Sonya Remington-Doucette: sustainable world approaches to analyzing and resolving wicked problems

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BOOK REVIEW

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In the forward to this book Arnim Wiek from Arizona State University states that the author has made three major contributions with this book:

- A holistic approach to sustainability challenges from a complex systems perspective;
- Theoretical perspectives with practical case studies; and
- Build students' capacity to analyze sustainability challenges as well as develop viable solutions (Wiek in Remington-Doucette 2013, p. xi).

Although I submit Professor Wiek's perspective may be biased a bit since he worked closely with the author on parts of this book- this reviewer finds that this book is the best approach that he has seen that combines systems theory applied to sustainability problem solving. In the past this reviewer has used such sources as Alan Atkisson's *The Sustainability Transformation*, John Peet's *Energy and the Ecological Economics of Sustainability* and Meadows' *Thinking in Systems a Primer* for connecting systems concepts to sustainability management and problem solving. Remington-Doucette's book is one of the most understandable in this regard.

Chapter one is an introduction to sustainability as it applies to natural systems, the I-PAT model for assessing impact, defining human well-being, and reviewing the origins of sustainability. This chapter presents the history of the sustainability concept, key terminology as well as the international programmatic development of sustainability.

The second chapter discusses the characteristics and complexity related to multi-dimensional wicked problems (Rittel and Webber 1973). The author also carefully denotes the major theoretical sources for basic systems thinking (Meadows 2008), dynamic systems theory (Scheffer 2009), reliance approaches (Chappin et al. 2009; Martin 2001; Walker and Salt 2006), and adaptive cycles (Martin 2001; Gunderson and Holling 2002).

Chapter three covers current state analysis including; defining systems (what is in and what is out) classifying drivers, describing causal chain analysis as well as stakeholder analysis. This is well-done and very straightforward.

Chapter four describes the types and characteristics of sustainability indicators. Such indicators provide for accountability in attacking sustainability problems and the application of indicators is illustrated by a case study in a region of Slovenia.

Chapter five starts to get more complex as the author addresses resilience and patterns of change including regime shift, feedback, and adaptive cycles. The key here is: understanding the dynamics of change and the role of positive and negative feedback.

Chapter six is probably the most complex chapter where the author addresses complex adaptive systems including emergent features, the interaction of systems, and external conditions as well as adaption. Chapter seven assists us in thinking about the future with use of scenario analysis and visioning process.

Chapter eight addresses sustainability transitions with change processes on three levels—niche, regime, and landscape. Chapter nine discusses key processes in managing public commons resources including excludability, rivalry, and common property management regimes.

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Each chapter has highlights at the beginning plus definition of each key term as it first occurs in that chapter. As the chapters progress, there are more illustrations, practical examples, and case study boxes to further clarify key concepts. At the end of each chapter—there are study questions, key references, and projects to be utilized by students. All of these features build the utility of this book as a key textbook for undergraduate sustainability students or as a reference book for beginning graduate students.

I wish I had such a book for bridging sustainability studies with systems theory for an interdisciplinary sustainability management course that I co-taught for a number of years. This book is a key resource if we are to move forward in addressing complexity in educating for sustainability in an interdisciplinary environment. A number of academics involved with the Daytona Roundtable on Environment and Sustainability (Barresi et al. 2015) have called for such tools to be increasingly available for use in higher education.

References

Barresi PA, Focht WJ, Reiter MA, Smardon RC, Humphreys M, Reiter KD, Kolmes SS et al (2015) Revealing complexity in educating for sustainability: an update on the work of the roundtable on environment and sustainability. In: Leal Filho W (ed) Integrating sustainability thinking in science and engineering curricula, World publishing series. Springer, Berlin, pp 497–512. doi:10.1007/978-3-319-09474-8_35

Chappin FS, Kofinas GP, Folke C (2009) Principles of ecosystem stewardship; resilience-based natural resource management in a changing world. Springer, New York

Gunderson LH, Holling CS (2002) Panarchy: understanding transformations in human and natural systems. Island Press, Washington DC

Martin GG (2001) Human ecology: basic concepts for sustainable development. Earthscan Publications, London

Meadows D (2008) Thinking in systems; a primer. Chelsea Grove Publishing, Vermont

Remington-Doucette S (2013) Sustainable world: approaches to analyzing and resolving wicked problems. Kendall Hunt Publishers, Dubuque

Rittel HW, Webber MM (1973) Dilemmas in a general theory of planning. Policy Sci 4:155–169

Scheffer M (2009) Critical transitions in nature and society. Princeton University Press, Princeton

Walker B, Salt D (2006) Resilience thinking: sustaining ecosystems and people in a changing world. Island Press, Washington DC