

National Accounts and environmentally Sustainable National Income

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<http://www.sni-hueting.info>



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Preface

In this book Hueting reviews and re-evaluates his earlier work on environmental functions and environmentally sustainable national income (eSNI). This book is not merely a copy of earlier work, and one can recognise the learning over time, though the authors tend to emphasize the continuity.

This book has particular importance for the current mainstream of the “capital approach” for linking the economy and the environment. Hueting’s approach and the mainstream have the same analytical structure – see Section 6.12 – but the definition of the environment here and the concept of environmental functions, leading to the concept of eSNI, are more informative, effective and efficient.

eSNI is defined as the maximally attainable level of production, using the technology of the year under review, whereby the vital environmental functions (possible uses) of the not-human-made physical surroundings remain available for future generations. eSNI provides information and is only a normative target if chosen as such. Environmental sustainability – defined in Section 8.6 – is only possible at the world scale, think of global warming. Environmental standards are derived from global conditions. Calculation of an eSNI for one country requires the assumption that other countries and the world are environmentally sustainable too.

In economic theory, producing is called the adding of value. National income is the sum of value added, so it measures production. When the growth of production is called “economic growth” then this is in conflict with economic theory. Recently natural scientists had a conference to redefine the kilogram, and this book proposes that economists have a meeting of minds to reserve “economic growth” for welfare and to speak about “production growth” for production. Let us call GDP growth “production growth”, that is what it is.

When this book is going to press there is the IPBES report on biodiversity and extinction. Changing weather patterns are alerting the world that something is happening indeed. While the Netherlands are raising the dikes, this is still measured as raising “income” and “productivity” and “economic growth” – while higher national income also causes a higher contribution to the EU – and all this is erroneously presented as a success of economic policy making. This book clarifies the conceptual error and provides a better way to use the economic indicators.

The abbreviation NI is used for *standard* national income. For comparison of NI and eSNI the relevant indicator is the distance $e\Delta = NI - eSNI$.¹

We will also use $NI = GDP$ and $eGDP = eSNI$, though conceivably NI and eSNI may also refer to other definitions of income, like NNI and $eNNI = eSNNI$.

Since the distance $e\Delta$ is the key variable to look at, it should be obvious that NI is not abolished but maintained as a relevant variable, and that NI and eSNI are looked at jointly, alongside each other. There are economists who call for an abolition of NI yet this would be counterproductive.

¹ See Section 1.15 on notation.

This book focuses on income, production and production growth. The computer model for eSNI also generates much output on the various environmental issues, for which this book is not a useful place to report about. Hueting has proposed research on also other assumptions on preferences than only for environmental sustainability, but there were no funds to do so in the past.

The major news is that CBS Statistics Netherlands (2018), as editors of the Dutch "Monitor Broad Welfare" (MBW) (actually a pleonasm), have decided to refer to eSNI, which is the first official support of the measure, though CBS does not calculate it itself, see Section 11.15. Other major news is that William Nordhaus received the Nobel Prize in Economics in 2018 "for integrating climate change into long-run macroeconomic analysis". This is a long overdue recognition for the economic research into the relation of the economy and the environment.

Hueting and De Boer have collaborated for about three decades. Hueting & De Boer (2018, 2019) made a preliminary estimate of eSNI for the Netherlands 2015. Colignatus assisted in structuring this book, suggesting improvements in didactics, collecting the Appendices, and writing drafts for the Summary Overview and parts on Misunderstandings and Comparisons. We thank Thomas Colignatus, Thea Sigmond, Peter Stauvermann and the Stichting Wetenschappelijke nalatenschap Jan Tinbergen for their permission for reproducing the articles in the Appendices.

We thank CBS Statistics Netherlands where Hueting started in 1969 and De Boer in 1991. CBS supported the development of eSNI and supported the calculation of eSNI by IVM. We thank our many colleagues at CBS Statistics Netherlands for their involvement. Our special thanks are for Peter Bosch and Henk van Tuinen for their enduring engagement and comments on drafts of this book.

We thank again the team at IVM that did the study and/or calculation on eSNI for the Netherlands for 1990, 1995, 2000 and 2005: Harmen Verbruggen, Marjan Hofkes, Rob Dellink, Reyer Gerlagh, Wietze Lise, Huib Jansen, Onno Kuik, Vincent Linderhof.

We thank again Ekko van Ierland, Jan van der Straaten and Herman Vollebergh for their editing of the 1999 conference book, Van Ierland et al. (eds) (2001). We want to thank all participants in that volume: Paul Ekins, Herman Daly, Richard Norgaard, Astrid Scholz, Sarah Fleisher Trainor, Wilfrid Beckerman, Kirk Hamilton, Giles Atkinson, Sylvie Faucheux, Martin O'Connor. A paper was sent in by Karl-Göran Mäler but he did not finalise his contribution for that conference book. Already departed from us in warm memory are David Pearce (1941-2005), Robert Goodland (1939-2013) and Salah el Serafy (1927-2016). For the organisation of the conference, Steven Keuning contributed to the scientific committee and operational support was by Theo Potma (1932-2017), Fred Kromhout and Jacques Bron. Joy Hecht made a fine report of the discussion at the World Bank seminar, see Chapter 17.

We thank Roeland Bosch for organising a colloquium at the Dutch Ministry of Economic Affairs on June 3 2013. We thank Albert Steltenpool for his comments on the estimate of eSNI 2015.

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Contents in brief

Part 1. Introduction	19
1. Summary overview	21
2. Introduction to the book	33
3. Principles and consequences	39
Part 2. Foundation in economic theory	43
4. The subject matter of economics	45
5. Environmental changes as economic phenomena	49
6. Environmental functions	55
7. Asymmetric bookkeeping	65
Part 3. The concept of eSNI	71
8. Environmentally Sustainable National Income	73
9. Valuation of environmental functions: A practical approach for an unsolvable problem	77
10. Calculation of eSNI	95
Part 4. Misunderstandings and comparisons	109
11. Objections based upon misunderstandings	111
12. Comparisons with other environmental indicators	125
Part 5. Epilogue	133
13. Work not printed here	135
14. Work to be done	137
Appendices	139
15. GNP and market prices: Wrong signals for sustainable economic success that mask environmental destruction	141
16. Roefie Hueting: Defining a statistical figure with a model	149

17. Report on the World Bank seminar on economic growth and valuation of the environment. A debate on Sustainable National Income. Held at the embassy of the Netherlands, 1 October 2001, Washington DC	153
18. For the Commission on the Measurement of Economic Performance and Social Progress (Stiglitz, Sen, Fitoussi)	171
19. Environmentally sustainable national income: Work in progress	179
20. Frequently Asked Questions on Hueting's eSNI concept	183
21. Deriving sustainability standards	189
References	203
22. Literature: Hueting as first author	205
23. Literature: other authors	211
24. Index	219

Contribution of this book

Overall: Extending welfare economics for the new scarcity of the environment, creating the concepts of environmental functions and environmentally sustainable national income (eSNI), with the development of a new theory for statistical measurement of national income, namely by using conditionality in measurement of both standard NI and eSNI, in order to respect the precautionary principle and the management of risk on economy and ecology.

Components are:

(1) Integration of economics and ecology by defining the notion of environmental functions (possible uses) and empirical description of their properties for practical application.

Within this area also:

Identification of *vital* environmental functions. Clarification that the distinction between weak and strong (environmental) sustainability is irrelevant for those vital functions. More obviously, other factors in welfare like work and leisure are secondary to ecological survival.

Recognition of *revealed supply* via elimination costs and *revealed demand* via compensation and damage costs, to allow for standard cost-benefit analysis; yet, also recognising that major costs cannot be adequately measured when such CBA has limited relevance.

(2) Awareness that using national income as one of the factors influencing welfare, requires the conditionality of making assumptions on preferences, resulting in (i) both a better understanding of standard NI and (ii) the design of the concept and definition of environmentally sustainable national income (eSNI) as: the maximally attainable level of production, using the technology of the year under review, whereby the vital environmental functions of the not-human-made physical surroundings remain available for future generations. Crucial then is the development over time of $e\Delta = NI - eSNI$.

Within this area also:

Formulating the conditions for an economic model, collecting standards for environmental sustainability, overseeing the actual calculation of an eSNI for the Dutch economy, and explaining what the outcome means.

Finding a practical approach for asymmetric bookkeeping, and identifying $NI \text{ minus asymmetric bookkeeping} = NI-A$, located between NI and eSNI.

(3) Developing this theory and practice upon the old and tested foundations of economics and national accounting, thus enhancing both scope and depth of economics, and thus making for ready acceptance by fellow economists, and thus supporting economic policy makers with key concepts and tools to deal with the very real current risk of global warming and other threats to the economy and environment and ecology.

