Chapter 4

Assessing the Green Supply Chain Management for the United Arab Emirates Construction Industry

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ABSTRACT

The United Arab Emirates (UAE) construction industry has been witnessing an unprecedented growth in the last two decades. As a result, the sector is facing a major challenge of reducing the carbon footprint and thus creating major concern for the governments and the environmental agencies in the UAE. The chapter discusses the role of Green Supply Chain Management (GSCM) in achieving sustainability in the UAE construction industry. The various stages of GSCM applicable to the construction industry are critically assessed along with green performance measures in achieving environmental, economic and operational performance. Finally, the chapter provides a list of recommendations that could be used by practitioners and policy makers in implementing and measuring sustainability practices in the construction industry.

INTRODUCTION

Environmental pollution and climate change are the main challenges faced by mankind in the 21st century. Increasing carbon emissions from the various stationary and non-stationary facilities are the main cause of global warming and rise in sea level. Hence the carbon footprint quantification, analysis and reduction are considered as the key to identification and mitigation of emissions in every industry. One of the main industries from a sustainability perspective is the construction sector. According to United Nations Environmental Program (UNEP, 2007) report, the construction sector is responsible for 30% of the world greenhouse gas (GHG) emissions. The increased growth in construction industry has led to increased GHG emissions due to higher energy consumption, embodied emission from the production of steel, cement etc., and from the combustion of petrol and diesel from related transportation from construction activities. In addition, construction industry waste makes a significant percentage of the total waste generated in many cities around the world (Li and Zhang, 2012). Hence, there is an urgent need to reduce the environmental impacts of the sector, especially in developing economies like United Arab Emirates (UAE), where the construction is the main contributor of environmental emissions.

Background to the United Arab Emirates (UAE) Construction Sector

During the last decade, UAE has witnessed an unprecedented construction boom, in which the sector on average had grown 10-12 precent, and is the major contributor of environmental pollution. As of 2010, the total construction projects in UAE had an estimated worth of $958bn and is expected to grow by 9.6% annually between 2010 and 2014 (Deloitte Middle East, 2010). According to the 'UAE construction Industry Outlook (2012)' report, UAE accounted for nearly 20.3% of total construction industry in the Gulf Cooperation Council (GCC) having outpaced Saudi Arabia in 2008 in becoming the region's largest construction market. Even during the global financial recession (2009-2012), the sector managed to record strong growth and contributed approximately 8% to the country's GDP in 2009 to over 14% in 2012. Unfortunately, this unprecedented construction boom had largely contributed to UAE becoming one of the top countries in terms of per capita carbon emissions. UAE was ranked 4th, 6th and 1st place in terms of per capita carbon emission in the year 2006, 2008 and 2010 respectively (World Bank Report, 2012), with per capita carbon emission estimated at 22.6 metric tons in 2010. As a result, there is increasing pressure on UAE by global environmental bodies to cut down carbon emissions and per capita energy spending.

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