

SYSTEM ANALYSIS IN CONSTRUCTION: SOLUTIONS FOR EGYPT'S TOMMORROW

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GLOBAL ENVIRONMENTAL IMPACT OF CONSTRUCTION INDUSTRY

- Construction products are held responsible for 20 to 35% of the impacts within key categories of environmental impact, such as global warming, ozone problems, abiotic depletion, human toxicity, (Tukker et al., 2006).
- Construction sector is one of the major consumers of nonrenewable resources, with 30 to 40% reported consumption of global energy (UNEP, 2007), beside being a major waste source. (UNEP, 1996).

EGYPT'S OLD CAIRO

One thousand
three hundred
years old City



Old Cairo - Challenges & Solutions

Aging civil infrastructure and its environmental impact.

- Long life systems in need of functional upgrades and replacements
- Long life asset structures (100 years life time designs) :
bridges, tunnels, barrages, and similar
- Utilities and technologies in these structures:
 - ✓ suffer a much shorter lifespan
 - ✓ subject to changes due to updates in legislations & environmental compliance

Environmental systems analysis tools for decision-making.

Tool to be adopted in a specific decision-making situation depends on the decision context.

THE NEW SMART CAPITAL & ITS ICONIC TOWER

USD 8 billion

- SMART TRANSPORTATION
- SMART ENERGY MANAGEMENT
- SMART HOUSING
- SMART UTILITIES



Highway
Network over
3000 kms .



Six Tunnels
Under Suez
Canal
EUR6.58 billion



TOWARDS SMART CONSTRUCTION & SUSTAINABILITY

TOOLS

- Systems analysis tools to be adopted for BOTH construction and demolition wastes management.
- Reliable City data platform.
- Tools for data visualization and analysis.

ACTIONS

- Environment protection legislations.
- Green and ecofriendly construction systems and procedures, in new building codes updates.
- Construction firms are encouraged directly and indirectly to be licensed under the ISO 14000 family specially 14001 as one of the environmental management systems (EMS).