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An Appreciation of Dr. Roefie Hueting's Ecological Work

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Note: The personal opinions in this paper should in no way be construed as the official position of the World Bank Group.

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1. Introduction

This chapter honors the ecological contributions made by the economist Dr Roefie Hueting, and constitutes a biographical appreciation of his life work in this field. Hueting's career is long and extraordinarily productive -- mainly in economics. His economic contributions are dealt with by other authors in this volume, and are outlined in the bibliography appended to this chapter. On its own, the attached bibliography attests to Hueting's enormous contribution to ecological economics, and reinforces this tribute. Hueting has contributed greatly to the interface between economics and ecology or environment in many spheres. This chapter briefly outlines what, in my opinion, are his main achievements in ecological economics, with emphasis on the former.

Three caveats. First, let me warn readers that I am an ecologist, and possess no background in economics. However, I have had the great fortune of meeting Dr. Hueting many times, of reading and using much of his *oeuvre*, and have been party to many discussions of his work by himself, Salah El Serafy and Herman Daly over the last seventeen years. The second caveat is that this chapter is a personal appreciation by a friend and admirer, and does not pretend to be a comprehensive audit. The third caveat is my lack of familiarity with the Dutch language. This chapter is based only on Hueting's publications in English. Because of this, his contributions are significantly understated in this chapter. Wherever possible, I have lifted passages directly from Dr Hueting's English translations.

2. Hueting's Contribution to Ecological Economics

In the early sixties Hueting observed that children could no longer play in city neighborhoods, because of severe risks of traffic accidents. Medical literature revealed that lack of play could lead to decreased learning capacity and other medical problems. The recommended solutions were medical treatment and playgrounds. Hueting realized that this important loss of welfare was excluded from the System of National Accounts (SNA), whereas medical treatment and playgrounds were included. In addition, he noted that road building is entered in the SNA, but not the loss – by the roads -- of environmental and recreational values, as well as peace and quiet. From the ecological literature, Hueting concluded that current market prices provide wrong signals about the relative scarcity of economic goods, leading to misallocation of resources, while the figures of national income provide wrong signals about society's economic success.

In 1969 Hueting founded the Department for Environmental Statistics at the Netherlands Central Bureau of Statistics, a multi-disciplinary team which he led until 16 December 1994. The department produces statistics on the whole field of the environment, including species and resources, both in physical and in monetary terms, and makes calculations in order to arrive at alternative national income figures, corrected for environmental losses, alongside traditional official figures. For both the economic and statistical part of this research Hueting introduced the concept of possible uses of our biophysical surroundings, named environmental functions or simply: functions. Hueting insisted that when one function is used at the expense of another function, or threatens to do so in the future, the environment has an economic aspect. This is

Hueting's main link between economics and ecology, and an enormous advance in our understanding.

Hueting's seminal work is his 1974 book "*New Scarcity and Economic Growth*". Many of his subsequent achievements over the following 25 years can be traced back to passages in that book. Hueting had been cogitating on the ideas formally presented in *New Scarcity* since the 1960s (see "Chronology"), and had published on the quantification of environmental functions, the flawed concept of throughput growth as a national goal, and the error of excluding environmental values from statistics.

New Scarcity reminded us that economics is the science of scarcity. When something is abundant in relation to wants or needs, economics omits it. Only when something becomes scarce (shortages with respect to wants) does economics admit it for attention. The environment, such as breathable air, potable water, non-human species, had been abundant, hence of no concern to economics. *New Scarcity* made the case that "environmental functions" had become scarce so that it had become irrational to continue to exclude them from economics, from national accounts, and from measurements of national income. I believe Hueting originated the useful term "environmental function" published in December 1969 and 1970a. This led to great advances in our understanding of substitutability and sustainability. Unfortunately, *New Scarcity* was not published in English until 1980 because of obstruction and delays for six years after its translation, which had been financed by the World Wide Fund for Nature (WWF). North-Holland had sold the translation to a British publisher, who had been attracted by the publicity around the book. After six years, economics Nobellist Jan Tinbergen and Netherlands Economics Minister Langman felt it was so valuable that they urged North-Holland to buy the manuscript back and to publish it immediately.

I first heard of Hueting through his publications of the 1970s showing that it would be economically rational to clean the Rhine (Hueting, 1978). The '70s Rhine was similar to the '70s Lake Erie and to the '90s Black and Aral Seas. The two latter are dying faster everyday and we seem to be accepting that nothing can be done to restore them to health. Hueting's Rhine work was a tremendous boost to ecologists who were harangued that moribund ecosystems, such as Lake Eire, the Rhine, Ohio's Cayuhoga River which used to catch fire many times a year, could not be revived, and that it would be uneconomic to try to do so. Hueting continued to quantify and prove his ideas on the value of environmental functions. Because Hueting showed that under different assumptions than the ones made in the official cost-benefit analyses, it would be economically rational to clean such waterbodies. The Rhine, Cayuhoga and Lake Erie are today vastly improved in water quality.

Hueting had made the important point in *New Scarcity* that all 'environment' falls outside the System of National Accounts (SNA). Most of his work since then has been to rectify this omission which is so dangerous for human society and the future of our world. He sought to get SNA to include the value of environmental functions by costing the measures that would be necessary to restore and maintain those functions. This became known as 'standards of sustainability'. This was one of the beginnings of Hueting's valuation of environmental functions and expansion of the powerful, but ill-applied, tool of cost/benefit analysis.

3. Environmental Cost/Benefit Analysis

Besides his work on statistics and the relation between production growth and environmental conservation, Hueting contributed significantly to the field of cost/benefit analysis (CBA). Always pragmatic and courageous, Hueting applied his improved cost/benefit methodologies to a nationally important environmental controversy. He criticized the official CBA of the construction of a polder in the Balgzand part of the Waddensea, an internationally important estuary. The official CBA of the Waddensea Commission ('s-Gravenhage, 1974) advised the Government to build the gigantic polder. Hueting's main objection was that the official CBA-assigned value of one hectare of the Waddensea estuary was set at the same value as one hectare of marginal agricultural land (the category of land with the lowest revenue/ha.). That was the value officially set for nature areas by the Netherlands Government. In his review of the official CBA, Hueting observed: "This is not valuing at all, because it gives the Government the value which the same Government had already decided upon." When many values of environmental functions of ecosystems are excluded from economic analysis, of course it appears as though the ecosystems, river, or wetland etc., are not worth saving. How to value environmental functions or services is a tremendous advance promoted by Hueting. Hueting's criticism led to setting up a new CBA in which he participated, [1] and ultimately to the abandonment of the national polder plan.

He argues that when long term environmental costs and benefits are involved, the common use of the market interest rate (as the discount rate in CBA) implies that society's preferences for sustainable use of the environment amount to zero. This strong assumption, which cannot be proven, is probably incorrect. Nevertheless most cost-benefit analyses, such as those of the World Bank, are based on this assumption (Hueting 1991a).

Hueting then made the important point, which originated in *New Scarcity*, that even if the sum total of all standards for breathable air, potable water, healthy soil etc., were fully achieved, that would still be inadequate; it would not be enough. Although our survival depends on meeting such standards, the world would still be unsustainable. The main category of environmental functions still excluded is biodiversity; the functions provided by non-human species, such as pollination, recycling, and resilience. This became formalized as lack of sustainability. Hueting was one of the earliest and remains one of the clearest that the concept of sustainability mandates four goals: (a) a stable human population, (b) stable consumption (decreasing overconsumption of the rich; increasing underconsumption of the poor, both by a stable human population), (c) transition to renewable energies, and (d) recycling. These four goals all seem feasible, although overdue, except for reserving enough physical space, habitat or area for biodiversity. Hueting rightly points out that halting the human pre-emption of non-human biodiversity habitat is the issue most in doubt at the moment.

4. Netherlands National Sustainable Income

One of the earliest signs of Hueting's entry into what became known as "Sustainable National Income" was the scenario study of Hueting and Theo Potma in the early 1980s. This

[1] Published as: "*Een haven op het Balgzand*?" (Rotterdam, Arnhem, 1978).

scenario study estimated the consequences on the production and employment levels of an economic policy that shifts priority away from production growth, and towards conserving the environment and natural resources. In this exercise, a shift in the direction of environment-conserving activities is achieved by pollution control, both by technological fixes, and by taxing the polluter. The idea of taxing polluters was put forward early on by Hueting. In the early seventies, Hueting assisted the Ministers of Health and Environment Dr. Roelof Kruisinga and Irene Vorrink by providing economic arguments for the first environmental legislation in The Netherlands, introducing the "the polluter pays principle", later adopted by the whole OECD, and much of the United Nations, although not yet by the USA. Under this scenario, incomes simultaneously decreased in proportion to the costs of the measures taken.[2] The outcome of the scenario was control of production growth, compared with a traditional growth scenario, increased employment, and a substantial slowing of environmental degradation (Hueting 1987d).

Hueting then spent the next many years estimating "Sustainable National Income" for the whole of the Netherlands. This was the first time any nation's accounts were revised through the lens of sustainability. The results of The Netherlands' revised "Sustainable National Income" became available for the first time at the April 1999 conference on Hueting's lifework. If the value of environmental functions is taken into account in SNA, what would such sustainable national income look like? The results are staggering for three reasons.

First, from Hueting's analysis of the National Accounts (SNA) in the early eighties it emerged that by far the greatest contribution to growth of national income is generated by precisely those activities that harm the environment most, by their use of space, soil and resources, or by the pollution they generate, in both production and consumption.

Second, in terms of the SNA, environment-conserving activities represent a smaller volume (of SNA) than environment-burdening. "Thus, a bicycle-kilometer, a sweater, an extra blanket, beans, and a holiday by train represent a smaller volume of SNA of environmentally damaging activity than respectively a car-kilometer, heated rooms, heating the whole house, meat, and holiday flights". Elaboration of this single sentence could be construed as a goal for Ecological Economics over the next decade or more. Although higher utility bills encourage lifestyle changes, such direct policy guidance also is needed. Losses of functions of renewable and non-renewable resources (= the environment) is not yet charged to national income as costs.

Third, saving the environment requires extra input of labor for restoring and maintaining the functions that are outside the market. The production and consumption of the same amount of market goods requires more labor time with conservation of the environment than without. This makes environment-burdening products much more expensive. Were the opposite true, that is if labor productivity (measured in market terms) would increase by clean production, no environmental problem would exist. The market mechanism then would bring about this situation "automatically". For these three reasons the 'Green' SNA will be much lower than standard national income.

[2]The scenario was elaborated with the aid of the SECMON-C model of the University of Amsterdam. The results were published in the report "*Het CE-Scenario, een realistisch alternatief*" (The CE Scenario, a Realistic Alternative) (Centrum voor Energiebesparing, Delft, 1983).

The thrilling part of this history is that the results of Hueting's decades of work on calculating Green SNA were independently corroborated during Hueting's April 1999 conference by Harmen Verbruggen's team. Verbruggen (1999) constructed an applied general equilibrium model which corrected national income for environmental losses thus testing Hueting's methodology, which was fully corroborated for the first time.

5. Extending National Sustainable Income Outside The Netherlands

In 1983, UNEP, led by Yusuf Ahmad, convened the first international workshop to explore how sustainable national income should be calculated within the whole UN system by modification of traditional SNA. I supported this new and potentially powerful approach and managed later to bring in Salah El Serafy who led the World Bank into Green Accounting. As Hueting was the only person in the world to have been working on adapting the accounts of any nation up to that point, he contributed greatly to what became known as the "UNEP-World Bank Working Group on Environmental Accounting". The World Bank hosted the second workshop in Washington in 1984, OECD a third workshop in Paris in 1985, and again in Washington in 1986, by which time Environmental Accounting had become institutionalized.

This group focused mainly on incorporating the exhaustion and depletion of environment and natural resources in national income, notably in developing countries. Their chapters in this book show that Hueting, El Serafy (1989), and Daly (1988) continued this work for some years. The results were published in 1989 in "Environmental Accounting for Sustainable Development".[3] Progress on Environmental Accounting then slowed down from the early 1990s until the present, and the World Bank Group still relies more on unadjusted national accounts which exclude environmental losses.

Much of Hueting's work originated in developing countries. After having worked on sustainable national income for the Netherlands, Hueting extended his approach to Indonesia. His proposal to approach sustainability for environmental functions was first made during his visit to Jakarta in 1986, on invitation of H.E. Emil Salim, Minister of Population and Environment (Hueting, 1986b). Hueting then broadened his approach while on the team that produced the "Taiwan 2000" study. [4]

Hueting observed the causes and consequences of environmental problems firsthand in the field: desertification in Sudan, deforestation, erosion and flooding in South India, Java, and Cebu (Philippines), mangrove destruction in Ecuador, the richness of the tropical rain forests in Indonesia. Ever the pragmatist, he slept in villages and slums, and personally experienced what it feels like to pedal rickshaws. By doing so he learned that the poor in developing countries are well aware of the causes and consequences of environmental decay, of which they are the victims. He observed that these people tried in vain to stop this process and that they see cheap solutions such as bicycling, family planning and sustainable use of forests as necessary and acceptable. Lack of support, lack of influence on the decision-making process, religious and other traditions, and the subordinate position of women hamper such solutions. Governments

[3] Y. Ahmad, S. El Serafy and E. Lutz (eds.) 1989, by UNEP and The World Bank.
[4] Taiwan 2000: Balancing Economic Growth and Environmental Protection. The Steering Committee, Taiwan 2000 Study, Taipei, 1989.

even ban rickshaws as clogging roads, and fail to appreciate that this postpones sustainability as more gasoline is imported, more air is polluted, and more unemployment is caused.

6. Questioning GNP as a Goal

Setting up sustainable national income research for the Netherlands, Indonesia, and Philippines led Hueting into his seminal re-evaluation of GNP growth as an economic guide. In 1992, the World Bank decided to devote its annual flagship publication – the World Development Report -- to the topic of "Development and the Environment" for the first time. Wilfred Beckerman, author of "*In Defense of Economic Growth*" (1974) was the leading consultant to the WDR team (see this volume). The WDR is produced by a team typically of a dozen economists with a couple of million dollars, over two or three years. It aims at representing current thinking on the selected topic of the year by the world's leading practitioners of economic development, hence can be enormously influential worldwide. When greener colleagues in the World Bank started to see drafts is was clear that neoclassical economics was overwhelming ecological economics. Three of us, Herman Daly, Salah El Serafy and myself, commented extensively on all available drafts from start to finish seeking to redress this imbalance. [5] However, it soon became clear that our comments and the environmental point of view would be under-represented.

In our spare time, we decided to draft a document to balance to the official WDR. As we had zero budget, we cajoled colleagues into providing us with separate chapters. This modest counterview to the official WDR was surprisingly copyrighted by IBRD and UNESCO and published as "The Transition to Sustainability" in the same year as the 1992 WDR. Because of their world leadership in questioning the goal of GNP growth, we received a brilliant chapter from economics Nobellist Jan Tinbergen and Roefie Hueting entitled "GNP and market prices: wrong signals for sustainable economic success that mask environmental destruction". This was subsequently amplified in Roefie's 1996a paper "Three Myths". Their stark conclusions were very clear and contrasted with the WDR: (a) promote the transition to renewable energy and recycling, (b) promote the transition from throughput growth to development, starting in rich countries, (c) stabilize global population as soon as possible, and (d) improve international income distribution. Although rarely referred to in official circles, this helped the World Bank and other development workers to question the *idee fixe* of maximizing GNP growth.

7. Weak and Strong Sustainability

Hueting (1974, 1980), Hueting et al. (1992), and Hueting and Reijnders (1998) contribute much to the current debate on sustainability. *New Scarcity* (1974) focuses on renewable resources such as water, air and soil, so Hueting led on this important topic from the earliest days, and also applied his thinking to non-renewables, such as energy. Hueting bases a future acceptable rate of extraction of the non-renewable resource on the historic rate at which

[5] Herman Daly provides an amusing but disturbing account of that vexed process in his 1996 book "Beyond Growth", Boston, Beacon Press 253 p. Daly (1992) had contributed greatly by reminding us that the three goals of allocation, efficiency and scale need three separate tools, rather than the current single goal of 'GNP growth forever'.

improved efficiency, substitution and re-use had become available. Thus Hueting shows the folly of relying on technological optimism, rather than on some historic track record. The only thing that matters in the context of sustainability is that vital functions remain available. The conservation of these functions is critical.

Weak sustainability assumes all or most natural capital is substitutable with other forms of capital, so that restoration of lost elements can be postponed, awaiting cheaper elements provided by future technologies. During that wait, income can be sustained by reserving a sufficient part of the revenues of a resource for investment in consumption goods. This is the wrong and risky advice to get rich first and to attend to the environment later. Now that the ludicrous 'inverted Kuznets environmental curves' or win-wins have been exposed as shams (Maler, this volume), we need to revert to the prudent course advocated by Hueting of restoring and maintaining environmental functions, and preferably not damaging them in the first place. Planetary life support systems are not substitutable, nor are most functions of natural ecosystems. Consequently, Hueting concludes, weak sustainability is impossible for the functions of these systems. With this I agree, although weak sustainability would be a vast improvement as a first step towards a more reliable form of sustainability.

Strong sustainability takes the line, Hueting asserts, that substitution of most elements of the environment is impossible. This implies that the stocks of non-renewable resources should remain integrally intact. This also is impossible and non-sensical, because it would mean that non-renewable resources could never be consumed. Elsewhere, this is normally referred to as 'absurdly strong sustainability'. By substituting non-renewables during the depletion period, the functions of non-renewables remain intact. The prospects for this are hopeful. Therefore, Hueting correctly concludes that "there seems to be only one kind of sustainability, in which it is sometimes possible to substitute elements of the environment (resources) by other elements in order to guarantee the availability of functions, and sometimes it is not".

Toward a 'Green G.N.P.'

THE NEW YORK TIMES, SUNDAY, DECEMBER 9, 1990

EUROPEANS BEGIN TO CALCULATE THE PRICE OF POLLUTION

By Marlise Simons, THE HAGUE

In a Spartan office on the eighth floor of the Netherlands Central Bureau of Statistics, a shy man with the stoop of a bookkeeper rather than the bearing of a fire-brand has been quietly plotting a revolution in the way economists look at the environment.

For 30 years, Roefie Hueting has provoked an prodded planners and policymakers, telling them that they are fooling themselves in the way they measure a country's wealth the welfare of its citizens, the prices of goods and services. And he has devised his own way, a set of new indicators that would arrive at a "green" gross national product, accounting for the harm that economic activity does to the environment.

The idea is getting a broader reception in Europe as the environmental debate has heated up, and public opinion now favors more drastic steps to fight pollution.

By ignoring or disguising the cost of economic production to the environment, Mr. Hueting and other dissident economists argue, the gross national product of many countries has been inflated and sometimes grossly distorted. It is absurd, Mr. Hueting contends, that measures to defend nature or to

check or clean damage have been tallied as growth.
economist and jazz pianist, has been an irritant to people on the left and right. He survived politicians who wanted to close down his department; and he got a reputation as a Don Quixote among economists. Slowly he gained acclaim from his peers. Now governments and international institutions are listening.

The Dutch Government has asked Mr. Hueting to produce an alternative system of national accounting to reflect the damage done to the air, water, soil, and animal and plant life, and to account for the cost of maintaining or restoring them. Planners at the United Nations Environment Program and officials at the World Bank have said that Mr. Hueting's publications got them thinking about the need for "environmental accounting" in recent years.

Mr. Hueting is far from the only economist contending that the habits of more than 50 years of economic accounting – using the output of goods and services as the only measure of economic and even social success – are outdated and misleading. Arguments that new rules and premises are needed have gained among researchers in the United States. A bill passed a year ago by Congress directed the Commerce Department to work on a new system of calculating environmental costs and benefits.

In Europe, the idea of "green" accounting has pried its way into more and more government offices. Sweden's Parliament has sent a delegation to the Netherlands for advice on starting a project. France and Norway have started to compile inventories of their natural resources, a first step to linking the state of the environment to economic activity.

Germany, which is farther along, has responded to pressure from its Green Party and is working out a system to correct the "double counting" in its national book keeping. In a 1989 study, the economist Christian Leipert showed that between 1970 and 1985, West Germany's spending to preserve or restore nature increased from 5 percent to 10 percent of its gross national product, and was consistently counted as growth. That meant, said Mr. Hueting, that measures simply to check deterioration were recorded as a significant contribution.

"Take a water treatment plant," said Mr. Hueting. "Under the present accounting system, it is booked as a contribution, though it should be entered as a cost. It's built to make up for the loss of usable water. It does not generate growth. You can only count that plant as value added if you have first entered the ruined drinking water as a loss." It would be equally misleading to count cleaning smog as growth, he said.

Not a Solution

Redefining such costs and correcting the books is useful, he said, but "it's dangerous if politicians or statisticians present this as the solution, because, as is well known, most environmental destruction is never restored or compensated."

Ultimately, Mr. Hueting and other ecological economists hope that a new framework for national accounts will lead to a fundamental change of national goals and even a redefinition of progress. "Green" accounting will show how far the world has drifted from rational behavior, from activities that are not destructive to the biosphere and therefore to society, they argue.

Applying a "green" G.N.P., Mr. Hueting said, will make polluting products more expensive and consequently will slow growth. But he said this does not have to mean a decline in employment. "Many activities that protect the environment will have to be more labor-intensive," he said. "An economy that protects the environment will create more jobs."

While he says his work is often complex and frustrating, the political climate for his ideas is far more favorable than in the early 1960's Mr. Hueting and His team of 30 specialists, among them: biologists, chemists and physicists, reckon that they need at least two years to come up with a draft for a "green" G.N.P. Even so, the Netherlands seems further along than most nations. The Department for Environmental Statistics, created by Mr. Hueting in 1969, has been collecting data on the environment – all emissions, concentrations of toxic material disappearances of plant and animal species and other changes – over the last two decades. Such an inventory, he said, is a vital prerequisite. The process, he said, involves establishing norms for "sustainable use" of the environment, that is, leaving intact its capacity to regenerate itself.

Complex Process

The next step, he said, is to decide what measures are needed to attain sustainable use. The costs of these measures must then be subtracted from the current G.N.P. to calculate the "green" G.N.P. "It is obviously a very complex process," said Mr. Hueting, despite the fact that we can apply traditional economic methods."

Even if governments only use it as a parallel system, he said, it will help to clarify "our mistaken accounting" and demonstrate how we are squandering air, water, ground, trees, spaces, silence, as if they were free goods instead of

assets that we are losing." It will clarify "that we should abandon the G.N.P. as the main indicator of economic success and not get upset when it drops."

While many researchers in Europe have agreed that income is not a satisfactory measure of quality of life here, they say a new perspective is even more important for developing nations that are in danger of squandering their assets. Indonesia, Thailand and the Philippines, which have cut their forests and suffered soil erosion, have asked the Netherlands for technical assistance in environmental accounting At the United Nations, the Statistical Commission is now revising its System of National Accounts, which it does only once every two decades, and it has agreed to set up guidelines for countries that want to draw up their own "green" G.N.P.'s.

Dr. Roefie Hueting
Chronology

1929	Born 16 December, The Hague, The Netherlands.
1948	Finished gymnasium A in 1948 and B in 1949.
1949	Sabbatical year to make up his mind whether to choose a scientific career or a career in music. His lifelong friend, Prof. Jan Pen, Economics Emeritus, Groningen University, encouraged him to study economics.
1949	Founded "The Downtown Jazz Band".
1951	To 1959, studied economics, Univ. Amsterdam, while earning his living as a musician.
1957	7 June, married sculptress Erna Jans Postuma; Two children: Tanja Kitty Akim (b. 1958) & Bernadine (Narda) (b. 1962).
1959-1962	Short career as an assistant public accountant.
1962-1965	Started in the field of his main interest, labor market research, at the Ministry of Social Affairs.
1965-1968	Labor market research at the Ministry of Housing and Physical Planning.
1960s	In the mid sixties he started publishing on economic aspects of the environment, mainly in *Economisch-Statistische Berichten.*
1969	Founded the Environment Department at Statistics Netherlands.
1970	In January, he published a collection of his articles as *"Wat is de natuur ons waard?"* (What is Nature Worth to Us?).
1974	Received doctorate (*cum laude)* for his dissertation: *"Nieuwe schaarste en economische groei.* An updated version in English was published in 1980 under the title "New Scarcity and Economic Growth".
1976-1977	Provided environmental prognoses for the Netherlands Scientific Council for Governement Policy, published as: "The Next Twenty-Five Years" (The Hague, 1978).
1991	Decorated Officer of the "Orde van Oranje Nassau", The Netherlands.
1994	Retired from Bureau of Statistics, 16 December; retained office.
1994	Honored with the United Nations "Global 500" award.

Recorded and released 250 tracks on top record labels; First Prize at the 1953 International Jazz Concourse; First Prize at the 1955 AVRO Jazz Competition

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Further information may be obtained from Dr Roefie Hueting, Statistics Netherlands, P.O. Box 4000, 2270 JM Voorburg, The Netherlands

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