

# Study on Energy Efficiency in Public Buildings (EEPB)

## Background

Commercial buildings account for 4.8% of the total energy consumption in Bangladesh<sup>1</sup>. As per the third national communication of Bangladesh to the United Nations Framework Convention on Climate Change of Bangladesh, Green House Gas (GHG) emission from commercial buildings in 2030 will be 3.35 MtCO<sub>2e</sub>, which is 637 times higher than the 2011 base line emission. Energy consumption is rapidly increasing in commercial buildings and electricity is the main form of energy used in this sector. The Energy Efficiency and Conservation Masterplan (EE&C 2015) aims to reduce energy intensity by 15% in 2021 and 20% by 2030 (against a 2013 baseline).

Public building accounts for most of the energy consumption in the commercial sector. The total construction area of the public buildings is 14.27 million square meters connected to 44,650 different types of electric equipment (data in April 2017)<sup>2</sup>. Roughly 50-60% of the total energy in a typical commercial building is consumed by air conditioning and 10-30% by lighting systems<sup>3</sup>. At present 122 central air-conditioners, and 23,247 split air conditioners are installed in different public buildings mostly in Dhaka and other regions. The replacement of conventional air conditioning with energy efficient inverter type air conditioning and LED lighting system is expected to save electricity by 50%. The EE&C masterplan also indicates public building retrofits would be cost-effective and deliver a potential annual saving of 5%.

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ), together with Bangladesh's Ministry of Power, Energy and Mineral Resources, aims to create the enabling conditions required to disseminate renewable energy technologies and increase energy efficiency in Bangladesh. As per request from the Sustainable and Renewable

Programme name	Study on Energy Efficiency in Public Buildings
Supported by	German Federal Ministry for Economic Cooperation and Development (BMZ)
Project region	Bangladesh
Partner ministry	Power Division; Ministry of Power, Energy, and Mineral Resources (MPEMR)
Executing agency	Sustainable and Renewable Energy Development Authority (SREDA)
SDG contribution	Affordable and Clean Energy (7) Sustainable Cities and Communities (11) Climate Action (13)
Duration	2019-2020

Energy Development Authority (SREDA), GIZ is implementing this pilot project on energy efficiency in public buildings in Bangladesh through a grant received from the Kigali Cooling Efficiency Program (K-CEP). Under the pilot project, energy audits will be conducted in selected public buildings, results of which will be shared with wider stakeholders to reduce the knowledge gap. An energy efficiency credit from the Asian Infrastructure Investment Bank (AIIB) might be available to implement the recommendations from the energy audit.

The study project is being implemented by Renewable Energy and Energy Efficiency Programme II (REEEP II) in collaboration with GIZ Sector Project Proklima and AIIB. Successful implementation of this project could help boost the energy efficiency appliance market in Bangladesh. Besides it might encourage other key stakeholders to implement energy efficiency projects in residential, and commercial buildings as well as in the industrial sector.

<sup>1</sup> Compiled by JICA, 2016 for Energy efficiency and conservation master plan up to 2030

<sup>2</sup> "Update of Plinth area, April 2017" from Public Works Department

<sup>3</sup> Energy Efficiency and Conservation Master Plan up to 2030

Al Mudabbir Bin Anam  
Mudabbir.anam@giz.de



Left: Inter-ministerial operational planning meeting of EEPB project

Right: Dr. Ahmad Kaikaus, Senior Secretary, Power Division, speaks at the launching workshop of EEPB

## Objectives

The aim of the study is to determine the potential energy saving opportunities in public buildings in order to reduce the energy used for air conditioning/refrigeration, lighting, and other equipment in public buildings. The study will determine the potential direct and indirect emission and cost reduction measures derived from the efficiency improvements and green cooling technology proposed in the technical and economic assessment. The study will outline the list of existing and best available climate-friendly technologies for building envelope, cooling systems, lighting and motor for the selected buildings. Findings of the study will be presented to key government stakeholders, development partners and wider stakeholders of the market to offer the necessary technical and financial support to implement the recommendations.

## Approach

The study will focus on identifying the potential energy-saving scope in commercial buildings. The energy-saving options will be justified in terms of financial and economic aspects. The finding of the study will help to make a projection about the total energy saving and GHG emission in all the public buildings of Bangladesh. The project will also work out how much need to be invested to achieve the desired level of energy efficiency in this sector in 2030, according to EE&CMP 2015.

Local energy auditors and cooling system experts will be engaged in this study, and it would support in building a sustainable knowledge base. Bangladesh University of Engineering and Technology (BUET) will provide technical backstopping to the energy audit.

Published by

Deutsche Gesellschaft für  
Internationale Zusammenarbeit (GIZ) GmbH

Registered offices  
Bonn and Eschborn, Germany

Study on Energy Efficiency in Public Buildings  
GIZ Bangladesh  
PO Box 6091, Gulshan 1  
Dhaka 1212, Bangladesh  
T + 880 2 5506 8746-52  
F + 880 2 5506 8753  
giz-bangladesh@giz.de  
www.giz.de/bangladesh

As at

March 2020

Printed by

Design

Photo credits

Sheikh Tanim Hasan, Muhammad Yeasin

Text

Ashrafal Ambia

GIZ is responsible for the content of this publication

On behalf of

German Federal Ministry for Economic  
Cooperation and Development (BMZ)

In cooperation with

