



International
Labour
Organization

Green Jobs Kick-Off Workshop in the Arab States: Lebanon Case Study

The Construction Sector

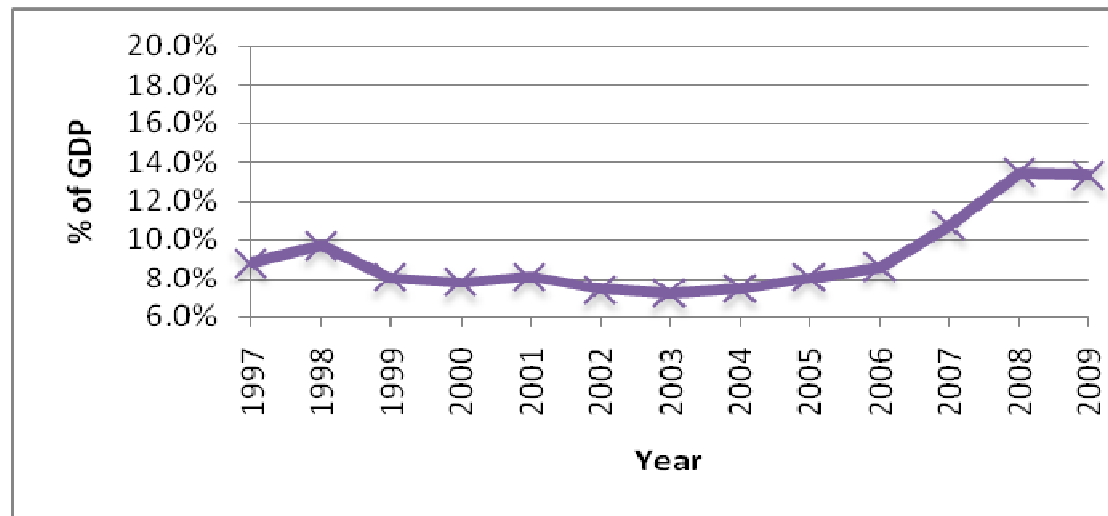
Beirut, UN-House

July 28-29, 2011

I. About the Construction Sector

A. An Overview

1. The construction sector in Lebanon is the highest growing sector in terms of value added after market services and trade.



2. Divided to three segments

- Building
- Heavy
- Industrial

I. About the Construction Sector

A. An Overview

1. High level of activity in construction is reflected by the booming real-estate industry

Year	2004	2005	2006	2007	2008	2009	2010
Surface area in thousands of m ²	9,014	8,826	8,997	9,038	16,068	14,361	17,625

2. Construction is responsible 5.6% of total employment (=91,000 workers, 2004 household survey)
 - However, this number is underestimated due to irregularity and informality of the construction workforce

I. About the Construction Sector

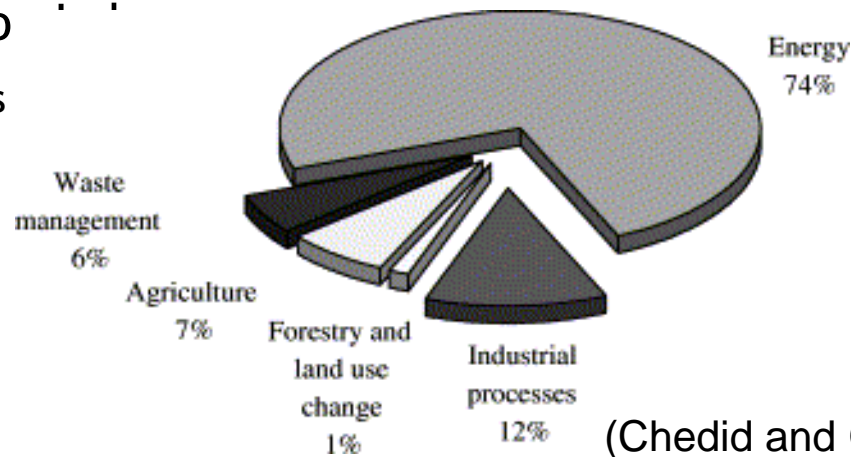
B. Impact on the Environment

1. Worldwide, buildings are responsible for

- 40% of total energy consumption
- 24% of CO₂ emissions
- 20% of water use
- 30% of solid waste

2. Limited data on

- Contributions



(Chedid and Ghajar, 2004)

I. About the Construction Sector

B. Impact on the Environment

1. Other environmental impacts of construction in Lebanon
 - Excavation and loss of top soil, green cover, and natural habitats
 - Increase use of construction material
 - Increased quarrying activities
 - Construction and demolition waste disposal
2. Increased awareness of these impacts is encouraging stakeholders to consider green initiatives

I. About the Construction Sector

C. How to Define a Green Job?

1. Common definitions of green buildings

- “Creation and operation of a healthy built environment based on ecological principles and resource efficiency” (CIB)
- “Energy efficient, drastically reduce emissions, material, and water use” (UNEP)

2. Green building programs have developed around the world to address task of green building locally

- E.g., WGBC which supports over 80 GBCs worldwide, USGBC
- Regional examples: Estidama, QSAS (influence of LEED)
- Lebanon: few ongoing buildings, local standards, policies

I. About the Construction Sector

C. How to Define a Green Job?

Organization Guideline	USGBC ^a LEED	Estidama ^b Pearl Rating System	GORD(Qatar) ^c QSAS	LGBC ^d ARZ
Building Construction Guideline Components		Integrated Development Process		
	Site Selection	Liveable Buildings (Outdoors)	Urban Connectivity	
		Natural Systems	Site	
	Water Efficiency	Precious Water	Water	
	Energy & Atmosphere	Resourceful Energy	Energy	Thermal Energy
				Electrical energy
	Materials & Resources	Stewarding Materials	Materials	Materials
				Building Envelope
	Indoor Environmental Air Quality	Liveable Buildings (Indoors)	Indoor Environment	Indoor Environmental Quality
			Cultural & Economic Value	
		Management & Operations	Operations and Management	
Innovation	Innovated Practices		Bonus Items	

II. Findings

A. Potential For New Skills Generation

1. Going green will require new skills for

- Design engineers and architects (e.g., LEED)
- Contractors' workforce, engineers and laborers, will have to acquire knowledge needed for executing a green project

2. Going green will lead to the creation of new jobs

- E.g., energy auditors, green assessors, green consultants, green construction coordinators, and suppliers of green materials and systems.

3. Platforms for training

- Graduate technical studies: e.g., Masters in Applied Energy, AUB
- Multidisciplinary programs: e.g., MS in Environmental Science, AUB
- Professional courses: e.g., LEED exam workshops, Continuing education center, AUB

II. Findings

B. Potential For Green Jobs Creation

1. \$1 million of investment in green premiums creates 45 jobs per year
 - Using BDL's estimate of \$100 million of green projects over 2011-2016 and premiums of 10 to 20% for green buildings, 450 to 900 jobs will be created
 - Similarly, three ongoing projects in Beirut result in 1,125 to 2,250 new jobs over 2011-2014
 - AUBMC, a major project that is currently in planning phases, can create 1,800 to 3,600 jobs over 2012-2020
 - Total number of created jobs is 690 to 1,380 per year
2. Solar heating market (manufacturing and supplying) can create 3,300 jobs to cover the demand projected for 2020

II. Findings

C. Current Impediments and Limits

1. Lack of government regulation on green standards and verification
2. Lack of national technical vocational training institutions offering green building curricula
3. Lack of skills and education
4. Green washing
5. High perceived costs

III. Recommendations

A. Policy Strategies

1. Set and enforce policies that encourage green construction

- In an ideal scenario, green buildings in Lebanon should follow local standards.
- Laws and regulations concerning occupational safety and health need to be enforced.

2. Regulate the current informality in the employment situation in construction

- Workers should have decent work conditions in terms of payment, social benefits and unionization.
- E.g., Offer incentives for employers to register the workers, encourage independent unions, engage in a tripartite coordination

3. Introduce further financial incentives

III. Recommendations

B. Downstream Green Jobs Initiatives

1. Introduce green construction curricula in
 - Technical education (e.g., for design engineers, for green construction coordinators)
 - Vocational training institutions
2. Setup a platform for coordination between green engineering firms, trade unions, employers' organizations, contractors, suppliers, and operators

III. Recommendations

C. Path Forward: Issues to Address

1. How could constituents collaborate?
2. Which priorities?
3. Investigate real extra cost of green construction in Lebanon
4. More accurate estimation of green jobs