

Tools and concepts of journey towards a natural capitalism with special reference to environmental impact assessment, life cycle assessment and industrial ecology.

ABSTRACT

The evolution of tool applications and approaches for industrial-environmentally related management systems in minimizing their impact on natural environment has facilitated the concept of journey to natural capitalism, notably, on physical flows and the accumulation of substances and materials due to industrial activities. These environmental management tools include risk assessment, resource accounting, costbenefit analysis, environmental impact statement, and environmental impact assessment. In addition, environmental management system (EMS) series of standards derived from Society of Environmental Toxicology and Chemistry (SETAC) and International Standard of Organization (ISO) Technical Committee 207 initiatives emphasizing on EMS, environmental auditing, life cycle assessment, ecolabeling, environmental performance evaluation, design for environment and climate change. Recent concept on industrial ecology (IE) was introduced and applied respectively into EMS for industrial sustainability. It is based on the integration of human dimension, industrial processes, and environmental concerns that perpetually mimics natural ecosystem processes. This paper describes how these theoretical frameworks of Environmental Impact Assessment (EIA) and Life Cycle Assessment (LCA) tools being developed and applied and subsequently used as central tenet in IE concept in meeting their objectives that indirectly could be further enhanced the journey towards natural capitalism.

Keyword: Industrial-environmental; Management systems; Environmental management system.