Social and Economic Challenges of Implementing Sustainable Materials on Buildings in Kuwait

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Presentation Outline

- Introduction to LEED
- LEED EB O&M in Kuwait
- Materials & Resources
- Implementation of Sustainable Purchasing in Kuwait
- Implementation of Waste Management in Kuwait
USGBC and LEED

- LEED- Leadership in Energy and Environmental Design
- LEED was established in 1998 by the US Green Building Council (USGBC)
- USGBC administers the development and ongoing improvement of the LEED rating system
- USGBC is the primary source for LEED and green building education and resources for project teams
- USGBC’s mission is to promote the design and construction of buildings that are environmentally responsible, profitable and healthy places to live and work
The Green Building Certification Institute was established in 2008. Its administers and awards LEED certification to all commercial and industrial projects registered under any LEED rating system. LEED certification is granted to projects by GBCI when sufficient documentation proves compliance with the required number of prerequisites and optional credits. Currently there are 2,476 LEED certified projects and 19,524 registered projects over 90 countries. Commercial building space with LEED certification amounts to more than 50 billion square feet.
LEED Rating Systems

Ref: LEED for Existing Buildings: Operations and Maintenance (LEED-EBOM 2009)

Introduction to LEED

LEED EB O&M in Kuwait

Materials & Resources

Implementation of Sustainable Purchasing in Kuwait

Implementation of Waste Management in Kuwait
LEED EB O&M in Kuwait

- LEED is a relatively new practice in Kuwait
- It has only been adopted during the past few years
- Implementing LEED on new and existing buildings in Kuwait is extremely challenging
- Obstacles and challenges faced both economically and socially during the implementation period for the materials and resources credit for an existing building in Kuwait will be highlighted
LEED EB O&M Points Scale

40-49 points  50-59 points  60-79 points  >80 points
Building Owners and Decision Makers in Kuwait have to Understand the Benefits of Implementing LEED

A green building will reduce the negative impacts of different materials brought into the building.

It will reduce the impacts of consumption of electricity and water (peak load 11,850MW in 2012 and each person in Kuwait consumes 600L of water a day).
By implementing LEED we hope to achieve a significant decrease in water and electricity consumption in Kuwait.
Productivity Benefits

- Improve occupant performance
- Reduce absenteeism and turnover. Providing a healthy workplace improves employee satisfaction
- Decreases productivity losses per year.
LEED for Existing Buildings addresses whole-building cleaning and maintenance issues (including chemical use), recycling programs, exterior maintenance programs, and systems upgrades.
• There is currently no LEED EB O&M certified building in Kuwait, there are two LEED EB O&M registered buildings.
• There is currently one LEED EB O&M certified building in Dubai, which is also the only one in the Arab World.
• There are only 12 LEED EB O&M certified buildings outside of the USA (based on 2010/2011 studies).
• LEED EB O&M will transform the way buildings are operated enabling an environmentally and socially responsible, healthy and prosperous environment that improves the quality of life.
LEED EB O&M Distribution Points

Sustainable Category

- Sustainable Sites
- Water Efficiency
- Energy and Efficiency
- Materials and Resources
- Indoor Environmental Quality
- Innovation in Operation
- Regional Priority

Prerequisites

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Points

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Materials and Resources Credit

**INTENT**
- To reduce the environmental and air quality impacts of the materials acquired for use in the operations maintenance of buildings

**GOAL**
- To reduce the negative impacts of different materials brought into the building and to minimize the landfill and disposal of different materials brought out of the building
Materials & Resources Distribution Points

- **MRP1**: Sustainable Purchasing Policy
  - Points: 0

- **MRP2**: Solid Waste Management Policy
  - Points: 0

- **MRC1**: Sustainable Purchasing Ongoing Consumables
  - Points: 1

- **MRC2**: Sustainable Purchasing Durable Goods
  - Points: 2

- **MRC3**: Sustainable Purchasing Facility Alterations & Additions
  - Points: 1

- **MRC4**: Sustainable Purchasing Reduced Mercury in Lamps
  - Points: 1

- **MRC5**: Sustainable Purchasing Food
  - Points: 1
Materials & Resources Credits

- Sustainable Purchases: 5 Credits, 6 Possible Points
- Solid Waste Management: 4 Credits, 4 Possible Points
MR Role Towards Sustainable Building

- Selecting green sustainable materials by adopting sustainable purchasing program.
- Reducing waste by managing waste solids.
- Focusing on reusing and recycling materials whenever possible.
- Reducing mercury pollution generated in the building.
Issues to Consider while Purchasing Sustainable Environmentally Friendly Products

- Pollution and toxin reduction
- Reduction of greenhouse gas emissions
- Growth of a sustainable economy
- Resource use reduction
- Waste reduction and prevention
- Occupants health and safety

Sustainable Environmental Friendly Products

Challenges Faced In Kuwait

- Limited choices of sustainable materials in the local market
- Limited number of vendors locally or in the Gulf region
- Lack of cooperation with vendors
- The available sustainable materials are higher in cost
Aim to maintain a sustainable purchasing program covering consumable materials (papers, notebooks, envelopes, toner cartridges, batteries and desk accessories) where sustainable purchases are of at least 60% of the total purchases.
60% of Sustainable Purchases for Ongoing Consumables (MRC1) should be

- Materials harvested and processed or extracted and processed within (800 KM) of the project.
- FSC certified paper
- Rapidly renewable materials (bamboo, cotton, cork and wool)
- Post-consumer materials and/or post-industrial materials.
- Rechargeable Batteries.

60% of Sustainable Purchasing - Ongoing consumables
Challenges Faced while Attempting to Achieve this

Limited (if none) availability of locally produced sustainable ongoing consumables

Limited number of vendors supplying sustainable consumable goods in the local market

Possibility to obtain materials containing pre or post consumer materials but not with the specified percentages mentioned in LEED

FSC paper is very difficult to find, and if found is extremely expensive when compared to the price of regular paper

Lack of cooperation with some potential suppliers of sustainable consumable goods

Building owners are unable to comprehend the importance of purchasing sustainable materials such as FSC paper at high prices
Decision makers and business owners still do not comprehend the importance of purchasing sustainable materials at more expensive prices when to them the same product can be purchased at a significantly less price.
Challenges Faced while Attempting to Achieve Sustainable Purchases of 40% of Durable Goods (Electrical Equipment) for MRC2

Although energy star qualified equipment are available in the local market, not all the types of electrical equipment used are energy star qualified.

Energy star equipment is higher in cost.
Employees are not cooperative about sharing printers, minimizing the amount of printers and copiers in the building. The culture is to have a printer at each desk which they are not dedicated to change.

Decreasing the number of printers will reduce VOC’s in the building and provide a healthy working environment.
40% of Sustainable Purchases for Furniture (MRC2.2) should be

Materials
harvested and
processed or
extracted and
processed within
(800 KM) of the
project.

FSC
certified
wood.

Rapidly
renewable
material.

Criteria for
sustainable
purchases

Material
salvaged
from off-
site or on-
site.

Post-
consumer
materials
and/or post-
industrial
materials.
Challenges Faced while Attempting to Achieve Sustainable Purchases of 40% for Furniture

- Very limited number of vendors supplying such sustainable furniture
- Need to request relatively large quantities of furniture to be able to order the furniture from reliable vendors located out of Kuwait
- High cost of sustainable furniture, which needs cooperation and dedication of the building owner to purchase at high costs
- Limited number of designs and colors
Challenges Faced when Implementing Sustainable Purchasing-Facility Alterations and Additions (MRC3)

Kuwait is a relative new market for LEED certified materials, therefore difficulty is faced locating LEED materials required for this credit available locally.

LEED certified materials will be more expensive therefore difficulty is faced in persuading upper management to purchase the more expensive item.

Many LEED certified materials do not have a local supplier, problems are faced with upper management acceptance when requesting items with no locally supplier.

If and when the material is located locally, there will be a limited variety of designs and colors.
Health Effects of VOC Exposure

Key signs or symptoms associated with exposure to VOCs include:

- Conjunctival irritation (Pinkeye)
- Nose and throat discomfort
- Headache
- Allergic skin reaction
- Shortness of breath which may lead to asthma & cardiac disorders
- Nausea
- Fatigue
- Dizziness

Psychologically, staff will not be comfortable working in an environment that may cause any of these symptoms and productivity will be low.
Challenges Faced while Implementing Sustainable Purchasing-Food

Difficult to find available in Kuwait foods and beverages that bear one or more of the following certifications, and if found they will be very expensive.

- United States Department of Agriculture (USDA) Organic
- Food Alliance Certified
- Rainforest Alliance Certified
- Protected Harvest Certified
- Fair Trade
- Marine Stewardship Council's Blue Eco-Label
Due to Kuwait covering a small area, the requirement that at least 25% food and beverages purchases by cost are produced within a 100 miles radius (160 km) can be easily achieved, therefore this point is gained easily by using food and beverages produced locally.
Waste Management

Various types of waste recycling programs can be performed:

- Recycling of ongoing consumables (MRC7)
- Recycling of durable goods (MRC8)
- Recycling of any construction waste generated after any renovation or construction work in the building (MRC9)
Challenges Faced in Kuwait for Waste Audit and Recycling Waste

- Difficulty in gaining cooperation from building occupants in sorting waste and disposing of it in the allocated waste bins and to commit to it.
- Challenging to gain cleaning staff commitment to transfer waste continuously from collection points in the building to the recycling area.
- Difficulty to persuade building occupants to minimize waste as possible, as well as work or use recycled materials.
- Convincing occupants and staff to set up a formal reuse program for furniture and electronics.
- There is no batteries recycling program in Kuwait.
Challenges Faced in Kuwait for Recycling Construction Waste in Kuwait

Gaining complete cooperation from contractors

Finding and working with a waste hauler who is willing to establish a system for managing and tracking construction waste
For LEED to Be Implemented Successfully in Kuwait

- There has to be complete building management and building occupant cooperation.
- All people involved with the building have to be dedicated to making a change.
- The general mindset, awareness and dedication of the public should be changed to make more people care.
- Company employers and building owners could provide mandatory workshop to new employees and new building tenants to educate them on the benefits of sustainable practices to their self, their families and the environment.
- The Kuwaiti government could encourage vendors in the local market to provide good quality environmentally friendly goods that satisfy green building requirements by providing them with extra privileges and incentives which will ease and smoothen importing of such goods to Kuwait.
- More attention should be given to the recycling issues in Kuwait by enforcing properties owners to sort the waste to be recycled.
On a Final Note

- The Kuwait Green Building Council was established in March 2012. One of their main objectives is working to ensure Green certified materials and products will be readily available in the Kuwaiti market.
- Their vision is to encourage and engage both public and private sectors to adopt sustainable measures in the development sector in Kuwait.
- They are currently working on making green cleaning products available in the local market.
- Hopefully they will be able to make LEED or any equivalent green certification easier to achieve in the future.
- We applaud their efforts and hard work.
If you think in terms of a year,
  plant a seed;
if in terms of ten years,
  plant trees;
if in terms of 100 years,
  teach the people.

Confucius
Chinese Ethical Teacher, Philosopher