zigzag kiln is strong. FCK owners' have a satisfactory track record to comply with past government's sector directives. This is further substantiated by Bangladesh Brick Manufacturing Owners Association (BBMOA) and the positive results from ADB's market surveys, workshops, and consultations (see sector assessment: Brick Financing). Although there is a lack of awareness of VSBK, HHK, and tunnel kiln technologies in Bangladesh, the local market for energy efficient brick kilns is rapidly developing. The CDTA will provide relevant technical workshops and media campaigns to disseminate the successful pilot projects' technical and commercial viabilities and further create continuous demand for ADB funds.<br>Although improved zigzag kiln is not among the most energy efficient designs, it provides a practical solution to immediately fulfill the government directive to phase out the FCKs while preserving the sector's social welfare. Construction of more advanced VSBK, HHK, and tunnel kiln will serve as a more long-term and permanent solution to modernize the brick sector and reduce GHG emission and fine particulate pollution. Priority will be given to financing most advanced tunnel kilns.<br>The proposed project aligns with ADB's Country Partnership Strategy (CPS): Bangladesh, 2011-2015 in supporting Bangladesh's development agenda in environmental sustainability. The Bangladesh CPS is programmed to support more inclusive and greener economic growth by deepening its financial markets and boosting energy efficiency, with a significant emphasis on climate change mitigation and adaptation. The proposed project also aligns with the ADB Financial Sector Operational Plan by competitively mobilizing domestic finance for the needed sector development. The proposed project supports environmentally sustainable growth, which is one of the three strategic agendas of the ADB Strategy 2020. As a financial intermediary loan, the proposed project supports private sector development by providing most sustainable growth potential for brick manufacturers and hence small and medium-sized enterprise (SME) development.<br>The proposed project is closely coordinated with the industrial energy efficiency program from ADB private sector operations department (PSOD) and ongoing assistance from World Bank, United Nations Development Progamme (UNDP), and Gesellschaft f r Internationale Zusammenarbeit (GIZ). The combined ADB's direct funding support complements the technical assistance and carbon finance scheme from World Bank and UNDP (see linked document on Development Coordination). |
| Impact | Improved environmental conditions in Bangladesh. |

| Project Outcome | |
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| Description of Outcome | Replacement of polluting fixed chimney kilns (FCKs) with more energy-efficient kilns in Bangladesh's brick sector. |
| Progress Toward Outcome | A total of $9.6 million have been disbursed to 5 advanced brick kilns by the end of 2013. ADB is reviewing the implemented safeguard and project administration process to ensure compliance to ADB requirements. Additional $10 million disbursement is underway, subject to successful ADB review of the subproject compliance. The project impact on FCKs is still too early to measure. |
| **Implementation Progress** | |
| Description of Project Outputs | Designated credit facility, by catalyzing domestic resources, to finance upgrade to and construction of more energy-efficient brick kilns.<br>Mitigated adverse working and social welfare conditions in ADB-funded brick kilns. |
| Status of Implementation Progress (Outputs, Activities, and Issues) | As of September 2013, the loans executing agency (EA), Bank and Financial Institutions Division (BFID) of Ministry of Finance, has established a project steering committee. The loans implementing agency (IA), Bangladesh Bank, has established tailored implementation guidelines to streamline the loans disbursement procedure. In terms of the associated technical assistance (TA), the EA, Ministry of Environment and Forest, has established the TA steering committee. The IA, Department of Environment, has begun to support the loans disbursement by facilitating borrowers' application to the project technical, site and environmental clearances.<br>Bangladesh Bank and ADB (and consultants) have organized a number of workshop/meeting sessions with the PFIs (commercial banks), which expressed concerns over certain ADB loans' terms and conditions that could hinder disbursement of the loans to large brick investment projects. Bangladesh Bank consolidated these views and requested through the EA, BFID, to change a number of conditions pertaining to the ADB project and loan agreements. |
| Geographical Location | |

| Safeguard Categories | |
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| Environment | FI |
| Involuntary Resettlement | FI |
| Indigenous Peoples | FI |

| Summary of Environmental and Social Aspects | |
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| Environmental Aspects | According to ADB's Safeguard Policy Statement 2009 (SPS 2009), the project is classified as FI (financial intermediary) for environment, involuntary resettlement, and indigenous peoples. An environmental and social management system (ESMS) arrangement consistent with SPS 2009 was prepared to guide PFIs to evaluate the subprojects and develop their own ESMS. Safeguards related eligibility criteria eliminate any subproject that could be classified as category "A," based on SPS 2009. PFIs will be incentivized to adopt and comply with the developed ESMS arrangements to access the credit facility. The project will only finance environment categorization B and C subproject. A subproject categorization process is being implemented and reviewed by ADB to ensure accuracy and compliance. |
| Involuntary Resettlement | Upgradation of existing FCKs will not likely lead to additional land acquisition. Construction of greenfield energy efficient kilns will be mostly confined in subborrowers' own land. The project will only finance Involuntary Resettlement (IR) categorization B and C subproject. A subproject categorization process is being implemented and reviewed by ADB to ensure accuracy and compliance. |
| Indigenous Peoples | All land acquisition to the small ethnic community people will not be permitted. The project will only finance Indigenous Peoples (IP) categorization B and C subproject. A subproject categorization process is being implemented and reviewed by ADB to ensure accuracy and compliance. |
| **Stakeholder Communication, Participation, and Consultation** | |
| During Project Design | Key C&P pertains of consultations with (i) government stakeholders on the need to reduce air pollution from brick kilns and on the government commitment to implement the project, (ii) brickfield owners' interests and incentives to receive funds for the proposed technology upgrade, and (iii) potential lenders on their appetite for providing such specialized lending in the brick sector, and for the confirmation of the realistic nature of the project rationale. |
| During Project Implementation | ADB has conducted frequent, often monthly, reviews on the project implementation. All relevant government and public entities are well involved. Site visits and consultations are required as a part of the safeguard compliance requirements. |

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| Responsible ADB Officer | Anqian Huang |
| Responsible ADB Department | South Asia Department |
| Responsible ADB Division | Public Management, Financial Sector and Trade Division, SARD |

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| Executing Agencies | *Ministry of FinanceEconomic Relations Division (ERD), MOF*<br>*Sher-e-Bangla Nagar, Dhaka_1207*<br>*Bangladesh* |

| **Timetable** | |
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| Concept Clearance | 15 Feb 2012 |
| Fact Finding | 26 Feb 2012 to 29 Feb 2012 |
| MRM | 12 Mar 2012 |
| Approval | 10 May 2012 |
| Last Review Mission | - |
| Last PDS Update | 04 Mar 2015 |

**Loan 2865-BAN**

| **Milestones** | | | | | |
|---|---|---|---|---|---|
| **Approval** | **Signing Date** | **Effectivity Date** | **Closing** | | |
| | | | **Original** | **Revised** | **Actual** |
| 10 May 2012 | 20 Jun 2012 | 08 Nov 2012 | 31 Dec 2015 | - | - |

| **Financing Plan** | | **Loan Utilization** | | | |
|---|---|---|---|---|---|
| | Total (Amount in US$ million) | Date | ADB | Others | Net Percentage |
| Project Cost | 30.00 | Cumulative Contract Awards | | | |
| ADB | 30.00 | 10 May 2012 | 0.00 | 0.00 | 0% |
| Counterpart | 0.00 | Cumulative Disbursements | | | |
| Cofinancing | 0.00 | 10 May 2012 | 13.00 | 0.00 | 43% |

**Loan 2866-BAN**

| **Milestones** | | | | | |
|---|---|---|---|---|---|
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| | | | **Original** | **Revised** | **Actual** |
| 10 May 2012 | 20 Jun 2012 | 08 Nov 2012 | 31 Dec 2015 | - | - |

| **Financing Plan** | | **Loan Utilization** | | | |
|---|---|---|---|---|---|
| | Total (Amount in US$ million) | Date | ADB | Others | Net Percentage |
| Project Cost | 20.00 | Cumulative Contract Awards | | | |
| ADB | 20.00 | 10 May 2012 | 0.00 | 0.00 | 0% |
| Counterpart | 0.00 | Cumulative Disbursements | | | |
| Cofinancing | 0.00 | 10 May 2012 | 19.98 | 0.00 | 100% |

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| Project Page | http://www.adb.org/projects/45273-001/main |
| Request for Information | http://www.adb.org/forms/request-information-form?subject=45273-001 |
| Date Generated | 22 August 2015 |