

Promoting resource efficient cleaner production (RECP) in metal SMEs in the building and construction sector in Bangladesh

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Background

Bangladesh was named by Goldman Sachs¹ as likely to be among the largest economies of the 21st century highlighting the rate of growth in Bangladesh industries, considering that now the 63 percent of the population are farmers. With this motivational statement, the Government of Bangladesh (GOB) is nowadays in a race against time concerning growth acceleration, poverty reduction, income inequality reduction and regional disparity reduction.

To reach this development goal, the GOB is creating productive employment in the manufacturing and organized service sector, transforming the unskilled low-income working force in informal activities into productive skilled employees with the help of small and medium enterprises.

The **Small and Medium Enterprises (SME)** play a primary role in the productive workforce transformation. In Bangladesh, these businesses shape the economy of the country working as individual organizations or as clusters.

SME clusters are concentration of enterprises producing similar products or services creating horizontal and vertical economic relations. More

than 90% of the industrial enterprises in Bangladesh are SMEs, contributing to more than 30% of the country's gross domestic product (GDP), and providing employment to 4 out of 5 industrial workers. Because of the high concentration of industries in SME sector, the GOB set a target to increase the SME sector's share in GDP by at least 40% within 2021.

Clusters are an important source of employment and income in the grassroots levels as they create positive externalities and enable growth in numerous business sectors.

Among the SME clusters in Bangladesh, the secondary sector (industry and manufacturing), owns 45.7% of the total number of individual SMEs establishments and between 2011 and 2012 it provided the country with the second largest percentage to their Gross Domestic Product (GDP) with 31.2%.

The secondary sector involves transformation of raw materials into products used for commercial exchange. This is why the secondary sector is considered to be the engine of developing economies. In Bangladesh, this includes wood, coal and metals; among these the metal industry is the second largest.

The metal manufacturers combine efforts to produce products for the engineering sector, construction sector, automobile industry, steel manufacturing and many infrastructure projects.

¹ The Goldman Sachs Group, Inc. is an American multinational investment bank and financial services company headquartered in New York City (www.goldmansachs.com)

Metal SME sector in Bangladesh is a significant component of the market. When talking about clusters, the metal SME have 50.9% of the total number of individual establishments, they are responsible for the 35.5% of national employment opportunities and of the 47% of the Gross Value Added (GVA).

Regarding energy consumption matrix the secondary sector in Bangladesh uses 47.7% of the country's total energy, with that number expected to rise to 50% by 2030. Within it, the metal industry is the second largest consumer with 121.5 billion cubic meters of natural gas, from 708.9 billion cubic meter production.

Since Bangladesh is a developing country, this number might be attributed to the sector growth; but most of the substantial energy waste in the SME clusters and individual enterprises is due to the use of old technology, energy loss and poor energy management.

In Bangladesh, energy comes mainly from natural gas consumption and the constant depletion of the national reserves which result in increased energy prices. The GOB is reaching to a point where they cannot afford subsidies in this sector as by now it's already 90% of the total state budget.

With increasing energy consumption, increasing energy prices and low energy efficiency the GOB is facing serious challenges before being able to think about future development. This is why the **Resource Efficiency and Clean Production (RECP)** approach promoted by **METABUILD** is one of the most promising solutions adopted.

The **METABUILD** project is a 4-year project supported by the European Union under the SWITCH Asia Programme. This programme emphasizes sustainable consumption and production SMEs. The program objectives are to create improved production processes of metal components for the building and construction sector in Bangladesh, contribute to improved environmental quality in the target locations and create improved working and living conditions in the target countries. To reach all these goals

METABUILD is adopting **RECP** measures in SMEs that operate in Bangladesh's building and construction sector.

SMEs are one of the most important groups regarding economic activities worldwide, thus they address diverse economic sectors and have important social they have the tendency to start a speeded up economic growth process.

In contrast to this, due to their size and a limited resource capacity, SMEs do not always have the most sustainable environmental behaviour. The performances of the SMEs are having negative consequences and unless there is a regulatory system growing, Bangladesh metal SMEs will continue to move in this direction.

This is the whole reason behind for the appliance of **RECP**. This approach conveys the "continuous application of preventive environmental strategies to processes, products and services in order to increase the efficiency and reduce risk to humans and the environment" (UNIDO, 2017).

RECP has three main approaches, improve the productive use of natural resources, minimize the impact of production in nature and support communities and reduce risks.

The benefits of adopting RECP measures are increased productivity and profitability as well as an improved environmental and social performance. This includes reduced emissions and waste generation as well as safer and healthier working conditions. By adopting RECP SMEs are enabled to cope with limitations in existing infrastructure (e.g. power and water supply) and to use scarce resources more efficiently.

In the case of the GOB formulating policies that will work coherently and effectively with the political instruments already in play is very important for the reduction of the energy consumption of the manufacturing business operation. The main aim of these new frameworks is to make the energy-intensive industry low carbon intensive in order to help not only the climate agenda but gain financial benefits from the secondary sector, save costs and increase productivity. The metal SME sector is still

a niche with the need for improvement and a source of potential energy saving.

In this policy brief, the METABUILD team, therefore, sketches the current status of Bangladesh's RECP policy and regulation, presents a problem analysis and provides recommendations for strengthening RECP among metal SMEs in Bangladesh building and construction sector. The policy brief is based on desk research and inputs from Bangladesh's Dhaka Chamber of Commerce and Industry (DCCI).

Current status of RECP regulation

Concerning the RECP measures, there are no direct policies or contractual statements that force enterprises to convey a low environmental impact production in Bangladesh.

According to the last Paris Agreement Bangladesh is a country with no GHG-emissions reduction commitments. Regardless of this, the GOB is working with their Department of Environment and the Ministry of Environment and Forest to create connections between the relevant policies and action plans and strategies existent and to be created.

The Government of Bangladesh has formulated in the 1990s the **Environmental Conservation Act** (1995) and the **Environmental Conservation Rules** (1997) in connection to the **National Environmental Policy**, which was formulated in 1992.

Since 2008 the **Ministry of Power, Energy and Mineral Resources (MPEMR)** has issued a plan with a set of policies including an Interim Action Plan for improving Energy Efficiency & Conservation, the Gas Act 2010 and a Power System Masterplan 2016, released by SREDA. The **Sustainable and Renewable Energy Authority (SREDA)** Act of 2012 focuses on cutting the energy consumption of energy-intensive industries, including steel, nonferrous metals, construction materials, and chemical processing. All the policy (Small and Medium Enterprises Foundation, 2013)

(Economic Adviser's Wing Finance Division, Ministry of Finance, 2017) (Bakht & Basher, 2015) (Energy Efficiency Engagement, 2017) (SREDA and Ministry of Power, Energy and Mineral Resources., 2015) programs, legal documents (Act, Rules, Regulations, Circulars or Standards) and frameworks are established under the Energy Efficiency and Conservation Master Plan (EECMP). In the Masterplan, the Government aims to improve energy intensity (national primary energy consumption per gross domestic product/GDP) in 2030 by 20% compared to the 2013 level. That means that a total of 95 million is expected to be saved in that period. Demand for primary energy in Bangladesh is expected to triple in 2030 and the country is expected to step from a labour-intensive industry to an energy-intensive one due to its rapid development. Furthermore, it is to be expected that the reserves of gas and coal will decrease in 2021-22, underlines the urgency of resource efficient cleaner production and the use of renewable energies.

Manufacturing Industry accounts for 47.8% of the total primary energy consumption. The great inefficiency results in a saving potential of approx. 30% within the sector and taking into consideration the high contribution to national primary energy, RECP measures can have a huge impact.

There are a certain number of sector-specific regulatory policies and voluntary strategies like 3R Strategy (2010), but there are no policies relevant to promote **Cleaner Production, Resource Efficiency and/or Energy Efficiency**.

Energy Efficiency and Conservation Master Plan (EECMP) of SREDA: Under the action-plan of the EECMP, three EE&C programs will be promoted, namely, Energy Management Program, EE Labelling Program and EE Buildings Program. Financial incentives such as low-interest loans, subsidies and preferential taxes will be provided to lessen the initial costs of end users who purchase high energy efficient appliances and industrial equipment.

With regard to the implementation of RECP and EE&C policies, the government pursues the goal of

a self-reliant RECP/EE&C society by 2030, through various incentive mechanisms and regulatory.

MPEMR stands for a kind of orchestrator and organizes the multi-sectoral cooperation of different parties and stakeholders. The **SREDA** is the main Implementing body to promote nationwide EE&C activities and has monitoring functions. While **Local Governments** take responsibility to administrate the new version of Bangladesh **National Building Code (BNBC)** and **Green Building Guideline (GBG)** as well as RECP activities in office, projects and own procurement.

As part of the Action Plan in EE&C the Energy Management Program targets large industrial energy consumers including metal SMEs in the building and construction sector with activities such as qualification and examination system for Energy Managers and Auditors Benchmarking. In addition, there is an EE Building Programme for the Building Sector, which is implemented by the local governments.

Since the establishment of SREDA as a national nodal organization for promoting demand-side energy efficiency and conservation in the countries several programs and projects have been undertaken such as (1) National Building Code, (2) Text Book Curriculum of schools, madrasas and colleges, (3) Improving Kiln Efficiency in the Brick Manufacturing Industry or (4) Energy audits by Energy Audit Cell und Electrical Advisor and Chief Electrical Inspector.

Problem Analysis

Bangladesh's is one of the fastest growing economies with continuously growth rates of 6-8 percent and one of the most densely populated countries in the world. Many of the Energy Efficiency initiatives previously mentioned have understated challenges such as: environmental performance, political acceptability and feasibility of implementation. Here we have some of these limitations.

The enforcement of the existing regulation lacks of strength and structure. The policies are

not correctly adapted to the needs of the regulatory institutions. SMEs are an important part of the economy but they always have to struggle with the missing middle, they are either too small or too big to get involved in any framework. The inadequate communication channels among the political institutions do not exert any pressure among the top management entities to turn into RECP strategies.

There are no incentives from the regulatory institutions to promote the RECP. There are no tax reductions or subsidies over clean technology. SME by themselves have a small financial capability and struggle with old machinery and energy inefficiency. The lack of government support over technology or clean energy access is an obstacle.

There is a lack of knowledge regarding the RECP in the regulatory institutions. There is a low technical capacity and no experts over energy efficiency methods in the SMEs and the lack of awareness campaigns and awareness programs creates a knowledge barrier towards RECP. The lack of correct labelling, product familiarity and distribution networks that are informed over the RECP technology creates difficulties in the SME production chains.

There is a lack of coordination among government institutions on the implementation of the policies. There is the National Environmental Policy, the Industrial Policy and the National Energy policy, and there is action to initiate the RECP procedures. SME's depend many times not only in the public financial institutions but on banks, private stakeholders, NGOs and civil society; the lack of communication among all of them means a repetitive informational campaign from their side, resulting in inefficient procedures.

The industry owners have no interest in energy efficiency measures. This happens when there is no clear knowledge about all the benefits of taking in their SMEs RECP practices. The industry has

not been exposed to any training or education programs promoted by the government. There are limited training facilities and no academic programs over this information.

There is no financial support to the industries that take on this energy efficiency and cleaner production measures. The financial institutions that support RECP type of measures have no base knowledge of RECP in SMEs. The difficult step of applying to a financial support of SME makes even harder to access any type of soft loan, tax or vat reduction.

The tariff of the electricity access and the natural gas price is low due to subsidies implemented as Energy Policies by the Government. This measures lead to an overall increase in the demand and has nudged the government towards buying it from private producers, resulting in an increase in the production energy prices. Due to the increase in the production costs the manufacturing costs are higher and the industries are constantly struggling with the competition from China since their manufacturing costs are lesser, therefore, the product price lower.

Recommendations

Based on this problem analysis METABUILD recommends policymakers to pay attention to some of the next ideas to improve the implementation and compliance of the RECP initiative.

- » Create a policy instrument that mixes reward/penalty, motivation and support over the enterprises that decide over the RECP measures, this will facilitate the enforcement of the energy efficiency measures and the awareness of many financial institutions;
- » Increase the information exchange among SMEs, stakeholders and financial institutions. Awareness among the main players will create better RECP implementation chances;

- » Increasing public funding for RECP initiatives that target SMEs;
- » Create regional and international cooperation; this will facilitate the access to technology, finance and technical support to the enterprises which look forward to applying energy efficiency measures.

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