Energy Efficient Green Factories to Enhance Business Opportunities in Textile and RMG Sector of Bangladesh

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Introduction

Readymade Garment Industry (RMG) in Bangladesh became a highest export earner within 30 years after it has exported first million dollar in 1978-79. The sector has exported US$9.2 billion worth of readymade garments in 2006-07 and is a leading sector in terms of employment, production and foreign currency earnings. This phenomenal growth in the industry put tremendous pressure on the energy supply and the port facilities. Most of the companies started their factories in rented buildings that were built either for residential or for commercial use. These buildings were not built to any building construction standards or followed any electro-mechanical design criteria suitable for factories. Ignorance from the utility departments added extra stimulus to this practice and has caused increased operational cost burden to the owners in terms of energy consumption, water use and worker's efficiency. Readymade garment export market is completely a demand driven market and every bit of it is manufactured as per the buyer's requirement. As a result, the apparel manufacturers improved the working environment of their manufacturing facilities, introduced CSR programs and strictly implemented international compliance standards as well as Bangladesh Labor Law to remain competitive in the business. The industry did not place enough emphasis on the conservation of natural resources, energy saving and waste recycling. This was mainly due to the absence of government regulatory procedures or requirements from the apparel retailers. In recent years, the energy and water prices have gone up to a level where apparels have started losing their price advantages in the global market. Environmental regulatory barriers have added additional burden to the operating costs making the business almost non-profitable. Both retailers and manufacturers are now looking at ways to reduce energy consumption and operational costs together within the environmental framework.

Case Study

"We have developed and adopted Green Production Strategy (GPS) in 2006 that itself demonstrates our strong environmental commitment to reduce CO_2 emissions from our manufacturing units. I want to develop green manufacturing system within SQ group to deliver goods and services to fast emerging green apparel market and green consumers, and if possible, I'll simultaneously look into the carbon emission trading opportunity to recover green investment" said Ghulam Faruq, Chairman of SQ Group when interviewed. SQ group is the first sweater manufacturing company in Bangladesh to register with the US Green Building Council (USGBC) for LEED NC certification in April 2008. The $7.0 million energy efficient project situated at Valuka, Mymensingh, instantly attracted investor from the UK and the design work started as joint venture project under SQ Crystal Celsius Ltd. The design work is done by the reputed architectural firm FE&A Ltd., Gulshan, Dhaka and the project construction to be carried out by FCC Ltd., Old Dohs, Dhaka. The project is expected to complete by the end of 2009. Once completed, Marks & Spencer, UK will purchase the complete annual output of 4 million pcs of green sweaters. Kenneth Hardy, Project Manager (Bangladesh) of SQ Crystal Celsius Ltd. said "Green will save the planet but energy efficiency will bring the money."

Green Apparels

Presently global warming, greenhouse gas emissions and climate change are big global environmental issues. Due to its wide publicity of its harmful effect of man-made greenhouse gas emissions, environmental scientists and organizations, government institutions are taking various initiatives to attach the general populations for spontaneous participations in the gHg emission mitigating and adaptation programs. Populations in the developed countries are showing increasing interests to wear green apparels that are manufactured by climate change regulatory compliance green factories or to live in green buildings.

New Business Opportunity

Looking at the new business opportunity apparel retailers in the USA, EU, Australia and other developed countries have started displaying green apparels having same style and taste in retail shops across the world manufactured from green factories. The green industry is now a significant and evolving trend that is likely to affect every facet of the enormous $450 billion global apparel industry. In 2007, the estimated market size of the green apparel stood at $3.05 billion and its market share is increasing faster than expected. Mass market retailers like Wal-Mart, Target, M&S, Tesco and many others are competing with each other to take the

share of the emerging green apparel market. Green apparels would need green factories to manufacture. There is a pressure on the apparel retailer's supply chain to quickly develop new regional technologies and system that will demonstrate an environmentally and socially conscious energy efficient carbon reduction commitment. Bangladesh RMG sector should take this golden opportunity as 60% of the total RGM export goes to EU countries and 32% to USA. When asked, Jacqui Gray, Hub Manager (Bangladesh) of Tesco said "We would be proud to be associated with him if an entrepreneur manufacture green certified apparels. It is a new challenge and lot of learning yet to be done". "we are prepared to take the challenge", said Fazlul Hoque, President of BKMEA, Dhaka when interviewed. ".....and if possible, I'll simultaneously look into the carbon emission trading opportunity to recover green investment" said Ghulam Faruq, Chairman of SQ Group.

Technology behind the Green Manufacturing

Technology behind the green conversion offers a portfolio solution in a systematic and recognizable manner and is aimed to reduce the operational costs and increase profitability of a factory and at the same time do minimum harm to the planet.

In 1993, The U.S. Green Building Council (USGBC) was formed to define and measure "green buildings". It offered rating system which is called LEED (Leadership in Energy and Environmental Design) Green Building Rating System. LEED is a measurement system designed for rating new and existing commercial, institutional and residential buildings. The rating system is organized into six categories: (a) Sustainable Sites (b) Water Efficiency (c) Energy & Atmosphere (d) Materials & Resources (e) Indoor Air Quality (f) Innovations in Operations. The buildings can qualify for four levels of certification:

- Certified
- Silver
- Gold
- Platinum

USGBC is offering above rating systems in:

- LEED for NC (New Construction)
- LEED for EB (Existing Buildings)
- LEED for CI (Commercial Interiors)
- LEED for Core & Shell.
- LEED for Multiple Buildings/Campuses

LEED for EB is best suitable for existing factories of Bangladeshi RMG industry. A few owners have already started to invest in the green factories in order to pursue emerging green business opportunity and reduce high operational cost burdens. SQ group is one of such companies and is the first sweater manufacturing company in Bangladesh to register with the US Green Building Council (USGBC) in August 2008 for LEED for NC certification.

LEED for EB (Existing Building)

LEED for EB addresses building exterior and site maintenance programs, efficient and optimized use of energy and water, the purchase of environmentally preferred products and food, waste stream management and ongoing indoor environmental quality. It also provides guidelines for whole factory building cleaning and maintenance, recycling programs, and systems upgrades to improve building energy performance, water consumption, indoor environmental quality and materials use. These all are contributing factors to operational costs of a factory. Any savings in the above-mentioned fields shall reduce operational costs.

Brandix Sri Lanka – a USGBC "Platinum" rated 130,000 sqft, 30 years old, single storey green factory has achieved an energy saving of 46%, lowering of water consumption by 58%, zero solid waste to landfill and a reduction of carbon emissions by 80%. Energy performance survey report on 121 LEED NC certified buildings published in March 2008 showed that Energy Use Intensity (EUI) for offices averaged 33% below USA national EUI data of Commercial Building Energy Consumption Survey (CBECS).

The Benefits of LEED certification

It is a systematic approach to green conversion process that is globally recognized and acceptable. It enhances company's image, bring more business opportunities with increased profitability.

In the USA, companies that have taken LEED certifications report financial benefits from climate-related programs that include energy efficient improvements, process changes, fuel switching, and customer relations. Studies of workers in green buildings in USA reported productivity gains up to 16% including reductions in absenteeism and improved work quality, netting a rapid payback on the increased capital investment. Total output of the Brandix "Platinum" rated green factory is sold to Marks & Spencer, UK.

Road to Green Manufacturing

Successful conversion of an existing factory to green factory and good Return on Investment (ROI) would require the following: -

a) Have a Green Production Strategy (GPS) paper
b) Have Resource Consumption Audit (Energy, Water and Waste Stream) reports

c) Have an Individual appointed as Commissioning Authority (CxA) or Team Leader. He/she shall report directly to the owner responsible for overseeing OPR, BOD, PVD, SCR and LEED certification
d) Have Owner's Project Requirements (OPR) that details the projects' vision, goals, priorities, design criteria and functional requirements
e) Have Basis of Design (BOD) and Construction Documents (CD)
f) Have performance Verification Documentation (PVD) and a Summary Commissioning Report (SCR)
g) Have course materials for company-wide green awareness creation and worker's green adaptation training programs

Conclusion

Bangladesh RMG sector is more strong, vibrant and innovative than they were 30 years ago and is ready to grab the emerging multi-billion dollar green apparel and carbon trading markets to enhance their existing business. Energy efficient green factory is a game-changing winning strategy to jump ahead of competitors and walk tall in the global green apparel market.