
Book Review

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Handbook of Sustainability Assessment
by: Angus Morrison-Saunders, Jenny Pope and Alan Bond
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According to Bond et al. (2013), sustainability assessment is an increasingly important tool for informing planning and development decisions across the globe. Dalal-Clayton and Sadler (2014) provide a sourcebook and reference guide for sustainability appraisal based on their international experience. They highlight how sustainability appraisal can be used to analyse and integrate the key environmental, social and economic pillars of sustainability into decision-making at all levels.

The focus of this *Handbook* is sustainability assessment research. It provides a snapshot of some of the cutting-edge thinking and research in this important area. The authors offer some fresh perspectives on the conceptual foundations of sustainability assessment. Many different tools and techniques are now being employed within complicated sustainability assessment, such as ecosystem services assessment, multi-criteria analysis, economic tools, deliberative techniques, and system modelling. There are six parts for this volume. Part 1 includes conceptual contributions. Parts 2 and 3 cover practical research on improving existing processes. Parts 4 and 5 explore tools and techniques that can be utilised within such processes. Further research and development can be built on these avenues. Part 6 consists of conclusions and epilogue.

Part 1 Conceptualisations

Chapter 1 introduces the roots, evolution and effectiveness of sustainability assessment. As one of the series of *Handbooks* on impact assessment, this well-organised book demonstrates the newest worldwide breakthrough on sustainability assessment.

In order to map the current landscape of the field as a guide, chapter 2 revisits important early work in conceptualising sustainability assessment by Pope et al. (2004). A typology of assessment processes was established. Following this milestone contribution, further research has developed new knowledge and improvements.

In chapter 3, Nick Hanley briefs the economics of sustainable development and discusses the economic indicators for measuring sustainable development at country scales. The different ‘capitals’ that are accounted for in economic understandings of sustainability have been explored.

Lamorgese and Geneletti propose a conceptual framework to facilitate more explicit and integrated incorporation equity principles and embed intra- and inter-generational equity together into suitability assessment in chapter 4. Even though the concepts of intra- and inter-generational equity are crucial, they are poorly understood and rarely adequately considered in most impact assessment practice nowadays. Their approach provides an interesting direction.

Part 2 Scales of assessment

Jill A.E. Gunn and Bram F. Noble make available an overview of the development of regional environment assessment in Canada and discuss five key windows of opportunity in chapter 5. Rather than reacting to manage the potential adverse impacts of individual development projects, the approach is proactive in setting directions for resource development.

In chapter 6, instead of focusing on regional development, Camilla Adelle and Sabine Weiland analyses four European policy assessment systems in practice. They specifically detail the case studies of the European Commission, Germany, Switzerland, and the UK both at the policy level and at national and international scales.

Part 3 Sectors of assessment

In chapter 7, Carla Grigoletto Duarte et al. discover the current limited role of sustainability thinking to three key aspects in sugarcane ethanol planning in Brazil. They consider a number of paths that could facilitate embedding sustainability assessment in planning future expansions of the ethanol sector. These plans include supply and demand studies for electricity, oil, gas and biofuels.

‘The soft energy path’, a different energy perspective is provided by Kyrke Gaudreau and Robert B. Gibson in chapter 8. Their approach emphasises ‘a direct change or transition’ to meet social goals and follow principles towards a constructive relationship with energy. Having combined these principles with the broader sustainability principles, they generate sustainability evaluation and decision criteria for energy application.

In chapter 9, Maria R. Partidario and Pedro Pereira argue for the need to adopt resilience and sustainability thinking when considering the future of cities (dynamic, connected and open urban systems). They think that both ecological and social dimensions, and in particular socio-ecological systems should be properly addressed in smart city development.

Part 4 Approaches to sustainability assessment

In chapter 10, Davide Geneletti et al. introduce the concept of ecosystem services and suggest a framework including some key tasks to facilitate the embedding of ecosystem services within sustainability assessment. They examine the key barriers and enablers for including ecosystem services in sustainability decisions in the UK and European context.

They notice that in a political setting without considerable effort, nothing could happen under the current framework.

Multi-criteria decision analysis (MCDA), or simply multi-criteria analysis (MCA), a popular decision tool, can help decision makers to choose among alternatives.

In chapter 11, Davide Geneletti and Valentina Ferretti present three case study applications of MCA, one of which including an innovative spatial MCA (through the application of geographical information systems, GIS). They integrate the various dimensions of sustainability and combine expert opinion and lay knowledge, through the scoring and weighting of issues respectively.

In chapter 12, Samuel Hayes and Thomas B. Fischer discuss the development of sustainability appraisal in England. Having considered the balance among social, environmental and economic objectives, they particularise the influence of the definition of sustainability on objectives. Authors explore measurement of the achievement of objectives via the use of indicators, monitoring, as well as follow-up processes.

William Grace and Jenny Pope demonstrate the use of system dynamics, a powerful software tool for systems modelling, within an impact assessment context in chapter 13. Heuristics of resilience thinking help deeply explore the related concepts of sustainability and resilience. They propose some fundamental changes to how sustainability assessment is typically conceptualised and conducted.

In chapter 14, Michelle Audouin et al. announce 'sustainability science' as a means of achieving sustainable development via its practical orientation, emphasis on the relationship among social, ecological and economic aspects in a systemic view of the world, as well as the implementation of a transdisciplinary approach to conducting research. They also show vivid examples via case studies of how systems thinking and transdisciplinary approaches can benefit sustainability assessment.

Part 5 Governance and engagement

In chapter 15, A. John Sinclair et al. offer an integrative review. The authors start to review environmental assessment experiences because sustainability assessment is just an extension of environmental assessment. They discover the essential elements of public participation for sustainability assessment and pinpoint five emerging directions for meaningful participation and outline what each entails.

Janette Hartz-Karp et al. delve into the concept of deliberative collaborative governance (DCG) in chapter 16, which is a logical hybrid of two fields, deliberative democracy and collaborative governance. Two case studies in Western Australia have been illustrated in a grounded way. They show how the sustainability assessment of future resource development proposal could be strengthened using the principles of DCG.

Chapter 17 highlights how cognitive limitations affect decision making. Francois Retief et al. open up further learning that can be originated from the psychology field in general to enrich the practice of sustainability assessment. They focus specifically on concepts of choice, prediction and communication within sustainability assessment, and use this as a brand-new framework around which to synthesise learning.

Part 6 Conclusions and epilogue

Pope et al. delineate overall conclusions in chapter 18. The authors reflect on what we have learnt on the state of the art of sustainability assessment based upon the contribution to this *Handbook*. They propose a conceptual framework with three inter-related dimensions: underpinning suitability discourse; representation of sustainability within the assessment process; decision-making context. Finally, in an epilogue, Robert B. Gibson draws a big picture overview of the field of sustainability assessment in terms of its origin, future directions and challenges for practitioners.

Recently, Komeily and Srinivasan (2015) emphasised a need for balanced approach to neighbourhood sustainability assessments. They consider and integrate the four pillars of sustainability namely, environmental, social, economic, and institutional dimensions in a balanced, equitable manner by using actual 115 projects implemented.

Overall, this pioneering book on sustainability assessment is very impressive and well-written. We have only one suggestion here. An additional chapter on potential contributions of big data to sustainability assessment could be added in the second edition. This thought-provoking volume has been organised in an extremely coherent way by three editors. This comprehensive volume is really invaluable to students, policy makers, academics and practitioners.

References

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