

플럭스 감시 기반의 지역시스템 비저니어링

김준^{1,2,3,4*}, 요하나 마리아 인드라와티¹, 강민석⁴

¹서울대학교 농업생명과학대학 협동과정 농림기상학전공, ²서울대학교 식물생산과학부,

³그린바이오과학기술원, ⁴국가농림기상센터

A Rural Systems Visioneering based on Flux Monitoring

Joon Kim^{1,2,3,4*}, Yohana Maria Indrawati¹ and Minseok Kang⁴

¹*Interdisciplinary Program in Agricultural & Forest Meteorology, Seoul National University,*

²*Department of Landscape Architecture & Rural Systems Engineering, Seoul National University,*

³*Institute of Green BioScience and Technology, Seoul National University,*

⁴*National Center for Agro-Meteorology*

Sustainability science is an emerging transdisciplinary research which necessitates not only the communication and collaboration of scientists and practitioners from different disciplines, but also the paradigm shift from deterministic and reductionist approaches to the old basic (i.e., the fundamental laws of nature). Rural-urban systems are co-evolving complex systems that are defined as systems having many interacting parts (or agents), whose interactions give rise to dynamic, non-linear and indeterministic outcomes through self-organizing processes. We introduce a conceptual framework for such continually morphing dynamical systems, i.e. self-organizing hierarchical open systems (SOHO). To understand the structure and working of SOHO, we revisit the two fundamental laws of physics (i.e., the entropy law and the action law). The re-interpretation of these laws elucidates that energy dispersal between a system and its environment will occur along the paths of least action (or in the least possible time) and flows of energy, matter and information play a key role. We introduce an additional essential framework, the so-called visioneering (V) (i.e. engineering of vision) - skillful direction and creative application of experience and scientific principles to fulfill the vision. The V process is then integrated with the SOHO framework as feedforward loops so that ‘a minimally guided (or nudged) self-organization process’ may enable decision makers to choose better path (or scenario) toward sustainable rural-urban systems.

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* Correspondence to : joon@snu.ac.kr