

## **Roefie Hueting designed Sustainable National Income**

**Dr. Roefie Hueting is the first ecological or environmental economist in the Netherlands and one of the first in the world. In the beginning of the seventies he concluded that in the national income (NI) the correct prices of produced goods cannot be ascertained. This is because it is impossible to calculate the value (or shadow prices) of the functions of nature and environment which by production and consumption partially or completely get lost. The environmentally sustainable national income (eSNI) designed by Roefie is a production level that does not threaten the physical living conditions of future generations. The eSNI estimate starts from assumed preferences for environmental sustainability and leads to strongly changed price relationships between goods that burden the environment and goods that do not. According to scientists he is world famous in his field of study.**

Roefie Hueting was born in The Hague, Netherlands, in 1929. After he obtained his gymnasium diploma A (1948) and B (1949) he went on to study economics (1951-1959) at the University of Amsterdam. From 1959 to 1962 he worked in accountancy. From 1963 to 1969 he was employed in labour market research, which for a time was his greatest interest, first at the Ministry of Social Affairs and Public Health and later at Public Housing and Physical Planning.

In the mid-sixties he started publishing about the relationship between growth and environment. These articles appeared in the collection 'What is nature worth to us' (1970, Wereldvenster). In 1969, on the recommendation of Jan Tinbergen, he moved to Statistics Netherlands, where he founded the Environmental Statistics Department, which he headed until the end of 1994. He continued working in this department until 2000. According to Hueting, figures in monetary units must be based on figures expressed in physical units. He found a numerical relationship between ecology and economy by putting these units on different axes of a diagram. In 1974 he took his doctor's degree cum laude with Jan Pen at the University of Groningen for the study 'New Scarcity and Economic Growth: more welfare through less production?' Between 1965 and 2007 he published over 150 articles. About half of his publications are in English and have been compiled into a bibliography by Robert Goodland (Elgar, 2001).

The heart of Hueting's work is the differentiation of the many possible uses of our non-human-made physical surroundings: water, air, soil, raw materials (such as oil), and our life-support systems, such as the water cycle and plant- and animal species. These he called environmental functions or simply functions. Humanity is 100% dependent on these functions. When the use of a function is at the expense of another function (or threatens to be so in the future), or when one and the same function is damaged due to excessive use, environmental functions have become by definition scarce, and consequently economic goods. The resulting inherent rise in value from nil to positive reflects a rise in costs: the regaining of a function requires a sacrifice. When functions compete, the production measured in the national income (NI) not only adds value but also annihilates value. Because our physical surroundings, which has not been produced by humans, stands by definition outside the NI, this economic loss of value - the losses of scarce environmental functions - therefore logically is not entered. Because of that, the NI must be supplemented with an eSNI.

From 1983 to 1989 Hueting was a member and author of the UNEP-World Bank Working Group on Environmental Accounting. The results were published in 'Environmental

Accounting for Sustainable Development' (UNEP & The World Bank, 1989). In his contribution 'Correcting national income for environmental losses: towards a practical solution' Hueting started from assumed preferences for environmental sustainability, in order to use these preferences to estimate the costs of the measures necessary for attaining physical sustainability standards for the availability and quality of vital environmental functions, such as the function 'drinking-water' of the environmental component water, and to use these costs as a basis for the estimation of an SNI.

In 1991 Roefie and Jan Tinbergen wrote 'GDP and market prices: wrong signals for sustainable economic success that mask environmental destruction' for the World Summit on Sustainable Development (WSSD) in Rio (1992). This article was part of the collection 'Environmentally sustainable economic development: building on Brundtland' (published by UNESCO, Island Press and World Bank). The article contains an estimate of the sustainable world income that arrives at about 50% of the world income. More advanced estimates for the Netherlands were later made by Statistics Netherlands, the RIVM (National Institute for Public Health and Environment) and the IVM (Institute for Environmental Studies) with the aid of an economic model. These estimates, for 1990, 1995 and 2000, also arrived at about 50% of the NI. It was shown that in the period 1990-2000 the Netherlands drifted further away from sustainability: the distance between NI and eSNI increased by over 10 billion euro.

In 1994 Hueting received the UN 'Global 500 Award'. In 1999 an international symposium was held in the Academy of Sciences in Amsterdam dedicated to Hueting's work, with the participation of world's most prominent environmental economists. Their contributions and Hueting's responses and an essay of Hueting and ir. Bart de Boer on the SNI were published in the *Festschrift* 'Economic growth and valuation of the environment: a debate' (Elgar, 2001). The first copy was offered by Minister of Environment Jan Pronk to the president of the World Bank at a symposium dedicated to the SNI in Washington D.C. In 2002 Hueting presented papers on the SNI at the 2002 World Summit in Johannesburg (WSSD), at the OECD seminar dedicated to the SNI in Paris, and at the Pugwash conference 'Sharing the Planet' in Groningen (published in a collection of the same name – by Eburon, 2003). In addition to writing many articles he has also provided many guest lectures and consultancies around the world in Europe, U.S.A., Asia, Africa and South-America. He has given about 100 interviews.

Hueting is delighted that after much opposition eSNI's have now been estimated for the Netherlands, but disappointed that despite promises from the Dutch government to the Parliament no means have been provided (1) to estimate SNI's in (developing) countries, (2) to improve the model and (3) to deepen the theory.

Besides an outstanding economist Hueting is also a jazz pianist. In 1949 he founded the Down Town Jazz band, with which he recorded around 250 pieces on 78 revs, LP and CD. His latest CD (2005) consists entirely of own compositions, mainly played as piano solo. He is still active with his Trad Jazz Duo (piano-bass sax) and as a pianist.