

Book Review

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Title:

**The Sustainability Practitioner's Guide to Input-Output Analysis.
Edited by Joy Murray and Richard Wood; June 2010; Common
Ground Publishing LLC, Champaign, Illinois, USA. ISBN 978-1-
86335-747-0**

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Any questions about Input-Output Analysis? You might have heard about 'IOA', or 'environmentally extended IOA', but might not be sure what exactly it means and for what and how it can be used. For those who would like to know more about it – and indeed for those who are already familiar with IOA! – there is a book, at last, that will give you plenty of answers. The '*Sustainability Practitioner's Guide to Input-Output Analysis*' has been written for the non-technical reader with an interest in learning about and applying a modelling technique that has gained in momentum in the environmental arena over the last decade but has remained somewhat elusive to practitioners outside the research field.

I'm saying 'at last' because such a generalised representation of input-output theory, practice and applications to questions of sustainability has not been compiled before. The texts have been proof-read by lay persons and have been revised, if necessary, to make sure they can be understood by the non-technical reader. The editors, and indeed all of the authors, are either environmental, sustainability or IOA practitioners with a strong interest in finding answers to some of the most fundamental questions of our time: How can economic stability and social wellbeing be achieved without compromising the ecological functioning of our planet? What are the real drivers of

35 environmental degradation and what are the most effective and efficient ways of permanently reducing
36 detrimental impacts?

37 If the transition to a sustainable society is to succeed, the connections within and between economy
38 and nature cannot be ignored. Ecological Economics is the research field that provides an integrated
39 view of human economies embedded in and dependent on ecological systems. IOA provides an
40 appropriate toolbox to explore these connections and to provide deeper understanding of sustainability
41 implication across disciplinary boundaries.

42 The book impressively demonstrates the versatility of IOA and its usefulness for the sustainability
43 practitioner. It is divided in five distinctive parts which cover the facets of sustainability practice. The
44 first part introduces the concept and the practicalities of IOA, covering fundamental operations such as
45 the compilation of IO tables, the analysis of supply chains or the assumptions inherent in the
46 technique. Novices and IOA practitioners alike will appreciate the brief resume of Wassily Leontief's
47 life, the founder of modern input-output economics and Nobel Laureate. Leontief's legacy seems more
48 alive than ever, in particular because he always intended and foresaw the use of IOA for
49 environmental analyses. Part one also explains the differences between IOA and other ways of
50 undertaking life cycle analyses.

51 Part two is an excellent example of how theory can be translated into practice. Real-world examples of
52 footprint analysis and economy-wide triple-bottom-line accounting demonstrate impressively the
53 versatility of IOA. It is not a coincidence that the increase in environmental IOA applications in recent
54 years has paralleled an equal rise in the popularity of footprint analyses, most often involving the life-
55 cycle analysis of greenhouse gas emissions (carbon footprint). The ability of IOA to deliver cost-
56 efficient and comprehensive estimates on all scales from individual via organisational to national scale
57 has helped its application for consumption-based accounting. The examples presented in the book
58 range from Australia to the United Kingdom, from company to industry sectors and from local authority
59 to regional government level. It's encouraging to see that IOA is not merely presented as the solution
60 to all questions but that practical problems and negative experiences are also described, e.g. in the
61 Australian 'Balancing Act' study. This helps to overcome similar challenges in the future.

62 If anything could be said to be missing in the book then it might be a further example of how IOA
63 applications are not limited to environmental concerns but how IOA can also address social wellbeing
64 or economic stability. Only two chapters explore the 'triple bottom line' capabilities of IOA and the
65 social dimension is not strongly represented in the book.

66 However, there is a clear reason why the focus of this edition is on the environmental dimension.
67 Current initiatives to standardise carbon footprint analyses, and in particular the development of two
68 new standards for the Greenhouse Gas Protocol, were the original incentive to write the book. Input-
69 output experts recognised the need to provide understandable information and convincing examples
70 of the usefulness of IOA. In this light, Chapter 5 describes an iterative hybrid carbon footprint analysis

71 of a playground manufacturer, clearly highlighting the advantages of combining cost-efficient IOA with
72 specific process analysis where appropriate.

73 Part three of the book is a sample of contemporary IOA tools for LCA, footprinting and sustainability
74 accounting. All of these tools have been in use for a few years, demonstrating how IOA has already
75 been incorporated in user-friendly software and databases. Again, the LCA-related chapters show that
76 hybrid analysis combining IOA and process analysis is already good practice and available to the
77 analyst.

78 Part four provides insights from Japan and New Zealand into the nature and use of multi-regional IOA.
79 Recent developments in this field show how IOA can be applied on a global scale to unravel the
80 impacts of international trade. Not only have studies of this type contributed immensely to the
81 understanding of environmental effects of globalisation, but they have also initiated a discussion about
82 responsibility for emissions and have helped in shaping climate change policies and initiatives around
83 the world.

84 The fifth and last part of the book has a pleasant surprise in store: IOA can be fun! Three chapters
85 present games and teaching material designed to illustrate the mechanism of the input-output calculus
86 in graphic and simple examples that everyone can understand. In the supply chain games,
87 participants take on different roles as producers or consumers, learn how environmental impacts of
88 their activity can be assessed and how responsibility for those impacts can be shared. The 'Input-
89 Output Game' even features the 'first human input-output table'. The materials can be used for
90 teaching, at workshops or as training material – in short, for any occasion where sustainability
91 practitioners come in contact with IOA for the first or second time.

92 It is maybe this last part of the book which most clearly illustrates its unique character. Never before
93 has the specialist world of input-output economics been presented in such a commonly
94 understandable and intuitive way. Given the long history of IOA it is surprising indeed that it took ten
95 years into the 21st century for such a book to appear. IOA novices who are looking for an 'entry point'
96 into the world of ecological economics and life-cycle assessment need not look further. This is the
97 place to start reading.