

## Engineering Topology of Construction Ecology in Urban Environments: Suez Canal Economic Zone

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**Abstract :** Integration sustainability outcomes give attention to construction ecology in the design review of urban environments to comply with Earth's System that is composed of integral parts of the (i.e., physical, chemical and biological components). Naturally, exchange patterns of industrial ecology have consistent and periodic cycles to preserve energy flows and materials in Earth's System. When engineering topology is affecting internal and external processes in system networks, it postulated the valence of the first-level spatial outcome (i.e., project compatibility success). These instrumentalities are dependent on relating the second-level outcome (i.e., participant security satisfaction). Construction ecology approach feedback energy from resources flows between biotic and abiotic in the entire Earth's ecosystems. These spatial outcomes are providing an innovation, as entails a wide range of interactions to state, regulate and feedback "topology" to flow as "interdisciplinary equilibrium" of ecosystems. The interrelation dynamics of ecosystems are performing a process in a certain location within an appropriate time for characterizing their unique structure in "equilibrium patterns", such as biosphere and collecting a composite structure of many distributed feedback flows. These interdisciplinary systems regulate their dynamics within complex structures. These dynamic mechanisms of the ecosystem regulate physical and chemical properties to enable a gradual and prolonged incremental pattern to develop a stable structure. The engineering topology of construction ecology for integration sustainability outcomes offers an interesting tool for ecologists and engineers in the simulation paradigm as an initial form of development structure within compatible computer software. This approach argues from ecology, resource savings, static load design, financial other pragmatic reasons, while an artistic/architectural perspective, these are not decisive. The paper described an attempt to unify analytic and analogical spatial modeling in developing urban environments as a relational setting, using optimization software and applied as an example of integrated industrial ecology where the construction process is based on a topology optimization approach.

**Keywords :** construction ecology, industrial ecology, urban topology, environmental planning

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