

The Eco-Efficiency and Sustainable National Mega Projects in Egypt



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1-Introduction

Research Problem

How a project can support a sustainable development?

- As national mega projects, the Suez Canal Area Development Project and New Suez Canal have logistically imposed two main questions:
- First, how these projects can spot the preferred solution for balancing the business and environmental concerns?
- Second, how these projects can enhance the trade-off between those two dimensions?

Eco-efficiency

2- Understanding Eco-efficiency

- Eco-efficiency is a management philosophy.
- It is concerned with creating more value with less impact.
- Companies can use eco-efficiency as an integral cultural element in their policy or mission statements, and it is a useful tool for monitoring and reporting performance.
- It combines environmental and economic performance.

Eco-efficiency is all about: combining the goals of business excellence and environmental excellence.

The challenge is to:

- To provide more value with less environmental impact
- To de-link growth of welfare from the use of nature
- To improve both economic and ecological efficiency

= Eco-efficiency

• Why do governments embrace eco-efficiency?





3- Implementing Eco-efficiency

• Eco-efficiency can be implemented along the entire value chain of a product or service through seven key approaches:

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- Reduce material intensity
- Energy intensity minimized
- Dispersion of toxic substances is reduced
- Undertake recycling
- Capitalize on use of renewables
- Extend product durability
- Service intensity is increased.

Four major areas that provide opportunities for increased ecoefficiency, including:

- Regarding re-engineering the processes:
- Optimize processes and procedures to minimize resources
- Maximize energy and water savings
- Eliminate hazards where possible
- Save through systematic risk minimization

- Regarding re-design the products:
- Consider entire value chain in product design – supply chain through disposal
- Make products upgradeable and recyclable
- Create new and increased functionality

- Regarding re-think the markets:
- Know the customer
- Sell functional (rather than material) offerings
- Provide users with comprehensive solutions
- Increased consumer awareness

- Regarding re-valorize by the products:
- New revenue sources from "waste" products byproducts
- Benefits from cooperation with other companies

Tools for implementing Eco-efficiency

Organizational/Management

- Environmental Management Systems
- Stakeholder Engagement
- Corporate Environmental Reporting
- Life-Cycle Management

• Product Design & Development

- Design for Environment
- Eco-Efficiency Analysis
- Life-Cycle Assessment
- Environmental Risk Assessment
- Integrated Product Policy (IPP)
- Suppliers/Purchasing
 - Environmental Supply Chain Management
 - Green Procurement

- Marketing and Communications
 - Corporate Environmental Reporting
 - Stakeholder Engagement
- Production & Distribution
 - Industrial Ecology
 - Pollution Prevention
 - Life-Cycle Costing
- Facilities Management/Project Development
 - Green Building Design
 - Environmental Impact Assessment
 - Environmental Management Systems
 - Stakeholder Engagement

Concept/tool positioning

Industrial Ecology	Precautionary
Pollution Prevention Reporting Environmental Management Systems	Ecological footprint Eco-effectiveness
Environmental Supply Chain Eco-efficiency Environmental Impact Assessment	
Management Analysis Risk Assessment	
ProductGreenIntegratedStewardshipLife CycleProduct Product Policy	
Design for environment Life Cycle Assessment Eco- labeling Extended Producer Responsibility	
Industry Government/civil society	ramowork Project
	Industrial Ecology Pollution Prevention Reporting Environmental Management Systems Environmental Management Systems Environmental Impact Assessment Supply Chain Eco-efficiency Management Analysis Risk Assessment Risk Assessment Product Assessment Risk Assessment Eco- Design for environment /eco-design Life Cycle Assessment Industry Government/civil society

4- Measuring Eco-efficiency

 Progress in eco-efficiency can be achieved by:

product or service value environmental influence

- The indicators fall into two eco-dimensions.
- The indicators for product or service value are:
 - Quantity of goods or services produced
 - Net sales.

- Those relating to the environmental influence are:
 - Energy consumption
 - Materials consumption
 - Water consumption
 - Greenhouse gas emissions

THE INTERNATIONAL MARITIME TRANSPORT & LOGISTICS CONFERENCE (MARLOG 4) A SUSTAINABLE DEVELOPMENT PERSPECTIVE FOR MEGA PROJECTS 29 – 31 MARCH 2015 5- Eco-efficiency and National Projects in Egypt

• The Global Competitiveness Index 2014-2015 and Egyptian Rank.

Global Competitiveness Index

	Rank (out of 144)	Score (1-7)
GCI 2014–2015	119.	3.6
GCI 2013-2014 (out of 148)	118.	3.6
GCI 2012-2013 (out of 144)	107.	3.7
GCI 2011-2012 (out of 142)		3.9
Basic requirements (40.0%)		3.7
Institutions	100.	3.4
Infrastructure	100.	3.2
Macroeconomic environment		3.0
Health and primary education		5.4
Efficiency enhancers (50.0%)	<mark>.106</mark> .	3.6
Higher education and training	111.	3.3
Goods market efficiency	118.	4.0
Labor market efficiency	140.	3.1
Financial market development	125.	3.2
Technological readiness		3.2
Market size		4.8
Innovation and sophistication factors (10.0%)113 .	3.2
Business sophistication		3.7
Innovation		2.7





Areas Facing Water Shortage in 2009

Governorate	Tourism	Agriculture	Population	Industry	Total water
	sector	sector	sector	sector	demand
Red sea	130,551	1,020,000	71,000	113,600	1,335,151
South Sinai	93,272	34,000	14,000	22,400	163,672
North Sinai	0	6,992,100	57,000	91,200	7,140,300
Matrouh	0	10,676,000	86,000	137,600	10,899,600
Annual total	80,576,280	6,739,956,000	82,080,000	131,328,000	7,033,940,280
Percentage	1.15%	95.82%	1.17%	1.87%	

Source: INECO, 2009.

- In general, a logistics network has a number of players that influence business costs and corresponding environmental impact.
- Suppliers, manufactures, consumers, operators, and third parties operating in testing, refurbishing, recycling and energy production for the end-of-life products are the main players (Neto et al., 2008).
- These players achieve majority of the activities impacting business and the environment.

- •These activities are related to manufacturing, transportation, usage and end-of-life products.
- •The decisions regarding these activities will, therefore, determine the network costs and environmental impact.

- These decisions are:
- Strategic (e.g. location of proposed projects in the New Suez Canal Area Development Project)
- Tactical (e.g. the destination of products end-of-life),
- Operational (e.g. the choice of suppliers, third parties, investors, etc.).

- Institutional and legislative reforms should be added to the policies focusing in developing unorganized labor market.
- Full support should be directed to small and micro projects and Macro projects.
- Green economy is seen as a tool that helps modifying unsustainable consumption and production attitude and resulted pollution.



• Using eco-efficient regarding business and the environment for the design of sustainable logistics networks in Suez region requires to use such measures.





•The maritime sector has often faced governmental mandates for achieving regulatory compliance, including safety, security or environmental requirements.

• Meeting these requirements has been typically perceived as added costs that impede to compete in the sea trade marketplace.

• With applying the eco-efficiency concept, a set of attributes can be applied for this purpose (Adams et al., 2009).



Attribute 1 Business Approaches

- Egyptian projects must comply with applicable environmental laws.
- Green and Sustainability issues have become increasingly part of maritime transport agendas.

Attribute 2 Drivers for Environmental Initiatives

• Businesses, ports and logistics adding-value activities, motivations, and considerations.



Attribute 3 Increasing Motivation

• Proper management of water bodies and sediments, air emissions, waste reception facilities, and modal split of port related hinterland traffic are 'hot button' issues in today's port policy agendas.

Attribute 4 Effects of Timelines

• Green suppliers and transporters became a mandatory requirement to any business enterprise and supply chains become greener. 22



Conclusion

- 1. Balancing the business and environmental concerns.
- 2. Establishing such new national mega projects will certain impact carrier and shipper market practices.
- 3. Ports, transporters, investors and businesses and other players in these projects should be prepared to proactively address the environmental issues.
- 4. A number of measures and attributes can be applied to evaluate a performance of eco-efficiency.

Recommendations

- Designing of sustainable logistics networks in Suez region.
- Eco-efficiency studies should be carried out in national mega projects.
- Stakeholders and players should be involved in those studies.

Thanks for Listening and Goodbye



The Floor is Open for Questions

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