

12th IAA SYMPOSIUM ON VISIONS AND STRATEGIES FOR THE FUTURE (D4)  
Contribution of Space Activities to Solving Global Societal Issues (2)

Author: Mr. Scott Murto  
United States, symbioticeconomics@yahoo.com

SYMBIOTIC ECONOMICS: A NEW CONCEPTUAL AND STRATEGIC FRAMEWORK FOR  
INTEGRATING SPACE ACTIVITIES WITH A WORLD IN TRANSITION

**Abstract**

It is becoming increasingly apparent to knowledgeable analysts that the limits to growth predicted forty years ago are now at our doorstep. Recent non-conventional oil gains will be short-lived and alternative renewable energy technologies, themselves fossil-fuel derived and dependent, will be unable to meet growing global needs in any reasonable time frame. In the coming decades industrial civilization is facing a significant power-down that will require a fundamental restructuring of its existing growth-based socioeconomic systems into ones based on steady-state operating principles, and a growing number of academic and local communities are actively working to strategize this transformation. While extraterrestrial resources will obviously be necessary to ensure the long-term viability of industrial society, recent initiatives in this direction are unlikely to provide substantive contributions in any materially meaningful time frame. The space industrialization community still has a key role to play in this inevitable and imminent transition to a terrestrial steady-state economy, however, and one that is completely unrecognized by both communities. It is very likely that neither community will be able to meet their respective goals without active collaboration in the construction of these future socioeconomic systems and institutions.

Symbiotic Economics is a new economic conceptual framework and methodological tool which can be applied theoretically and quantitatively to construct and model strategies and scenarios for transitions to coupled terrestrial steady-state and extra-terrestrial growth economic systems. Some of its advantages include: fundamental reanalysis of existing economic relationships; innovative descriptions of emerging new economic systems; transdisciplinary studies involving the space and sustainability economic sectors; delineating the existing amorphous definitions of sustainability; and a new vehicle for resolution of the Nicholas Georgescu-Roegen Fourth "Law" of Thermodynamics controversy. It also has the added advantage, through the introduction of its new economic variables, measures, and definitions, of overcoming the politically and ideologically charged environment of existing economic discourse.

It is imperative that the space industrialization community begin active engagement with the steady-state economics community in order to ensure a transition that works towards truly long-term human sustainability. Symbiotic Economics can provide a conceptual and practical strategic approach and roadmap to coordinate the construction and deployment of the alternative socioeconomic systems and structures that will be needed in the coming decades as the window of high-grade low-entropy terrestrial material and energy resource availability begins to close once and for all on our species' time on this planet.