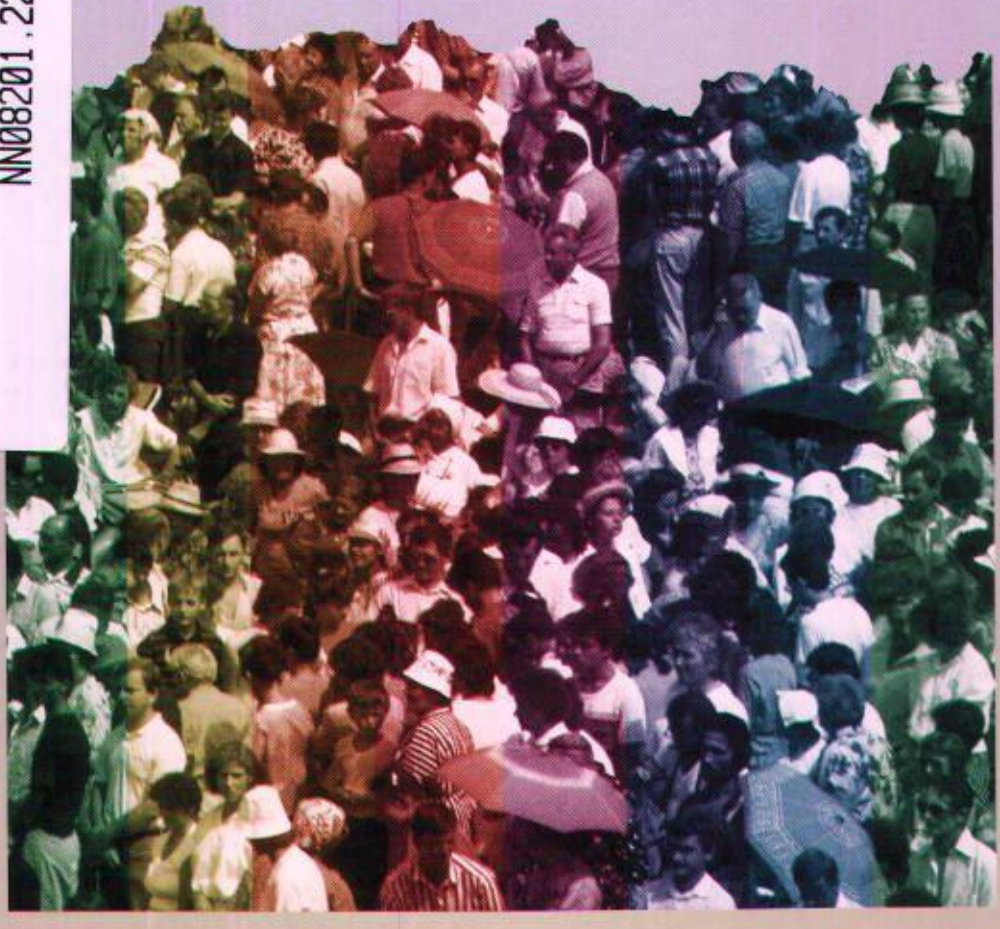



GERT SPAARGAREN

E ECOLOGICAL MODERNIZATION OF PRODUCTION AND CONSUMPTION

-ESSAYS IN ENVIRONMENTAL SOCIOLOGY -



Stellingen

1. Men hoeft niet alle elementen uit de door Dunlap en Catton gelanceerde kritiek op de main-stream sociologie te onderschrijven om te erkennen dat de sociologie in de jaren zeventig en tachtig beHEPt was met een onderschatting van de betekenis van het fysiek-materiële substraat in de reproductie van sociale systemen.

   [Catton, W.R. and R.E. Dunlap (1978), Environmental Sociology: A New Paradigm. *The American Sociologist*, vol. 13, pp. 41-49]

2. Met het oog op de operationalisering van het begrip 'duurzame ontwikkeling' dienen sociale wetenschappers aan te knopen bij concepten van natuurwetenschappers zonder daarbij probleemdefinities over te nemen waarin het sociale karakter van door de milieuwetenschap bestudeerde stofstromen wordt miskend.

3. De theorie van de ecologische modernisering van productie en consumptie werd in eerste aanleg ontwikkeld in relatie tot de productiesfeer en besteedde derhalve onvoldoende aandacht aan de specifieke dynamiek van de consumptiesfeer.

4. Milieusociologen moeten in hun benadering van consumptie een brug slaan tussen op productkenmerken gerichte milieukundigen enerzijds en op de symboolwaarde van producten gerichte sociologen anderzijds.

5. Er is geen bezwaar tegen het begrip milieubeschaving ter aanduiding van de culturele dimensie van het proces van ecologische modernisering van de samenleving, zolang men daarbij het onderscheid in acht neemt tussen de begrippen beschavingsproces en beschavingsoffensief.

6. De door Anthony Giddens in de sociologie geïntroduceerde begrippen 'dualiteit van structuur' en 'dubbele hermeneutiek' illustreren het feit dat theoretische vernieuwing zich vaak via neologismen voltrekt.

7. De structuratietheorie van Anthony Giddens biedt een meer adequaat handelingstheoretisch model voor het sociaal- wetenschappelijk milieu-onderzoek dan het lange tijd gangbare attitude-gedrag model.

8. De door Per Otnes geschetste voorstelling van huishoudelijke consumptie als een proces van 'serving and being served by socio-material collective systems' brengt het abstracte begrip 'dualiteit van structuur' op een aanschouwelijke wijze in huis.

[Otnes, P. (1988), Housing consumption: Collective systems service, in: P. Otnes (ed.), *The Sociology of Consumption*. New Jersey: Humanities Press Int., pp. 119-138]

9. Om de veranderende rol van wetenschap en politiek in de laat-moderne samenleving te doorgronden biedt het aan Ulrich Beck ontleende onderscheid tussen 'simpele' en 'reflexieve' modernisering een vruchtbaarder aanknopingspunt dan het recent (ook) in de milieusociologie herleefde debat over het 'sociaal constructivisme'.

10. Het door de 'Club van Lissabon' geschreven rapport 'Grenzen aan de Concurrentie' zou voor de jaren '90 eenzelfde betekenis kunnen krijgen als het rapport aan de Club van Rome heeft gehad voor de jaren '70 en het Brundtland-rapport voor de jaren '80.

[Petrella, R. e.a. (1995), Grenzen aan de concurrentie. Brussel: VUBPRESS]

11. In plaats van zich te beklagen over de geringe belangstelling van de Nederlandse burgers voor de politieke besluitvorming in de Europese Unie zouden (euro)parlementariërs zich sterk moeten maken voor een Europese pendant van 'Den Haag Vandaag' op de Nederlandse televisie.

12. Soms moet men promoveren om niet te degraderen.

Gert Spaargaren
The Ecological Modernization of
Production and Consumption;
Essays in Environmental Sociology

Wageningen, 28 januari 1997

THE ECOLOGICAL MODERNIZATION OF PRODUCTION AND CONSUMPTION

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THE ECOLOGICAL MODERNIZATION OF PRODUCTION AND CONSUMPTION

Essays in Environmental Sociology

Gert Spaargaren

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Acknowledgements

This thesis reports on my search for a theoretically adequate sociological approach to environmental issues. A search of which I also have given regular account in journal articles. Interim results were discussed with my students and colleagues, during courses and at meetings of the international (ISA) network of social environmental scientists which has made rapid progress especially during the past decade. I would like to thank Marc Marmont, Pieter Leroy, Riley Dunlap, Philip Lowe, Michael Redclift, Joseph Huber and Maarten Hajer for the stimulating discussions on environmental sociology that we have had.

As a category of sociologists, environmental sociologists are a bit peculiar. Many of them tend to be rather problem-oriented and nearly always seek the company of environmental scientists from other disciplines. In order to 'keep up' with the theoretical developments in sociology, too, I could not, and would not for a moment have done without the support of the Wageningen Giddens circle, where Giddens' books as well as the works of leading sociologists, anthropologists and historians are discussed over a good glass of wine. Its 'primus inter pares' Rien Munters is not only the one who trained me to become a sociologists, but especially the one who conveyed his fondness of this discipline to me. A discipline which supplied the subject matter for the highly instructive and captivating discussions that my former co-students Hans Mommaas and Hugo Van der Poel and myself have had up to the present day. I would like to express my sincere gratitude to them as well as to the other members of the study circle.

I am aware that, seen in an international perspective too, I am privileged to be able to work in a team of people within the sociology department toward further development of environmental sociology as a new field of application for sociology. As the former chairman of the sociology department, Professor Nooij, one of my supervisors, has allowed environmental sociology to be developed into an independent field of application alongside rural sociology. Meanwhile, he has always followed the developments in the environmental sociology section in a critical but constructive manner. My dissertation will show that my other supervisor, Professor Nelissen, played an important role in showing me the way in the subject matter at hand.

The success of a project such as mine of course relies heavily on the cooperation with my colleagues in the environmental section of the department. Kris van Koppen, Duncan Liefferink, Jan van Tatenhove, Joris Hogenboom, Erna Krommendijk, Bas van Vliet and Erna Ovaa have been, or are, invaluable colleagues and friends. Arthur Mol must be mentioned separately. Not only is this thesis partly 'our' thesis in the sense that Tuur has literally contributed to it. Each and every idea contained in it is the product of our many years of

intensive and highly enjoyable collaboration, which stems from our shared interest in and largely congruent views on this field of study.

Corry Rothuizen and Ciska de Harder at our department's secretariat need no thanks. Being 'knowledgeable and capable agents', they are conscious enough of their value for the department as it is.

Oddly enough, the family usually come last, even though Margreet, Martijn and Petra have sometimes been more than 'in' on this thesis and both my in-laws and parents have shown a stimulating interest in it. The fact that in order to get some writing done I could always go into hiding at Anneke's house in the Jordaan, Amsterdam, has sped up the process in a very pleasant way.

Wageningen, December 1996.

Contents

Preface

The articles assembled in this volume are aimed to contribute to the further development of environmental sociology. The central object of analysis is the environmental crisis within modern industrial societies. The essays were written from the conviction that sociologists do have a contribution to make to environmental studies and that our understanding of the environmental crisis can be deepened and enriched by the conceptual and empirical work of sociologists.

Whether sociology will be able to meet this expectation of making a vital contribution to environmental studies and to social policies, will become clear only in the future. In the present-day situation, the impact of environmental sociology is still very modest in both quantitative and qualitative respect when compared to for example the economic or technical environmental sciences. We will shortly examine two factors that are indicative for the relatively modest impact of environmental sociologists so far.

Firstly, the scientific and societal discourse on environmental issues has been dominated so far by ecologists, biologists and natural scientists. Everybody who dives into problems of ozone layer depletion, global warming or deforestation will soon discover that these social problems are framed, or perhaps one should say 'captured', primarily in the language of biologists, ecologists and natural scientists, using their specific frames of references. And although most of the technical experts in the environmental field are very willing to admit that environmental problems are 'social' problems in the sense that they originate from social structures c.q. social arrangements between people, most of the time social science expertise is only called upon during the latest stages of our dealing with these problems. Social scientists are - for example in the context of some of the major international research programs - usually assigned a role only in the process of solving environmental problems by altering the behaviour of the populace. As 'social engineers', they are expected to come up with the most effective and efficient means of altering the behaviour of different segments of the population. This 'division of labour' between natural and social scientists in our dealing with environmental problems, implies that sociologists who are willing to contribute to environmental studies not only have to cope with the often reported cultural differences between the social and the technical sciences, they also have to try to break through existing hierarchies which only assign them a place at the periphery of the natural science dominated scientific community.

It goes without saying that many social scientists do not feel very comfortable with this situation. For this reason it is an important task for environmental sociologists to explore promising access points to the field of environmental studies. It is obvious that taking sub-

stance and energy flows as a starting point for sociological theorizing and research, would considerably lower entry bars and stimulate communication in this respect. When doing so, the main challenge for social scientists will be to demonstrate the advantages of connecting the analyses of substance flows with a social science perspective not at the end of the chain but as early as possible. When for example the central goals of global change policies are formulated in terms of percentages of required CO_2 reduction, it is up to social scientists to investigate and demonstrate the direct connections that exist between the 'up-scaling' of the environmental crisis brought about by the global change issues on the one hand and the 'up-scaling' of modern societies on the other: the immense growth in the demand for mobility (being one of the main technical causes behind the raising CO_2 emissions) can be said to be rooted in a process of time-space distanciation which gives modern societies their extreme dynamism.

A second reason which can explain for the relatively modest impact of sociologists within the field of environmental studies, has its roots in the sociological discipline itself. Until very recently, sociology seemed to be unable to properly handle environmental issues. The works of Weber, Durkheim, Marx and other founding fathers of sociology are generally considered to offer very few promising starting points for developing a specific sociological perspective on the environmental crisis (Buttel, 1986; Massa, 1995). Perhaps for this reason environmental issues did not seem to attract any serious attention within the sociological scientific community for a long time. Fortunately, things are changing very fast in the present-day. Once that leading contemporary sociologists like Ulrich Beck, Anthony Giddens and Niklas Luhmann started to pay serious attention to the environmental crisis in several respects, there seems to be something on the move. In the last two years an impressive three volume 'reader in environmental sociology' (Redclift, 1995) and several introductions into environmental sociology were published (Martell, 1994; Hannigan, 1995), handbooks in environmental sociology were composed both in the UK and in the USA and several chairs in environmental sociology were installed both in the USA and in Europe. While these developments should of course be welcomed very much, we must not forget that it took the sociology discipline twenty years to awake from its lethargy on environmental issues.

Nevertheless, from the seventies onward, a small group of self-conscious and self confessed environmental sociologists has been working on the development of a new sub-discipline that should address environmental problems in an appropriate way. In the USA a small number of pioneers tried to convince their fellow sociologists in making the interaction between societies and their physical environments the core object of the discipline. They would be joined soon by colleagues within several European countries. This group of pioneers succeeded in its endeavour to institutionally anchor the theme of environment within the sociological community, be it on a modest scale when judged on the number of people involved and the resources that are available. We will sketch in a very short way this emergence and

institutionalization of environmental sociology as a specialization within sociology, thereby mentioning some people and events that have been important in this respect. The process started in the seventies in the USA and some other 'western' countries. In the USA it went through a period of stagnation during the eighties, while -in contrast- on the European front the eighties were a period of rapid developments. During the nineties the institutionalization process cumulated into a world-wide network of researchers who, under the umbrella of -amongst others- the International Sociological Association, are still very busy in the delineation, profiling and the further advancement of the new subdiscipline.

As the official starting point for environmental sociology we refer to the Catton and Dunlap 1978 article which appeared in the American Sociologists under the title: 'Environmental Sociology: A New Paradigm'. In this article they confronted the dominant, anthropocentric paradigm that to their opinion was governing sociology and anthropology with an alternative set of basic assumptions gathered under their New Ecological -or Environmental- Paradigm (NEP). Whereas within the dominant paradigm sociologists were only interested in and making use of 'social facts' to explain societal phenomena, the NEP-sociologists would take into account (also) the 'web of life' in order to be able to better understand societal developments like for instance 'economic growth'. So environmental sociology was born in the USA in the aftermath of the 'Limits to Growth-debate' and it has had, from its inception on, the critical or normative character that until today is one of its most distinctive attributes.

The invocation of Dunlap and Catton seemed to be well timed and raised considerable response especially in the USA. In a follow-up article to be published sixteen years later in the same journal, the authors conclude in retrospect that the late seventies was a 'vibrant' period for environmental sociology in the USA. As indicators of this success they mention the fact that at that time about 300 members were joining the ASA Section on Environmental Sociology, several textbooks were being written (Humphrey and Buttel, 1982; Schnaiberg, 1980) and numerous environmental sociology courses had sprung up (Dunlap and Catton, 1994). Although the eighties showed some stagnation or even decline in the development of the new sub-discipline, an other distinguished environmental sociologists in the USA, Fred Buttel, was able to conclude by the mid-eighties that "environmental sociology has by now a relatively comfortable niche as a specialization within the sociology discipline in the United States" (Buttel, 1986, p.353). Dunlap and Catton themselves were able to build up a strong centre of environmental sociology at the Washington State University, with, among others, Rosa and Freudenburg joining them (Freudenburg and Gramling, 1989). They also played a significant role in the institutionalization of environmental sociology at the national level, while decisive inputs were made also by colleagues from other universities, especially by Fred Buttel and Allen Schnaiberg. During the nineties, both Dunlap and Buttel made a significant contribution to the development of environmental sociology at the international level. Riley Dunlap was elected in 1994 as the chairman of the ISA Research Committee on

Environment and Society. A research committee that has been very active during the nineties, with a newsletter and several international conferences.

Given the short description of the USA-situation, one will not be surprised by the fact that, when setting up in 1983 my first course in environmental sociology in the Netherlands, an American colleague, Rabel Burdge, was asked to join me in this effort during the first year. Speaking in general, in Europe the institutionalization of the field of environmental sociology got well under its way only from the mid-eighties onwards, although some pioneering contributions were made already during the seventies.

In the Netherlands and Belgium, the pioneering work was to be done by Nelissen, Hofstee, Tellegen, Leroy, Ester, Cramer and Gijswijt, to be joined later by an active group at the Wageningen University. The works of these authors will be discussed in some detail throughout the book and especially in chapter two, which addresses the take off of environmental sociology in the Netherlands. As far as the institutional setting of their work is concerned, Leroy in his inaugural address has discussed the fact that Dutch environmental sociologists or social scientists all had - and sometimes still have - to face the fact that in the Netherlands the interdisciplinary, problem oriented 'milieukunde' (environmental science) has, from the early seventies on, developed into the dominant institutional form within the academic environmental field (Leroy, 1995).

In Germany, the Science Centre of Berlin has become very famous for its work in the field of environmental social sciences and became widely known in Europe for this work during the eighties. It started during the second half of the seventies, when some researchers founded a research-group on environmental politics at the IIUG, the International Institute for Environment and Society. Under the stimulating leadership of Udo Ernst Simonis this group issued numerous path breaking studies concerning (international) environmental politics, environmental attitudes and technology. The list of publications during the eighties contains the names of many distinguished researches in the field of social environmental sciences, including those of Jonathan Fietkau, Martin Jänicke, Joseph Huber, Otto Ullrich, Helmut Weidner, Volkmar Hartje, Wolfgang Sachs, Klaus Zimmermann, Volker von Prittwitz and many others. This community of researchers is by now spread all over the country, although the core of their programm is still part of the WZB main research theme 'Technik - Arbeit - Umwelt'. Although they do not explicitly present their work under the heading of environmental sociology, their writings did and do make a substantial contribution to this field.

In the UK, long before there were to be huge programs like for example the Global Environmental Change Program, the Rural Economy and Society study group brought together social scientists who were willing to widen the field of rural sociology by including environmental issues into it as well. Among the first generation environmental sociologists in the english speaking parts of the world outside the USA are Michael Redclift, Timothy O'Riordan, Philip Lowe, Howard Newby, David Pepper, Robert Paehlke and Andrew Dobson, to

be joined by Peter Dickens, John Dryzek, Elizabeth Shove, Albert Weale, Robin Eckersley, Steven Yearly, Robert Goodin, Luke Martell, Paul Hannigan and many others. In several countries - like for example in Finland and Japan - networks have been strengthened considerably during the last few years, and sometimes a few individuals are acting as strong representatives at the international level, as for example Marc Mormont and Yvonne Bodiquel for France, Paul Tamas for Hungary and Oleg Yanitsky for Russia.

As mentioned before, not all the people mentioned would consider themselves as full blown environmental sociologists because they are social psychologists or political scientist by training or because they traditionally have been working in other special areas like rural sociology. Also the institutional set-up for environmental sociology can be said to differ according to country or region and for that reason what is considered as work in environmental sociology in one country, will be published under the banner of administrative or policy sciences, rural sociology or institutional economics in another. Also at the international level the rather fluid borders between the different environmental social sciences sometimes become manifest, for example in the debate on the name of the environmental research group of the ISA. To lower the barriers to bordering disciplines, it was decided not to adopt the most logical name of 'environmental sociology' but instead to go under the flag of 'environment and society'.

More important than quarrelling about names is the fact that this working group developed into one of the biggest and fastest growing research groups of the ISA, to become one of the most important international platforms for environmental sociologists from all parts of the world. It organized successful meetings in Spain, the Netherlands, France, Germany and Brazil. Successful not only for its number of participants but especially because the network which originated from some western countries was effectively widened to include significant numbers of researchers from India, the Central and East European countries, Latin America, Asia and Japan. Outside the ISA circuits, environmental social scientists are meeting at regional conferences of rural sociologists, specific platforms of political scientists as well as on several inter- and multidisciplinary conferences.

We can agree with Fred Buttel and Taylor (1992) that the perspectives for environmental sociology during the first half of the nineties were better than ever before. A solid international network of researchers all over the world has been developed, environmental issues were given high priority both by politicians and the general public in many countries, and within sociology and anthropology there was a sense awaking that environmental issues could well develop into one of the principal factors behind sociological theorizing and research in the next future. Though the second half of the nineties seems to mitigate some of the highest expectations, we hope and expect environmental sociology to develop into a comprehensive field within sociology. This book is intended to contribute to this process of a further growth into adulthood.

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Chapter 1
Ecological Modernization Theory and the Changing Discourse on Environment and Modernity

Gert Spaargaren

In order to deal with the ecological crisis, nothing less than a reconstruction or rebuilding of some of the central institutions of modern industrial society is needed. The institutions that are in need of such a reconstruction are those involved in the organization of production and consumption. The institutional arrangements that give modern society its industrial character must be submitted to a process of ecological modernization. A modernization process which has to be studied both on the level of institutional reform and on the level of strategic human conduct. Ecological modernization pertains both to the introduction of new rules, measures and standards in the sphere of industrial production and consumption as well as to the evolving new sets of principles with which people give shape and content to their daily life. By studying these processes of environmental reform on different levels and in different segments of social life, sociologists have a pivotal contribution to make to the environmental sciences and to environmental politics as well.

1. Introduction

The statement above summarizes in a highly simplified way the major concern of this book. A book that contains articles which are all dealing to a greater or lesser extent with the theme of the ecological modernization of production and consumption. These articles have been written from an environmental sociology perspective, which means a perspective that tries to combine two ways of dealing with social reality. As *environmental* sociologists we are primarily 'engaged' with the substantive issue of bringing about more sustainable patterns of production and consumption: we come up with the 'right' definition of 'the environment'; we try to delineate what green futures or green politics are about; we look for devices which people can (be made to) use in their strive for environment friendly forms of behaviour and by doing so we are the promoters of more sustainable lifestyles; we are willing to contribute to the designing and implementation of the most suitable and appropriate policy outlooks and instruments; in short, we are normatively engaged in the very process of social change that forms the object of our theorizing and research. As environmental *sociologists* we are approaching these matters from a slightly different perspective. We view sustainability not only or primarily as a matter of normative concern but try to re- and deconstruct its specific content and character in the context of an ongoing discourse on the environment; we try to discuss the theoretical assumptions underlying the ecological modernization approach, its conceptualization of the environment - society relation, its view on social change, technology and the relation between action and structure etc. In sum, we are reflecting on the overall

character and significance of this environment induced process of social change and its impact on the (re)production of modern society at large.

The introductory chapter provides a short overview of the general argument that will be spelled out in more detail in the different articles that make up this book. Besides that, in the introduction we will discuss the general background of the arguments and the theoretical position defended throughout the book. First of all we outline our view on the task and the character of environmental sociology and on the role this sub-discipline has to play within the broader field of the environmental sciences. We try to delineate what a sociological definition of the environmental crisis looks like. What kind of approach do sociologists embrace that makes them distinctive from the (dominant) approaches within the technical or bio-ecological sciences? With regard to this question, we argue in section two that environmental sociologists, although professionally concerned first and foremost with the material and bio-physical dimension of social life, should be very cautious in embracing the human-ecology tradition that played such a prominent role in the birth period of environmental sociology. Instead we foster the view that environmental sociologists should take their starting point in the sociological tradition itself. The fact that, until very recently, most of the central concepts and theories within sociology failed to take into account the relationship with the environment in a satisfactory way, should not restrain us from taking the sociological discipline as our point of departure. We should not react to the fact of mainstream sociology being 'over-socialized' (Buttel, 1996) by taking on board concepts that leave no room for theorizing our relationship with the environment as a relationship which is always and unavoidably a socially and culturally mediated phenomenon.

When turning their heads to sociology instead of human ecology, environmental sociologists can profit from insights which resulted from the debate on 'modernization theory' within the social sciences. This holds true even when the confrontation with the environmental crisis brings out the need for a partial de- and reconstruction of modernization theory in its conventional form, be it Parsonian or not. In sections three, four and five we explore the role modernization theories played in the environmental discourse in different periods of time. We distinguish between three different phases or periods in the debate on the relationship between modernity and the environment. During the period of the 'limits to growth debate' in the early seventies, *de-modernization* theories dominated the environmental scene (section 3). With the Brundtland report on sustainable development, *ecological modernization* theory took over to become the dominant paradigm from the mid-eighties onward (section 4). With the arrival of the nineties and the debate on global environmental change, the ecological modernization approach was itself challenged by what is now generally labelled as *reflexive modernization* theory (section 5). Our intention is not to provide a full account of the history of the environmental debate. The periodization is employed because it enables us to situate the ecological modernization approach in the evolving debate on 'modernity and the environment'.

In section four we will argue that both Martin Jänicke and Joseph Huber made significant contributions to the modernization debate within the environmental sciences by formulating their specific variants of ecologically inspired modernization-theories. Because of the central importance of the work of Jänicke and Huber, we discuss in sections 4.1 and 4.2 in more detail the content of their contribution, its potential use for environmental social sciences and environmental politics and some of the critiques that especially the work of Huber generated. In section 4.3 we furthermore try to illustrate the particular contribution we claim to make to the further elaboration of the ecological modernization approach. This contribution comprises two main elements. First, we try to enlarge the rather classical, deterministic system theory of Huber to include human agency and to add to his institutional perspective a so called 'actor centred perspective' on environmental reform. The second emphasis we deliberately added to the standing debate on ecological modernization theory pertains to the role of consumption vis-à-vis the role of production. Most of the time the role of citizen-consumers in promoting more sustainable cycles of production and consumption is analyzed primarily and exclusively from a 'productivist' perspective on ecological modernization. The consumer is treated as one element in the chain, one 'stage' in the life-cycle of a product etc. By bringing in some of the themes that are discussed among sociologists who have taken consumption and the consumer society as their main object of study, we try to deepen our understanding with regard to the potential role of consumers in bringing about a more sustainable society.

The introductory chapter is concluded with a short summary and a guide to reading the articles contained in this volume.

2. A sociological perspective on environmental issues

The Dutch sociologist E.W. Hofstee has been among the first to provide a formal definition of the task of environmental sociology by stating that its central task should be "to study environmental deterioration and environmental control as societal phenomena" (Hofstee, 1972). The two core concepts were defined as follows. Environmental deterioration was designated by Hofstee as : (the lack of) 'human action leading to a change in the physical environment which has an adverse present or future effect on human well-being'. Environmental control (or management) was defined as 'conscious human action to prevent or reduce environmental deterioration and/or to remedy or compensate for the effects of environmental deterioration' (Hofstee, 1972, p.1).

Although formulated almost twenty-five years ago, we still hold this description for its essence to be valid. Of course the 'anthropocentrism' embodied in this definition no longer goes without saying now that deep or radical ecology has become a viable stream of thought within philosophy (List, 1993) and of course we should be more precise on the meaning of

the word 'physical environment' now that there is a worldwide community of environmental scientists contributing on a daily basis to the huge edifice of environmental knowledge that has been piled up. However, the basic notion of environmental deterioration to be studied as the result of human action on the one hand and the core idea of environmental control as referring to the ways in which environmental consequences of human action are becoming included in the reflexive monitoring of society on the other, are as relevant today as they were a quarter of a century ago. To give visual expression to these two basic notions, the scheme introduced by the Dutch sociologist Nelissen serves very well and will be used throughout the book. The horizontal axes express the task to explore the social origins of environmental problems, which spring from the socio-historical development of modern societies. The vertical axes delineate the main (groups of) actors - governmental and non-governmental - which are involved in the process of steering or reflexive monitoring of society.

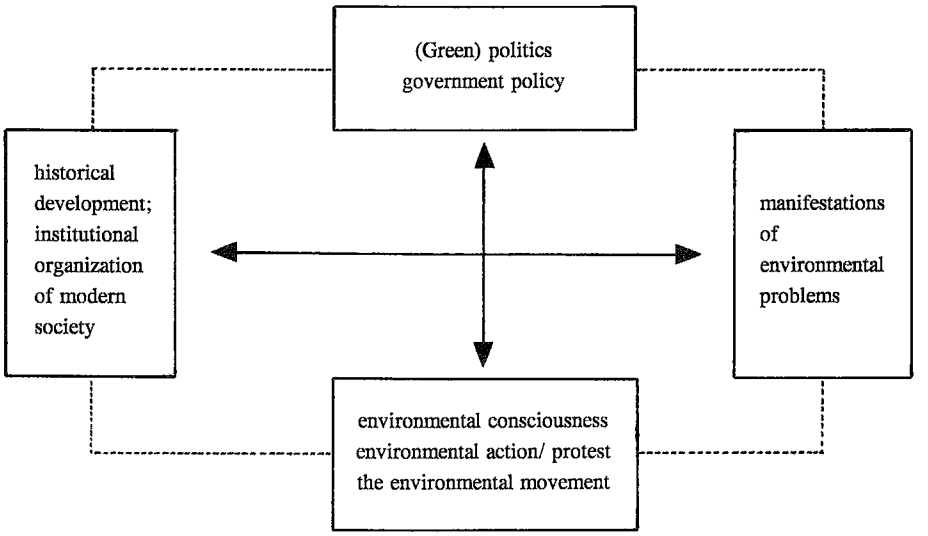

Fig. 1: Outlining the tasks for environmental sociology
Based on: Nelissen, 1979: 6

sociology and human ecology

The basic notion of human agency being at the source of both environmental degradation and environmental control, constitutes the distinct outlook of environmental sociologists as compared to for example technical and bio-ecological environmental scientists. Although sociologists share with other environmental scientists a central concern with ecosystem changes - to be analyzed in terms of energy- and substance flows -, they are always interested in the *social* origins and consequences of these changes. Environmental sociologists study the societal dynamics behind the burdening of the sets of ecosystems which together form the sustenance base of modern societies.

One of the arguments that is central to our approach can be summarized by stating that, albeit it is important to anchor our analysis in the ecological and technical sciences and to take into account changes within the sustenance base, environmental sociologists should not rely on non-social, biological factors for explaining the reproduction of social systems. The fate of the human ecology paradigm within sociology illustrates the difficulties that can emerge when the biological dynamics of ecosystems are becoming mixed up with the socio-economic dynamics of modern societies . Although of course there is no use in denying the 'naturalness of history' (Harmsen, 1974) or the 'bodily aspects of human agency', there can be no place within sociology for the notion of non-social or sub-social factors which determine our courses of action so to say 'behind our backs' (Spaargaren, 1985). It is this inclination to resort to bio-deterministic models which to our opinion explains for the demise of the human ecology paradigm within sociology. During the last decade, the paradigm lost considerable ground, notwithstanding the attempts that have been made to incorporate the notion of human agency into the human ecology models (Dietz and Burns, 1992; Musil, 1990).

sociology and the natural sciences

Allen Schnaiberg has been one of the first environmental sociologists who developed a sociological approach to environmental problems in which a central focus on ecosystem changes was combined with a proper epistemological distinction between natural systems and social systems c.q. between natural sciences and social sciences (Schnaiberg, 1980). Both socio-economic systems and eco-systems have their own dynamics, as Schnaiberg emphasizes. When analyzing the social causes and origins of ecosystem changes, we should rely on social sciences and on social science theories which have been developed to explain the functioning of socio-economic systems of production and consumption.

Stating that social systems are principally different from ecosystems does not imply however that environmental sociologists should dismiss ecology or the natural sciences altogether. They are important because they are the 'sciences of the sustenance base'. Their findings are essential to environmental sociology because they provide us insights into the changing condition or predicament of natural systems. Ecosystem changes, we argue following Schnaiberg, are to be 'read' in essentially the same way as we read barometers or thermometers

namely as indicating the state of affairs in the interrelation between societies and their sustenance base.

Of course sociologists are among the first to assert that this reading of the barometer and the concomitant interpretation of the 'objective' state of affairs with regard to the sustenance base, may vary substantially for different actors and for different periods of time. It is important however to recognize the fact that there is an 'objective', natural science dimension to environmental problems that sociologists have to take into account (also) when studying the perception or social construction of environmental problems. Here it suffices to conclude from our discussion that we work from the assumption that both the 'objective' and the 'subjective' dimension of the environment as a social problem are important. The 'environmental profile' of modern societies contains objective and subjective elements and both categories should be considered by sociologists when studying environmental deterioration and control as societal phenomena.

objective versus subjective deteriorations

On the objective side of the environmental profile of modernity we can witness, according to Schnaiberg, a huge qualitative and quantitative increase in the burdening of the sustenance base especially since the second world war. There have been impressive changes in the emissions to and extractions from the sets of ecosystems which together form the material substratum of modern industrial societies[1]. Not only on the objective side can we witness massive alterations however. On the subjective side, our 'readings' or perception of these objective phenomena have undergone significant changes since the second World War. To mention just one fact, the world wide community of environmental scientists that was built up during the last decades both contributed to and resulted from the heightened and specialized awareness of environmental problems. While this build up of environmental awareness (and environmental sciences as one of its main tools) originated mainly in the highly industrialized countries of the world, it is no longer restricted to separate parts of the world, as was shown by Dunlap (Dunlap et al., 1993).

We see it as one of the main tasks of environmental sociologists to document and comment upon the massive changes in both the objective and subjective dimension of the environmental profile of modern societies. In doing so, neither the objective nor the subjective dimensions of the environmental profile should be given absolute primacy, as seems to be suggested by the realism versus constructivism debate (Dunlap and Catton, 1994; Buttel and Taylor, 1992; Hajer, 1995, 1996; Hannigan, 1995)[2]. Instead of making an epistemological issue out of it, we prefer to take on a socio-historical perspective, trying to relate the changing environmental profile of modern industrial societies to the changing character of these societies themselves, their technology, their culture, their organization of production and consumption.

limitations of our approach

From our discussion so far it can be concluded that environmental sociologists should take as their main objective ecosystem changes - to be analyzed in terms of changing flows of energy, substances and materials - and their interrelation with the changing organization of production and consumption in modern industrial societies. In choosing this way of formulating the central task of environmental sociology, some choices or assumptions are made that should be discussed in a more explicit way. Two assumptions stand out against the background of environmental social science in general: the neglect of the population-growth issue and the restriction of our definition of the environment to the material, energy and substance related dimension of the sustenance base only.

The fact that population growth is not given central importance in our analysis may at first seem a bit surprising. Has not the issue of population growth been discussed extensively within the environmental sciences as being the first and foremost factor causing environmental deterioration? The well known debate during the seventies between Paul and Anna Ehrlich (population growth as the prime cause) on the one side and Barry Commoner (technological change as the causal factor) on the other, is given a prominent place in most introductions to the environmental sciences. Also one of the first introductions to environmental sociology, written by Humphrey and Buttel, discussed Malthus as one of the early founding fathers (Humphrey and Buttel, 1982).

Why not focus on (neo)populationism? Among the reasons for our relative neglect of the population-growth issue are the fear of ending up with Hardins' life boat-ethics and the taboo that seems to exist at least within Dutch environmental social sciences for using demographic models to explain environmental deterioration. There is more to it than fear and negligence however. Though it would be difficult to deny the influence of population growth on the burdening of the substance base, we follow Andrew Feenberg in his conclusion that populationist explanations of the environmental crisis do more than just single out population growth as the first and only factor causing environmental degradation. Populationist perspectives within the environmental sciences have become connected most of the time to a-historical, individualistic and moralistic models (Feenberg, 1979). It is basically for this reason that we regard the population-growth issue as a wrong starting point for environmental sociologists. Social problems like poverty, scarcity and pollution are not primarily rooted in growing 'numbers of people' and for that reason cannot be solved by a voluntary or enforced reduction of the number of individuals. We think that, more in general, sociologists should refrain from conceptualizing complex social problems exclusively in terms of the numbers of individuals or other kinds of 'basic units' involved. Behind the figures on 'sustainable' numbers of cows per hectare, cars per capita or people per nation, company or city, one can always discover basic choices with regard to the social organization of the agricultural system, the transport system or whatever sector or subsystem of society is involved. The desire to reduce

numbers should be 'translated' by sociologists into the ambition to reform the structure of the social system itself.

Secondly, within the approach elaborated upon in this book, the physical environment is conceived of primarily in terms of the flows of energy and material substances within ecosystems. By doing so, we hardly pay any attention to nature or the environment in its aesthetic or socio-cultural dimension. Although this focus on material substances greatly enhances the possibilities for dialogue with the natural and bio-ecological sciences, it at the same time can diminish the chances to communicate with those scientists who made the (aesthetic/ intrinsic) meaning of nature, landscapes and biodiversity their prime concern. When choosing the substance-flow perspective as our point of departure, we do not want to undermine the importance of the aesthetic dimension of nature for environmental sociology, as Schnaiberg seem to do when he is referring to this dimension in terms of 'cosmetic concerns', having only secondary relevance for environmental sociology (Schnaiberg, 1980). We think both dimensions of nature are relevant to environmental sociology. The fact that our central focus will be on nature primarily as the material sustenance base to human societies, stems from the practical need to restrict the scope of analysis.

The central task we designed for environmental sociologists, namely to relate the changing environmental profile of modernity to the changing character of modern societies themselves, must be circumscribed in more detail. What exactly does the word 'modern' stand for when we speak of modern societies? Chapters three and four of the book both take up the task of reviewing social scientific theories on the relation between environment and modernity, each chapter covering a different aspect of the debate. The theoretical debates on environment and modernity are not given extensive treatment sui generis, as interesting but 'internal' debates within general sociology. The theoretical debates are selected and reviewed in this way because they contribute to our understanding of social change in general and processes of environment induced social change in particular. In what follows, we try to show the relevance of these theoretical perspectives in the context of the broader environmental discourse in modern societies from the seventies onward. It will be shown that changing theoretical perspectives go hand in hand with changing views on the relationship between environment and economic growth, on the role of science and technology and on the role of both governmental and non-governmental actors. As mentioned before, we distinguish between three different periods or phases in the environmental discourse, corresponding with three different perspectives on environment and modernity: the period of the 'limits to growth debate', when demodernization theories dominated within environmental sociology (section 3); the period of the 'sustainable development debate', mirrored within environmental sociology by the dominant position of the ecological modernization theory (section 4) and the period of the 'global environmental change debate', bringing to the fore theoretical perspectives which can be referred to as reflexive modernity theory (section 5).

3. De-modernization theory and the 'limits to growth debate'

At least during the seventies and early eighties, almost every introduction to environmental social science not only contained a chapter on Malthus and the Club of Rome report but also a discussion on 'the Blueprint'. 'The Blueprint for Survival' (Goldsmith, 1972) was published as a special issue of the magazine 'the Ecologist' and it contained not only a warning for the future of mankind but also a model of an alternative, green society. A society consisting of numerous small scale units, where people live their lives close to nature and to each other, where technology was of the proper scale c.q. 'adapted' to its social and natural context (Schumacher, 1973) and where all cells from the cell-tissue society were to decide as autonomous political units about their own future (Bookchin, 1980). This image of a future green society has been discussed by numerous authors with either a sympathetic or critical attitude towards the green case (see among others: Frankel, 1987; Dobson, 1990; Goodin, 1992; Martell, 1994).

The body of literature that has been developed around the (im)possibility of a small scale society of ecocommunities, to our opinion belongs to the basic readings in environmental sociology. However, the literature is rather diverse with regard to its disciplinary origins and sometimes it has a strong political ring to it. Although Robyn Eckersley too presents her 'Environmentalism and Political Theory' as a kind of political manifest in defense of ecocentrism, she at the same time made a successful attempt to embed the discussion on eco-communities and small-scale societies in some of the main streams of thought which together represent the sociological and political science tradition. Why is it, she asks herself, that a marriage between marxism and green political theory must be seen as rather inconceivable? Is the failure of Frankfurter critical theory to incorporate green issues irreparable or not? Are ecosocialist thinkers prepared to think through a process of downscaling of society which seems to contradict the central role that socialist thinkers contribute to the nation state? (Eckersley, 1992). By raising these kind of questions Eckersley is reviewing the sociological legacy with regard to its (in)ability to theoretically deal with environmental issues.

Although our analysis is less outspoken with regard to its political background and also less ambitious and encompassing as Eckersleys' book, we share with her an interest in exploring the theoretical streams of thought which underpinned the strategies and ideologies of the environmental movement from the early seventies onward. As will be described in a more comprehensive way in chapter three, we arrive at the conclusion that in Europe especially the works of Otto Ullrich (Germany), Ivan Illich (France), Fritz Schumacher (UK), Rudolf Bahro (Germany), André Gorz (France), Barry Commoner (US), Hans Achterhuis (the Netherlands) and other 'theorists of counterproductivity' have been very influential within the environmental movement. Although writing in the tradition of neo-marxism, they were critical of marxism because its critique of modernity was directed primarily and exclusively at the social relations of production. Marxism failed by not taking sufficiently into account

the nature of the production forces, the character of the (growth) machinery itself. Counter-productivity theorists were critical about marxism, but at the same time discarded industrial society theory - as developed by Daniel Bell and others - because of its naive belief in the essentially benign character of technology and its lack of class-analyses. Arthur Mol summarized the position taken by the counterproductivity school of thought vis-à-vis marxism and industrial society theory as depicted in figure 2.

schools of thought	(neo-)marxist	(post-)industrial society	counter-productivity
kind of theory	conflict theory	consensus theory	conflict theory
institutional trait	capitalism	industrialism	triangle of capitalism, industrialism and surveillance
prime cause of environmental crisis	relations of production	unadapted industrial development	forces ánd relations of production
solutions	socialisation of production	ecological adapted industry and post-materialism	decentralised organisation and convivial technology

Figure 2: General characteristics of three schools of thought in environmental sociology. Source: Mol, 1995, p. 16.

The essence of ecosocialist thinking as developed by these counterproductivity theorists was the concept of 'net-balancing' (*Total-bilanzierung*). For a correct measurement of the productivity of a technology or a certain sector of industry, one has to take on board all the 'real costs' that are involved, including the harm that is done to the environment. When modern industrial society is judged according to these 'realistic' criteria, its productivity will be much underneath the levels that are indicated by the accepted standards like GNP. Although in an early stage of societal development, the development of productive forces may enhance welfare both in the sense of material prosperity and socio-environmental well-being, at a certain stage of its development, industrial society reaches a 'socio-critical point'. When this critical point is passed over, the rewards of sustained growth in the material dimension are outweighed by the costs in the socio-environmental dimension, in which case the technology or industry is said to be 'counterproductive'. A technology or sector of industry runs the risk of becoming counterproductive especially in those situations where the original traits of industrialism (the scale of production; the machine-density of production; the corresponding division of labour) are pushed too far. In some cases this situation of over-development of

the industrial traits mentioned, can be said to be a pre-condition for the existence of that industry or technological system. Those technological systems or sectors (with nuclear energy and the chemical industry being mentioned as the most typical examples) are referred to as slum-technologies (Sack-gasse/ dead end technologies) (Ullrich, 1979).

Readers who are familiar with the work of environmental economists will have noticed some striking similarities between the net-balance approach of the counterproductivity theorists on the one hand and the 'external costs'-postulate within environmental economics on the other. Within the Netherlands, the work of R. Hueting has been path-breaking in its attempt to 'internalize' the costs of using environmental goods into neo-classical economic theory (Hueting, 1974). The major difference however between environmental economists and other environmental social scientists seems to be their basic attitude towards the modern-industrial project. Where generally speaking economists tried to improve and correct the system of production and consumption, leaving its basic structure intact, most of the counterproductivity theorists were close to the opinion that the external (environmental) costs referred to structural design-faults of the industrial system which could not be repaired overnight. Because of their insisting on the partial or total dismantling of the industrial system, we refer to the counterproductivity stream of thought as de-modernization theories.

Tellegen (1983), Cramer (1989) and Leroy (1983) analyzed the ideology and strategy of the 'new' environmental organizations and movements in the Netherlands and Belgium and they were joined by Lowe and Goyder (1983), Cramer in co-operation with Jamison (Cramer et al., 1988) and many others who described the situation in other (western) European countries. From their work a clear picture arises of the environmental movement during the period of the 'limits to growth debate'. They all sketched the basic ideology underlying the strategies of the environmental movements during this period as a 'de-modernization' perspective. This perspective was spelled out in some detail also within manifests published by the movements themselves, as we can see not only from the 'Blueprint' but also from the 'Program of the German Green Party', on which Goodin based most of his outline of a 'green political theory' (Goodin, 1992). Within the German movement of 'Bürger-initiativen' as well as in the Dutch movement for 'man and environmental friendly enterprises' (MEMO), the central focus was on experiments which could provide an alternative to modern-industrial society. The environmental movements were characterized not only by their alternative-exemplary grass-roots initiatives, but also by their antagonistic relationship with the state and with industry. In that sense, the environmental movement was a child of her time, being one of the 'new social movements' challenging the existing order or the political paradigm of that time (Van der Loo et al., 1984; Van Noort, 1988; Offe, 1986).

4. Ecological modernization theory and the debate on sustainable development

When in 1983, Egbert Tellegen in his book on the (Dutch) environmental movement arrived at the conclusion that "it is time for the environmental movement to positively reconsider its relation with the state", he hardly will have suspected that 'these times' were already under way and would be there to stay for at least the next fifteen years (Tellegen, 1983, pp. 65). There were good reasons for the environmental movement to reconsider its relationship with the state, not only on theoretical but also on empirical grounds. During the seventies and the beginning of the eighties, the environment not only settled itself on the top of the political agenda, one could also witness the substantial growth of the body of environmental legislation. Environmental politics had been 'steadily growing into adulthood' (Biezeveld, 1985) not only from a quantitative but also from a qualitative point of view (Van Tatenhove, 1993). At his retreat as the Dutch minister of the environment in 1986, Pieter Winsemius published a book summarizing the main concepts and strategies for environmental policy in the eighties. His book, titled 'Gast in eigen Huis', would turn out to become a very influential manuscript both inside and outside government circles. The reason for its popularity was that it in fact contained all of the main elements of the 'new politics of pollution' (Weale, 1992). And this new politics would successively gain support from major parts of the environmental movement and from business circles as well.

This process of a renewed policy outlook emerging with regard to environmental problems, was not restricted to the Netherlands only. On the international level the Brundtland-report - of 1987 - signalled the definite break-through of the new policy approach. With the notion of sustainable development gaining ground, the concepts of economy and ecology were no longer regarded to be antithetical. According to Albert Weale, the broad and enthusiastic support that the Brundtland-report received was a major sign of the fact that "there was a new belief system emerging that might be named 'ecological modernization'" (Weale, 1992, p.31). Summarizing the description provided by Albert Weale, this new belief system can be said to include the following propositions:

- challenging the conventional idea of a zero-sum trade-off between economic prosperity and environmental concern (to be popularized later on in slogans like 'creating win-win-situations'; 'Doppelnutzung'; 'Pollution Prevention Pays' (PPP) etc.),
- redefining the relationship between the state, its citizens (including those organized in social movements) and private corporations and,
- a recognition of the fact that most of the pressing environmental problems exceed the level of the national state, making a supra- or transnational approach to the problem a fundamental necessity.

Besides Weale, also Maarten Hajer (1995) and Peter Wehling (1994) refer to the new environmental policy approach or discourse with the term 'ecological modernization'. Both Weale

and Hajer based their conclusions regarding the new policy approach on their analyses of pollution and acid-rain politics in different countries in Europe (Germany, the Netherlands and the UK). As far as the periodization is concerned, Hajer notices that the ecological modernization debate started to emerge in Western countries and organizations around 1980. Around 1984 it was generally recognized as a promising policy alternative. With Brundtland it became " *dominant in political debates on ecological affairs*" (Hajer, 1996, p. 249). Both authors also seem to be in agreement about the fact that Germany and the Netherlands at that time provided the most exemplary or prototypical models of the new approach.

The new 'belief system' can be said to contradict in some crucial respects the belief system which had been dominant within circles of the environmental movement and related sectors of the academic community during the seventies and early eighties. How did a demodernist perspective give way to a paradigm that placed the further modernization of production and consumption at the heart of its intentions? How did it come about that the incidental and antagonistic relationships between environmental movements on the one hand and government and business circles on the other, were evolving into a critical dialogue with rather intensive frequency? In what way did the changes we signalled in the broader socio-political field influence the theoretical work within the socio-political sciences?

In fact it is one of our main arguments throughout the book that the development of the ecological modernization approach within environmental sociology has profited from and in its turn has contributed to the new policy approach that emerged. Two German authors can be regarded as the founding fathers of the ecological modernization approach, Joseph Huber and Martin Jänicke. Both authors developed the ecological modernization approach from a slightly different perspective. Jänicke laid great emphasis on the new role of the state that was emerging both within environmental policy and within politics more in general. Huber primarily elaborated the ecological modernization approach into a more encompassing theory of environment induced social change. We will provide a short introduction to both the variant of Jänicke (4.1) and Huber (4.2) and then go on to discuss our own emphasis with regard to the ecological modernization approach in section 4.3.

4.1 Martin Jänicke on ecological modernization as the 'modernization of politics'

In his earlier work, Martin Jänicke describes the environmental crisis as a crisis of the modern state (Staatsversagen). The modern state's inability to properly react on the environmental crisis originated from and further contributed to the so called legitimation- and steeringscrisis of the national state. This crisis was not restricted to the domain of environmental politics alone but pertained also to domains that are historically associated with the rise of the welfare-state (Jänicke, 1986).

In contributing to the debate on the 'retreat of the state', Jänicke in his earlier works stresses the fact that the environmental crisis can and should provide a new rationale for

state-intervention, although organized along different lines. Without state-intervention, the greening of production and consumption is an impossibility. The ecological modernization process must be actively supported by the state in the form of a green industrial policy (Jänicke, 1986, 1993, 1995; Wehling, 1994). Where, as we will discuss later, Joseph Huber in his elaboration of the ecological modernization approach mainly regards state-intervention as an obstacle to effective environmental reform, Jänicke - in his early works at least - firmly sticks to the need of an expanding state to support the ecological modernization process. Enlarging the steering capacity of the state is regarded as a necessity because the steering potential of markets and market-actors is structurally weak. Although ecological modernization is targeted primarily at market actors and the industrial sector, its main bearer should still be the state.

In his more recent work there is a slightly different emphasis regarding the manner in which state intervention in the field of environmental politics is analyzed by Jänicke. Now the focus is no longer on the need of state intervention per se and on the enlargement of steering capacities as enforced by environmental problems. In his latest work the focus is mainly on the way in which politics are 'modernized' by translating the experiences acquired within the environmental field into other arenas of politics. Environmental politics bring about new forms, principles and instruments which imply the reshaping of the relationship between the state and civil society (actors).

The two most significant examples of the new political forms that have arisen are, firstly, the so called *target-group approach*, where on an ad-hoc basis civil actors and the state enter into several rounds of negotiations, trying to agree on norms and measures that are contextually relevant and that are accepted on a voluntary basis and, secondly, the approach that was labelled in the Netherlands as the *region-oriented, integrated approach*, where these characteristics are employed within the context of a specific spatial unit. Both in the Germany and in the Netherlands these initiatives, as they originated especially in the environmental field, resulted in a vast body of (political science) literature describing a kind of paradigm shift in the making of politics. Classical, hierarchical and universalistic in the sense of despatialized politics gave way to a form of steering which is characterized by the principles of horizontal cooperation, consensual- and dialogical decision making, less formal institutionalization and a growing importance of actors at the decentral level. As Jänicke describes it:

"Es geht im Grunde um ein Politikmodell jenseits von liberalem "Laissez faire" und bürokratischem Staatsinterventionismus: um ein dezentraleres und konsensbetontes Politikmodell, das den Zentralstaat auf strategische Aufgabe konzentriert und Detailregelungen stärker auf dezentrale Akteure verlagert. Auf das Feld der Umweltpolitik übertragen, kommen dem Zentralstaat danach vor allem die Sicherstellung ökologischer Minima und "strategische" Gestaltungsfunktionen zu. Seine Aufgabe wäre es nicht zuletzt, die langfristischen Umweltprobleme zu definieren. Sache dezentraler Akteure wäre es, unter Nutzung ihrer spezifischen Innovationspoten-

tiale über die nationalstaatlichen Grundbedingungen und Minima hinauszugehen" (Jänicke, 1993, p. 167)[3].

In the Netherlands these policy changes are discussed under the heading of the so called 'policy-networks-approach' (Glasbergen, 1989; Huppes, 1989; Nelissen, 1992; Godfroy and Nelissen, 1993). Policy networks are 'constructed' to deal with circumscribed problems at a decentral, regional level. Participating in the network are both public/state- and private actors which are mutually interdependent in the sense that none of the actors can enforce a solution to the problem on its own. Networks are constituted in order to get an interaction-process going which may result in a shared 'definition of the problem' and a consensus on the most appropriate set of policy-instruments to be applied in their specific regional situation. The relative successful employment of the 'region-oriented, integrated approach' is documented for about ten specific problem-areas in the field of environmental, agricultural and transport politics (Glasbergen, 1989; Van Tatenhove, 1993; Van Tatenhove and Leroy, 1995; Goverde, 1995).

The central feature of the ecological modernization approach as a theory of political modernization is its focus on new forms of political intervention c.q. the changing role of the state. Within Hubers' variant of the ecological modernization approach to be discussed next, the role of the state is analyzed as just one element among a variety of initiatives and strategies developed in modern society to bring about environmental reform.

4.2 Joseph Huber on ecological modernization as a theory of social change

According to Joseph Huber, the eighties witnessed all kinds of initiatives and strategies for environmental reform which cannot be grasped within the theoretical framework of the 'modernization of politics'. Several forms of 'direct negotiations' between the environmental movement and circumscribed segments of industry, sometimes even separate firms, gained popularity. Many environmental arrangements resulted from intra-chain-(power)relations within sectors of industry, retailer-pressure being a good case in point. Consumer-pressure in some cases proved effective in enforcing producers to abandon products which were regarded as especially harmful to the environment etc. In short, the process of environmental social reform gained its own, specific momentum.

With the concept of an 'ecological switch-over' Huber (1982; 1985b) tried to grasp the essence of this process of environmental reform: a set of relatively rapid changes taking place from the eighties onward, together result in a long-term momentum of development. A long-term development which is only possible if certain key institutional adaptations and transformations are accomplished initially. This long term development is called the 'ecological modernization of production and consumption'. Notice the fact that Hubers' theory implies a radical break with the demodernization ideology in the sense that he calls for a further modernization of the existing institutions of industrial society[4]. His theory was developed

to make a more detailed comprehension of this modernization process possible. Hubers' contribution will be introduced in chapters 3 and 4 in more detail, and a thoroughgoing discussion of the theory is provided by Arthur Mol (Mol, 1995, especially chapter 3). Here we will present its main features and discuss the way in which they can be related to the ongoing debate within environmental sociology about the relation between environment and modernity. We will first discuss the ecological modernization theory of Huber in relation to the postwar modernization theories within sociology. Then we go on summarizing Hubers' formulation of the two main propositions implied in the ecological modernization process conceived of by him as the twin processes of the 'ecologizing of economy' on the one hand and the 'economizing of ecology' on the other. We conclude this section by making a distinction between different meanings of the phrase 'ecological modernization' and by summarizing the way in which we ourselves would like to conceptually perceive of this (ecological) modernization process as a process of ongoing rationalization.

i) ecological modernization theory and industrial society theory

In chapter three of the book we argue that in the environmental discourse of the seventies and the beginning of the eighties, the question of the relationship between modernity and the environment was interpreted primarily as a question concerning either the *industrial* or the *capitalistic* character of modern societies being the dominant or most relevant factor in bringing about environmental problems. Here we have (neo)marxist theories pointing to the capitalistic character on the one hand and industrial society theorists holding responsible the industrial character of modern societies on the other. Having sketched the main theoretical streams of thought[5] and the positions that were taken in this debate, we arrive at a conclusion which is twofold. First, as Anthony Giddens has shown in his work on the character of modern societies, there are four institutional clusters which together characterize modernity. Both capitalism and industrialism are necessary for understanding modernity, the other institutional dimensions referring to surveillance and military power. Having said this, we secondly conclude that environmental problems are inherently connected with those institutions which give modern societies their industrial character: the industrial organization of production and consumption should be the core object for environmental sociologists. By stating that the environmental design fault of modernity refers to its industrial dimension, we in principle agree with Hubers' basic idea that the dynamics of capitalism can also (be made to) work in the direction of sustainable production and consumption. What counts for the dynamics of capitalism can also be maintained with regard to the industrial dimension of modern production and consumption. There is no principle or theoretical argument making a 'modern' organization of production and consumption and its technology antithetical to sustainability.

When viewed against the background of the capitalism-industrialism debate as it was sketched above, Hubers' theory must be labelled as a theory directed at the industrial dimen-

sion of modernity. His focus is on the industrial rather than on the capitalistic institutional dimension, as can be seen from the set of concepts Huber employs for analyzing historical change in modern societies. Here he distinguishes between the 'industrial' or 'techno'system on the one hand and the 'socio-sphere' and the 'bio-sphere' on the other (Huber, 1985b). When viewed from a long term perspective, modern industrial society has arrived at the situation in which the sociosphere as well as the biosphere are 'colonized' by the industrial- or technosphere. In order to remedy this situation, the industrial system will have to (be made to) adapt to the demands stemming both from the sociosphere and the biosphere.

Throughout the history of industrial society, three long-term phases or waves can be detected. After the *break-through* of the industrial system in Western Europe (dated from 1789 to 1848), its phase of *construction* lasted to 1980, to be followed by the phase of the ecological *reconstruction* of the industrial system from about the mid-eighties onward. Every new (sub)cycle and the social transformations that go along with them, is witnessed through and made possible by a new key-technology to arise (steam-engine; railroad construction; electrification; mass motorization; super-industrialization). The key technologies have to be picked up by innovative entrepreneurs who, with the help of foresighted financiers, bring about a new wave of industrial innovation (Huber, 1982, 1985a).

When summarized at this general or abstract level, Hubers' theory[6] can be said to display the same essential characteristics as other modernization theories analyzing the future of (post)industrial society. Its similarities with the models put forward by Daniel Bell, Alvin Toffler, Geoffrey Jones and others refer to the evolutionary view on social change, technology being its prime mover. As far as these similarities exist, Hubers' theory of social change is vulnerable to the same kind of criticism that was formulated with regard to modernization theories that were developed within sociology after the second worldwar, when structural functionalism became one of the dominant streams of thought. With the work of Talcott Parsons, modernization theory came to denote not only the rather 'neutral' concepts as rationalization, functional differentiation and the development of subsystems like economy, politics, law and religion. It also came to represent a model of social change in which social systems were driven from lower to higher stages of development by factors stemming (only) from within the social system itself. A process of evolutionary development which would result - in the 'Third World' as well as in the 'developed countries' -in a society that resembled to a considerable degree Parsons' homeland, the USA. So modernization theory in its guise of the seventies, represented both a set of 'neutral' in the sense of formal concepts as well as a set of substantive, normative concepts and procedures. Both aspects of modernization theory have been under attack within the social sciences ever since they were initially formulated. Giddens for example has criticized what he labelled as 'unfolding models of social change' not only for the 'teleological' view of system reproduction that results when human agency is left undertheorized. He also pointed to the rather inconsiderate way in

which the formal concept of social system was equalled with that of the western nation-state, which can explain the 'eurocentrism' of many modernization theories.

When commenting on Hubers' central thesis, we discuss both its lack of human agency and its supposed or declared eurocentrism. We think his use of the metaphor of the caterpillar developing into a ('green') butterfly can be seen as a perhaps unintended but apt illustration of the determinism included in his theory of social change. Caterpillars just have to sit, lay down or hang and dormantly wait till the hormonal guided process of the metamorphosis befall on them. As will be argued in more detail in chapters five and six in the book and in section 4.3 below, we think the determinism and passivity implied in this metaphor does not suit the ecological modernization process. The process of 'adaptation' the industrial system has to go through, cannot be grasped in an adequate way without taking into account the fact that this adaptation or switch-over is brought about by knowledgeable and capable agents. And also the second main point of critique, regarding the eurocentrism contained in much of the 'classical' modernization theories, should be taken seriously when elaborating Hubers' variant of ecological modernization. In his initial formulation, the geographical scope of the theory was (deliberately) restricted to Western, industrialized societies. Later on, Huber himself has discussed the possibility of extending the theory to former Eastern European countries (Huber, 1993). On the issue of the 'western' character of the theory and its applicability to non-western contexts, I refer to the elaborate treatment that is provided by my colleague Arthur Mol (Mol, 1995, pp. 54-57).

This being said, the theoretical approach of Huber can be regarded as a fertile starting point for analyzing environment induced social change mainly for two reasons. First, when comparing Hubers' theory with other theories of industrial society, he more than other authors analyzes major changes in the organization of production and consumption in a direct connection with environmental problems. Second, his elaboration of the theory does not evolve into a cultural critique of modernity or into a post-industrial or even post-modernist perspective, but instead puts in the centre of attention the institutions which are most important in bringing about the switch-over into more sustainable production and consumption cycles: economy and technology.

ii) economy, technology and ecology

On a more concrete level, the ecological modernization of production and consumption can be analyzed by looking in some detail at two kinds of mechanisms or processes which according to Huber are at the heart of the modernization process: the 'ecologizing of economy' is joined by the twin process of the 'economizing of ecology'. The phrase 'ecologizing the economy' he uses to refer to the process of 'internalizing' external costs or, in a more encompassing formulation, to the anchoring of environmental concerns in the organization of production and consumption. The back side of this process will be the economizing of ecology. This expression refers to the fact that, according to Huber, the ecologizing of the

economy is only possible when ecology 'loses its innocence'. Ecology has to get rid of the innocence it displayed in the form of a 'romantic and holistic' critique of modernity. In order to make an impact in the 'rational' world of business and industry, it has to develop into a full blown, 'hard' science of the sustenance base. This 'scientification of ecology' is in fact what is meant by the phrase 'economizing of ecology'. Both processes are summarized in the quote "Wenn die Ökologie eine Zukunft hat, dann nur in industrieller Form, und die Industrie kann nur eine Zukunft haben, wenn sie ökologisch wird" (Huber, 1982, p. 12)[7].

On Hubers' thesis of an environment induced rationalization of production and consumption, using science and technology as its main carriers, several types of criticism have been raised by different authors (Wehling, 1994; Hajer, 1995; Martell, 1994). The two most frequent objections are the 'green capitalism' argument and the 'technological fix' argument. We will shortly address both arguments.

In the debate on 'green capitalism', we can recognize a return of the capitalism-industrialism debate as discussed before but now on a more concrete level. The question is raised - for example by Luke Martell (1994) in his 'Ecology and Society' - whether environmental problems can be solved within capitalism. Is it theoretically possible and/or empirically feasible that - under capitalist and market conditions - business firms and consumers are pursuing environmental goals and objectives because they think it's in their 'interest' to do so? Martell claims that capitalism and sustainable production and consumption are impossible to reconcile and that "collectivist intervention rather than economic liberalism is necessary for securing sustainability" (Martell, 1994, p. 63). Although his presentation of the debate on green capitalism is stimulating, we cannot go along with Martell in his main conclusions. We think that most of the arguments Martell uses to criticize the behaviour of capitalists - their shortsightedness and the fact that they do not take into account the general interests or the interests of future generations - are not confined to or specific for the behaviour of 'capitalists' or market actors alone but can also be said to apply to, for example, state-actors. Furthermore, in arguing for the impossibilities of green capitalism, Martell is referring primarily to the empirical situation during the 'construction-phase' of modern societies. When discussing the objectives and instruments of the 'new environmental politics', Martell demonstrates a rather unreflected belief in the superiority of centralized state intervention over market regulation. He thereby seems to overlook the fact that the ecological modernization approach for a considerable part was developed as a reaction to the 'old', interventionists and ineffective politics of the seventies[8].

The second main argument against a process of environment induced modernization of production and consumption, refers to the role attributed to science and technology. Within Hubers' theory, there is indeed a lot of confidence with respect to modern science and technology as propellers of environment induced change. He refers to modern, advanced technologies as being the key-technologies in the process of change. He does not seem to be worried about modern science and technology being sometimes complex, high-scale and even

'hard' technologies. When talking about the switch-over process in terms of a new round of 'superindustrialization', Huber does not pay any serious attention to the debate on 'soft-technology' as put forward in the USA by Lovins (1977), in the UK by Schumacher (1973) or in Germany by Von Gleich (1991), to mention just a few of the propagators of the soft-technology approach. Should one always prefer - as it is claimed by the soft-technology perspective - technologies which are more 'natural' or 'soft' in the sense that they make use of natural processes instead of digging deep into nature, synthesizing or (genetically) recombining it? For Huber the fact that science and technology, during the phase of construction of the industrial system, have been the source of many of the contemporary environmental problems, does not necessarily mean that there is an inherent connection involved here. We should always be aware of the side-effects of science and technology, regardless of whether they are 'soft', 'conventional' or even superindustrial in character. Science and technology should, in their development as well as their use, be judged on their side-effects and unintended consequences both for the natural and the social system.

In the debate on soft or alternative technology one can witness some interesting developments from the seventies onward. The initial close connection between the 'soft' character of technologies on the one hand and their small-scale application in the context of a decentralized organization of production on the other, seems to be broken up now that for example windmills and solar energy are incorporated into the environmental policies of electricity companies and now that methods of biological and integrated pest-management are propagated and diffused within the mainstream agricultural sector. When softpath- technologies are propagated 'outside' the market, their chances for survival seem to be less in comparison to the situations in which they are incorporated in the strategies of major industrial actors, as Arthur Mol has shown in his study on the chemical industry (Mol, 1995). These examples illustrate the fact that the former strict opposition between softpath and hardpath technologies (as characteristic for the demodernization ideologies discussed above) seems to be overtaken by developments in present-day environmental politics. Instead of the dichotomy hard versus soft technology we elsewhere proposed a different approach to the relation between technology and environmental change which can be said to be in line with Hubers' theory but illustrating at the same time that the ecological modernization perspective cannot be reduced to a so called 'technological fix' approach (Mol and Spaargaren, 1991). There we argued that the debates on the social construction of technology and on the shift from add-on or end-of-pipe technology to preventive technologies (Cramer and Schot, 1990; Pinch and Bijker, 1987) are more relevant than the debate on the hard or soft character of environmental technologies.

iii) ecological modernization and rationalization

We discussed so far the emergence and main content of the ecological modernization theory as it was developed in close connection to developments within the field of environmental

politics in the eighties. Thereby we did not pay much attention to the need to make strict distinctions between ecological modernization as a program, a perspective, a belief system, a program of political reform and a social theory. Although perhaps not always deployed in a consequent way throughout the different chapters of the book, we think it is useful to maintain the following main distinction. In chapter three we argue that a difference should be made between ecological modernization as a political program on the one hand and ecological modernization as a theory of social change on the other. The more encompassing terms like approach, perspectives or belief systems are used when both variants are relevant for the discussion. Behind the distinction of socio-political program on the one side and theory of social change on the other there is the division generally made within sociology between so called 'substantive' and 'formal' approaches. Substantive approaches refer to historical empirical developments using theoretical concepts as vehicles for description of social reality. Within the 'formal' approach main emphasis is laid on the further development of theories or conceptual models as an end in itself, resulting in a conceptual model which can be said to be relevant for doing empirical research across specific socio-political contexts. Although of course we are dealing with an analytical distinction implying that one should not strive to uphold a dogmatic division or separation between empirical and theoretical work, we do think the distinction between substantive and formal work is relevant for environmental sociology.

Ecological modernization as a socio-political program refers to the historic-empirical developments in the field of environmental policies and politics during the seventies and the eighties in some western European countries. It describes the different ways in which in practice policy makers, managers, financiers, environmental activists and households were (not) dealing with environmental issues and dilemma's. The main conclusion here can and must be - we argue throughout the book - that environmental issues moved from the periphery to the centre of concern for a great number of different social groups and organizations. We describe this process in chapters three and four, as a process of the gradual institutionalization of environmental concerns both within the media and its publics, within different levels of the governmental administration and within business circles.

Ecological modernization as a theory of social change reflects on this process of institutionalization of environmental concerns in terms of the need to conceptually refine the existing models that are used within social science to analyze processes of modernization or rationalization. Here we start from the premises of Hubers' theory of social change to develop it into the thesis that the process of ecological modernization can be best conceived of in terms of an independent sphere of ecological rationality to arise. When Huber refers to the ecological switch-over in the context of his substantive analysis of the western, industrial mode of production, this process can be interpreted theoretically in terms of ecological concerns developing into an autonomous, independent factor which has to be taken into account and to be dealt with in the restructuring of production and consumption. Instead of the dichot-

omous model - counterpositioning society and nature - which is most commonly used within the social environmental sciences, we propose a model in which four dimensions or spheres are analytically distinguished (figure 3).

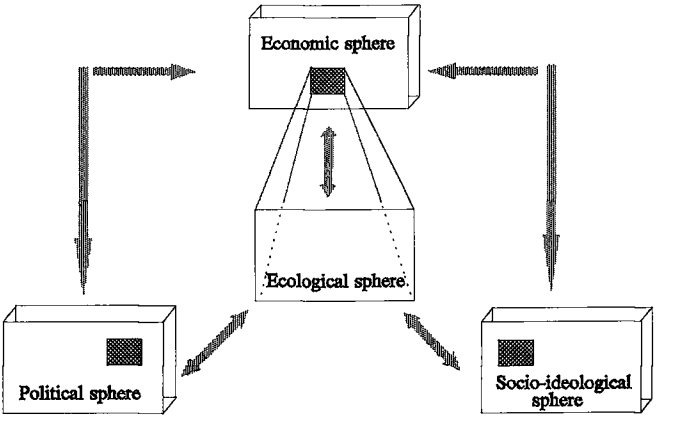

Figure 3: Growing 'independence of the ecological sphere'

What this picture tries to illustrate is the fact that ecological rationality can and should no longer be conceived of only or exclusively in relation to the economic rationality as it prevails in the present-day organization of production and consumption. In want of a more appropriate term, Arthur Mol expresses the growing autonomy of the ecological sphere by using the phrase 'the emancipation of ecology' to express the fact that ecology is no longer 'contained' or 'enclosed' by the economic sphere (Mol, 1995, p. 30). The institutions involved in the industrial mode of production are analyzed and judged using criteria which have their own right of existence in the sense that they cannot entirely be reduced to or deduced from economic criteria. On the need of the closing of substance chains in production and consumption we cannot argue or decide by referring to economic criteria. It has to be decided upon using criteria which stem from ecology. The implications of this line of reasoning should be explored somewhat further with regard to both its practical and theoretical consequences.

On the practical level, its implications can be illustrated by providing some examples. Instead of working toward a 'greening of the conventional GNP' we are in need of a 'green

Gross Nature/environmental Product' as an independent indicator of the environmental performance of a national economy. Instead of integrating 'green points' or other environmental product-labels with existing labels on f.e. health-information, we should work on separate environmental performance indicators on all relevant products or product-cycles. Like all forms of eco-book-keeping, employed by individual companies or farms or households, these indicators have to be developed as part of an independent information structure for the environmental aspects of production and consumption cycles. Programmes of political parties should be screened and evaluated during election time not only on their economic but also on their ecological consequences. An independent environmental planning office will play an important role, as well as an environmental minister who is safeguarding the environmental figures with the same rigour that is accepted from his or her colleague in the department of finances, etc.

But there are also consequences on the theoretical level. In terms of the literature on modernization theories, we are suggesting indeed that the environmental crisis becomes the vehicle for a further rationalization process, where new sub-systems arise to 'deal' with (ecological) issues because they cannot be properly dealt with within the existing institutional make up of modern societies. By doing so, we find ourselves working in the tradition of modernization theory in sociology which started with Weber and Parsons and which is given contemporary expression by Habermas, Luhmann and others. As for example Mommaas (1993, part I.) and Touraine (1995) have emphasised in their analyses of modernity, the debate on rationalization, from its inception on, contained an awareness of the conflicting relationship between formal, technical rationalization and the more encompassing, substantial rationalization. The critical tension between both forms of rationalization stems from the tendency of technical or functional rationality to intrude into domains that used or ought to be reigned primarily by subjective, substantive rationality. Both the members of the Frankfurter Schule, most notably Jürgen Habermas, as well as for example Alain Touraine devoted a great part of their work to analyzing the conflicting relationship between objective (science, technology) and subjective (culture, subjectivity) reason or rationality.

In chapters three and four we do not deal with these sociological debates in any detail, although we think them to be of great relevance for the further development of ecological modernization as a theory of social change. In this book, we stick rather close to the environmental discourse in reacting to the views of some environmental social scientists and to the way in which they perceive of ecological rationalization. Making use of figure 3, we discuss the status or primacy of the ecological sphere in relation to the other spheres or dimensions. Two main conclusions result from this.

Firstly, by locating its origin in the economic sphere, we try to indicate that the ecological rationality not only developed mainly in relation to economic rationality but also that there is a kind of 'Wahlverwantschaft' between the two rationalities. This can be illustrated by the prominence of concepts like 'environmental productivity' and 'environmental efficiency' as

used by Huber to illustrate the analogy with labour productivity and capital productivity. This intertwinement of economic and ecological rationalities should not prevent us from noting that concepts like 'the polluter pays principle' or the 'precautionary principle' stem from the interrelation with the political and socio-cultural sphere respectively. When it comes to defining sustainability, an interesting debate has arisen in the Netherlands on the limits of technical rationality vis-à-vis substantive, socio-political rationality (Van Hengel and Gremmen, 1995; WRR, 1994; Van den Belt, 1996). We regard as one of the most important conclusions of this debate the claim defended by Van Hengel and Gremmen that although there are political choices involved in defining and defending criteria for sustainable development, sustainability is not just a matter of political choice. In other words, there can be said to exist a set of ecological criteria which has gained relative autonomy also with respect to the political sphere.

Secondly, by putting the ecological sphere analytically on a par with the economic sphere, we do not follow the suggestion made by John Dryzek as well as some 'deep ecology' theorists (like for example Eckersley) to perceive of ecological rationality as a rationality which should be **above** or **prior** to all other rationalities. In doing so, Dryzek for example reaches the conclusion that none of the major social choice mechanisms of modern society (the market being one of those mechanism or sub-systems) are able to deal with ecological issues and for that reason should be revised or partly dismantled. Like Eckersley in her critique of mainstream anthropocentric social theory, he ends up with a plea for a radical decentralized society as the only possible way to properly deal with environmental issues (Dryzek, 1987; Eckersley, 1992). Although we regard Dryzeks' book as a very stimulating contribution to environmental sociology, we are not convinced by his argument that 'modern' social choice mechanisms like markets, administrative systems and the system of modern law can not (in principle and in practice) take on board ecological issues. As Mol has argued, the ecological switch-over should be interpreted in terms of ecological rationality catching up with the long standing dominance of the economic rationality without concluding from this the need for an abolition or abandoning of the economic rationality. He points to the fact that Huber (1991b) for example criticizes ecological sound production processes which do not meet criteria of economic rationality (Mol, 1995, p. 33).

So far, we have discussed the ecological modernization approach as a reaction to both 'old' politics and 'old' theories. As a political program, it meant a break with the environmental policies as they were developed from the seventies onward. Politics in which there was a strong reliance on state interventionism and on ad-hoc, pragmatic, end-of-pipe solutions to environmental problems which were conceived of to an important degree as problems to be dealt with at national levels of political administration. The environmental movement played an important role in putting environmental issues on the political agenda but refrained from taking an active part in the elaboration and implementation of environmental policies. When

ecological modernization became the dominant paradigm during the eighties, this implied a lot more than supplanting the antithetical view on environment and economic growth by the concept of sustainable development. It also implied a redefining of the role of the state vis-à-vis civil society, with both market actors and environmental movements redefining their former roles.

As a theory of social change, ecological modernization meant a break with demodernizing perspectives which had dominated the environmental discourse until then. As against both counterproductivity theory and radical ecological thinking, the ecological modernization theory starts from the proposition that the environmental crisis can and should be overcome by a further modernization of the existing institutions of modern society. As a formal theory, it is an attempt "to define nature as a new and essential sub-system" and to develop a specific set of social, economic and scientific concepts that make environmental issues calculable and - by doing so - facilitate the "integration of ecological rationality as a key variable in social decision making" (Hajer, 1996, p. 252).

Within ecological modernization theory at least in its original formulations, there is a strong emphasis on the role of institutional actors within the sphere of production in bringing about sustainable development. In a sense, the theory in this respect mirrors the new environmental policies of the eighties, in which institutional actors or the so called 'targetgroups' formed the most central objects of concern. Although formally included in the list of targetgroups, consumers and also small company holders were not among the central concerns of environmental policy-makers at that time. These groups were thought to be 'difficult to reach' because of their diffuse, heterogeneous character. While environmental policies were developing rapidly with regards to both their instruments and ideologies, there were some blind spots with regard to non-institutional actors. These blind spots, we will argue, were shared by the ecological modernization approach in its initial form, as we will argue in the next section.

4.3 Ecological modernization theory and the role of citizen-consumers

Because we regard it as among our main contributions to the further development of the ecological modernization approach, we will discuss the conceptualization of the role of citizen-consumers in the process of ecological modernization from two perspectives. Firstly, as we argue in chapter 6, the 'productivist' orientation of ecological modernization theory should be corrected by analyzing the role of citizen-*consumers* in the context of production-consumption cycles. In doing so, we think that several relevant themes can and should be derived from the debate on the sociology of consumption. Secondly, as we discuss in chapter 5 of the book, it is important to take a closer look at what is meant by the role of *citizens*, individuals or human agents in relation to institutional developments. Although the theme of the relationship between 'actor and structure' refers both to the production sphere and the

consumption sphere, we will centre our attention on the sphere of consumption to illustrate the interplay between action and structure.

the dynamics of consumption

The ecological modernization approach is focused primarily on the reconstruction of those institutions of modern society which are involved in production and consumption. Being directed at this industrial dimension of modernity, its core concepts and main assumptions are all related to the sphere of production. Within the environmental science in general, core concepts like environmental management systems, (product)life cycle analyses and integrated chain management all derive their meaning from the production sphere. Although it is formally acknowledged that consumers are an integral part of the production-consumption chains, their behaviour - when taken into account at all - is analyzed in a very instrumental way, as units at the end of the chain, in most cases just processing products into waste.

It could be expected from sociologists to make a vital contribution to the environmental sciences by pointing out and analyzing in detail the specific dynamism of consumer behaviour and the sphere of consumption when compared to the sphere of production. Unfortunately, sociologists for a long time saw it as their principal concern to develop extensive critiques of consumer society, hardly paying any attention to the actual process of consumption itself. Consumers were depicted as passive agents who are - wilful or reluctantly - seduced by the advertisements of big companies to keep the endless treadmill of consumer society going.

In chapter six of the book we try to supplant this superficial way of analyzing consumer behaviour by an approach in which the immense variety of manners in which people relate themselves to products, is analyzed from an environmental sociology perspective. Two themes are at the centre of our concern: the relation between production and consumption and the 'meaning' of goods and services for people.

Within neo-marxists critiques of consumer culture, consumption is analyzed as a derivative of production. Instead of analyzing consumer practices as 'determined' by the production sphere, we follow Fine and Leopold when asserting that the concept of 'system of provision' combines the recognition of the specific dynamics of the consumption sphere with the need to include in our analysis of consumer behaviour the differences that spring from the production sphere (Fine and Leopold, 1993). Systems of provision thereby resemble the concept of chain or vertical sector as employed by economists. With the introduction of this concept Fine and Leopold want to correct or complement the horizontal approach they see as the dominant approach within the sociology of consumption. A horizontal approach in which the similarities in our dealing with different groups of commodities are stressed. While of course people may use cars, shoes, cloth and houses all as signs of good taste, our consumption theories should not ignore the major differences in the way commodities and services are handled in for instance the traffic system, the fashion industry or the housing industry. As will be demonstrated below and more detailed in chapter six, we think the most fruitful

approach to consumption will be a combination of both vertical and horizontal theories, designed to analyze characteristic features both within and between different groups of products and services respectively. Though the process of the use or consumption of water, electricity and energy by households share some basic similarities, it can also be shown that major differences exist between the corresponding segments of the public utility sector.

The second main theme that we think to be important for environmental sociologists dealing with consumption, refers to the meaning people attach to goods or commodities and services. Of course we can agree that people are not purchasing goods and services exclusively for their intrinsic qualities or for their so called use-functions. On the other hand we should not be tempted to reduce the complex process of consumption to a distinction-game only. A game in which the symbolic meaning or the identity value of products and services is thought to be much more important than the objective qualities of the products themselves. In chapter six, we try to build a bridge between the technical environmental sciences focusing on the intrinsic qualities of products on the one hand and the general sociologists looking only or primarily to the identity-value of products and services on the other. The work of Douglas and Isherwood is used as an important pillar in bridging this gap. In their book titled 'The World of Goods' (1979) they introduce the notion of 'keeping to the level', referring to the fact that people are synchronizing their consumption behaviour with or tuning it to the activities of those they consider as relevant others. Standards of comfort and hygiene are not decided upon by individuals in isolation and neither are the ways in which these standards are to be met by (group and class specific) social arrangements and institutions. While agreeing with Bourdieu and others that there is always a social group dimension to domestic consumption, Douglas and Isherwood also point to the fact that people use goods to 'rationalize' their households from a specific perspective. They 'modernize' their household using both technological and organizational devices in order to realize for example a higher 'personal availability'. In accordance with this line of reasoning, we argue that this rationalization process - both in theory and in practice - can and should be directed also at the environmental consequences of - group or class specific -levels and forms of domestic consumption.

We will discuss this environment induced modernization of domestic consumption in somewhat more detail, paying special attention to the way ecological modernization theory can be combined with an actor centred approach.

an actor centred approach to the ecological modernization of domestic consumption

When trying to formulate an actor-centred approach to the modernization of domestic consumption, we should be careful not to reproduce the dualism that exists also within the social environmental sciences between micro analyses of environmental (un)friendly behaviours on the one hand and the macro analyses of institutional developments on the other. In chapter 5 we argue that such a dualism does indeed exist by discussing the attitude-behaviour approach that for so long dominated environmental sociology. We argue that the attitude-

behaviour paradigm is characterized by both theoretical and empirical imperfections. Among the theoretical problems are the neglect of the influence of 'structure' on action and the emphasis on action as a matter of constant and conscious choices. When applied in empirical research, these faults are shared by a third problem namely the fact that most of the attitude-behaviour research is conducted with respect to isolated strings of behaviour like choosing between paper or plastics, bicycle or car etc.

After having reviewed some of the major streams of thought within environmental sociology which could serve as an alternative for the primarily socio-psychological attitude- behaviour model, we end up with the conclusion that the structuration theory of Anthony Giddens offers the best perspectives for solving these problems at least at the conceptual level. One of Giddens major 'innovations' within sociology is the concept of the 'duality of structure'. Within the reproduction of social practices, human beings as knowledgeable and capable agents make use of sets of rules and resources which are constituent for their behaviours. By drawing upon these rules and resources, they are at the same time reproducing these rules and resources. These rules and resources are to be conceived of as structures having a virtual existence: they are only real or visible during the moments of their instantiation, within the process of structuration. To illustrate the working of this 'mechanism', Giddens himself often refers to the example of speaking a language: we (have to) make use of certain rules of grammar, which are reproduced during the speech act.

Per Otnes has applied Giddens' notion of the duality of structure to the 'structuration of domestic daily life' (Otnes, 1988). He points to the way in which people, during their daily domestic routines, are 'making use' of technical and organizational devices (tap-water, telephone, heating, electricity etc) which at the same time are reproduced. The relation between households and the numerous so called Socio-Material-Collective-Systems (SMCS) can best be conceived of - according to Otnes - in terms of a process of 'serving and being served'. When using water or electricity we connect ourselves to both other users and to technical expertsystems. The principle of organization of these expertsystems (the 'structures of our daily life') seem to be far beyond the reach of every individual or separate household. Together with the fact that most of our actions are routines - we hardly pay attention to the functioning or the (environmental) performance of the water system when using the tap - it might look as if social actors are 'determined' by social structure. However, instead of depicting human agents as the passive recipients and users of external devices, we can analyze the process of 'serving' by deploying Giddens' notion of practical consciousness. This concept refers to the fact that we can be steering our behaviour in a skilful manner without being aware of it on a discursive level. We just do it on automatic pilot. However, once this automatic pilot is turned off or put out of use by internal or external factors (for example brown water coming from the tap, a very high bill from the water company or a removal to another house) we are able to examine and assess these routines or behaviour patterns from a specific perspective. While this 'de-routinization' will be followed sooner or

later by a 're-routinization', there results a new way of organizing the process of serving and being served.

The ecological modernization of domestic consumption, we argue, can be conceived of as series of de- and re-routinizations with regard to a great number of domestic routines or domestic practices, ranging from child rearing to gardening or doing the laundry. When elaborating upon the role of actors in the process of de- and reroutinization, we in chapter 5 connect the ecological modernization of domestic practices to the concept of lifestyle of individuals. Again following Anthony Giddens, we use the concept of lifestyle to refer to the systemness or coherence between the social practices which together make up our lifestyle on the one hand and to the 'narrative of the self' agents attach to these practices on the other. Instead of analyzing isolated strings of action or separate individual choices, the concept of sustainable lifestyle takes into account the environment induced modernization of different segments or sectors of the lifestyle of an individual as well as the way this modernization process is connected to the identity of the actor.

We tried to show that, with some of the core concepts of the structuration theory, ample room can be given to the notion of human agency also with regard to ecological modernization theory, without lapsing into the dualisms like voluntarism-determinism or actor-structure. The ecological modernization of domestic practices are not either actor driven or system-imposed. They are both at the same time. The 'theoretical' solution of the actor-structure dilemma by Giddens is often misunderstood and criticized for not taking serious into account the structural constraints to social action. People cannot decide - so it can be argued - to run away from the tapwater-system overnight or to simply quit the services of the powerful electricity companies from one day into another. These empirical facts are then supposed to illustrate the fact that the institutions involved in the water and electricity sector leave actors very little room for manoeuvre. Giddens has met these kind of criticism by time and again pointing to the crucial distinction to be made between formal, conceptual exercises on the one hand and historical empirical matters on the other. Structures are always both enabling and constraining and the room for manoeuvre which is granted to citizen-consumers by for example the public utility sector in a certain country within a certain period of time, has to be decided upon by historical empirical research.

Two examples of historical research are very illustrative in this respect. First, in her impressive study 'More work for mothers' Ruth Schwartz Cowan (1983) provides a detailed historical analysis of the changing room for manoeuvre for women in the USA during the process of industrialization of the households from about the second half of the 19th century up to the second world war. She illustrates the fact that within distinct technical systems like the food system, the clothing system or the transport system, different roads were taken with regard to the ways in which they were to be connected to the individual households. Second, in the Netherlands Schot and others investigated not only the history of (among others,

'domestic') technology of the 19th century but they also try to develop their 'history of choices' well into the 20th century (Schot, 1992, 1995).

What can be learned from these examples of historical research is that the principle which is documented for the period which Huber describes as the construction phase of the industrialization process, can also be said to be relevant for the phase of ecological reconstruction of the industrial system from about the mid-eighties of our century onward: (ecological) modernization will profoundly affect and alter the organization of domestic consumption as well as the interrelations between households and socio-material-collective-systems.

So far, we have been more or less defending the ecological modernization approach with regard to its basic premises, trying to correct and complement the approach with regard to some of its basic weaknesses and imperfections. We discussed the temporal and the socio-political context in which the approach emerged and sketched the way in which demodernization perspectives of the seventies and early eighties were successfully questioned and superseded by the ecological modernization approach. As was stated before, the modernization perspective in its turn would become challenged by new insights that were to emerge within the environmental discourse. With global change and reflexive modernity entering the stage, some specific elements were added to the ongoing debate on environment and modernity. Once again the role of (environmental) science and technology became one of the central focuses of concern, albeit from a different perspective, as we will discuss in the next section.

5. Global change and reflexive modernity; the end of simple modernization (theories)

With the advent of the nineties, some major changes can be witnessed in the environmental discourse. For Goodin the shift to thinking about 'new' environmental issues like global warming, destruction of tropical rain forests and the growing hole in the ozone-layer may even be seen in terms of a shift from the 'first' to the 'second' environmental crisis (Goodin, 1992, p.5). The changes did not only relate to new problems moving to the centre of attention. Having figure 1 in mind, we can also point to the new roles that were assigned to both national governments, scientists and civil society actors in the context of the global change discourse. Fred Buttel has pointed to the fact that in a relatively very short time a rather firm coalition developed between environmental scientists, environmental movements and major parts of government administrations (Buttel and Taylor, 1992). All of the participants seemed willing to cooperate on these new problems and they all shared some basic assumptions with regard to the urgency of the problems and the need for a truly international or even global approach. And, last but not least, these new problems were requiring new ways of thinking and theorizing about the relationship between global environmental problems and global modernities.

In chapter four of the book, we take the writings of Ulrich Beck and Anthony Giddens as our starting points for discussing global modernity and its relation to environmental problems and policies. In some respects, the arguments presented by Ulrich Beck in the book 'Risiko-gesellschaft' - a book that turned out to become one of the most influential books within sociology in recent times - seemed to contradict some of the major assumptions of the eco-logical modernization approach. The sub-title of the risk-society book runs like this: 'Auf dem Weg in eine *andere Moderne*' (ital. added, GS). And while both Huber and Beck use the language of a shift into an other, new phase of modernity, both authors seem to have rad-ically different views on the character of the new modernity to come. Against the optimistic, confidential view of Huber that we are on our way to a 'better' in the sense of a more sustainable modernity, Beck argues that, with the Chernobyl disaster, we at a blow became collectively aware of the fact that we are living in a risk-society, a society where fear and anxiety are reigning both in politics and in our daily lives and where environmental problems are inherently out of control. So from these at first sight irreconcilable perspectives of the ecological modernization approach on the one hand and the risk-society approach on the other, we in chapter four try to gain better insight into the relationship between environment and modernity. Without enforcing a kind of flabby synthesis between both perspectives, we try to incorporate some of the important arguments of Ulrich Beck into ecological moderniz-ation as a theory of social change. Our line of reasoning basically runs as follows.

We make a distinction between Becks' substantial theory - he mostly refers to it with the term risk-society - on the one hand and his theoretical insights on the changing character of modernity, which later on developed into a theory of reflexive modernity (Beck, 1986; Lasch et al., 1996), on the other. Within both the substantial and the formal parts of his work, environmental issues are used as illustrations and sometimes as proofs of Becks' line of reasoning or argumentation.

With regard to the risk-society theme, we argue that the illustrations from the field of environmental policies and politics are most of the time ill-chosen and sometimes hard to sustain. The main objection on which we build our critical view of Beck as a commentator of environmental politics are: the impressive body of environmental norms and regulations did **not** come down as a house of cards by the shake that Chernobyl caused but was instead further developed and strengthened during the eighties. Second, by the time Beck was writing the book, business circles already had discovered and picked-up the fact that environmental problems can work back on you as a boomerang. Third, environmental scientists, especially from the natural sciences, in general were not engaged within white-washing practices of environmental deterioration but instead they were among the first to build up a network for counter expertise. In short, we argue that the empirical developments within the field of environmental policies during the eighties seem to fit better into the description provided by ecological modernization as a political program than into the frame of reference of the risk society. Because all (normative) descriptions which sociologists or journalists provide of

social reality will always, in a certain sense and to a certain degree of course, fuel back into society to become itself part of the ongoing process of the (re)production of that society, we argue that (environmental) sociologists have a responsibility with regard to the kind of futures that they depict c.q. the kind of windows they open up with regard to the future development of society. Using water policies in the Netherlands as an example, we illustrate the possible danger of certain risk-reducing strategies by lay-actors to run counter to the preventive politics that are still under construction[9].

While being rather critical on Becks' notion of the risk-society and Giddens' version of it in the form of the juggernaut society, we find their contributions on the theme of reflexive modernity very stimulating and also relevant for the ongoing debate within environmental sociology on environment and modernity. The concept of reflexivity as we understand it, refers to the 'self-confrontation' of modern society due to its self-endangerment. Especially the emergence of global environmental risks or so called High Consequence Risks (HCR's) has triggered the transition within modernity from its 'simple modernity phase' to its 'reflexive modernity phase'. In a similar way, Giddens refers to the latest phase of modernity in terms of 'high' or 'late' or 'radicalized' modernity, thereby keeping a distance to the debate on post-modernity, in which the radical break with the institutions of modern industrial society is widely discussed upon and sometimes 'celebrated'. Both Beck and Giddens are working from a 'modernist' perspective, as Bauman concludes in his discussion on the risk-society (Bauman, 1993, pp. 186-222) because their strategies for coping with the risks of the risk-society would imply "more, not less modernity".

While the quarrels about being in or belonging to the modernist or post-modernist camp perhaps can throw some light on an authors position in the academic field, it tells us little about the main argument itself. We think Becks concepts of (the end of) simple modernity and its corresponding 'halfway modern' institutions is a much better way of approaching the central issues than quarrelling about post-modernity. With respect to two basic institutions, science and technology on the one hand and the political system on the other, both authors convincingly describe and document the kind of changes that have taken place and thereby they argue that these changes must be interpreted as making a qualitative difference when compared with earlier phases of modernity.

In the context of a post-traditional society[10], science and technology cannot be treated in the same way as before because they are 'disenchanted'. The role of science and technology in society, the relationship between lay-actors (non-scientists) versus experts (scientists) and the relationship between science and for example environmental policy making has undergone fundamental changes now that scientific uncertainties are no longer an internal matter, to be recognized and dealt with by the scientific community itself. Technology and science as half modern institutions - keeping uncertainties for themselves and displaying authority in the relationship with the outside world - are 'dethroned' by the ongoing process of moderniz-

ation. In Giddens' words: there has come an end to providential reason and everybody knows it.

When talking about the pivotal role of science and technology in bringing about the ecological modernization of production and consumption, neither Huber nor Jänicke paid much attention to the changing role of these institutions. Perhaps more than in any other field of policy, (solutions to) environmental problems are intertwined with science and technology and the changes discussed in the reflexive modernity debate may have profound consequences for the environmental field. As we understand the debate on 'social constructionism' that has developed recently within environmental sociology, the main parameters in the debate are the 'authority of science' and 'the uncertainties surrounding especially global environmental change (GEC) issues'. When Buttel concludes from his analysis of the relationship of science and global change that more attention should be paid within environmental sociology to the role of science, we think him in a way to resemble closely the issues put forward by Beck and Giddens. Though perhaps arriving at the same conclusion, we think the reflexive modernity perspective provides a more fruitful ground for discussion than the (epistemological) debate on 'realism' or 'naturalism' versus 'constructivism' (Buttel and Taylor, 1992; Dunlap and Catton, 1994).

Post-traditional politics are the second main theme in the debate on reflexive modernity. Here again environmental sociologists who are working from a simple modernization perspective, will have some difficult questions to answer. Within environmental politics and environmental sciences as well, the main unit of analysis has been the nation-state. Environmental politics has been connected so far primarily with national arrangements, brought about by political parties, labour unions, representatives of industry and social movements working on a national level. The politics of 'unambiguous modernity' (Beck et al., 1994, p.17) was a politics of national actors, following well circumscribed rules of the game and supported by well founded and accepted dichotomies as 'left and right' and 'public and private'. This unambiguous politics has come under attack by two sets of processes: individualization and globalization. Both Beck and Giddens analyze in some detail the dialectic relation between the global and the personal that has emerged under conditions of reflexive modernity. Old, generative or emancipatory politics give way to new sub-politics of lifestyles and life-agenda's as far as the individual level is concerned. At the same time however lifestyles are no longer unambitious in the sense that people 'know' that settled careers and fixed patterns of domestic relations are something of the past. On the global level, nation-state policies and policy regimes which used to be settled at the national level, give way to transnational arrangements and international policy regimes (Liefferink, 1995). When trying to think through the possible consequences of the changing nature of politics for the ecological modernization approach, two themes for reflection and research in the future come to mind. First, connections should be made between the debate on reflexive modernization on the one hand and the program of 'political modernization' as discussed in section 4.1 on the other.

In what way and to what extent are the new environmental politics as discussed by Weale, Jänicke, Van Tatenhove and others to be viewed as illustrative or representative for the institutional and non-institutional political forms Beck is looking for? Although the theme of relating post-traditional politics to environmental politics has been picked up in the Netherlands for example by Michiel Korthals, a lot of work remains to be done in this respect (Korthals, 1994). Second, more attention should be given to the question about what is left of the old, institutional politics of simple modernity. Which role do nation states play in transnational (environmental) politics, and what are the major forms of non-institutional or sub-politics that are emerging on different levels? We consider the arguments provided by the so called 'Lisbon-group' for rethinking the role of both institutional and non-institutional actors in the context of a globalizing world, to be promising starting points for a debate on these issues (Petrella e.a., 1995).

6. Summary and guide to further reading

Here we conclude our overview of the debate on environment and modernity. A debate that has been going on mainly within environmental sociology during the last two decades and which provides the socio-political and temporal context for the ecological modernization approach as it is elaborated throughout the book. We sketched the way in which the ecological modernization approach was developed mainly in reaction to demodernization theories and 'old' environmental politics which dominated the seventies. We then provided a summary of the ecological modernization approach both with respect to its substantial and formal form, thereby also providing an extension of the theory in order to include in it an analysis of the role of citizen-consumers in the process of ecological modernization. With regard to its character as a formal theory, we described the ecological modernization approach of Huber as in principle being susceptible to the criticisms which have been raised in the past with regard to modernization theories. We nevertheless regard it as its main achievement to provide new concepts to think through the relationship between economy and ecology, between society and its sustenance base. We discussed the concept of ecological rationality as referring to ecological criteria, procedures and norms which are gaining relative autonomy vis-à-vis economical, socio-cultural and political rationalities. We discussed the way in which science and technology are to be seen as important vehicles in the ecological modernization process, without lapsing into a technological fix approach or being "hobbled by an unflappable sense of technological optimism" (Hannigan, 1995, p. 184). Instead of the dichotomy optimism-pessimism, we think the counterposing of the ecological modernization perspective with the risk society or reflexive modernization perspective, to be more challenging for the debate. Here we conclude that the reflexive modernization perspective challenges the ecologi-

cal modernization perspective in some respects, notably with regard to the changing role of science, technology and politics under conditions of reflexive modernity.

The different chapters in the book can be read separately. Readers who are less interested in or already familiar with the state of the art within environmental sociology as a subdiscipline may skip chapter two. As will be clear from this introduction, there is a rather clear distinction between chapters 3 and 4 on the one hand and chapters 5 and 6 on the other. Where the former chapters are dealing with the debate on modernization theory and risk society theory and their relation to social policies directed mainly at institutional actors, the latter chapters have as their main object of concern the way in which the ecological modernization process can be conceptually conceived of at the level of strategic action.

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Notes

1) As will be more extensively discussed in chapter two, Schnaiberg uses the concepts of Additions and Withdrawals to refer to the interaction between human societies and their sustenance base. He uses four criteria which together make up the barometer for ecosystem disturbances: the size of additions/withdrawals, their permanence, their centrality for ecosystem organization and the range of ecosystems involved (Schnaiberg, 1980, p. 27). Other authors have developed similar notions and further specifications to describe the interactions between social systems and ecosystem. John Dryzek in his

book 'Rational Ecology' employs notions like robustness, flexibility and resilience to refer to the effects of social systems or 'choice mechanisms' on ecosystems (Dryzek, 1987). In the Netherlands significant contributions have been made by Opschoor and Van der Ploeg (1990) and by Van Hengel and Gremmen (1995) in developing a specific set of concepts to be used in the process of defining 'sustainable use levels' in the interaction between human societies and ecosystems.

2) We will return to the question of 'constructivism' versus 'naturalism' in section 5 of this chapter.

3) "Basically what is at stake is a political model which surpasses the old division between a liberal "Laissez faire" model on the one hand and a model of beaurocratic state-interventionism on the other: a decentral and consensual political model in which the central state concentrates itself on strategic tasks, leaving more detailed regulations to actors at decentral levels. Within the field of environmental politics the role of the central state in this model pertains to the securing of basic ecological values and the performing of 'strategic' functions. Among the state's first responsibilities are the definition of long term environmental problems. Decentral actors are assigned the task of using their specific innovative potentials for surpassing the basic conditions and minimum values set at the national level".

4) Arthur Mol has discussed in some detail Hubers' autobiography, which in this case can be said to be especially relevant because Huber himself made a kind of 'switch-over' from an active supporter -both in theory and in practice - of 'Selbsthilfe Netzwerke' in Berlin during the seventies into a staunch supporter of a modernization perspective during the eighties (Mol, 1995, pp. 35 - 36).

5) For a very stimulating and well organized overview of these debates, see also the book by Krishan Kumar (Kumar, 1995).

6) When discussing mainly Hubers' initial formulations of the ecological modernization theory, one should not overlook the fact that the initial approach has been enlarged and refined in Hubers' subsequent works, while other authors also contributed significantly to the elaboration of the ecological modernization approach as a theory of social change (Huber, 1989a, 1991a, 1991b, 1993; Jänicke, 1988, 1993, 1995; Mol, 1995; Zimmermann et al. 1990; Simonis, 1988; Hajer, 1995; Weale, 1992;; Wehling, 1994).

7) "If there is to be a future for ecology, it will be in its industrial form, and industry will only have a future when becoming ecologically sound".

8) For example when discussing the so called economic or market regulation instruments (like pollution taxes, energy levies or charges on resource depletion) Martell argues that, in order to be really effective, they should be raised to levels that are so 'punitive' or coercive that - in their consequences - they would match state-coercion. And from this he concludes: "we may just as well then go for non-market restrictions on environmental harm such as state regulation" (Martell, 1994, p. 71). Huber would turn this argument just in the other direction: when equally effective, we should indeed rely on the 'voluntary' actions of capitalists and consumers rather than "pressing them into line by coercive state legislation from above" (Martell, 1994, p.67).

9) We did dwell a bit on our critical appraisal of certain aspects of the work of Ulrich Beck because some commentators found the text of chapter four, which was published in 1993 and written in 1992, too critical on Beck and somehow misinterpreting his basic intentions. We have been critical especially on those parts of his work that are dealing with (environmental) science and technology in a way which resembles the demodernization perspective discussed in section 3. We have been supportive however in his overall effort to rethink modernity and the changing role of science and technology. That Beck does not embrace demodernist perspectives -be it in its classical or postmodern form- becomes clear in the comments of Zygmunt Bauman on parts of his work. When for example Bauman discusses Becks' notion of the risks society, he does so under the heading of 'the risk society being technologies last stan-

ce' and he in fact blames Beck for not going far enough in his critique of the Enlightenment project (see Bauman, 1993 and the interview with Bauman included in Munters e.a., forthcoming).

10) With the concept of post-traditional society, Giddens refers to the latest phase of (globalized) modernity. The concept does not mean however that traditions no longer play a role in social life. Post-traditional refers to the fact that, after the phase of simple modernization, both grand traditions (religion, science, the nation-state) as well as 'down-to-earth' traditions (family, gender) now have to be defended and explained (Giddens, 1994, p.5).

Chapter 2
Environment and Society
Environmental Sociology in the Netherlands

Gert Spaargaren

"A Critical theory alert to ecological issues cannot just be limited to a concern with the exhaustion of the earth's resources - immense though may be the issues to be faced in this respect - but has to investigate the value of a range of relations to nature that tend to be quashed by industrialism. In coming to terms with these we can hope not so much to 'rescue' nature as to explore possibilities of changing human relationships themselves"

(Giddens, 1985, p. 341)

1. Introduction

It has been a considerable time since the Club of Rome published the controversial report that set virtually the whole western industrialized world thinking about the (ecological) limits to growth. And it is hard to deny that changes have taken place since then. The mass media have made a regular habit of focusing attention on ecological issues, a whole network of laws has come into existence to protect the environment, and we are all accustomed to the numerous bottle banks in the streets. Following O'Riordan one could say that the important thing for modern environmentalism today is to combine the lost ethos of romanticism, characteristic of the early period, with the professional ethos of environmental concern as a normal, institutionalized feature of our society (O'Riordan, 1984).

Against this background one would not expect the environment to have such a relatively low priority for the social sciences in general and sociology in particular. The percentage of environmental studies in the Netherlands that can be classified as being sociological is still negligible compared to the environmental research tradition as a whole, which is mainly concentrated within the natural sciences. In sociological journals, it is still true that barely any attention is devoted to the environmental question as a problem facing society, and the various textbooks in the field of sociology almost all have little or nothing to say about environmental problems[1].

The question arises as to why environmental issues have been unable to attract more of the attention of Dutch sociologists. Is this lack of interest on their part an effect, or perhaps one of the causes, of the fact that this branch of sociology has barely been developed? Is there indeed sufficient reason to refer to environmental sociology as being an (established) new sub-discipline? Would doing so be justified by the theories that have been drawn up and the

research that has been conducted in the field up to now? These were the questions which motivated me while writing this article.

The next section of the article gives a brief account of the present state of environmental sociology in the Netherlands. Special attention will be paid to two factors which can be said to have had a (negative) impact on the development of this field of study. The third section deals with the environmental research conducted within the social sciences in the Netherlands, and includes the author's comments on studies of this kind. The fourth section focuses on theoretical problems sociologists are confronted with when studying ecological issues. The very fact that separate attention is devoted to theoretical problems illustrates the conviction that important obstacles to the further development of environmental sociology are involved here.

2. Sociology, the Social Sciences and the Environment

The environmental problems that suddenly came into the limelight at the end of the sixties are, in the way they manifest themselves, primarily technical ones: pollution, the exhaustion of the earth's resources, erosion and so forth. As long as these problems are considered to be incidental to the type of society where they manifest themselves, there is the tendency to leave them to the natural sciences. It is only if and when people take due notice of the pattern exhibited by the multifarious problems (environmental problems become 'the environmental problem') and the question is posed as to the link between this environmental crisis and the nature of contemporary society, that ecological issues enter the problem horizon of the social sciences.

This 'logical' line of reasoning can also be utilized to explain the chronological fact that interest in the environmental problem developed at a later point in time in the social sciences than in the technical sciences. The social sciences were latecomers to the field, and this held particularly true of sociology. Although economists such as R. Hueting, B. Goudzwaard and H. Opschoor were quick to introduce their theories of the 'new scarcity' and 'no growth economy' in the Netherlands[2)], it was noted in 1978 by Bakker in the Sociological Encyclopedia that it would be erroneous and misleading to speak of a "sociology of environmental problems" (Bakker, 1978: 441). In his opinion, the efforts made by sociologists to develop a distinguished set of theories and research methods were too few and too late to be able to speak of environmental sociology.

It is also true, however, that as early as 1972 E.W. Hofstee recounted his pioneering work in the field of environmental sociology in a publication that was later to be frequently quoted (Hofstee, 1972). And at a time when the social climate was dominated by the alarming view of the MIT report on the predicament of mankind and by the prohibition of Sunday driving in connection with the oil crisis, one would expect it to be just a matter of time before

environmental sociology would establish itself as a thematic discipline within the social sciences. This notion was probably what motivated N.J.M. Nelissen, who spent a lot of time and energy making a good start for environmental sociology[3]. In a number of articles, this sociologist sketched the outline of a sociological theory on environmental problems and initiated a research programme to be based on it (Nelissen, 1977, 1979, 1981). However, his efforts could not prevent another negative diagnosis, this time by the Dutch Council of Social Sciences in 1983. Having set itself the task of developing a coherent research programme for the social sciences on environmental issues, the Council regretted the fact that this task could not successfully be accomplished. The failure was due to the fact that the field was still too unexplored, the problems too complex and the expert knowledge too limited (Van Rijn, 1983: 244).

It was not only the integration of the various environmental disciplines within the social sciences that proved unfeasible, even within environmental sociology as a separate discipline it turned out to be hardly possible to develop a coherent set of research questions. The facts noted here support Bakker's questioning of the significance of the contribution made by Dutch sociologists to the field of environmental studies. Whereas in sociology it became common practice to structure reflections about one's own field around some crisis, real or otherwise, in the field of environmental sociology even this would seem to be saying too much. A crisis, after all, presumes that some development has taken place at an earlier stage. In Holland, some people even made a research topic out of this lack of development in environmental sociology[4].

In briefly considering some factors that contributed to the slow start of environmental sociology, it will be helpful to think of environmental sociology as a discipline located between environmental science (milieukunde) (2.1) on the one hand and general sociology (2.2) on the other. On the basis of this intermediary position – shown in Figure 1 – two factors will be briefly elaborated upon.

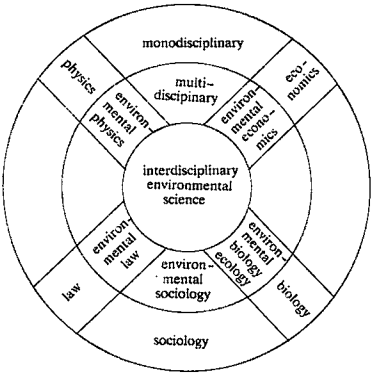

Figure. 1 The Field of (Social) Environmental Sciences
(based on Derks, 1977: 222)

2.1 Environmental Science as Framework

In recent years, environmental science has developed into the dominant framework within which academic education and scientific research in this field has been conducted in the Netherlands. The widely-known 'Basisboek Milieukunde' (Basic Book of Environmental Science) by Boersema et al. illustrates the *inter-disciplinary, problem-oriented* nature of environmental science as a dominant paradigm (Boersema et al., 1984).

The rapid growth of the field of environmental science has been largely related to society's growing demand for environmental scientists. In 1977, Derks referred to the demand for four thousand environmental scientists that had been calculated by the Academic Council (Derks, 1977: 8). Many of the agencies commissioning scientific research, and certainly the government agencies, specified a desire for a multidisciplinary and interdisciplinary approach.

However, the pursuit of interdisciplinary co-operation can not solely be explained with reference to external 'demands' of this kind. Environmental scientists themselves have also frequently exhibited a marked preference for an interdisciplinary approach. A preference often backed with a reference to the complex, multidimensional nature of environmental problems. By integrating the various technical and social science specialisms within the qualitatively quite different integrative framework of environmental science, a reductionist approach to concrete environmental problems[5)] is supposedly prevented.

The question remains as to whether there is any connection between the recent growth of interdisciplinary environmental science and the lack of progress or development within the monodiscipline of environmental sociology. Although the marginal position of the social sciences within the field of environmental science[6)] should not tempt us to assume a causal relationship (which came first, the chicken or the egg?), the incorporation of the sociological approach into the environmental science paradigm does, in my opinion, present some very specific problems that bear relatively little relation to the question of how strongly developed it already is. This was noted in so many words by one of the architects of environmental science, W.T. de Groot, when he stated that "for the analysis and solution of environmental problems, the social science disciplines are a source of risks as well as of knowledge" (Boersema et al., 1984: 276). The risks this author is referring to have to do with the pluriformity in the social sciences. Whereas a Parsonian systems approach might allow itself to be incorporated into the environmental science paradigm without much trouble, (neo-) Marxist approaches such as Wright's would present some serious difficulties in this respect (idem: 277). Instead of Wright and neo-Marxist sociology, one might just as well think of Schutz and interpretative sociology. The problems remain the same. De Groot's comment does not only say something about (the pluriformity in) the social sciences, it also refers to the theoretical model underlying environmental science itself, namely system-theory. If functionalist system-theory approaches to society are rejected, then the integrative framework of environ-

mental science is an obstacle rather than a stimulating catalyst for a sociological theory of the environment.

2.2 General Sociology and the Environment

As to the second factor that might possibly have (had) a negative effect on the development of the discipline of environmental sociology, all we have to do is look in the mirror, for the factor involves the field of sociology as 'mother' discipline. Numerous authors have already noted or personally experienced that the sociological tradition passed down to us provides very few points of departure for the development of a sociological theory about the environment. Whether one turns to the Chicago School (Nelissen), Durkheim and Parsons (Leroy) or Marx (Harmsen), again and again the social theory of the nineteenth and early twentieth century proves inadequate for dealing with the type of societal problem we now refer to as 'the environmental problem'. For we are dealing now with problems that seem to have moved into a new dimension in the past few decades.

In a wide range of ways, various authors have noted and criticized this dearth of adequate theoretical concepts and points of departure for the analysis of environmental problems. The criticism of the social sciences in general and sociology in particular has in its most radical and at the same time simple form been formulated by Catton and Dunlap. In a series of articles published in American journals at the end of the seventies, they wrote that the social sciences were afflicted with a dominant paradigm - the Human Exceptionalist Paradigm (HEP) - which stood in the way of an adequate understanding of the influence of ecological processes and factors on human societies. Within this Human Exceptionalist Paradigm, social scientists worked on the premise that as a creature of culture, man was not subject to the universal (ecological) laws of nature. In their aversion to biological and geographic determinism, the social scientists discarded the good with the bad by excluding every non-social factor from the analysis. Social facts could solely be explained on the basis of other social facts. In this way, no attention has been paid to all the cause-and-result relations which are part of the 'Web of Life'. The 'Web of Life' concept has been taken from Darwin and constitutes the core of an other, up-and-coming ecological paradigm: the New Environmental Paradigm (NEP). According to Catton and Dunlap, nothing less than a paradigmatic revolution in a Kuhnian sense could cure the social sciences of their theoretical blindness to the environmental problem (Catton and Dunlap, 1978, 1980; Dunlap and Catton, 1979; Dunlap, 1980). I should like to note in passing that this idea bears a strong formal resemblance to the comprehensive and sweeping criticism of science expressed by such authors as Capra. Criticism which is not restricted to the social sciences (Capra, 1982).

Criticism stated in a less general form and more specifically focused upon developments in the field of sociology had been formulated by the Flemish sociologist P. Leroy. In his Ph.D. thesis published in 1983, Leroy expressed the opinion that the modernization theories

dominating the field of sociology after the Second World War were the main reason why *space* disappeared as relevant category from the body of sociological theories. Such well-known dichotomies as Gemeinschaft - Gesellschaft (community - society) or traditional - modern were used to explain the processes of change related to the opening up of the local communities. The whole process, however, was primarily described in terms of changes in value orientations or culture rather than in terms of changes in the local spatial structure. In what Leroy called the 'rhetoric of modernization', it was mistakenly assumed that the opening up of the community would automatically mean the breaking down of the relations between social interaction and the physical spatial context. Modern society was held to be organized along other, non-spatial lines (such as pillarization). Due to the strong influence of modernization rhetoric, post-war sociology was no longer able to present any relevant explanation of environmental problems, interpreted by Leroy in terms of problems in the socio-spatial organization of society.

Environmental sociology lies somewhere in between environmental science and general sociology. In themselves, of course the two factors referred to above can do little to 'explain' the stagnation of environmental sociology. All I wanted to make clear is that the present state of affairs in the two fields, general sociology and environmental science, has not produced the powerful push and pull factors that could stimulate the (further) development of environmental sociology.

3. Environmental Research in the Social Sciences

At the Conference of the Netherlands' Sociological and Anthropological Society in 1984, two prominent figures in the field of environmental research in the social sciences presented a survey of the concrete studies conducted in the Netherlands and the Flemishspeaking part of Belgium (Ester and Leroy, 1986). They deliberately used the broader term social sciences because very little or no sociological research was conducted in the field of environmental problems[7]. In the study conducted by the Social Science Council referred to earlier, fundamental sociological research into environmental problems was called a "virtually unexplored" field in the Netherlands as well as elsewhere (Van Rijn, 1983: 233). The fact that in his Ph.D. thesis *Herrie om de Heimat* (Much Ado About the Place We Call Home), Leroy himself broke new ground in this field does little to refute this general conclusion.

In view of everything that has been said above, there is not much point to devoting a separate section to the sociological research that has been conducted up to now in the field of environmental questions. Instead, a brief account from a sociological point of view will be given of the prospects and problems involved with contemporary research. Prospects and problems which might be important with respect to future studies. Special attention will be paid to the thematical methodological and theoretical aspects.

Let us first briefly discuss the main lines along which the research tradition has been organized. These can perhaps be illustrated most clearly by Figure 2, a slightly revised version of the outline Nelissen designed for a research programme in environmental sociology.

It would hardly be a departure from the truth to state that environmental research in the social sciences has been almost solely focused on the vertical line (V) of this diagram while virtually neglecting the horizontal one (H). Ever since the beginning, environmental research in the social sciences – itself the result rather than the cause of the widespread concern about our environment which emerged at the end of the sixties – has directed much of its efforts towards making the new forms of environmental consciousness, environmental action and protest etc. even more visible.

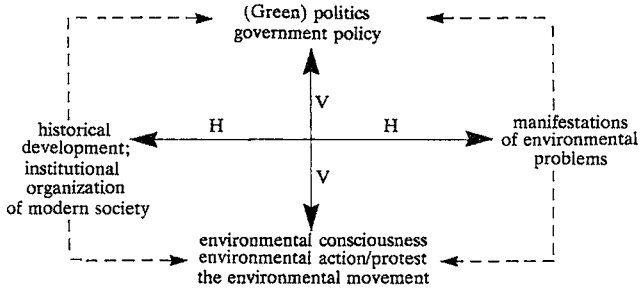

Fig. 2: Outlining the Tasks for Environmental Sociology
(Based on: Nelissen, 1979: 6)

A comprehensive picture has been presented of how the environmental problem was transformed into a societal problem at the time, paying special attention to such questions as for whom, in what way and to what extent the environment had become an issue. Surveys were conducted to measure the attitudes to and the perception of environmental problems on the part of the public, the government, social organizations and the environmental movement. Efforts to interrelate this widespread concern with the historical development of society (Leroy) and/or with the (wide range of) manifestations of the environmental problem itself (Tellegen) have been the exception rather than the rule.

The great gap thus implied in the field of social science environmental research pertains to the dearth of historical empirical studies of the relation between the developments in the (production) structure of the modern industrialized societies and the growth of various categories of environmental problems. There have been numerous references in the relevant literature to the population explosion, the advances in science and technology, the capitalist or industrial mode of production and so forth as possibly being either the sole or the compos-

ite causes of environmental problems. However, *empirical research* into this matter – along the horizontal line of the diagram in Figure 2 – has hardly been conducted at all.

In trying to characterise the studies that have been conducted in the field, two evaluations recently written by other authors can be a great help. Firstly, in comparing the environmental research in the Netherlands with that in the Flemish-speaking part of Belgium, Ester and Leroy arrived at the conclusion that the Dutch studies were primarily conducted on the micro level whereas the Flemish ones focused on the meso and macro levels. In their opinion, the Dutch focus on the micro level was closely related to the social psychological research tradition dominating the field in Holland (Ester and Leroy, 1986). Secondly, in a recent state of the art article about international environmental research, Lowe and Rüdig concluded that "survey research on environmental attitudes has been one of the most frequent approaches taken by environmental sociologists, particularly in the United States" (Lowe and Rüdig, 1986: 3).

Thus Lowe en Rüdig found the one-sided focus on the micro level noted in the Netherlands to be typical of a large part of the international research in the field. They also drew a distinction between two elements, the (social psychology) focus on environmental attitudes and the methodological preference for survey research.

As to the latter, we are all aware of the objections to the research tradition particularly prevalent in America of large-scale quantitative surveys as being always non-historical and nearly always based on a very poor theoretical foundation. Of course the value of the environmental research conducted in the Netherlands would also be enhanced if more use were made of a variety of research methods such as comparative case studies, contemporary versions of the community study (as in Leroy, 1983) and various qualitative methods. However, this methodological criticism does not solely pertain to the micro level, and hardly plays any role with respect to the micro one-sidedness noted by Ester and Leroy. What in my opinion gives the environmental research tradition its one-sidedness in the negative sense of the word is the theoretical line of approach that tends to be adhered to. A line in which environmental problems are primarily approached as being value (change) problems. Here again, this criticism is not automatically linked to the micro level. There are variations to this theme on the meso and macro levels. I shall now deal briefly with both the micro and the macro variants.

In a highly simplified form, the theory governing environmental research primarily focused on the micro level can be summarized as follows: environmental problems are caused by environment-damaging behaviour on the part of the population in its capacity as 'super-consumer'. The 'solution' to the environmental crisis lies in "the immediate changing of critical behaviours on a population wide basis" (Maloney and Ward, *op.cit.* Ester, 1980: 121). Researchers can contribute towards this solution by providing the authorities, among others, with greater insight into the determinants of environmental behaviour. This simplified version of the theory makes it easier to understand why so much energy had been devoted to dis-

covering the willingness of individual citizens to make personal sacrifices for the environment, and in measuring individual environmental awareness and consciousness.

The criticism raised by Lowe and Rüdig about this social psychological attitude theory is as simple as it is conclusive: "values abstracted from context are relatively meaningless" (Lowe and Rüdig, 1986: 14). If one regards opinions and values as separate entities, as variables independent of the context, then one is working from an inadequate theory of the human subject. It is impossible to study human attitudes, reasoning and motivation without taking into consideration the (everyday) contexts within which these attitudes manifest themselves and which give them their meaning. After more than ten years of attitude research, we still know very little about the way actors (re)produce various (often conflicting) meanings of nature and the environment in the different spheres of everyday life, in the home, at work or at play, in the production process or as consumers.

On the meso and macro levels, the value change theory manifests itself in a number of variants of post-materialism. Environmental groups and activists have been quick to note the shift from material to post-material values and norms concurrent to the rise of the welfare state. With the help of such dichotomies as technocentrism versus ecocentrism (O'Riordan, 1981), or modernism versus anti-modernism, this general shift in norms and values has been brought out into the open. There is no need to discuss these theories, based in part on the work of Inglehart (1977, 1982), in greater detail at this point. Suffice it to refer to two points of criticism elaborated upon in the above-mentioned article by Lowe and Rüdig. Firstly, environmental values and the environmentalist movement are separated from the environmental problem itself in that they are analysed as just one component of a general value change, brought about by a wide range of new social movements[8]. Secondly, the emphasis on norms and value changes completely eliminates the power dimension from the analysis, a shortcoming they evidently share with the micro theories dealt with here.

One of the important lessons we can learn from our brief excursion to the environmental research tradition in the Netherlands pertains to the way the distinction is utilized between micro and macro studies or levels. The micro-macro problem is as old as sociology itself. Underlying this distinction is a fundamental problem confronting sociology, the relation between the individual and society or, more precisely, the relation between the actor and the structure. Bridging the gap between micro and macro has been the aim of much of the work done in recent years in the held of general sociology (e.g. Knorr-Cetina, 1981; Munters, 1985; and particularly the works of Giddens). In the field of environmental social research too, we cannot and should not start working from the traditionally accepted division of labour between micro and macro research (Ester and Leroy, 1986). The dualism itself will have to be overcome.

4. Sociology and the Environment: Theoretical Problems

It was suggested in the introduction that theoretical problems act as a severe obstacle to the further development of environmental sociology. Theoretical problems that can be largely reduced to two types of questions. Firstly, there is the question of how the object of an environmental theory should be defined. What exactly do we mean by 'the environment' and consequently by environmental problems? In the multifarious aspects of environmental problems, what are the dimensions that are relevant to social scientists? Secondly, there is the question of what kind of theory or theories would be most suitable for approaching whatever dimensions of environmental problems are defined as being relevant.

If we examine everyday practice in the field, we see that these questions are usually dealt with as follows. There does not seem to be much concern about exact definitions. The concepts of environment - used in Dutch to refer to both 'omgeving' (Umgebung) and 'milieu' - and nature are often used inter-changeably. This is because everyone 'knows' what is meant by environmental problems. With respect to the question of which theory would be most appropriate for dealing with these problems, there is a striking consensus of opinion: (social) ecology is taken as the obvious frame of reference.

I shall examine here the extent to which these widely accepted solutions provide a useful starting point for an environmental theory within the social sciences. I will postpone the definition question until after the discussion of social ecology as a frame of reference for environmental sociology.

4.1 Social Ecology as Frame of Reference

The environmental problems that manifest themselves so clearly nowadays confront social scientists (once again) with the theme of human society's dependence on nature. The social sciences will have to grant the relation between man and nature, the neglected dimension, a more central position in their theories. An eco-logical orientation would seem to be a logical extension of this line of reasoning. Ecology as the "major integrative discipline that links together the physical, biological and social sciences" (Odum, 1975: v-vi) provides the theoretical framework for the study of relations between man and nature from a holistic perspective.

The attraction of social ecology would seem to be based upon two elements: the man-nature relation (society and the surroundings, society and the environment) is automatically placed at the centre of the analysis, and at the same time the assumedly useless dividing line is eradicated between the physical or biological sciences and the social ones. On the basis of the discussion of social ecology to be presented here, I will try to show that it is precisely with respect to these two points that theoretical problems and complications can arise. Problems that have to do with the relation between biology and the social sciences and with the

way the revaluated man-nature dimension is linked to a corresponding analysis of man-man relations. Various authors including M. Bookchin have emphasized the analytical distinction between man-nature and man-man relations in order to illustrate the historical character of the man-nature relation. Changing man-nature relations are always linked to changes in man-man relations and vice versa. This analytical distinction between two aspects or dimensions of every environmental theory, as is shown in Figure 3, will serve as the guideline for further discussion on the perspectives and limitations of the combination of ecology and sociology.

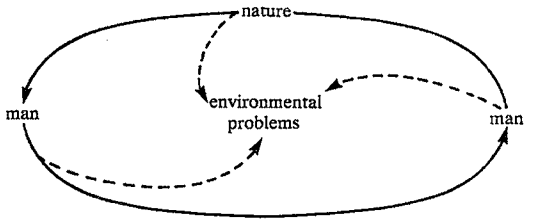

Fig. 3: Dimensions of an 'Environmental' Theory

4.1.1 Classical Social Ecology

The literature frequently cites the names of three nineteenth-century scientists as the founding fathers of social ecology: Darwin, Mathus and Spencer. One biologist and two social scientists, who provided later generations with a wealth of ideas (deliberately) without any sharp lines between the territory of biological theories and that of political and social ones. Williams has referred to a "dialectic movement between the two areas of study as a fact from the beginning" (Williams, 1980: 86). Notions borrowed from the study of social life guided the development of biological and ecological theories which, in turn, were 'transformed' or 'turned back' to the analysis of social phenomena. The work of Darwin, Mathus and Spencer also served as the source of inspiration for the ecological sociology of the Chicago School that witnessed such a rapid rise at the beginning of the twentieth century in the United States.

Nelissen's Ph.D. thesis on social ecology illustrates the kind of problems a social theory inspired by these founding fathers can lead to (Nelissen, 1972). It is a well-known fact that the concentric zone model of Park and his colleagues was constructed with the help of concepts largely borrowed from the field of ecology: succession, adaptation, invasion, gradient and so forth. In itself, Nelissen felt that the use of metaphors and analogies taken from other fields of science need not necessarily be a cause for concern. It can even serve

an important heuristic function. The theoretical complications do not arise until – in view of the analysis of the man-nature relation – the assumption is introduced that certain aspects of man-man relations are controlled by laws other than social ones. It is precisely this assumption which, according to Nelissen, is characteristic of social ecology in its various formulations. One views society as being partly directed by ecological laws which are outside the sphere, as it were, of the deliberate will and intention of human beings. In order to arrive at a theoretical formulation of this assumption, the distinction was introduced between (biotic) 'community' and 'society', with society standing for 'culture' and community standing for the "natural, more general basis of society, regulated by the principle of competition which, as an unconsciously perceived phenomenon, brings about a certain order in society" (Nelissen, 1972: pp. 26 ff.). As the socio-ecological equivalent of the dimensions shown in Figure 3, the following model has thus been drawn up.

Fig. 4: Biotic Community and Society
(Source: Nelissen, 1972: 27)

Against the background of this model, let us read the following quotation from the work of McKenzie, the theoretician of the Chicago School.

> "On first consideration this (the ability of men to control and modify the habitat, GS) might seem to indicate that human ecology could have nothing in common with plant ecology, where processes of association and adjustment result from natural unmodifiable reactions, but closer examination and investigation make it obvious that human communities are not so much the product of artifact or design as many hero-worshippers suppose".

In a footnote, McKenzie added the following remark to this criticism of hero-worshippers imprisoned in the Human Exceptionalist Paradigm or HEP referred to earlier in this article.

> "Although the actions of individuals may be designed and controlled, the total effect of individual action is neither designed nor anticipated" (Park and Burgess, 1967: 65).

What was happening here was that McKenzie, like many ecologically inspired theoreticians at the time and later, intertwined the issue of the societal determination of human conduct

(the actor-structure problem) with the issue of the ecological determination of human conduct (the actor-nature problem).

It can thus be concluded that in the terms of social ecology, with its vague borders between the territories of the social sciences and the biological or physical ones, the man-nature relation is interpreted in such a way that a non-historical, non-political dimension is added to man-man relations. This holds true for the social ecology of the past (the twenties and thirties) just much as it does for the social ecology of today (the HEP-NEP discussion). Both of them are founded on the same logical structure.

4.1.2 Social Ecology and the Criticism

Advances in (social) ecology have not only been a source of inspiration, they have also led to what has since turned into a sizeable number of critical comments. Ecology has been attacked not only on epistemological (e.g. Coolen and Kleiss, 1981) and methodological grounds (e.g. Hofstee, 1972), it has also been taken to task for its assumed political and social implications (e.g. Enzensberger, 1973; Castells, 1978).

If, with the help of the diagram in Figure 3, one tries to summarize the critique formulated from the angle of these political and social implications, then the most important point of criticism is the reproach that, in its emphasis on the man-nature relation, (social) ecology pays little or no notice to the man-man relations involved in the production and reproduction of environmental problems; (Social) ecology is then said to underestimate or ignore the fact that the man-nature or society-environment relation is always a socially mediated relation, in the sense that its form and contents are determined by the institutional organization of human society. As a result, many social ecology theories and much of the research based on them fail to provide an analysis of the social differential effects involved in the (re)production of environmental problems. This is the concrete point that much of the criticism starts from and returns to. Castells, for example, was very blunt in his criticism of the ecology movement in the United States, when he stated:

> "It is said that in the face of the biological problem of survival, all people have merged into one Boy Scout army, ready to defend nature against technology, regardless of class and political regime" (Castells, 1978: 157).

The quintessence of the much-quoted Commoner-Ehrlich debate about the causes of environmental problems was – according to the reconstruction given by Feenberg (1979) – also a debate about the question of whether, and to what extent, the socio-political dimension should be incorporated into the analysis and solution of environmental problems.

It is not surprising that it has mainly been (neo-)Marxists who have been eager to show how inadequately or erroneously the existing (ecologically inspired) environmental theories have dealt with man-man relations. These critics have proposed replacing the ecological, pluralist

or functionalist theories with the Marxist approach of historical materialism (Sandbach, 1980; Pepper, 1984). Much of the criticism from these circles was not specifically directed towards 'environmental' theory: the contrasts that play a role in the field of general sociology, for example between consensus and conflict approaches, are simply reflected in the field of environmental sociology (Buttel, 1976).

4.1.3 Marxism and Ecology

At this point, it would be interesting to see how Marxists themselves analyse man-man and man-nature relations as interrelated with each other. If we view the Marxist contribution to the environmental debate in the context of this question, then two points are striking.

Firstly, it generally holds true that criticism is more highly developed than possible alternatives. An alternative perspective is presented within which (problems in) the man-nature relation are considered to be of secondary importance. Environmental problems are 'derived' problems in the sense that they can be reduced to the (class) conflicts in society which are taken to be of overriding importance.

Secondly, it is striking how seldom Marxist critics of ecology deal with what Harmsen (1972: 19) called the "denial of nature" in historical materialism or with the "Promethean attitude" that Marx had in common with the nineteenth-century Enlightenment thinkers (Giddens, 1981: 60).

Marxism and ecology would seem to be a difficult combination. It is consequently all the more interesting to see how, in his book entitled 'The Environment, from Surplus to Scarcity', A. Schnaiberg manages to reconcile the two approaches in his sociological theory about the environment. Schnaiberg combines a great sympathy for the work of Odum (p. 13) with a sociological interest in the question of "from whom, for whom and by whom" the environment should be saved (Schnaiberg, 1984). This is why his theory de-serves a brief description here as an example of environmental sociology in which man-nature and man-man dimensions are first carefully distinguished from each other and then discussed in relation to each other.

To begin with, Schnaiberg draws a strict distinction between the sphere where social theories are applicable, i.e. the socio-cultural production sphere, and the sphere where ecological laws prevail, i.e. the eco-logical production structure. Environmental problems are viewed by Schnaiberg as being (serious) disturbances of the ecological production structure, e.g. the *sustenance base* of society. Disturbances of this kind can be specified by using ecological criteria pertaining to 1) the size of the disturbance, 2) the degree of permanence of the disturbance, 3) the centrality of the disturbance to the organization of the ecosystem and 4) the number and range of ecosystems affected by the disturbance. Disturbances of this type consist of two main components, additions and withdrawals, which together serve to charac-

terize the man-nature or society-environment interrelationship on the most abstract level. All human production consists of and implies (sets of) *additions* and *withdrawals*, as Schnaiberg demonstrates with the farming industry as an example (Schnaiberg, 1980: 24). After having thus defined environmental problems and the interrelation of man and nature, Schnaiberg then goes on to examine the effects of changes in the man-man relations on the (re)-production of environmental problems. The enormous historical increase in the additions and withdrawals in all four of the dimensions cited above that has taken place in the course of the twentieth century and especially after World War II can, according to Schnaiberg, only be explained with reference to the capitalist organization of the socio-cultural production sphere. Neither the population explosion nor modern technology or consumerism are responsible for the coming into existence and (re)production of the environmental crisis. According to the Marxist thinker Schnaiberg, it turns out to be the 'treadmill of production' that has caused the presentday environmental crisis (Schnaiberg, 1980, especially Chapters I and V).

4.2 Environment and Nature: Two Dimensions of the Environmental Crisis

The question as to how exactly the concept of 'environment' should be defined was postponed to this last section because of the difficulties involved here. Difficulties exposed, for example, by the environmental movement. It includes a wide variety of organizations and groups all interested in saving or conserving 'the environment'. Even Tellegen, the Dutch authority on the environmental movement, solves – as many authors with him – the question of definition by just referring to empirical reality (Tellegen, 1983: 12). But defining the concept of environment to include everything the people in the environmental movement are worried about does not bring us any further. "Nuclear energy means a police state" is just as typical an environmentalist remark as "the bio-industry violates animal rights". Working conditions in a particular factory, living conditions in a particular neighbourhood, the untouched nature of the countryside, they are all potential objects for environmental action and thus appropriate subjects for environmental sociology. The question is where to start. Let us go back to what we ended with in the last section, the work of Schnaiberg. His definition of environmental problems (disturbances in the ecological production structure) has the advantage of being clear and the disadvantage of overlooking a number of perhaps essential aspects or manifestations of environmental problems.

As a Marxist, Schnaiberg primarily views environmental problems in relation to the production sphere. He emphatically prefers the sustenance base meaning of the environment to the more comprehensive definition of the environment as 'the house' (oikos = house) of the human race. He feels the latter definition – current within the ecological camp – is too closely linked to notions of 'fouling one's own nest', but then of course on a worldwide scale. In Schnaiberg's opinion, it is only natural that people should be concerned about having a 'house' that is pleasant, clean, varied and beautiful, but these potential objects of

environmental action belong under the less relevant common denominator of 'cosmetic concerns' (Schnaiberg, 1980: 10).

In his inaugural speech, the Dutch marxist philosopher G. Harmsen was referring to the same problem when he confronted Marx with the question of whether "nature (...) is only meaningful to us in so far as it is useful by being or potentially being part of the production process" (Harmsen, 1974: 12). This author, however, did not dispose of the problem as easily as Schnaiberg seems to do. To Harmsen, the dimension of 'nature' which does not belong to the sustenance base turns out to have 'surplus value' rather than residual value (Schnaiberg). A surplus value based on the fact that above and beyond the production sphere, nature can be of value to our intellectual development and emotional well-being.

In the discussion referred to above, one can easily recognize elements of the Enlightenment - Romanticism controversy, in the Netherlands elaborated upon by, amongst others, K. van Koppen. This author advocates the rediscovery of the 'romantic' concept of nature in the sense of concrete, tangible and visible reality (Van Koppen, 1984). The environmental movement should solve the strategic dilemma of going back to medieval nature or going forward with ecologically sound technology by placing at the centre of concern that dimension of nature or environment which almost disappeared from concrete everyday life.

To authors like Schnaiberg and Harmsen, the relevant distinction is between 'nature or environment' in relation to the sphere of production on the one hand versus a dimension of the environmental crisis that can not and should not be reduced to the production sphere on the other hand. And it is particularly this latter dimension which has led to so much confusion in the literature about the environment.

Whereas ecology as a branch of 'true' science fits perfectly - as Schnaiberg shows - into the sustenance base approach to environmental problems, a confusing hybrid comes to the fore as soon as ecology as a holistic philosophy is called upon to provide the cultural and theoretical foundation for the desired 'ecologization of the economy'. For reasons referred to in section 4.1, ecology would not seem to me to provide very fertile ground for studying the dimension of the environmental crisis that can not be reduced to the production sphere. The disappearance of concrete, tangible nature - the reason for the cosmetic concern of the environmental movement - would have to be sociologically analysed against the background of the socio-spatial transformation of western societies which accompanied the rise of the capitalist industrial mode of production. This is in essence the definition of nature and the environment which, as was said before, Leroy took as the starting point for his Ph.D. thesis, in which environmental problems are defined as problems in the socio-spatial organization of society (Leroy, 1983)[9]. The multifarious forms of environmental action can be comprehended as a result of and as a reaction to the drastic reconstruction of the 'local communities, - the 'houses' of concrete social groups. A reconstruction these local communities have been subjected to by the state, particularly in the period since the Second World War. Environmental protest as a reaction to what A. Giddens calls a *created environment*: a change in the

relation between the "habits of day-to-day social life and the milieux in and through which they are ordered" (Giddens, 1985: 313).

The process of the socio-spatial transformation of society and the (impending) changes in the sustenance base of society constitute two distinguishable aspects of the present-day environmental crisis. By studying relevant social practices in modern society from these angles, environmental sociology can contribute towards greater insight into the nature of this crisis. Insight that is a prerequisite for the 'solution' of environmental problems. A solution we are indeed in urgent need of.

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Notes

1) This chapter - published in 1987 - addresses the state of the art within Dutch' environmental sociology during the period of the mid-eighties. Of course the situation has changed since then and some improvement can be witnessed with regard to the general position of environmental sociology within the academic field. However, we think that the basic line of argumentation as presented in this text is still valid also in the presentday situation.

2) Unless otherwise specified, sections 1 and 2 are based on the situation in The Netherlands.

3) Nelissen himself refers to a 'sociology of ecological issues' rather than to environmental sociology. A distinction which, as will be clear from section 3.2, is not without significance.

4) From an epistemological point of view, Talma has tried to answer the question regarding the degree to which environmental sociology exists in The Netherlands as an independent discipline or as an independent 'reputational system' (Talma, 1986).

5) The article by Leydesdorff (1977) in which an effort is made to demonstrate and legitimate the necessity for interdisciplinary co-operation in the environmental field based on a materialist conception of science bears witness to the fact that (policy) practice-oriented researchers have not been the only ones to propagate a solution-oriented interdisciplinary approach.

6) In the Basic Book of Environmental Science referred to earlier, approximately 3% of the text pertains to the social sciences as supporting environmental specialisms. This text largely concerns political science and social psychology theories. The under-representation of the social sciences can partly be attributed to the background and training of the book's authors, since almost three quarters of them dot not have a social science background.

7) Although environmental economics and environmental law are, of course, social science disciplines, Ester and Leroy did not take them into consideration. Erroneous though it might be, strictly speaking, for practical reasons we shall do the same here.

8) This is a 'disconnection' also found in the work of Hofstee when he drew the link between the younger generation's concern about environmental problems and an 'uncertain' reaction to rapid social change sublimated in radical criticism of the government and the world of trade and industry (Hofstee, 1972: 40 ff.).

9) In view of the similarities with the definition used by the Chicago School, it is strange that Leroy dealt so briefly with this branch of sociology.

Chapter 3
Sociology, Environment and Modernity
Ecological Modernization as a Theory of Social Change

Gert Spaargaren and Arthur P.J. Mol

Abstract To minimize or at least substantially reduce damage to the natural resource sustenance-base we urgently need institutional reform within modern society. Environmental sociologists have different views as to which institutional traits can be held primarily responsible for the environmental crisis. Examples include its capitalistic or industrial character as well as the complex, highly administrated technological system of modern society. We discuss these matters in the context of the theory of 'ecological modernization' as developed by the German sociologist Joseph Huber, among others. To analyze the institutional reforms required for bringing human interaction with the sustenance-base under rational ecological control, however, theory needs to be substantially modified and complemented in several respects. However, restructuring the processes of production and consumption is only half the story. The change to ecologically sound patters of production and consumption is limited by the dimension of the environmental crisis that has to do with nature as sustenance-base and does not provide a solution to problems related to what we call the second dimension of the environmental crisis: the changing role of nature as 'intuited nature' and the way people 'deal with' these aspects of the environmental crisis within everyday life. In this respect we propose that theories of modern society as a risk-society should be given greater attention within environmental sociology.

1. Introduction

We are witnessing a third wave of environmental concern in the industrialized countries of Western Europe, and it could be argued that this time the environment is an issue that will not wither away. It no longer seems appropriate to think of ecology as moving up and down the agendas of politicians, concerned citizens, or sociologists. It simply took most of us more than two decades to recognize that environmental problems are not just the unintended consequences of an otherwise fortuitous trajectory of modernity. These problems appear increasingly bound up with modernity in such a fundamental and 'organic' way that they cannot be dealt with in isolation from it. Their 'solution' is bound up with altering the major cultural, political, and economic institutions of contemporary society in certain crucial respects.

This is why environmental problems have attracted the attention of a growing number of sociologists trying to understand the fundamental character of modern society. Environmental issues are no longer absent from the debate on modernity, high, late, or even postmodernity. For example, Anthony Giddens (1990, 1991) assigned the environmental crisis a rather central position in his recent work. Can sociologists now benefit from the preparatory work conducted by a small group of self-proclaimed environmental sociologists in the United States and Europe from the early 1970s onward? Is it already possible to conceive of a distinct

sociological perspective on the environmental aspects of modernity? Or is the program yet to be (re)written? These questions motivated us to write this article, which is basically an evaluation of different sociological perspectives on the relationship between environment and modernity. Special attention is given to the theory of ecological modernization or eco-restructuring, which has been developed recently in European countries such as Germany and The Netherlands.

The argument is organized as follows. Section 2. gives a brief and selective review of the literature, arguing that environmental sociology should be freed of its predominant biological-technical outlook and use sociological theory rather than general ecology as its main frame of reference. The third section tries to develop a sociological perspective on the relation between environment and society, exploring the very concept of 'the environment' and discussing some sociological theories dealing with the institutional development of modern society. Environmental sociologists should consider the kind of analytical categories required for thinking about a sustainable buildup of modern societies. Closer examination of the political discourse on sustainable development leads us, in the fourth part, to conclude that this can be interpreted in terms of a plea for an ecological modernization of the industrial sector of the rich industrialized world at least. The theoretical framework for this modernization process has been developed in Germany by Huber, Simonis, and Jänicke, among others. We discuss and critically evaluate Huber's ecological modernization approach as a variant of the so-called theories of industrial society in the fifth section. In section 6, we argue that recent developments in Dutch environmental policy strongly correspond with the ecological modernization approach, and we show that the debate within the environmental movement mirrors this specific modernization discourse as well. However, the ecological modernization approach is lacking, in several respects, as a sociological theory of modern society and needs remodelling and adaptation for the task of analyzing the relationship between environment and modernity. One theme that needs elaboration is the significance of 'intuited nature' for our understanding of the environmental crisis; this will be dealt with in a preliminary way in the concluding section.

2. Environmental Sociology; A Selective Review

Figure 1 provides a brief introduction to the theoretical and empirical work already completed in the field of environmental sociology.

As Buttel (1986, 1987) has shown in a number of illuminating reviews, most of the empirical work done in environmental sociology concerns themes situated on the vertical axis: environmental attitudes and the environmental movement rank highest by far on the

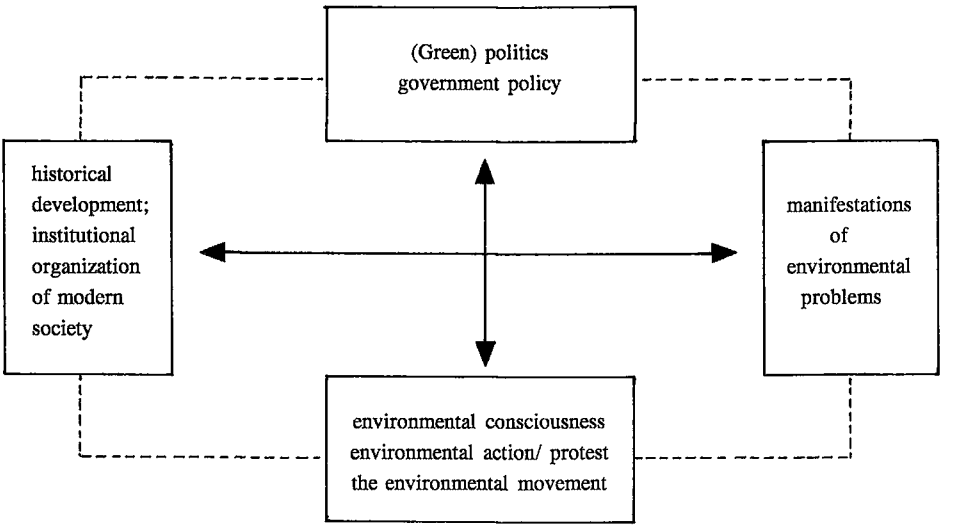

Fig. 1: Theoretical and Empirical Themes in Environmental Sociology
(Based on: Nelissen, 1979: 6)

research agenda, followed by a growing number of studies in the field of environmental-policies. Buttel's statement that most of the empirical work is normal science, in the sense of being scarcely theoretically informed, draws support from similar reviews by Lowe and Rüdig (1986) with respect to the European situation and by Ester and Leroy (1984) and Spaargaren (1987) with respect to the Dutch research tradition. This chapter leaves the empirical dimension aside and concentrates instead on the theoretical discussions within environmental sociology which, in our opinion, are of central importance to the field. Theoretical efforts in environmental sociology, almost without exception, deal with conceptualizing how the institutional development of society is related to the diverse manifestations of environmental problems (see the horizontal axis of Figure 1).

Environmental sociology seems to be in disarray as far as the methodology, (i.e., the conceptual identity) of the field is concerned. The whole gamut of names identifying the subdiscipline already gives an indication of this: Social ecology, ecological sociology, human or new human ecology, and environmental sociology all refer to a hybrid of sociology and ecology.

Catton and Dunlap (Catton and Dunlap, 1978, 1980; Dunlap and Catton, 1979; Dunlap, 1980) have contributed deliberately to the coquetting with ecology. In their desire to convert their general sociology colleagues, they presented their message in the form of a simple dichotomy: either you are (still) in the 'human exceptionalist paradigm' (HEP), or you choose to become a disciple of the 'new ecological paradigm' (NEP). The message hardly has been picked up or understood outside the small circle of environmental social scientists. Its main effect within the subdiscipline was to keep environmental sociologists busy and divided.

Buttel (1986) has taken an informative and yet ambiguous position in the debate on the relationship between sociology and ecology. Although he insistently points out the relevance of classical social theory for environmental sociology and criticizes the HEP-NEP distinction for having been drawn in too naive a way, he nonetheless identifies the 'new human ecology' as the kernel of environmental sociology and seeks to clarify the troublesome relationship between sociology and biology in terms of an 'inherent duality in human existence', a duality he explains in terms of the HEP-NEP distinction. Another illustration of Buttel's ambiguous position is found in the first standard introductory textbook on environmental sociology, which he wrote with Humphrey. Differences between Marx, Weber, and Durkheim are used to elucidate various possible perspectives with regard to environmental and energy issues. In the same book, however, Malthus and Darwin again figure as the founding fathers of the subdiscipline, with the classical human ecology of the Chicago school as its predecessor (Humphrey and Buttel, 1982). The wrestling between sociology, on the one hand, and biology and ecology, on the other, is not confined to the American branch of environmental sociology. One of the first Dutch environmental sociologists, Nico Nelissen, dedicated his Ph.D. thesis to the social ecology of the Chicago school, discussing, for example, the sociological themes of human agency, voluntarism versus determinism in the context of the analytical distinction between the biotic community and society (Nelissen, 1970).

Buttel (1986) seems to have gradually moved away from the ecologically inspired strand of environmental sociology in his sympathetic comments on the work of Allen Schnaiberg. We agree with Buttel that the growing influence of Schnaiberg, vis-à-vis those associated with Catton and Dunlap, is probably explained by two factors that distinguish his work from mainstream human ecology (Buttel, 1987). Schnaiberg (1980), notwithstanding his sympathy with the work of E.P. Odum, draws a clear analytical distinction between sociology and biology/ecology. The rules governing society, Schnaiberg argues, are basically different from those governing the ecosystems that form the sustenance base of society. We need no conceptual hybrid to consider the dangerous consequences that ecologists tell us are bound up with the enormous changes that have taken place in the sets of additions and withdrawals from the sustenance base. Schnaiberg uses sets of additions and withdrawals to describe the interaction between society and its environment. The task of sociologists is to elucidate the developments

and changes in the institutional composition of society that threaten the proper functioning of the sustenance base. A second reason that Schnaiberg's work attracts attention in the environmental field stems from his analysis of the societal dynamic behind the chronic overburdening of the sustenance base. The decisive changes that took place in the interrelation between modern society and its sustenance base cannot, in Schnaiberg's view, be explained by the kind of single-factor analyses (such as over population or technology) that are characteristic of the environmental sciences field. Rather, these changes should be analyzed against the background of the overall structure of modern societies. Furthermore, Schnaiberg rejects Parsonian functionalism for describing the character of modern societies in favor of a theory that Buttel labeled neo-Weberian and neo-Marxist. Before we comment in more detail on his theory of the treadmill of production, we briefly sketch our own stance on the issues raised to this point.

We think environmental sociology would benefit from a further emancipation from the dominance of bio-ecological schemes and models, which form the socio-ecological kernel of the subdiscipline, in analyzing the relations between societies and their environments. Socio-ecological models should be left behind for two major reasons. First, as formal sociological theories, these models tend to lead to deterministic and functionalistic conceptualizations of human agency. Second, with regard to the analysis of historical developments, these models are usually prototypes of the kind of social-evolutionary schemes that are so convincingly criticized by Giddens as unfolding models of change (Giddens, 1984). Central to the critique of socio-ecological models in both instances is the fact that, as social systems, societies do not mechanically adapt to their environments. *Their members* choose to give priority to solving the environmental crisis by making it a central concern in the reflexive organization of society[1]. Environmental sociologists should orient themselves by recent debates within sociology, which center around the theme of actor and structure, to answer the question of whether and to what extent human behavior is determined by social and/or environmental structure.

3. Environment and Modernity

In this section, we sketch the contours of a sociological approach to environmental problems. The first question, of course, deals with the very definition of 'environment'. What shape or form does 'nature' take in relation to modernity? We argue that there are two dimensions to the man-nature relationship, which need to be distinguished analytically. The second question is how the dimension of the environmental crisis that figures most prominently within the environmental literature, nature as a sustenance base, relates to the character of modern society. With what kinds of institutional traits/properties is it intrinsically connected?

We deal here with the debate about whether capitalism or industrialism is the major factor behind the environmental crisis. Looking for the institutional traits that cause environmental problems also means investigating possible solutions to those problems via institutional reform. There has always been a rather significant current of thought within the environmental debate, however, that has stressed the impossibility of reducing, let alone solving, the environmental crisis given the contemporary institutional composition of modern society. Let us turn first to this preliminary question.

3.1 Nature and (Pre)modernity

The environmental movement often is said to be a demodernization movement. Central to the public image of the movement over the last 20 years has been its emphasis on premodern values, whether of a Right or Left political variety (Tellegen, 1983). Although we argue that this image of the environmental movement as one of moral protest(ers) against modernity needs to be corrected, it nonetheless contains a point of great relevance for exploring the relationship between environment and modernity. The decisive alterations in the relations between environment and society, man and nature, and so forth obviously coincide with the emergence of modern society. Several authors, both within the field of environmental social sciences and outside it, have emphasized that modern society did not gradually come into being as the mature form of an earlier, more rudimentary society. Rejecting socio-evolutionary models of historical development, they instead propose a 'discontinuist interpretation of modern history' (Giddens, 1985: 31) to accentuate the many and crucial contrasts between modern and traditional societies. This contrast is especially relevant to the man-nature relationship, as described in the following passage:

> "In class-divided societies, production does not greatly transform nature, even where, for example, major schemes of irrigation exist. The city is the main power-container and is clearly differentiated from the countryside but both partake of the 'content' of the natural world, which human beings live both 'in' and 'with', in a connection of symbiosis. The advent of industrial capitalism alters all this. When connected to the pressures of generalized commodification, industrialism provides the means of radically altering the connections between social life and the material world" (Giddens, 1985: 146).

The eco-anarchist Murray Bookchin also portrays alterations in the relationship between society and its natural environment in an extensive and colorful way (Bookchin, 1980). Bookchin sees the advent of modern society as first and foremost the destruction of the cell-tissue society, and the replacement of complex, organic, harmonious eco-sociosystems, which "yield local differences to the natural world", with simplified, inorganic systems in which the alienation of man from nature goes hand in hand with the alienation of man from man. Bookchin criticizes the 'managerials' within the environmental movement for not understanding the impossibility of reconciling man and nature under conditions of generalized commodi-

fication. The only way to restore the relationship of man and nature is to 'dismantle' or restructure modern society, using the Greek city-state as the example. Bookchin can be called one of the 'organic intellectuals' of the environmental movement of the early 1970s. His definition of the environmental crisis is as fundamental as it is all-embracing, and the 'solution' he offers points the way *out* of modern or capitalist-industrial society.

We agree with Giddens and Bookchin that a discontinuist view of history can deepen our understanding by highlighting the essential characteristics of modernity. Unlike Bookchin and many discontinuist adherents within the environmental movement, we do not think that studying premodern society implies a preference for the cell-tissue society as the basis from which to plan strategic action within the environmental movement. However, as a theoretical approach a discontinuist perspective might provide specific answers to the kinds of questions that we consider of central importance to environmental sociology.

3.2 Two Dimensions of the Environmental Crisis

The first question for consideration concerns the man-nature relationship. William Leiss, in his book *The domination of Nature* (inspired by the work of the Frankfurter Schule), asserts that the mastery of nature within Western culture not only brought about an idea of separation between man and nature, but also resulted in a 'bifurcation' of nature (Leiss, 1974: 135). Nature became split into *intuited nature*, the 'experienced nature of everyday life', and the 'abstract-universal, mathematized nature of the physical sciences' (Leiss, 1974: 136). Several authors, mostly from the cultural-philosophical sciences (Lemaire, 1970), recognized and worked on this duality of nature. Within environmental sociology, Schnaiberg contributed to our understanding of scientific nature, the dimension he considers to be more important than the cosmetic concern of intuited nature (Schnaiberg, 1980). Reserving a discussion of the intuited nature of everyday life for the last section of this chapter, we begin by discussing scientific nature as the best documented and theorized dimension.

Scientific nature is nature harnessed to the ongoing rationalization and expansion of production. Despite the unveiling of nature in all her former mysteries by Baconian and Newtonian science, it could be said that there is still only a partial understanding of how the sustenance base functions. Ecology, the scientific discipline of the sustenance base, made us aware that nature can no longer be treated as a black box in relation to production. Nature as a black box would deliver inputs in the form of energy and raw materials and would absorb and process outputs in the form of waste. Clearly, nature can no longer be treated as a void in its functioning, whether as a stock of or a dump for material entities to be used endlessly and free of charge. This is the message that environmental economists such as Nicholas Georgescu-Roegen and Kenneth E. Boulding (and, in The Netherlands) Roefie Hueting, Johannes Opschoor, and Bob Goudzwaard understood 20 years ago when they tried to incorporate the

environment as a production factor into their neo classical economic models. Although much has already been done, we are only just beginning to understand the difficulties of correcting this design fault of modernity (Giddens, 1990).

There appear to be two sets of relevant questions with regard to the interrelation between societies and their sustenance base. The first focuses primarily on the sustenance base; the second directs our attention to the institutional aspects of modern society that are involved. One of the basic questions in the field of environmental sciences is whether, and to what extent, we already possess or are able to develop the scientific-technical knowledge required to bring our interaction with the sustenance base under rational control. It seems to be very difficult to grasp the consequences for the environment of human action for several reasons, including (1) the complexity of the ecosystems involved; (2) the displacement of effects in time and space; and (3) the rapidly increasing scale of the man-nature interaction, which is by now truly global. The uncertainties surrounding the predictive models of the eco-technical scientists and the sheer lacunae of knowledge that exist, for example, in the field of the ecotoxicology, make the debate about the required adjustment of social reproduction to meet the demands of ecosystem reproduction susceptible to all kinds of mystifications. In this debate political and scientific arguments are freely intermingled. The second set of questions concerns the kind of institutional reform that is required to correct the design fault of modernity in its interaction with the sustenance base. How drastic are the changes involved? In other words, which institutions need to be reformed and how central are these changes to the overall process of reproduction of modern society, both at the level of institutional development and in terms of everyday life? These questions are of basic importance to environmental sociology and will be elaborated in the next section.

3.3 Capitalism, Industrialism and Modernity

In our view, at least three schools of thought can be distinguished when the character of modernity and its relation to the environmental crisis are considered. Each emphasizes different aspects of modernity and seeks to promote different solutions to the disturbed relation between modern society and nature as its sustenance base: the neo-Marxist approach, different versions of postindustrial society theory, and the counterproductivity thesis. We begin by commenting on the neo-Marxist position that Allen Schnaiberg has taken in this debate.

On the question of which institutional traits of modern society can be held responsible for the environmental crisis, Schnaiberg is unambiguous. The treadmill of production underlies the continuing disruption of the sustenance base. This treadmill is explained in terms of the capitalistic character of the organization of production. According to Schnaiberg, a small number of powerful corporations constantly propel the process of capital accumulation. The

best way to analyze how they gain and retain their control over large sectors of production and their decisive economic and political power vis-à-vis the labour movement and the state is by using "the broad institutional perspective of structural analysts such as Marx" (Schnaiberg, 1980: 209). Relying heavily on the analyses of Marxist theorists such as Baran and Sweezy, Schnaiberg seems to reduce the different aspects of the environmental crisis to the monopoly-capitalist character of modern society, leaving little room for a theoretical assessment of industrialized production in relation to environmental problems. The rather straightforward Marxist analysis used by Schnaiberg has come under attack within sociology from two different perspectives, which have in common their belief that the *industrial* rather than the *capitalist* character of modern society is the more important factor in explaining the environmental crisis. To position the ecological modernization approach (to be introduced in the fifth section) within this field of discussion, we first briefly comment on the various forms of theories of industrial and postindustrial society.

Marxist analyses have been criticized from a radical perspective by a group of authors who can be labeled counterproductivity theorists. The ideas advanced by authors such as Barry Commoner, Ivan Illich, André Gorz, Rudolf Bahro, Otto Ullrich and, in The Netherlands, Hans Achterhuis have resonated within the environmental movement. For example, Ullrich in his book *Weltniveau*, criticized Marx for his preoccupation with the social relations of production, leaving undertheorized the forces of production (Ullrich, 1979). We need to incorporate into our analysis the myth of the great machine, which is embodied in the organization of the industrial system, if we are to understand why our system of production runs counter to the goals for which it was designed and to explain the increasing discrepancy of welfare as measured by a growing gross domestic product (GDP) with the well-being of man and nature. The industrial system is highly administered in an ever more centralized, hierarchical way. This centralized, hierarchical character has to be analyzed in relation to the technical systems that are omnipresent in the system of production but are no longer adapted to demands of man and nature. Finally, this model of industrial production viewed as an organizational device has become widespread, penetrating, for example, the educational and welfare sectors of modern society. Consistent with their analysis of the environmental crisis as part of an all-embracing crisis of the industrial systems, counter-productivity theorists share the belief that a solution can only be found by at least partially dismantling the existing systems of production. Bahro (1984) expresses this very clearly by his use of the term industrial disarmament to summarize his program of reform.

Surprisingly, none of the authors mentioned above receives any extensive treatment in Richard Badham's overview of theories of industrial and postindustrial society (Badham, 1984, 1986). However, his main focus is that branch of sociology represented by Kerr, Bell, and Aron, amongst others. These were sociologists who, from the 1950s onward, developed their theories of industrial society, starting from the central assumption that "the development of

industry and its impact on society are the central features of modern states" (Badham, 1984: 2). What unites these authors, and distinguishes them from the counterproductivity theorists, is their more benign evaluation of the 'all-embracing logic of industrialism'. Industrial societies pass through various phases or stages in their maturation, technology being one of the prime movers and determinants of their general development. Class conflicts belong typically to the birth period of industrial society and lose their significance during later phases of its development. In dismissing Marxist theory as irrelevant for the analysis of modern society, these theories of industrial society could also be called theories of postcapitalist society. These consensus theories were long opposed to conflict-theories and vice versa within sociology. We would include, within this category, some variants of industrial society theory that are usually bracketed as theories of postindustrial society. In our opinion, the later work of Daniel Bell (1976) and the writings of Alvin Toffler, Alain Touraine, and Barry Jones share the basic tenets of the first-generation theories of industrial society. The adjective 'post' stands for the transition into the newest phase in the development of industrial society, characterized by a shift toward a service-sector-based economy, the displacement of blue-collar work by white-collar work, and material growth conceptions being replaced by nonmaterial values (Inglehart, 1987). Although postindustrial society is portrayed mainly through its consequences for occupational structure, the role of science and technology, and the meaning of leisure, the changes that are supposed to take place within the production structure would considerably lessen the burden on the sustenance base.

Frankel gives an illuminating assessment of the consistency and theoretical adequacy of both Left and Right political variants of postindustrial society perspectives. He considers how the proposed models of a 'good' society deal with the relation between the different levels of social organization (local, national and international), and with the role attributed to state versus market forces (Frankel, 1987). We think two main conclusions can be drawn from his analysis. First, a distinction should be made between demodernization and modernization variants of postindustrial society theory; second, both perspectives are, for different reasons, susceptible to criticism as regards the criteria formulated. Counterproductivity theorists, writing from a demodernization perspective, see local autonomy or even autarky as realizable by severing links with the world market and political relations. The Mondragon cooperatives serve as a contemporary example of this theoretical model. Apart from the questions that Frankel raises about their factual independence from the world market (Mondragon products are being sold on the Spanish market) and the difficulties in defining the proper scale of small-scale communities (Ulgor being a cooperative of 3500 members), we think the crucial theoretical dilemma posed by the Mondragon experiment is the way local and regional levels are thought to be related to national and inter- or supranational levels. The theoretical argument against the proposed insulae within modern society is aptly summarized in Giddens' treatment of time-space distancing:

> "In the modern era, the level of time-space distanciation is much higher than in any previous period, and the relations between local and distant social forms and events become correspondingly 'stretched'. Globalization refers essentially to that stretching process, insofar as the modes of connection between different social contexts or regions become networked across the Earth's surface as a whole. Globalization can thus be defined as the intensification of worldwide social relations which link distant localities in such a way that local happenings are shaped by events occurring many miles away and vice versa" (Giddens, 1990: 64).

Intermediate or convivial technology, some degree of autonomy in social relationships on the personal as well as social group level, and direct responsibility for and control over materials circulating within the ecosystems are all desirable ends in themselves. But the intensification of international social relations and the increasing level of time-space distancing within modern societies make the realization of these goals in the context of local experiments, which are thought to be exempt from power relations and market forces operating on a worldwide basis, less plausible and realistic.

Local level processes of social change are analyzed within the hyper- or supermodernization approaches as the outcome of restructuring economic production at the international level. Frankel uses Toffler's 'third wave' theorem as an example of the major weaknesses inherent in a theoretical scheme in which a multinational organization-dominated network at the global level coexists with demarketized, autonomous lifestyles at the local level. According to Frankel (1987) "it seems that Toffler espouses a naive, small liberal belief in the mutual balance and coexistence of world institutions and local democracy" (p. 39). Using arguments that are sometimes empirical and sometimes theoretical, Frankel illustrates the major problems involved in the too-simple abolition of market and state regulation at regional and national levels, and those of putting too much faith in the innovative and democratic potentials of multinational corporations. In short, his critique of industrial society theory in its superindustrial form comes down to its lack of understanding of the capitalist character of production, with state planning as a prerequisite for 'taming' the treadmill[2].

Frankel's neo-Marxist critique of industrial society theory brings us back to our starting point: the neo-Marxism of Schnaiberg. Is the opposition between Marxist analysis of capitalist society and bourgeois analysis of industrial society still the relevant dividing line within environmental sociology? Following Giddens, we think this is no longer the case. Instead, we prefer to treat industrialism and capitalism as two of the four institutional dimensions or organizational clusters of modernity that can be separated analytically (see Figure 2).

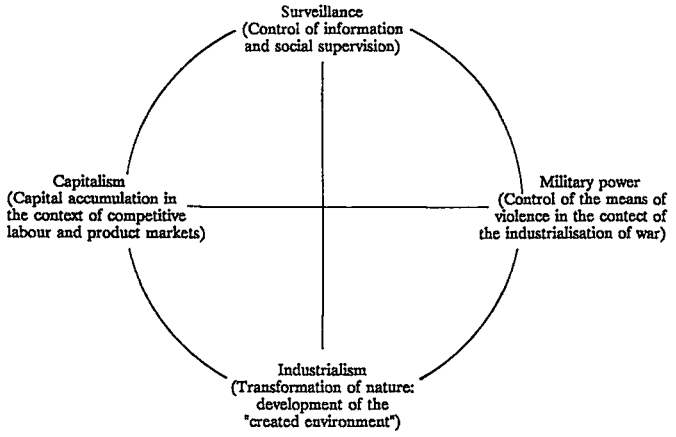

Fig. 2: The Institutional Dimensions of Modernity
(Giddens, 1990: 59)

Industrialism and capitalism are *both* highly relevant to understanding modernity and are defined by Giddens (1990) in the following way:

> "*Capitalism* is a system of commodity production, centered upon the relation between private ownership of capital and propertyless wage labour, this relation forming the main axis of a class system. Capitalist enterprise depends upon production for competitive markets, prices being signals for investors, producers, and consumers alike. The chief characteristic of *industrialism* is the use of inanimate sources of material power in the production of goods, coupled to the central role of machinery in the production process. Industrialism presupposes the regularized social organization of production in order to coordinate human activity, machines, and the inputs and outputs of raw materials and goods" (pp. 55-56).

The different theoretical perspectives considered in this section can be summarized as focusing on the interrelation between different institutional dimensions of modernity. Schnaibergs' analysis of the treadmill character of production indicates those institutional alignments within modernity that can be held responsible for the chronic impetus toward expansion of production and transformation of economy and technology. Theorists of industrial society point out the central role of technology and machinery and man-machine relations within modern society when they describe the different stages of industrial development. Criticizing the centralized and hierarchical character of manufacturing production, Ullrich (1979) posited a specific relation between surveillance on the one hand and industrialism and capitalism on the other.

Up to this point, our discussion can be summarized in four short statements or conclusions.

First, an analytical distinction should be made between two dimensions of the environmental crisis: intuited nature as experienced in everyday life, and scientific nature functioning as a sustenance base for production in modern society. The definition of the environmental crisis prevalent within the environmental sciences is the burden on or even overexploitation of the sustenance base.

Second, within the field of environmental social sciences, we are in urgent need of more refined, sophisticated theories relating the burden on the sustenance base with institutional aspects of modern society.

Third, contemporary sociological theories, which deal with the institutional development of modern society and which can be said to have special relevance for environmental sociology, differ with respect to:

- their general perspective on historical development, evolutionary versus 'discontinuist' models of change;
- their emphasis on either the capitalist or industrial character of modern society;
- their evaluation of developments within the industrial sector as theorized by theories of postindustrial society.

Fourth, in exploring the relationship between environment and modernity, Giddens's analytical distinction between four institutional dimensions of modernity can be of great assistance in assessing the value and central focus of each different theoretical perspective.

4. The Political Discourse on Environment and Modernity

The concept of sustainable development has a central position in the contemporary political debate on environmental issues. In political terms, sustainability deals with institutional developments in modern society which are related to the sustenance base.

There seems to be a growing consensus, at least in the industrialized countries, about sustainable development as a concept for overcoming the ecological crisis. This consensus is only possible because (1) sustainable development is a rather vague concept that allows many interpretations, and (2) the concept as introduced by the Brundtland commission (World Commission on Environment and Development, 1987) integrates ecological quality with economic growth via industrialization. Economic growth and technological development, two important institutional traits of modernity, are therefore seen as compatible with and sometimes even as a condition for sustaining the sustenance base, rather than as the main cause of environmental destruction.

As Timberlake (1989), one of the contributors to the Brundtland report, observes, the concept of sustainable development is based more on opinions than on scientifically grounded ideas. For this reason and because of the many possible interpretations that can be placed

upon it, the concept of sustainable development is only suited to our purposes to a very limited extent. Therefore, we introduce a more analytical and sociological concept consonant with the primarily political concept of sustainable development: ecological modernization. The more analytical and sociological concept of ecological modernization highlights the relationship between the modernization process and the environment in the context of industrialized societies, whereas sustainable development also (1) pretends to be applicable to the less developed countries (Spaargaren and Mol, 1989), and (2) tries to include questions of equal development and peace. Notwithstanding these differences, both concepts originate from the same standpoint on the relationship between environment and modernity. As Simonis (1989) writes, the dominant notion in the 1990s is that the relationship between society and environment calls for "industrial restructuring for sustainable development, or 'ecological modernization'" (p. 361).

In the next section, we further elaborate on the concept of ecological modernization and situate it in the debate on environment and modernity.

5. Ecological Modernization: A Theoretical Framework

The concept of ecological modernization has a short history in German and, to some extent, Dutch discussions about the institutional changes necessary in Western industrialized countries for overcoming the ecological crisis. The concept is used at two levels in these debates. First, ecological modernization is used as a theoretical concept for analyzing the necessary development of central institutions in modern societies to solve the fundamental problem of the ecological crisis (see, e.g., Huber, 1982, 1991; Spaargaren and Mol, 1991). At this level, ecological modernization can be seen as an alternative to other concepts and analyses of the relationship between institutional developments in different domains of modernity and environment. Second, on a more practical level, ecological modernization is used as a political program to direct an environmental policy. As such, it includes a certain strategy with more or less concrete measures to counter environmental problems (Jänicke, 1989; Schöne, 1987; Simonis, 1989; Zimmerman, Hartje, and Ryll, 1990). The political program of ecological modernization seems to fit rather well in recent developments in environmental politics in some Western European countries.

In this section, we elaborate on the concept of ecological modernization as a theoretical contribution to environmental sociology and analyze its main theoretical problems. In the next section, we analyze developments in Dutch environmental policy, as well as in the ideology and strategy of the Dutch environmental movement, in the context of ecological modernization.

5.1 Ecological Modernization as a Theory of Industrial Society

> "Die hässliche Industrieraupe werde sich im Zuge ihrer Metamorphosen noch als ökologischer Schmetterling entpuppen" (Huber, 1985: 20)[3].

This quote from *Die Regenbogengesellschaft* characterizes the central idea of ecological modernization. Ecological modernization stands for a major transformation, an ecological switchover of the industrialization process into a direction that takes into account maintaining the sustenance base. Like the concept of sustainable development, ecological modernization indicates the possibility of overcoming the environmental crisis without leaving the path of modernization. Ecological modernization can be interpreted as the ecological restructuring of processes of production and consumption. We shall use the elaborations of Huber, one of the leading exponents of ecological modernization theory, to obtain a better understanding of it. Huber (1985) uses the concept of ecological modernization as follows:

> "Das wirtschaftlich fast alles entscheidende Kernstück des ökosozialen Umbaus besteht in einer ökologischen Modernisierung der Produktions- und Konsumkreisläufe durch neue und intelligentere Technologien" (p. 174)[4].

Following Huber, we see two central projects as forming the heart of the ecological switchover: the restructuring of processes of production and consumption towards ecological goals. The first project is the development, inauguration, and diffusion of new technologies that are more intelligent than the older ones and that benefit the environment. From traditional end-of-pipe technologies, there is a shift toward technologies that establish clean production processes. Microelectronics, genetechnology, and new materials are seen as promising technologies for disconnecting economic development from relevant resource inputs, resource use, and emissions (Simonis, 1989), and for monitoring processes of production and consumption for their effects on the environment (Huber, 1985). This must lead to the ecologization of the economy, that is, to physical change in production and consumption processes and to the possibility of monitoring these processes. Second, the concept of ecological modernization includes economizing ecology by placing an economic value on the third force of production: nature. Nature and environmental resources should regain there place in economic processes and decision making (Immler, 1989). As Simonis (1989) questions: "Apart from labour and capital, nature is the truly quiescent and exploited third production factor. How can nature's position in the 'economic game' be strengthened?" (p. 358).

Huber's (1985) elaborations on ecological modernization make it clear that this theoretical concept belongs to the industrial society theory. In the first place, Huber analyzes ecological modernization as an historical phase of industrial society. Second, he emphasizes the logic

of industrialism as central to the development of modern society. We briefly elaborate on these two issues.

Huber (1982, 1985) analyzes ecological modernization as a phase in the historical development of modern societies. He sees three phases in the development of industrial society: (1) the industrial breakthrough; (2) the construction of industrial society, which can be subdivided into three parts corresponding with the Kondratieff cycles; and (3) the ecological switchover of the industrial system through the process of super-industrialization. This historical systematization and the position of an ecological switchover is in line with other theories of industrial society (e.g., Immler, 1989). Central to changing the phases of the industrialization process are the invention, inauguration, and diffusion of new technologies. In the first phase, the key technology was the steam engine. Chip technology is what makes the ecological switchover via super-industrialization possible in the most recent phase.

Huber (1985, 1989b) differentiates three analytical categories or spheres in analyzing modern society. Apart from the industrial system (or technosphere) and the life world (or sociosphere), which are more or less in line with other social theories (e.g., Habermas, 1981), Huber introduces a third sphere: nature, or the biosphere. The main problems in the present society are, according to Huber, related to the colonization of both the sociosphere and the biosphere by the industrial system (or technosphere). These problems, interpreted as structural design faults of the industrial system, can be overcome by an ecosocial restructuring of the technosphere, which Huber calls ecological modernization. The industrial, rather than capitalist or bureaucratic, character of modernity is the point of departure for the theory of ecological modernization.

5.2 Evaluating Ecological Modernization

In this section, we evaluate the theory of ecological modernization using three different criteria: its view on historical development and the role that is attributed to technology in this respect; its definition of environment/nature; and its treatment of the role of the state. We also try to delineate the theoretical position of ecological modernization in the debate on environment and modernity.

What is the place of ecological modernization among theories on the relationship between modern society and the environment? Adapting Giddens's conceptual scheme of the four dimensions of modernity, ecological modernization can be said to focus primarily on the dimension of industrialism. In analyzing the main characteristics of modern society pertaining to the industrial or technological-system, ecological modernization can be said to belong to the branch of theories that Badham (1984, 1986) calls industrial society theory. It highlights the industrial rather than the capitalist character of modern society. Furthermore, the ecological modernization approach stands in direct opposition to counterproductivity theory or the de-modernization theses in its conviction that the only possible way out of the ecologi-

cal crisis is by going further into industrialization, toward hyper- or superindustrialization. Ecological modernization must be analyzed in continuity with the present system (Huber, 1985). Finally, the ecological modernization approach diverges from neo-Marxist social theories in paying little attention to changing relations of production or to altering the capitalist mode of production altogether. The focus of ecological modernization is undoubtedly on the development of the industrial system. The ecological restructuring of modern society is limited to changing the organization of production and consumption activities, and does not extend to Schnaiberg's (1980) treadmill of production. On the contrary, the capitalist character of modern society is hardly questioned, as capitalist relations of production and the capitalist mode of production are seen as not relevant to overcoming the ecological problem. According to Huber (1985):

> "Kapitalistisch zu sein, ist nichts Unanständiges, sondern eine Eigenschaft, die uns qua Zeitgenossenschaft zufällt, wobei fraglich ist, wie lange der kapitalismus-Begriff überhaupt noch zeitgemäss sein wird" (pp. 77-78)[9].

Focusing on technologically induced developments within the industrial system, the theory of ecological modernization exposes an evolutionary and technologically deterministic view of social development that is characteristic of the theories of industrial society. The ecological switchover is analyzed as a logical, necessary, and inevitable next stage in the development of the industrial system - the system correcting itself for the construction fault of neglecting ecology. In the 'system evolutionary' view of historical developments, technology and technological innovations are the motor for socio-ecological change. Technological developments seem to take place autonomously and to determine the changes that take place both within the industrial system itself and those occurring in its relationship with the social and natural environments. This becomes very clear when Huber (1985, 1989b) speaks of the 'technosystem' rather than the industrial system, emphasizing the central role of technology in the overall development of society. This kind of technological determinism can be questioned both from the viewpoint of recent studies concerning the social construction of technological developments (Bijker, Hughes, and Pinch, 1987; Hughes, 1986) and from a theoretical perspective that tries to combine actor- and system-oriented approaches in explaining social change.

The ecological modernization approach conceptualizes nature or the environment as one of the two spheres that are threatened by the dynamics of the industrial system, the other being the life world. In concentrating on the use that is made of nature within production, ecological modernization focuses primarily and exclusively on the relationship between the technosystem and nature. In other words, the central concerns of ecological modernization are the depletion of natural resources and the pollution of the environment c.q. problems which spring from societies' relation to the sustenance base. The relationship between what Huber

(1989) calls the sociosphere and the deterioration of nature is not discussed. This relationship deals with what we have called 'intuited nature'.

The differentiation between political and economic spheres of the industrial system seems to have very little relevance within the ecological modernization approach. Both are seen as integral parts of the industrial system and are functional for the development of the industrial system. Huber (1989a) puts it as follows:

> "Zu sagen, das Wissenschaft und Technik als 'Produktivkräfte' zu bestimmenden formativen Faktoren geworden sind, heisst nicht, die Bedeutung von Markt und Staat zu verkennen. Es heisst, sich von der Technik einen umfassenderen Begriff zu machen und Markt und Staat selbst als Teil eines umfassenden technischen Systems zu verstehen, und zwar als institutionelles Gehäuse der technischen Entwicklung, als das Gefüge administrativer und wirtschaftlicher Rahmenbedingungen, die auf die technische Entwicklung einwirken" (pp. 10-11)[9].

In what is seen as the autonomous development of the industrial system, propelled by technological innovation, the state plays no central role in redirecting the processes of production and consumption. Huber (1989a) even regards state intervention to promote ecological modernization as counterproductive in the long term, because it frustrates the innovation process. Huber uses Hobbes Leviathan as an undesirable and threatening image of growing state intervention. However, there is widespread consensus in the field of environmental policies about the necessity of national and international state intervention. State intervention in the environmental field during the 1970s was primarily organized at the national level and directed toward repairing the shortcomings of free-market competition by internalizing environmental external effects within the market. Over the last decade, we have witnessed an increasing awareness of the international nature of environmental problems, inter- and supranational policies being developed to coordinate national efforts, and, especially in the context of the European Community (EC), a harmonizing of national economic interests with environmental policies. Nowadays, it seems very hard to imagine an ecological switchover without state intervention at various levels.

Having made a theoretical assessment of the concept of ecological modernization, we can draw some conclusions. The ecological modernization approach clarifies the relation between modern society and its environment with respect to one essential, institutional clustering within modernity. Huber's theory makes it possible to define the environmental crisis in more detail and is more appropriate with regard to one of its central dimensions, the burdening of the sustenance base. In this respect, it makes a contribution to our understanding of the complex relation between environment and modernity similar to that of Schnaiberg (1980). Some of the weaknesses of the ecological modernization theory as developed by Huber include its:

- paying little attention to the role of state institutions and being overly optimistic about the dynamics of the market;
- using a definition of the environment or the environmental crisis that is restricted to the dimension we have called the sustenance base or the burdening of the sustenance base, which pays no attention whatsoever to the experienced nature of everyday life;
- being representive of industrial society theories in using a conceptual model to analyze the historical development of industrial society, which can be said to have a technologically deterministic character.

6. Ecological Modernization: A Political Program

As already noted, ecological modernization is not merely a theoretical framework for analyzing the relationship between the institutional structure of modern industrial society and environmental problems. It is also used as a political program sketching the way out of the environmental crisis. There is, of course, a very close connection between the political program and the theoretical concept. We argue that there are at least three ways of interconnecting the theoretical approach to presentday policy practices.

6.1 Three Political Programmes

Looking at the main programmes of reform suggested within the field of environmental policy, a limited number of political projects can be distinguished. Jänicke (1988), for instance, discusses four different strategies toward environmental problems in modern industrial societies. In the discussion about 'preventive environmental policy', other authors make different classifications or mention the same strategies but with different names or definitions. We regard the underlying structure of all these classifications as composed of two distinctive political programs toward the environmental crisis. The first one focuses on compensation for environmental damage and on the use of additional technology to minimize the effects of growing production and consumption on the environment. The second political program, which can be said to be in line with the theory of ecological modernization, focuses on altering processes of production and consumption. Common descriptive notions used in the second program include clean technology, economic valuation of environmental resources, alteration of consumption and production styles, prevention and monitoring of compounds through the production-consumption cycles, to name but a few. Among proponents of this political program, there is some discussion about the exact meaning of policies aimed at restructuring production processes or 'umbau', versus policies that are directed toward the selective contraction, or 'abbau', of the economy, for instance on the issue of synthetic materials. This, however, is a discussion within the framework of modernity.

In the proposals and measures normally put forward outside the official policy arena, a third program can be distinguished, focused on what Ullrich (1979) calls the progressive dismantling or deindustrialization of the economy and the transformation of today's production structure into small-scale, or smaller-scale than at present, units representing a closer and more direct link between production and consumption. This strategy, well known from the reform programmes developed in the early 1970s, must be distinguished from the limited, selective abbau programmes contained within the second perspective. This third, more embracing policy of environmental/social reform, directed at demodernization rather than modernization, seems to have lost its attraction to a considerable extent.

We want argue that, in The Netherlands at least, official environmental politics suggested and already partially implemented by the environmental sectors of the administration are moving from the first to the second program. At the same time, a switch from the third perspective to the second can be noticed within major sections of the environmental movement, with regard to both ideology and strategy. A broad consensus gradually seems to have come about, at least within Dutch society, as regards the general approach best suited to overcome the environmental crisis. Ecological modernization seems to be the general concept that describes this growing consensus.

6.2 The General Direction of Dutch Environmental Policy

Developments in Dutch environmental policy concerning relations between the state and environmental polluters (often called target groups by state officials) can be divided into three phases. The initial phase, in the 1970s, can be characterized as a top-down state-based environmental policy, with big conflicts about individual measures, broader strategies, and final goals to be set between the Department of the Environment, target groups (and their affiliates within the state bureaucracy) and the environmental movement. It was a sectoral and end-of-pipe-oriented policy. This situation changed from the beginning of the 1980s. The deregulation debate after the economic crisis, the crisis of the welfare state, the poor results of environmental policy, and the depolitization of environmental issues led to discussions and initiatives to provide target groups with greater influence on and responsibilities for environmental politics. This transitional second stage switched to the third stage by the end of the 1980s, as symbolized by the launching of the first National Environmental Policy Plan in 1989 (Ministry of the Environment, 1989). Dutch environmental policy changed during this third phase, at least on paper, from an end-of-pipe strategy toward an ecological modernization perspective. The old strategy of repairing environmental deterioration afterwards and regulating environmental problems by introducing additional technology - leaving the general structure of production and consumption processes untouched -, has been abandoned. The core of the new approach, which must lay the basis for sustainable development, consists of:

- the closing of substance cycles - the chain from raw material via the production process to product, waste, and recycling must contain as few leakages as possible;
- conserving energy and improving the efficiency and utilization of renewable energy sources;
- improving the quality of production processes and products.

The central issue in environmental policy is the restructuring of production-consumption cycles, to be accomplished through the use of new, sophisticated, clean technologies. The private sector and the target groups (agriculture, industry, consumers, etc.), play a central role in achieving this objective. Target groups have to take responsibility for ecologizing production and consumption by innovating production technologies and products and by changing patterns of behaviour. Environmental management systems and environmental audits in industry and agriculture are central instruments for attaining the structural incorporation of environmental issues in the behaviour of private-sector enterprises. This process of structural incorporation is designated in the Dutch language by the concept of 'verinnerlijking' (internalization), which is one of the core concepts within Dutch environmental politics. Environmental management systems should take into consideration all environmental aspects of plant operation and product-management. The monitoring of all the relevant flows of compounds/ materials and energy is regarded as a precondition for a company-policy aimed at minimizing the impacts on the environment.

The government intends to use more financial incentives to induce producers and consumers to assume their responsibilities toward the environment and to incorporate environmental costs in economic decision making. The use of fiscal measures, environmental taxes, deposits on products and materials, and economic incentives in general have been proposed and, to a limited extent, introduced until now.

Although there is considerable debate between different state departments, and between the Ministry of the Environment and some target groups, on concrete measures and with regard to the time rate of realizing environmental policy goals, there seems to be a general consensus on the main approach, direction, and goals of environmental policy. When certain economic parameters are taken into consideration, proposals for restructuring production-consumption cycles do not meet with fundamental opposition.

6.3 Dutch Environmental Movement

An ideological change has taken place in the Dutch environmental movement since 1980 (Cramer, 1988). Large sections of this social movement were highly critical of capitalist economic growth, the ongoing process of industrialization, and technological development before the 1980s. The climax of protest against nuclear power at the beginning of the 1980s can be seen as a turning point, both in the struggle against the dominant institutions of

modern society and with regard to what Tellegen (1983) calls the antimodernity ideology of the environmental movement. The main reasons for this switch in ideology and strategy were an expanding socio-economic stagnation and crisis, the changing political climate toward 'realism', the growing acceptance of the environmental movement as a political factor by state institutions, and concrete successes of more modest environmental strategies and ideologies.

The Dutch environmental movement is, for the most part, no longer strategically or ideologically opposing large-scale industrial production and technological innovations, as long as these are environmentally sound. A radical farewell has been said to the small is beautiful ideology, and technological developments are seen as potentially very useful in regulating environmental problems (Spaargaren and Mol, 1991). At the same time, apart from neo-Marxist analyses, the focus is not so much against capitalism or economic growth, but rather against concrete, environmentally harmful economic developments. Capitalist relations of production, operating as a treadmill in the ongoing process of economic growth, are rarely emphasized. The environmental movement has adopted an ecological modernization approach, highlighting the necessity for adaptation of the modernization process to ecological limits. Within this paradigm, a limited and selective contraction or constriction of economic growth is seen as unavoidable by environmentalists (e.g., Schöne, 1987; Cramer, 1988; Nijkamp and Reijnders, 1989; Vereniging Milieudefensie, 1991).

A pragmatic and less oppositional environmental movement was established during the 1980s. Its aims were neither changing the capitalist relations of production or the treadmill of production, nor working toward a deindustrialization or demodernization of the economy. Today, the main strategy and goals seem to be the ecologizing of processes of production and consumption within modernity. A switch has taken place from the third perspective to ecological modernization.

7. Conclusion

In this chapter, we have tried to give a selective review of the theoretical contributions relevant to environmental sociology, when this subdiscipline deals with the relationship between the environment and institutional developments in modern society.

Three schools of thought were identified as relevant to the sociological contribution to the environmental debate. One tradition works from a Marxist perspective and deals with the treadmill of production as the main cause of disturbances in the sustenance base; another school highlights the industrial dimension of modernity in analyzing environmental deterioration; and a third emphasizes the counterproductivity of industrial production and technology in modern society. We conclude that there is a lack of sophisticated theories dealing explicitly with the relationship between institutional developments of modern society - whether it be

capitalism, industrialism, or another development - and the burdening of the sustenance base in all three schools of thought. In that sense, environmental sociology is still in its infancy.

One of the recent sociological theories dealing explicitly with the relationship between modernity and the environment has given some attention to these issues: ecological modernization. The popularity of this theoretical concept is based on its close correspondence with the idea of sustainable development, combined with recent changes in environmental politics and in the dominant ideologies of the environmental movement in some Western European countries.

The theory of ecological modernization is limited insofar as it deals with only the industrial dimension of modernity, neglecting dimensions of capitalism and surveillance, and because it narrows the concept of nature to the sustenance base. On this last issue, ecological modernization is consonant with most of the other relevant contributions to the debate on environment and modernity, which also ignore, to a large extent, intuited nature. We think the distinction between the two dimensions of nature, intuited nature and scientific nature, might fruitfully be further theorized. We only indicate the general direction of analysis here. In the first place, elaborating on intuited nature would necessitate an emphasis within environmental sociology on themes that to a certain extent, have been left in the hands of philosophers and social psychologists up to now, specifically, the ways human actors deal with nature, its integrity, its intrinsic value, and its value for human agents. In the second place, and in our opinion essential for environmental sociology in the near future, it would mean giving high priority to the analysis of the risk profile (Beck, 1986; Dietz and Frey, 1992; Giddens, 1991) of modern society and the way people handle this dimension of the environmental crisis within their everyday lives. In the next chapter we elaborate on the theme of the risk perception of lay-actors when introducing the ideas of Beck and Giddens on the risk-society.

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Notes

1) We are aware that a significant group of sociologists as well as biologists have tried to work out a more historical, less deterministic form of evolutionary theory, giving human agency pride of place. See, for example, Musil (1990) and Dietz and Burns (1992).

2) Of course one cannot just leave matters here. A proper treatment of the role of the State in (environmental) planning is hardly possible without entering into the complex debate on State regulation in a period Lash and Urry designated as 'the end of organized capitalism' (Lash and Urry, 1987). We provide a more extended discussion in Spaargaren and Mol (1991).

3) "The dirty and ugly industrial caterpillar transforms into an ecological butterfly".

4) "The central economic theme of the eco-social switch-over will be the ecological modernisation of production- and consumption cycles by new and more intelligent technologies".

5) "Capitalism is nothing indecent, but a given quality of our age, and it might even be asked how long the concept of capitalism will be in any sense up-to-date".

6) "To say that science and technology have changed from 'forces of production' to the determining factors forming society, does not denote an undervaluation of the significance of market and State. It means making technology an inclusive concept, and interpreting the technological system as comprising market and State. It also means interpreting market and state as the institutional context of technological development, as the administrative and economic frame-work which influence technological developments".

Chapter 4
Environment, Modernity and the Risk-Society
The Apocalyptic Horizon of Environmental Reform

Arthur P.J. Mol and Gert Spaargaren

Abstract The apocalyptic dimension of the ecological situation seems to emerge in the present-day environmental debate. But in contrast to the early seventies, eco-alarmism in its present form seems to reflect growing uncertainties and anxieties related to the changing character of late modern society. Such uncertainties and anxieties do not only pertain to high-consequence risks, as exemplified by the Chernobyl accident, but also to local problems of providing safe drinking water from the tap. Ulrich Beck's risk-society theory, elaborated by Anthony Giddens, analyses these eco-anxieties against the background of changing conditions of modernity. Because of its overall pessimistic undertone and its basic questioning of the role of science and technology in overcoming an eco-catastrophe, the risk-society theory seems to fundamentally contradict ecological modernization theory. In confronting both perspectives, the paper aims to contribute to environmental sociology in three ways. First, we try to come to understand the present-day rise of eco-alarmism. Second, an evaluation is made of the contribution of risk-society theory in analyzing environmental problems and in developing projective realistic utopian models dealing with the environmental crisis under conditions of late or reflexive modernity. Finally, by bringing formal sociological theory into environmental sociology, both models contribute to the conceptual development and refinement of the sub-discipline.

1. Introduction: the Emergence of the Risk-Society?

Eco-alarmism once again has taken a very prominent place within the environmental discourse nowadays. Global warming and ozone layer depletion seem to trigger scientific and public debates which echo the intellectual and cultural climate that surrounded the publication of the first Report to the Club of Rome, now twenty years ago. Unless humanity undertakes concerted action to avoid the dangers we collectively face, worldsystem collapse is predicted for the foreseeable future.

In what way must this seemingly new wave of eco-alarmism be understood? Do we merely witness a resurrection of old questions? Does the recent wave of environmental concern provide nothing more than a new sub-stratum for old conflicts to flourish? Conflicts about the impact of population growth, unfettered economic expansion and technological development, which draw up dividing lines between North and South during the UNCED (United Nations Conference on Environment and Development) as they did during its predecessor at Stockholm for two decennia. Or is there new scientific evidence which legitimizes the reappearance of apocalyptic analyses? Referring to the more refined computer models, some people at least are arguing that we have now entered a new phase in the objective process of environmental degradation, which demonstrates that the predictions of the Club of Rome were valid after all.

It can be argued, and we will do so below, that the present-day eco-alarmism cannot be properly assessed by using the theoretical schemes and models that both induced and result from the major upsurge of environmental concern in the beginning of the seventies. Those models turn out to be inadequate, not only because of the vigorous criticism they were confronted with during the last twenty years (e.g., Enzensberger, 1974; Feenberg, 1979; Pepper, 1984), but first of all because of the fact that the world of the nineties differs in some crucial respects from the world of the early seventies (e.g., Buttel et al., 1990; Spaargaren and Mol, 1992). The apocalyptic dimension of the present-day (environmental) situation, as it appeared in the environmental debate as well as it was portrayed by several commentators in the debate on what has become known as the 'risk-society', is different from the eco-alarmism contained in the earlier, simplified neo-Malthusian models.

1.1 Risk Theory and the Emergence of the Risk-Society

In trying to understand this new upheaval of eco-alarmism we should turn to the emerging field of risk theory, which reflects on the identification, perception and management of risks. Within the rapidly expanding domain of (environmental and technological) risk and risk perception studies[1)], different schools of thought can be distinguished, following different explanatory models and theories. A first analytical distinction should be made between approaches conceiving of risk as a physically given attribute of hazardous technologies, and those conceiving of risk as a socially constructed attribute, emphasizing the fact that risk identification, risk estimation and risk perception can never be value-free (Bradbury, 1989). The social sciences, of course, have mainly contributed to the latter. They have, however, contributed to our understanding from different perspectives, failing to formulate a coherent and uniform approach or theory. By following Dietz, Frey and Rosa (1992) partly, three main social science approaches can be identified regarding the study of risk[2)]. The still dominant perspective in social science studies of risk and risk perception is the (socio-)psychological, and within that primarily the psychometric, approach. The Slovic group has become well known by focusing on the cognitive processes underlying risk perceptions and the differences between lay persons and experts in assessing risk (e.g., Fischhoff et al., 1981; Slovic, 1987). The anthropological or cultural approach to risk gained serious momentum through an influential study by Mary Douglas and Aaron Wildavsky (1982), in which they state that the selection of risk for societal attention is a social/cultural process with hardly any linkage to the objective risk. Douglas and Wildavsky especially emphasize the influence of different value systems of social groups in their perception of risk and their strategies in dealing with risks. In the same analytical line other contributions (e.g., Douglas, 1986; Wynne, 1987; Schwarz and Thompson, 1990) have elaborated on the role of culture in understanding risk perceptions and strategies. Building on this approach, a third - sociological - perspective has emerged, partly as a critique of the traditional (socio-)psychological

models for not taking into account the social and institutional context in which human risk perceptions take form. Sociologists increasingly pay attention to the relation between institutional developments in modern society, on the one hand, and social processes of attitude formation towards risk, on the other. Perrow's analysis of 'normal accident' in complex technological systems pointed at the relations between risks and risk management and the institutional dimensions of modern industrial societies (Perrow, 1984). Recently, influential sociologists, such as Ulrich Beck (1986) and Anthony Giddens (1990, 1991), have analyzed the relation between risk and the emergence of what they call reflexive modernity. Of particular interest for this contribution is their analysis of anxieties stemming from the threat of an eco-catastrophe in relation to the changing character of modernity.

For our purpose, analyzing the growing societal anxieties related to environmental problems in relation to the changing character of modernity, a sociological perspective seems most appropriate. We shall mainly use the work of Ulrich Beck and Anthony Giddens as a starting point to understand the increasing eco-anxieties under changing conditions of modernity. Because their analyses of eco-alarmism are part of a more embracing sociological theory of modernity, they provide very valuable insights for environmental sociologists trying to understand the relationship between environment and modernity[3)].

1.2 Conflicting Perspectives

While taking the risk-society perspective as a starting point for analysis, we do not think that all the major tenets of this perspective go unchallenged. When comparing the risk-society perspective with the theory of ecological modernization one seems to be dealing with two conflicting perspectives. The perspective of ecological modernization can be seen as directly opposing the idea of the risk-society, because it offers a constructive approach to deal with the environmental crisis in some well circumscribed respects and because it assigns a central role to modern science and technology in overcoming the environmental crisis. In discussing the relevance for environmental sociology of this theory of ecological modernization in an earlier contribution (Spaargaren and Mol, 1992), we argued that this perspective reflects some of the major changes that took place in the environmental discourse as well as in environmental (policy) practice, and that it can be regarded as the dominant perspective in the present-day environmental discourse, at least within the industrialized countries of the world.

Because of its pessimistic undertone and its basic questioning of the role of science and technology, the risk-society perspective seems to contradict in a fundamental way the perspective of ecological modernization. The main question, then, we want to deal with in this contribution is how we should make sense of this situation, of these seemingly divergent perspectives on environment and modernity.

We provide a brief introduction to the ecological modernization approach by summarizing its main arguments in the section on ecological modernization and institutional reform (3.). In the subsequent two sections (4. and 5.) we deal with the relevant parts of the oeuvre of both Beck and Giddens in trying to identify the relation between environment and society under conditions of reflexive modernity. By confronting the ecological modernization with the risk-society perspective, we assess the relevance of both perspectives for environmental sociology and raise some questions that can possibly stimulate further reflection and sociological debate (6.).

To begin with, and to indicate the relevance of the risk-society perspective for environmental sociology, we shall sketch an actual empirical problem Dutch environmental policymakers are confronted with (2.). The dilemmas that are brought to the fore by the increased pressure on the drinking water expert system can be used to illustrate the relevance of the theoretical discussions contained in this paper and to show that these theoretical discussions are not limited to rather unique environmental and technological hazards, such as the Chernobyl disaster.

2. Intermezzo: Safe Drinking Water from the Tap?

The Netherlands is a society with a long tradition in its struggle with water. From medieval times onwards people tried to protect themselves against rising tides of the rivers and the sea. Besides the dangers of flooding, the safeguarding of drinking water quality has been a second major preoccupation in the Netherlands, especially since the rise of cities.

In the earlier days, the transport of safe drinking water to the cities and of waste-water away from the cities was organized by the frequent coming and going of transport vehicles and boats. During the eighteenth and nineteenth century, Dutch cities started to develop and construct a system of drinking water and sewage pipes, the 'venous-arterial system' (De Swaan, 1989). Starting in Amsterdam, the construction and extension of this system ensured safe drinking water to and the efficient removal of waste-water from urban areas. The great majority of Dutch society has been connected to this system for several decades now, and its use has become routinized. The high-quality water provided by this system has always been used not only as drinking water, but also for activities which in principle do not need water that meets the same high-quality standards, e.g., bathing, flushing toilets, washing clothes, gardening.

Today, the nation's private-public drinking water system can be seen as an example of an expert system that in a very direct and detailed way intrudes in the day-to-day life of almost every citizen. Citizens are to a greater or lesser extent aware of the fact that behind the drinking water tap there is scientific research and control to maintain water quality standards, constant innovation of purification technologies, a highly qualified staff to operate and

maintain the largely automated purification systems, and finally a detailed system of legislation and control. The constant supply of safe, high-quality (drinking) water has always been guaranteed by the expert system and accidents concerning health issues have not (yet) occurred in a way as to threaten the trust which consumers invest in the expert system every time they use the tap.

Recently this water expert system has been confronted with new challenges. The system has been put under pressure because, on the one hand, there has been a continuing increase in the demand for high-quality drinking water and, on the other hand, the sources of drinking water - i.e. surface water and ground water - are becoming increasingly polluted by industry and agriculture. These challenges have led to an intensification of the environmental policy programme in the field of drinking water. Policy-makers have reinforced their efforts, often in close cooperation with representatives of the expert system, to lower pollution loads and water consumption quantities by enforcing a variety of measures and policy instruments. They launched large-scale extension programmes to the public, encouraging them to economize on drinking water and actively promoted and enforced the introduction of end-of-pipe as well as preventive technical measures in industries to lower water pollution (cf. several contributions in Mol, Spaargaren and Klapwijk, 1991; Dieleman et al., 1991). They also very successfully employed the economic instrument of effluent charges to lower industrial water pollution (Bressers, 1988) and announced measures to reduce the size of livestock in order to put pressure on Dutch farmers who are the greatest polluters of ground-water resources (Department for the Environment, 1989). Drinking water supply agencies have become a major interest group in enforcing environmental legislation and in setting high-quality standards. This approach can be characterized as a more or less 'normal' pattern of behaviour to be expected from official state organizations which are confronted with environmental and natural resource problems. Until now this strategy has by and large been successful in reducing surface water pollution by industries and households. However, in order to secure the guaranteed supply of safe drinking water in the long run, water policy agencies recognize the need to move further toward preventive measures against industrial and agricultural polluters. Unless the further deterioration of drinking water resources is halted, the future treatment of water in purification plants will become too costly. In sum, the pressures put on the water expert system induce measures of environmental reform that propel social change in the direction of what we have identified as a process of ecological modernization (Spaargaren and Mol, 1992).

In the meanwhile, however, a number of citizens' groups is increasingly worried about the water quality provided by the official water supply organization, and several consumer strategies have arisen to cope with the perceived threat. There is a growing consumption of 'natural water', bought in (plastic) bottles or 'tetra-packs' at supermarkets, which replace the water supplied by the official agencies for drinking and cooking purposes[4]. Natural food stores already sell water from Norwegian fjords to be used as drinking water, and right at

this moment commercial firms are investigating the possibility of introducing a system of decentralized purification equipment on a large scale - using the technique of osmose processing of normal drinking water - to be employed in supermarkets[5]. There is also a growing market for biologically-active coal filters, to be attached to the water tap at home. An investigation by the Dutch Association of Drinking Water Corporations (VEWIN) in 1988 showed that over 150,000 people had decided to stop drinking normal tap water and had switched to alternatives (Velema, Boer and Verheul, 1989). All these initiatives are, of course, driven by a market push: the privatization of drinking water purification is (potentially) big business. Although as yet very limited in scale, these initiatives have caused some concern among official drinking water supply agencies. They fear that, for technical reasons, more health risk are introduced by the use of these privatized purification systems than by not using them[6]. Although they see no 'rational' grounds for the expressed anxieties, supply agencies still might fear that the changing risk perception of this limited group of consumers regarding officially supplied drinking water may generate growing anxiety among the public at large, thereby putting the present expert system under enormous pressure. The trust consumers vested in the system for so many years could run the risk of being eroded, thus threatening the basic functioning of the system.

What will be the future destiny of the Dutch water supply system that was built up over more than a century? Do we run the risk of a partial collapse of a system which experts regard as a very solid, efficient and trustworthy organization? Will the system give way under the mutual influence of citizens' growing anxieties, publicly announced doubts of experts to guarantee safe drinking water and capitalist enterprises cashing in on civic anxiety? Or will the system be able to withstand these pressures and safeguard or, if necessary, regain the trust of the citizenry by the proper functioning of the system? It goes without saying that a successful strategy of pollution prevention in the context of ecological modernization of agricultural and industrial production would considerably contribute to the survival of this expert system.

3. Ecological Modernization and Institutional Reform

One of the objections raised against the eco-alarmism of the early seventies was directed at the negative perspective on action to be taken that is contained in a policy of 'averting the apocalypse'. The late eighties have witnessed a worldwide broadening of environmental awareness, partly as a result of the positive scope for action that was opened up by the Brundtland report and the key concept that was made the focal point of the environmental debate by this report - sustainable development. However, it would be wrong to reduce the differences between the first and the second major upsurge of environmental awareness to a difference between pessimism and optimism or between a negative or positive scope for

action. To take such a view would be to ignore the institutional changes that have taken place in the past decades, which have lent a new status to the environmental question. As this change in the social context is highly relevant to the debate on the risk-society, we shall briefly outline these changes and show how environmental interests have been gradually shifting from a peripheral position to the centre of the institutional (re)organization of modern society[7].

By nature, the dominant environmental ideology in the early seventies was to a large extent a 'counter-ideology'[8]. The character of the environmental discourse in that period cannot be detached from its social context, the social relations of that period. The social context of the early seventies was that of a society in which the interests of the environment played a peripheral role, if any. The environmental movement was more or less relegated to the position of a counter-movement, partly because the environment was seen as something 'external' to social reproduction. This position outside or at the margins of the establishment was shared, paradoxically enough, by the 'established' members of the Club of Rome who vented their alarmist messages upon the world community as if they were ex-cathedra pronouncements.

In the aftermath of the first major wave of environmental awareness, environmental issues gained a relatively high and firm position on the political and socio-cultural agenda in the course of the seventies, at least in the Western industrialized part of the world. This process of institutionalizing environmental interests has been commented upon quite extensively by social scientists, mainly on the basis of theories developed in political science (Downs, Barach and Barantz, Hisschemöller). However, it was to be well into the eighties before the environment was recognized by business circles as a separate and relevant factor. The essential difference between the first and the second environmental wave is that the second major upsurge of environmental concern brought an end to the conception of the environment as an external factor with regard to the institutional organization of production and consumption. Thus, environmental interests became institutionalized within the economic sphere, a process which has become a prime object of study for the theory of ecological modernization which was first developed by Joseph Huber (1982, 1985, 1991) and extended by others (Jänicke, 1988; Simonis, 1989; Spaargaren and Mol, 1992; Weale, 1993). Ecological modernization is used as a theoretical concept for analyzing the transformation of central institutions of modern society within the boundaries of modernity, in order to solve the ecological crisis.

Huber's proposition concerning an ecological switchover, a transition of industrial society to an ecologically rational organization of production and consumption, is based on the theory of a changing relationship between economy and ecology. The economization of ecology, by using economic mechanisms such as eco-taxes, valuation of natural resources and economic stimuli for ecological production and consumption, among others, leads to an ecologization of the economy, which has far-reaching effects on the organization of production and consumption, and consequently on the institutional organization of modern society. This transi-

tion, this ecological switchover, is in Huber's view both highly dependent on, and facilitated by, modern technology. Modern technology makes it possible for an ecological switchover to take place which marks the end of a period of unspecific economic growth and this will result in nothing less than an ecological reconstruction of modern society's institutional organization. Huber emphasizes that this process of reconstruction has nothing to do with a destruction or dismantlement of the institutions of modern society. Instead, it is a process of progressive modernization of, and within, modern society: 'all the roads that take us out of the environmental crisis are roads that lead us further into modern society' (Huber, 1982).

Elsewhere we have suggested an interpretation of this process in which environmental interests have gained independence from political and ideological interests, on the one hand (the first environmental wave), and from economic interests, on the other (second environmental wave), in terms of the development of an autonomous ecological sphere, possessing its own *specific domain and rationality* vis-à-vis the political, cultural and economic spheres (Spaargaren and Mol, 1991). This process of growing independence for the ecological sphere is illustrated in Figure 1. Needless to say, the spheres indicated in Figure 1 should not be interpreted as distinct areas in society that can be indicated empirically, but rather as an analytical distinction. The distinction in different spheres points at the necessity and possibility to look at contemporary institutions and social practices from a specifically, ecological point of view. To say that the environment has become a central factor in social reproduction means nothing more or less than a plea to study the extent to which ecological rational action has become 'anchored' c.q. institutionalized into the central social institutions of modernity. The main aim is to analyze to what extent specific sets of rules and resources are articulated in the context of an ecological (more) rational organization of (re)production processes[9].

With regard to economic interests and aims, the environment can no longer be seen as a matter of partial interest or as an external precondition, but it has been afforded its own momentum. It is this process of transition towards the emergence of an independent ecological sphere that has been described by many authors as the turning of the tide, the transition towards a phase of an ecological modernization of modern society.

By making conceptual space for a (relatively) autonomous ecological sphere, the environment is brought into the centre of sociological theory, and we think environmental sociology will benefit from this conceptual enrichment. The consequences are far-reaching and cannot be discussed extensively in this paper, but one remark should be made to avoid misunderstandings. By putting the ecological sphere (analytically) on a par with the economic, political and cultural spheres, the position of an ecological rationale becomes equal to that of the economic rationale, among others. It does not, however, mean that the ecological rationale is considered to be part of the ultimate and dominant rationale, a view put forward by Dryzek (1987) and others.

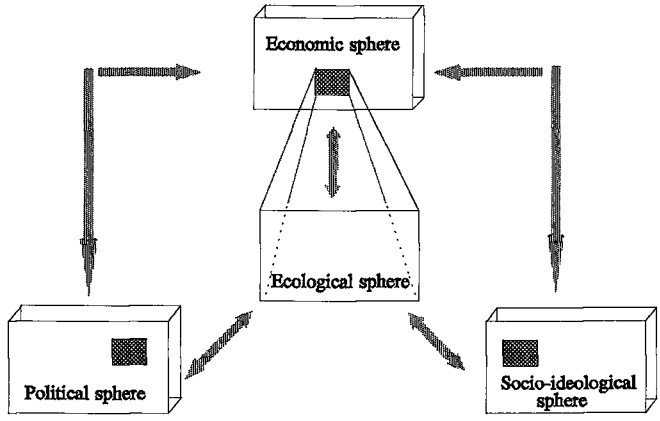

Figure 1: Growing Independence of the Ecological Sphere

We can conclude by stating that the transition from the negative scope for action of the 'politics of survival' to the positive perspective of 'sustainable development' has not been an isolated, autonomous vicissitude of culture, but is buttressed by the institutional changes that have made the (interest of the) environment a central factor in social reproduction.

4. Ulrich Beck on Ecological Risks and Reflexive Modernity

With the publication of *Risikogesellschaft* (1986), the German sociologist Ulrich Beck appears to break radically with the idea of a switchover that would put the solution to environmental problems within the reach of modernity. Behind the formal similarities that can be shown to exist in the analyses of Huber and Beck, there are major differences in their respective evaluations of the present-day processes of social change.

Let us first take a look at the formal similarities. Beck, like Huber, points to major transformations of the institutional web of modernity. Like Huber, he causally connects this institutional transformation to the rising significance of environmental issues within modern society. Finally, both authors seem to be in agreement as far as the time of the transition is concerned. The end of the period of economic construction (Huber), dominated by the logic

of the distribution of material wealth (Beck), can be located at the end of the seventies. As Beck writes:

> "In the (German) Federal Republic we have been standing at the beginning of this transformation - that is my thesis - since no later than the seventies.... We are *not yet* living in the risk-society, but we are *no longer* living in the distribution conflicts of the societies of scarcity" (Beck, 1986: 27)[10].

From this point on, however, all similarities cease to exist. In almost every other aspect, Ulrich Beck's transition from 'simple modernity' to 'reflexive modernity', or from industrial society into the risk-society, seems to stand diametrically opposed to the theory of ecological modernization. Whereas the ecological modernization approach emphasizes the important contribution of modern technology in bringing about an ecological switchover, Beck takes a very sceptical and even negative stand regarding the possible contribution of science and technology to mastering ecological problems. In addition, Beck portrays the risk-society as an apocalyptic future, a society organized around the negative process of distributing ecological risks. With regard to the aspects mentioned, Beck's diagnosis and evaluation of recent social changes in modern society provoked by ecological problems runs counter to the theory of ecological modernization. This, of course, raises the question of how these different perspectives have come about and whether they will have to continue to exist at loggerheads with each other.

Before we can make a start in trying to answer these questions, it is necessary to summarize the main topics in Beck's portrayal of the risk-society. A general introduction to his portrayal in the first sub-section is followed by three sub-sections covering the themes which are the most relevant for our discussion: the role of science and technology (4.2); anxiety in the risk-society (4.3), and of course the concept of environment used by Beck (4.4). We end up by summarizing the topics we regard as the main contributions made by the author to the discussion on the environment and modernity (4.5).

4.1 Modernity and the Transition to the Risk-Society

Beck characterizes his work as an 'empirically oriented projective social theory' (Beck, 1986: 13) designed to clarify the meaning of the concepts of post or late modernity. In his opinion, the concept of 'reflexive modernity' is more appropriate for grasping the meaning of the processes of social change referred to. In analyzing and clarifying the change from simple modernization towards reflexive modernization, Beck focuses on two processes of change which, in his opinion, are of prime importance: the process of individualization and the ascendence of the risk-society. Both themes are developed in separate sections of his work, with very few links being drawn between them. The concept of individualization is developed mainly against the backdrop of the transformations of major institutions of modern society and discussed in relation to the changing class structure, family structure, schooling, etc.[11].

The sections on the risk-society are, of course, the ones of prime importance to environmental sociologists and for that reason we shall concentrate on this part of Beck's work.

Of key importance in Beck's analysis of the risk-society is the idea that, in the aftermath of the Chernobyl catastrophe, an 'anthropological shock' arose, causing the majority of the population of Western industrialized societies to change their perception of technological developments (Beck, 1987). Whilst the objective material needs of most people in Western society have been fulfilled, the risks and potential of humanity's self-destruction have increased enormously. This has resulted in the traditional distributional conflicts and problems becoming less important[12], while problems and conflicts regarding the production, definition and distribution of risks became more important. In industrial societies the central question was the legitimate (unequal) distribution of socially produced wealth. In the context of the emerging risk-society, the problematic consequences of the technological-economic development of Western society have become the principal foci of concern. The 'positive' logic of the distribution of wealth tends to be overshadowed by the 'negative' logic of the distribution of risks. Of course, some overlap does exist between the distribution of wealth and the distribution of risks because of the opportunities the rich have to minimize their exposure to risks (by private technological measures, by moving to safer areas and by purchasing more expensive health food) and because of their greater access to information on risks facilitated by advanced education[13]. On the international scale, in particular, there is a structural affinity between extreme poverty and extreme risks: 'Especially on an international scale it is valid to say: material emergency and blindness regarding risk go together' (Beck, 1986: 55)[14].

Though recognizing the existing zones of overlap, the principal argument expounded by Beck is that with the intensification and globalization of risks, the possibilities to compensate for, or escape from, risks are diminishing and even disappearing with the emergence of the risk-society. The risks resulting from the modernization process cut through the existing boundaries within the social order and break down the borders that exist between individuals, groups and countries. In that sense one can say that 'Hunger is hierarchical, smog is democratic' (Beck, 1986: 48)[15]. Nobody can escape from the risk profile of modern society: 'In the end, moving away helps as little as eating muesli' (ibid.: 97)[16]. The risk-society means the end of 'the other' as a social category.

4.2 The Role of Science and Technology

During the transition of the 'simple modernization' phase to 'reflexive modernization', those institutions which form the foundations of modernity become subject of discussion. In his treatment of the risk-society, science and technology are projected as the single most important and, at the same time, most problematic foundations. In the phase of 'simple modernization', science and technology formed the key which fitted the door to material prosperity, and

by alleviating material needs science and technology derived their social legitimation. This legitimation comes under pressure at the end of the period of simple modernization, firstly because the worst material needs have been alleviated (the so-called 'Fahrstuhleffekt'), and secondly because science and technology themselves have contributed significantly to the creation of modernization risks. In the transition to the reflexive modernity, science and technology appear to be semi-modern institutions which ultimately demystify themselves. This calls for further discussion.

In the context of the risk-society, science and technology appear to be semi-modern institutions because they employ old, obsolete ideas when answering new questions. This persistent use of old ideas and the persistent orientation towards material production has led to science and technology themselves becoming a significant part of the problem. Beck uses the methods of risk analyses accepted in environmental policy to illustrate the negative role of science. Science has evolved from a taboo breaker into a guardian and constructor of taboos because it confronts socio-political problems and conflicts of the risk-society with a (immission and quality) standards setting logic, with scientifically based risk analyses which do not answer the new questions. Worse still, by withdrawing into the framework of standard setting logic, science functions like a washing machine, as a symbolic detoxicator, as a sedative to suppress the worst fears. This social role is maintained even when the standard setting rationality proves inadequate for this task. Beck refers in this context to the technical-scientific deficiencies in the methodology for environmental standards[17] and to the unavoidable normative elements contained in technical and scientific analyses respectively. It is not the existence of both factors which is a problem, but rather the fact that they are labelled as internal scientific matters. Beck emphasizes that, in its efforts to keep methods pure, science in fact contributes to wide-reaching pollution.

The social role of science comes under pressure during the transition to the reflexive modernization phase as a result of both internal and external factors. The internal critique as developed by sociologists and philosophers of science regarding the problematic position of 'positivist' (natural) science[18] is supplemented by an external, social critique of science with regard to its (not) dealing with risks. In the end, the institution which brought about the disenchantment of traditional belief systems, science, is disenchanted itself: 'The disenchantment influences the category which disenchants and in that way changes the conditions of disenchantment' (ibid.: 256)[19]. Science must, within the context of reflexive modernity, search for a different relationship with politics, the public and/or publicity. The model of undisclosed doubt, coupled to a relationship with society characterized by a self-assured authority, is no longer sufficient.

We have discussed Beck's treatment of the role of science and technology in some depth, because in our opinion his critical evaluation of the social role of science and technology forms one of the essential points, if not the very core of his entire analysis of the risk-society. It is noticeable that what is true to a certain degree of his entire work applies even

more to his analysis of science and technology: the relationship between the negative diagnosis and the offered alternatives is poor and sometimes strained. To conclude this subsection we will comment briefly on both the negative diagnosis and the lack of alternatives.

Beck's direct coupling between the social role of science in the simple modernization phase, on the one hand, and the internal organization and character of science and technology, on the other, makes it very difficult to imagine a different role for science. Beck's criticism of science closely resembles the so-called counter-productivity theories which seek the cause of all (environmental) problems in the nature of science and technology instead of, for example, in the social relationships in which they are developed and applied. If the social role of (natural) science[20] is described in terms of a large washing machine, one all too easily forgets that in many cases the germ of social resistance to risks and environmental pollution was sown within the self-same science, that the 'modern' environmental movement derives its most powerful force from scientific argument and/or counter-expertise and that science and technology play a key role in the changeover to cleaner production and consumption. If, with reference to this side of empirical reality, the social role of science is related to the political context in which knowledge is developed and applied, then it follows that a different avenue is investigated for alternatives. Where Beck's proposals lead in the direction of a different internal organization and method of science (inter-disciplinary, different relationship for scientific and social rationality, etc.), we are still faced with the open question as to the extent to which these internal changes are necessary for science and technology to contribute positively to mastering the environmental problems.

The one-sided emphasis Beck places on the negative social role of science and technology in handling risks means that there is a danger that, as an interpreter of his work, one may miss the stimulating, refreshing insights encapsulated in his work regarding the altered role of science and technology. Science and technology play - as Beck shows - a crucial role in the social organization of the perception of risks in the reflexive modernity phase as well. With science itself becoming reflective and with the changes in the relationships between science and society, a host of problems arise which can no longer be solved using models from the period of simple modernization. One of the problems to which Beck rightly pays much attention to is the relationship between science and the risk perception of lay actors. A problem that deserves separate attention.

4.3 Risk Perception and Anxiety

The anthropological shock caused by the disaster at Chernobyl was not only due to the fact that disasters considered by experts to fall into the category of 'low probability' could actually happen and indeed have 'high consequences'. The shock was also due to the experience, as sudden as it was intense, shared by large groups of the population, that they proved to be totally dependent on experts for an assessment of the situation. Radiation being something

invisible that does not cause itching and does not smell, lay actors had no use for the instrument that plays such an important part in organizing their perception and experience of risks: sensory perception. Whereas waste matter usually smells and smog irritates the eyes and bronchi, the lay actor has no means of detecting radiation, dioxins in mother's milk, the depletion of the ozone layer or the greenhouse effect. Thus, there is a significant category of risks and environmental problems for which the population have no sensory warning system. In Beck's view, the anthropological shock was primarily due to the growing awareness of the fact that 'none were so blind to the dangers as those who continued to trust their eyes' (ibid.). It is this expropriation of the senses that has caused by persons to become dependent on experts in scientific and political circles who have consequently acquired a key role as mediators in the social process of perception, experience and assessment of risks. Even everyday risk awareness, according to Beck, has become a scientific awareness.

In the era of reflexive modernity, however, science proves no longer capable of providing the security that is sought by the population to reduce their own anxieties and fears. It no longer serves as referee, convincingly distinguishing between rational and irrational fears. The transition to reflexive modernity and the attendant demystification of science implies an institutionalization of doubt. In a society in which, according to Beck, 'consciousness determines being', this institutionalization of doubt means that lay actors are burdened with constant fear and insecurity.

Finally, a separate dimension is introduced into the civilians' perception of risks where those risks are concerned that are inescapable. In a society in which newly emerged (mega)-hazards can no longer be contained within the boundaries of a class or region, a socio-psychological approach that concentrates on whether people possess a certain knowledge of risks and of private options for evading them, loses most of its relevance. Risks are always there; they are inescapable and they concern everybody as they are part of the 'risk profile of modernity'. Everybody has to eat, drink and breathe; consequently everybody is exposed to risks.

Beck's contribution as a sociologist to the debate on the changing perception and awareness of risks in the era of reflexive modernity is inspiring and convincing on all counts previously mentioned. The elements discussed by Beck are also found in Giddens' analysis of reflexive (= late) modernity, as we shall see in the next main section of this article. A specific element in Beck's analysis, however, is his equation of 'reflexive modernity' to the apocalyptic risk-society. His projective theory of society evokes an image of a society dominated and guided at all levels by fear. Once the logic of risk distribution becomes the dominant logic, anxiety becomes permanent, oppressive and omnipresent, not only at the level of individuals but also at the level of social movements and politics. We shall briefly describe Beck's portrayal of the risk-society as a society of anxiety for each of these three levels.

Risks pervade every aspect of daily life. They are conveyed as blind and invisible passengers through our daily consumption and have become inseparable from the satisfaction of

elementary needs of modern human being. Risks are involved in such routine habits as drinking tea or coffee, interior decoration, cooking food, drinking water, etc. Time and time again the latest scientific discoveries prove that the risk phantom can pop up everywhere: first your new kitchen contains formaldehyde, then (mother's) milk is found to be polluted, drinking water cannot be trusted, the list could go on and on. In a situation where risks are omnipresent and inescapable to such an extent, it becomes virtually impossible to confront them with an active, critical attitude. In this connection, Beck speaks of a return to medieval thinking in terms of fate. If people do manage to ward off fatalism, they may, for instance, become a committed member of the conservationist movement. The rapid growth of the eco-movement in Germany in the seventies is typified by Beck as the 'German angst-wonder': an outward projection of the inner fears and anxieties of a well-educated and therefore risk-conscious middle class[21]. Chances that this social movement will be able to stop the risk-society are considered to be slim by Beck. He depicts the coming of a risk-society in terms of an irreversible process of degeneration that will lead to a political situation comparable to a state of emergency. The central government will appropriate power over more and more aspects of daily life: 'The risk-society tends toward a legitimate totalitarianism on the grounds of the defence against hazards' (ibid.: 106)[22]. Will there be any scope at all for politics in the context of a risk-society, a society of fear, Beck wonders. How can a social movement be both the historical subject and the vehicle for change if its principal aim is the evasion or reduction of fear and anxiety? Would not fear and anxiety lead to extremism, fanaticism and irrationalism, rather than to a coordinated, rational, political movement aiming for social change?

It will be clear that we find this part of Beck's analysis, his empirical projection of the risk-society, hard to live with - both literally and figuratively. The main reason for this is that, in Beck's work, all sorts of risks of modernization and all manifestations of environmental problems are mistakenly lumped together into one apocalyptic perspective. We will therefore devote the next paragraph to the question of whether these risks and environmental problems can be classified more precisely in order to gain a clearer and more discerning view of the unavoidability of the threat and the uncontrollability of the effect.

4.4 Environment and Nature in the Context of the Risk-Society

Throughout his work, Beck uses environmental problems to substantiate his analysis of the risk-society. Proceeding from a definition of the concept of environmental pollution or risk that is as simple as it is all-embracing, he uses widely divergent problems - such as nuclear power, the poisoning of food chains by pesticides, air pollution and smog, genetic engineering, the greenhouse effect, the deterioration of the landscape, the depletion of the ozone layer and many other manifestations of environmental degradation - as illustrations for his analysis.

Although he does not pay much attention to conceptual problems, two aspects of risks are stressed throughout his work. Firstly, in the context of the risk-society risks acquire a new dimension compared with risks in earlier times. Here, Beck emphasizes both the rising level of objective environmental deterioration and the changing character of that deterioration, which has now taken on both global and irreversible dimensions. Secondly, Beck emphasizes the social character of environmental problems by attacking those theoretical schemes that reinforce the nineteenth-century opposition of 'society' to 'nature' as two separate categories or entities. Those who did not realize it until then were suddenly 'confronted' by the Chernobyl disaster with *the end of nature as 'external' to the reproduction of society*. Nature has been 'internalized', it has been pulled into society and has become an immanent feature of modern society.

Although environmental sociologists never had much use for the ahistorical definitions of nature and the environment that prevail in environmental sciences, and which also seem present in Beck's definition, Beck's description of the 'end of external nature' deals specifically with the changing relationship between society and nature in the process of transition towards reflexive modernity. We believe that behind the process of 'internalization' of nature into society lie several constituent processes for which no further conceptual distinction is offered. The changing relationship between society and nature under the (emerging) conditions of reflexive modernity pertains to at least three different sets of transformations which lead, each in their own specific way, to a different meaning of the term 'end of external nature', and which also imply different kinds of risks.

First of all, there is the 'end of nature', with nature understood as natural systems untouched by human interference. The concept of 'socialized nature' is no longer restricted to urban zones or human habitats as opposed to nature as wilderness or countryside. Due to the globalizing trend of modernity, it can also be said to apply to the end of nature behind the frontier. The idea that 'all of human life unfolds within humanly created locales' (Giddens, 1991: 166) may affect the aesthetic, moral and cultural values that are usually attached to this external nature, as McKibben (1989) has so colourfully portrayed.

Secondly, Beck refers to 'the end of nature' as made up of natural processes. In this sense, almost all relevant aspects of nature have been subjected to human intervention and control. The replacement of natural processes by 'man-programmed nature' plays a central role in Beck's analyses because of the risks that stem from the specific historical form that has been given to this programming of nature. Using science and technology as its tools, humanity harnessed nature to comply with its goal of unlimited material growth. Now that the risk-society is under way, we are confronted with the risks that are inherent to the organization of production and consumption in modern, industrial society.

A third major transformation in the relationship between society and nature occurred at the moment when the architects of nature approached their own species by becoming architects of human nature: 'The project of technical subjugation and perfection of nature must, if

carried out and thought out to greater lengths, sooner or later (and this later is now) be applied to human nature too.' (Beck, 1986: 48)[23]. Beck treats the risks involved in this project in a very intriguing way, pointing to the danger of a 'modernization of barbarism' made possible by modern genetic engineering (Beck, 1988).

The first two variants of the pulling of nature into society have preoccupied the environmental movement from its early days onward. The third variant has received far less attention until now, and we think Beck should be supported in his plea for the introduction of an environmental perspective into the discussion of the risks involved in these processes.

In our view, making a distinction between different constituent processes within the changing relationship between society and nature will enable us to draw up a more precise assessment of the changing character of risks and environmental problems in the transition to the era of reflexive modernity. The emphasis placed by Beck on a growing threat directly connected with increasing globalization applies mainly to the second category of modernization risks that has been distinguished[24]. The most pressing environmental problems have come about with the changing of worldwide ecological processes as a result of the emission of substances that spring from processes of production and consumption. We can agree with Beck that, instead of thinking in terms of a continuum running from the local to the global level, we would do better to analyze global problems, such as the depletion of the ozone layer or the greenhouse effect, as a specific category of risks. This is not only because these risks potentially affect the whole of humanity but also because the possibility of gaining control over them depends on worldwide concerted action. What remains unclear in Beck's thesis of an emerging risk-society, however, is the distinction between global risks as a specific category of risks and the objective deterioration of the environment that can and should be analyzed against the backdrop of the (changing) industrial organization of production and consumption.

The metaphor of the boomerang, as employed by Beck, can be used to illustrate the significance of the distinction to be made. When describing the boomerang effect, Beck mentions the polluters - for example, business firms - who can no longer escape the consequences of their risk-inducing course of action. According to Beck, along with Enzensberger (1974), risks have also come to affect the rich people, the chief agents of modernization. They are faced not only with dangers that threaten their own well-being, but also with processes of ecological degradation and loss of value of the very resources on which their future depends. We think that most of the empirical examples that are used to illustrate this boomerang effect involve processes which, in principle, can be analyzed without reference to the effects of globalization. One can say that Beck's description of the boomerang effect pertains to the same problems and (lack of) policies that play a key role in the discourse on sustainable development or ecological modernization. The only difference is that Beck's description of these processes is based on a different - more negative and pessimistic - evaluation of the

present-day empirical situation in the field of environmental politics within both government and business circles.

4.5 Reflexive Modernity and the Risk-Society; Concluding Comments

> "The disclosure of scientific uncertainty is the liberation of politics, law and the public sphere from their patronization by technocracy" (Beck, 1992: 109).

The criticism of science and technology is one of the core elements of Beck's analysis of the risk-society. The patronization of society by technocracy is illustrated in his work by the way (natural) scientists deal with environmental risks. They stick to technical and scientific procedures in order to defend their monopoly on the diagnosis of hazards, even when this position is challenged both from within and from 'outside' society because of the new hazards that have arisen. These are hazards which slip through all the loopholes in law, technology and politics and which promote the transition from an industrial society to a risk-society. The emerging risk-society involves a reorganization of the institutional web of modernity and can also be referred to in terms of entering a new phase of modernity, called 'reflexive modernity'.

Although the terms 'risk-society' and 'reflexive modernity' are used as substitutes by Beck, we hold that the first concept refers primarily to the author's (on the whole pessimistic) empirical projection from present-day society into the near future, while the latter concept indicates processes of social change within modern society that invite sociologists to expand the scope and content of existing theories on modernity. Our critical comments on Beck's work were mainly directed at his portrayal of the risk-society; nevertheless, we find most of his ideas on reflexive modernity and their implications for environmental sociology stimulating and worthy of further elaboration. We think that at least the following themes raised by Beck deserve further attention:

- the anxieties of lay actors generated by environmental problems or risks can be explained only partly by the psychological make-up of individuals, and should be analyzed in connection with major processes of change affecting the risk profile of modern societies;
- among the institutions involved in these processes of change, science and technology are of key importance because of their central role in the organization of the perception of environmental risks;
- a new dimension has been introduced into the perception of environmental risks by the advent of risks that seem inescapable because of their being rooted in the process of globalization.

As these topics are dealt with in some detail in Anthony Giddens' latest work, we shall now turn to his analysis in our search for conceptual enrichment and refinement.

5. Anthony Giddens on Ecological Risks and Late Modernity

Until recently, Anthony Giddens utilized a clear distinction between what can be seen as two different projects within his oeuvre: on the one hand, the development of a formal, sociological theory, a conceptual framework for analyzing modern industrial society, and on the other, the fruitful application of this formal theory to the construction of a social theory (Munters et al., 1987: 96). In his more recent work, the boundaries between both projects - between his formal theory and his social theory - have become more fluid. Among other things, this is related to the themes and concepts that were hardly addressed at all in his previous works but which move right to the centre of the analyses presented in *The Consequences of Modernity* (1990) and *Modernity and Self-Identity* (1991). The concepts of risk, anxiety and trust, the role of expert systems and the character of radicalized modernity are analyzed not only to make them fit within his overall conceptual framework, but they are used at the same time to highlight the pressing moral and social dilemmas humanity faces today.

The parallels that can be drawn between the work of Beck and Giddens are not limited to the central topics they address. Similar to Beck's risk-society theory - and also to the theory of ecological modernization - Giddens' writings on (late) modernity deal with some major transformations within modern society, situated within roughly the same time period (5.1). Both Giddens and Beck consider ecological issues (and especially their appearance as high-consequence risks) to be among the most pressing social problems that induce this transition to radicalized or high modernity. What makes Giddens' work all the more interesting for environmental sociologists, however, are not the parallels which can be drawn but rather the conceptual refinement he offers compared to Becks' analysis regarding anxiety, risk and trust and the role of expert systems (5.2). Finally, Giddens offers a more elaborate treatment of globalization and its relation with risk and trust. We hold his sociological account of globalization and the specific impact of high-consequence risks on the risk profile of (late) modernity to be of decisive importance for understanding the 'alarmistic elements' in present-day environmental discourse (5.3). Although Giddens' analysis of globalization and the impact of high-consequence risks make us aware of the apocalyptic horizon of modernity, we do not think this part of the analysis should necessarily be fused with his diagnosis of late modernity as a Juggernaut-society (5.4).

5.1 Late Modernity as a Risk-Society

Modern societies differ from pre-modern ones in their extreme dynamism. The pace, scope and profundity of social change make this world a 'runaway world' (1991: 16). The dynamism of modern society is explained by Giddens (1990: 16-45; 1991: 14-21) as deriving from (i) the separation of time and space, (ii) the disembedding of social relations made possible by it, and (iii) the reflexive ordering and reordering of social relations. Social

relations are 'lifted out' of their local contexts and rearranged across (world)wide time-space distances. A high level of time-space distanciation is made possible by means of two types of 'disembedding mechanisms': symbolic tokens and expert systems. Expert systems obtain an all pervasive scope in modern societies. They intrude in the daily life of all modern citizens who drive cars, visit dentists and use tap-water. For their proper functioning, expert systems depend on trust invested in them by lay actors. In this way, trust is connected to time-space distanciation in an essential way. The reflexivity of modernity refers to the use of knowledge in the organization and transformation of social life, to the fact that knowledge is always susceptible to chronic revision in the light of new information[25]. Only now, in the late twentieth century, are we beginning to realize the puzzling nature of this reflexivity of modern institutions. Modernity, Giddens says, 'is a post-traditional order but not one in which the sureties of tradition and habit have been replaced by the certitude of rational knowledge' (1991: 2-3). The idea of providential reason[26], stemming from Enlightenment thought, turns out to be misconceived. Providential outlooks are characteristic of the first phase of modernity, a phase Beck refers to as simple modernization. In the present phase of late or high modernity we become aware of the fact that the idea of the 'certainty of knowledge' have been undermined, even within the natural sciences. The disenchantment of science gives everyday life a puzzling character, doubt becoming a permanent feature of social life. In circumstances of uncertainty and multiple choice, risk becomes a basic category. In that sense, living in late modernity means living in a risk-society. The concept of the risk-society is taken by Giddens to refer not only to the changing risk profile of modernity but also to the alteration of the very nature of everyday life: 'living in a risk-society means living with a calculative attitude to the open possibilities of action, positive and negative, with which, as individuals and globally, we are confronted in a continuous way in our contemporary social existence' (1991: 28).

5.2 Risk and Trust in Everyday Life under Late Modernity

Lay actors are knowledgeable and capable agents in the sense that in order to pursue their everyday life, they must know a lot about the circumstances of their actions. Lay actors skilfully apply this knowledge in the reproduction of day-to-day life. In this sense, the reflexive monitoring of actions is a permanent feature of social life. Human beings must be regarded as knowledgeable agents even when it is true that their knowledge is always limited and to a large extent not discursively available[27].

In analyzing late modernity, Giddens has substantially extended his interpretation of the knowledgeable agent by examining the impact of abstract systems intruding in everyday life, the changing relations between lay knowledge and expert knowledge involved and the expropriating effect of abstract systems. With the intrusion of abstract systems in daily life, the 'awareness of risk seeps into the actions of almost everyone' (ibid.: 112). The analysis of

strategic conduct, studying the strategies of control employed by agents to pursue everyday life now takes the form of studying the way human agents - with a calculative attitude to the open possibilities of action - select possible options from the universe of events, using risk assessment to make sense of the future as 'a territory of counterfactual possibility'.

Thinking in terms of risks is a way to stabilize outcomes, a mode of colonizing the future. But it also has its unsettling aspects, which are connected by Giddens to the changing risk profile of modernity. Thinking in terms of risks is puzzling for the agent because he or she knows that, although life-styles differ with regard to the risk packages they incorporate[28], no single life-style can be completely protected from the risk profile of modernity. This heightened awareness of risks among large segments of the population, together with the knowledge of risks *as risks*, are the major elements of the 'subjective side' of the risk profile of modernity. The 'objective side' pertains to definite categories of risks, among which the following are the most important for environmental sociology: (i) risks stemming from socialized nature, and (ii) risks stemming from globalization. How then are agents able to go on with everyday life under (known) circumstances of risks? Elaborating on his concept of the 'basic security system', Giddens postulates that every agent possesses a 'protective cocoon' which protects him or her against threatening events which can cause severe anxiety. The basic security system implies a 'balance of risk and trust' and is anchored in practical consciousness. Within the routines of daily life, potentially threatening events are 'bracketed out' by the natural attitude of day-to-day life. Whenever we see a serious car accident or are confronted with a catastrophe like Chernobyl, these routines are interrupted. These confrontations with dangers are described by Giddens as 'fateful moments' which threaten the protective cocoon of agents because 'the business as usual that is so important to that cocoon, is inevitably broken through (ibid.: 114). As fateful moments occur, expert knowledge is usually brought in to provide information which agents can use in their risk assessment of the situation.

Most of the examples Beck uses to illustrate the emerging risk-society can be described in terms of fateful moments stemming from the confrontation of lay actors with environmental risks. In some way, the 'anthropological shock' following the Chernobyl disaster can be seen as a fateful moment writ large: rising anxiety, awareness of modernity as a risk-society, awareness of the expropriation of the senses and the loss of power vis-à-vis expert systems. By making them fit within an (extended) sociological account of human action, Giddens not only offers a more detailed picture of these situations but he also provides the conceptual tools to analyze the 'countervailing power' that agents possess and develop when anthropological shocks occur. 'Everyday skill and knowledgeability stands in dialectical control to the expropriating effects of abstract systems .....'. Deskilling is met with reskilling, processes of expropriation lead to processes of reappropriation and loss of power can induce processes of re-empowerment. However, Giddens' analysis of the dialectic of control in the context of the risk-society has a different emphasis compared to his earlier elaboration of this concept

against the backdrop of generalized power relations. The all pervasive scope of abstract systems, intruding in everyone's everyday life, means the agent's loss of power, but not in the sense of a transfer of power to specific individuals or groups. Existing forms of control are undermined not primarily by the transfer of power but by a lack of (reliable) information. Although in principle expert knowledge is accessible to everyone, if they have time and money to acquire it, in practice most of us can become experts in only one or two areas of the expert world. This is why, according to Giddens, expert systems are 'opaque to the majority' of the population. The knowledgeability of the agent is 'bounded' by the inherent lack of information in the context of a society in which expert knowledge reigns. Because 'the transfer of power to abstract systems as a phenomenon underlies the emergence of high-consequence risks', the all pervasive influence of abstract systems has a dark side to it, as will be shown in the next sub-section.

5.3 High-Consequence Risks and the Risk Profile of (Late) Modernity

> "Long-term, irreversible environmental damage of a serious kind might already have occurred, perhaps involving phenomena of which we are as yet unaware" (Giddens, 1990: 173).

Everyday life in developed societies is not inherently more risky than it used to be, Giddens says. Dangers threatening the life of large segments of the population in nineteenth-century Europe are contained by expert systems like the water-expert system we described before. On the other hand, however, new dangers have arisen, such as, for example, food contamination, modern traffic, and so on. Analyzing the available facts on life expectancies in Western industrialized countries, the 'risk-inducing elements seem substantially to outweigh the new array of risks' (Giddens, 1991: 116). The 'objective' side of the risk profile of modern society has changed in the sense that certain categories of risk have disappeared and other categories are added to it. Although not (yet) visible in their effect on the figures regarding the life expectancies of the population, there is one new category of risks that has changed the (subjective side of) modernity's risk profile in a decisive way: high-consequence risks rooted in the process of globalization. High-consequence risks are risks which are remote from control by individual agents, while at the same time threatening the lives of millions of people and even humanity as a whole.

Because high-consequence risks, unlike most of the old and new health risks, are remote from control not only by individuals but also by organizations and states, they have a distinctive impact on the generalized risk climate of modernity. They induce specific ways of coping with risks by lay actors, make fluid the borders between rational and irrational anxieties (is it irrational to constantly worry about a nuclear armed conflict or an ecocatastrophe?) and are unsettling for everyone because 'no one can escape'. The unsettling aspects of high-consequence risks pertain not only to the danger itself, but also to the fact that we

cannot make any reliable assessment of the risks involved. According to Giddens, in the case of high-consequence risk, risk-assessment (as a crucial instrument for our colonizing of the future) is an inherently risky affair.

High-consequence risks are the dark side of modernity and this darkness stems to a considerable extent from the perceived lack of control of environmental problems which are rooted in the overall process of globalization. The quotation heading this sub-section pertains to global warming and ozone-layer depletion as the exemplary case of high-consequence risks. Ecological issues are regarded by Giddens as main contributors to the apocalyptic character of (late) modernity. They strengthen the feeling that living in late modernity is like riding a juggernaut[29]. Environmental problems figure in Giddens' account of modernity mainly as illustrations of the runaway character of modernity. Although his analysis contributes to an understanding of the apocalyptic horizon of environmental reform, it seems at the same time to underestimate the possible strategies to regain control with regard to the environmental segments of modernity's risk profile. We think that strategies designed to repair the design faults of expert systems that are related to socialized nature are underexposed because of the strong emphasis in Giddens' recent works on two elements of processes. First, although the author conceptually makes room for countervailing tendencies, the main emphasis is on the expropriating effects of abstract systems which, becoming extended to a global scale, produce intrinsically erratic situations and events. Ecological high-consequence risks are said to be based on the transfer of power to expert systems which become 'self-referential systems of knowledge and power'. While underscoring the importance of this transfer of power to expert systems, Giddens - at least in his work on late modernity - hardly pays any attention to the way these expert systems themselves are involved in the general relations of power within modern society. When it comes to strategies to retain control of the environmental consequences of modernity, we think these power relations play the more decisive role. Second, Giddens' analysis of late modernity focuses primarily on the dialectical relation between the personal and the planetary, highlighting the impact of high-consequence risks as global problems on the reflexive process of identity formation. The loss of power of the agent vis-à-vis abstract systems in the case of high-consequence risks leads to a 'sense of being caught up in massive waves of global transformation' (Giddens, 1990: 184). When someone feels deprived of social mastery in circumstances of serious threats, this can result in a kind of 'survivor mentality', according to Giddens. Survival thinking is indeed very prominent within the environmental discourse and has always been connected to the global dimension of the environmental crisis and its high-consequence risk character.

As we shall argue in the final section of this article, survivalism and other adaptive reactions to the environmental aspects of the risk profile of modernity obtain an overall pessimistic ring to them when restricted only to a small segment of the risk profile, high-consequence risks, and if elaborated primarily on one level of analysis, the dialectic of the global and the personal.

5.4 The Juggernaut Society and the Post-Modern Order

Interwoven with his formal theory directed at constructing a conceptual framework for analyzing modernity, Giddens (1990) also develops what we regard as the equivalent of Beck's projective social theory. Giddens labels them 'realistic utopian models'. Realistic utopian models should come to meet two main prerequisites. First, they should provide us with possible futures of modern society. Secondly, these future-oriented models should be connected to immanent trends of development, and should therefore be realistic. A connection has to be made between current institutional developments and projected futures.

Giddens provides us with two future-oriented projections, both directly linked with his conceptual elaborations on the development of high modernity. A first rather negative projection of the future of the juggernaut society is characterized by the collapse of economic growth mechanisms, growth of totalitarian power, nuclear conflict or large-scale warfare and ecological decay or disaster. The apocalyptic character of high-consequence risks is extrapolated to the future and seems to be in line with Beck's risk-society. The second, more positive, realistic utopian model of the post-modern order is typified as a post-scarcity system, global coordination and a system of planetary care in line with Lovelock's Gaia hypothesis being the main institutional changes.

Underlining the importance for (environmental) sociologists to engage in projective social theories under conditions of reflexive modernity, we think, however, that the conceptual differentiation in definitions of environmental problems allows us to exceed the positive-negative dichotomy often found in environmentally based future-oriented projections of modern society.

6. Environmental Sociology and Reflexive Modernity

Double hermeneutics is a well-known phenomenon in the social sciences and one of the major properties which distinguish social from natural sciences (Sayer, 1984; Giddens, 1984). In the social sciences, the object investigated (a social practice) is influenced and altered by the results of the investigation, for instance, through the changing knowledge of agents. This means that 'reality' can never be known as in the natural sciences. The reflexivity of modernity is the extrapolation of the double hermeneutics to the level of modern society and system reproduction. Most aspects of social activity and material relations with nature are constantly examined and reformed in the light of incoming information about those very practices. Modernity is constituted in and through reflexively applied knowledge, but we will never be sure that the knowledge will not be revised.

Under conditions of reflexive modernity, social science 'colonizes the future' in one way or the other by reconstructing institutions and social practices. 'Anticipations of the future

become part of the present, thereby rebounding upon how the future actually develops' (Giddens, 1990: 177-8). The changing interaction of social sciences with the future under conditions of reflexive modernity necessitates the supplementation of formal and conceptual sociological theories with future-oriented projective social theories of the type that Ulrich Beck and Antony Giddens have been working upon. Reflexive modernity requires sociologists to engage in the 'opening of windows upon the future' by designing projections of - and thus creating - future societies. As Giddens emphasized, these 'realistic utopian models' should be connected with current institutional developments and based on formal sociological theories.

As described in this paper, both Beck and Giddens have developed projective realistic utopian models for modern Western society in its confrontation with environmental problems. When dealing with the environmental crisis, they make apocalyptic forecasts of the risk-society (Beck) or the juggernaut-society (Giddens), which are not very uncommon in the present-day discourse on environment and modernity. Although we acknowledge the value of both authors' analyses of the position of environmental questions in the change-over from simple modernity to reflexive modernity, the eco-alarmist connotations of their empirically based future-oriented projections and the *overall* pessimistic outlook on the possibilities of controlling and managing environmental problems using modern institutions at first sight seem to run counter to the perspective of environmental reform we have discussed in our earlier work on ecological modernization (Spaargaren and Mol, 1992). Throughout this chapter, we have investigated these apocalyptic future-oriented projections and the more encompassing theories on reflexive modernity in which they are embedded. To conclude our argumentation, we try to assess the relevant scope of the apocalyptic horizon of environmental reform. Thereby we follow a two-step argument by first making a distinction between high-consequence risks and other dimensions of environmental risks, and secondly by evaluating the relationship between high-consequence risks and the eco-apocalyptic world-views.

Giddens relates the most threatening aspects of the future to a specific sector of the environment-society relationship, the globalized high-consequence risks. In Giddens' view, persistent existential anxieties in large segments of modern society, difficulties to gain control over and to manage environmental deterioration, and the limited perspective for successful scientific/technological interventions, are primarily connected with globalizing tendencies, which threaten to affect the whole of humanity. Ecological modernization is related to different aspects of society-environment relations. Expressed in the language of reflexive modernity theories, ecological modernization theory is a programme belonging to the 'simple modernization' phase, making unproblematic use of science and technology in controlling environmental problems. Ecological modernization is also different from reflexive modernity theory because it does not so much emphasize the relation between the global and the individual, but rather concentrates on strategies of environmental reform on the meso-level of national governments, environmental movements, enterprises and labour organizations. Giddens, in

his works on late modernity, pays far more attention to (awareness of) the loss of control by individuals confronted with ecological high-consequence risks resulting from processes of globalization than to elaborating on the possibilities of 'controlling' other sectors of environmental problems at the meso-level using, among others, science and technology. We would like to emphasize, however, that problems such as ground and surface water pollution, chemical and household waste, regional problems like acid rain and the diffuse pollution by high-technology agriculture, are quite different from high-consequence risks and for that reason should not be connected directly to eco-alarmist prospects emphasizing the impossibility, under the conditions of (late) modernity, to control these problems by making use of modern institutions such as science and technology and state intervention. These problems are, of course, connected in some way or another with the globalizing world system, as Beck has indicated, but not in such a way that they - in principle and in practice - cannot be controlled to a large extent by following an ecological modernization approach.

This brings us to the second part of the argument: the relationship between the eco-alarmist world-views and high-consequence risks. We think that by their very nature ecological high-consequence risks raise problems of technical and political control, awareness of existential anxiety, and so on, which cannot be dealt with within the framework of the ecological modernization theory. But we hesitate to connect the specific elements of the risk profile of modernity to characterizing late modern societies as risk-societies, in which the distribution of ecological risks is the dominant logic of social reproduction.

We think that environmental sociologists should be cautious about linking apocalyptic, juggernaut-like social theories about the future to the overall scope of environmental problems - not only for conceptual reasons but for political reasons as well. In answering the question why it matters which 'windows upon the future' are opened, which realistic utopian models are developed, we would like to return to the example about safe drinking water from the tap, discussed in the second section. We would argue that a permanent solution to the problem of securing safe drinking water from the tap can be realized by the current expert system along the lines of ecological modernization. Under conditions of reflexive modernity, however, the development of this social problem and the kind of solutions introduced depend, besides other things, on the evolution of the environmental discourse. Stringent environmental management in terms of ecological modernization can be undermined by end-of-pipe measures which could result from the anxiety-induced conduct of lay actors towards modern expert systems providing (safe) drinking water from the tap. Under conditions of reflexive modernity the social sciences are engaged in the constitution of social life and proposals of possible futures by their very nature give shape to the colonizing of the future. While the social and environmental impact of the first Club of Rome report in 1972 was undoubtedly positive in spite of it, or maybe even because of, its ominous and negative outlook on the future, the present-day propagation of eco-apocalyptic futures might have dramatically different repercussions for environmental management.

There is not only a certain tension between risk-society (or rather: high-consequence risk) theory and the theory of ecological modernization with regard to their outlooks on controlling future environmental problems within the boundaries of modernity; the former is also in some ways the counterpart or the supplement of the latter. High-consequence risk theory contributes a supplement to the ecological modernization theory when it comes to:

- introducing individual lay actors and lay perceptions into a theory of the environment and modernity, and linking them to developments in the risk profile of modernity;
- pointing to different aspects of the relationship between environment and society, and stressing the inadequacy of ecological modernization theory in dealing with globalizing high-consequence risks;
- analyzing the reflexive character of science and technology under conditions of late modernity.

It is because of these differences that we think a confrontation of both formal sociological theories of the relation between environment and modernity will be fruitful.

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Notes

1) Misa and Wastawy Elbaz (1991) give evidence of this rapid explosion of risk studies by providing an extensive bibliography on technological risk and society.

2) In addition, Dietz et al. identify a small fourth 'geographic' approach, which seems a kind of rest category lacking a clear disciplinary basis, for it also includes, for instance, risk communication

studies. This categorisation is, of course, debatable. Other authors follow other classifications of the growing stream of social science literature on risks (for example, Wildavsky and Dake, 1990; Douglas, 1986; Brown, 1989).

3) We have been dealing with the conceptualisation of the relation between the environment and modernity in earlier work (Spaargaren, 1987; Spaargaren and Mol, 1992). This contribution should be seen as an extension of our earlier work.

4) In 1992, 1 per cent of Dutch drinking water used for drinking and cooking was provided by water from bottles and tetra-packs. The amount is still increasing.

5) A system which already exists on a small scale in some natural food stores.

6) These health problems are mainly related to bad management of decentralised purification systems.

7) This argument regarding the difference between the first and second wave of environmental concern has also been elaborated upon extensively by Buttel and colleagues in several publications (for example, Buttel et al., 1990; Buttel and Taylor, 1992).

8) The environmental ideology that was dominant in the early seventies has been characterised by many authors as a de-modernisation ideology (among others, Tellegen, 1983; Pepper, 1984). In opposition to the model of modern society, the environmental movement put forward the model of a small-scale society, and techno-centrism - the ideology of progress rooted in the Age of Reason - was countered by eco-centrism, rooted in Romanticism.

9) Other concepts are developed which conceptualise the same process of gaining independence from the ecological sphere. The concept of Environmental Utilisation Space, as first introduced by the Dutch economist Opschoor (1987, 1992), also analyzes the contemporary and the necessary institutional changes from an ecological point of view. The concept points at the limited quota of natural resources available - given time and space - directing processes of social production and reproduction.

10) "In der Bundesrepublik stehen wir - das ist meine These - spätestens seit den siebziger Jahren am Beginn dieses Übergangs.... Wir leben *noch nicht* in einer Risikogesellschaft, aber auch *nicht mehr nur* in Verteilungskonflikten der Mangelgesellschaften".

11) The relationship between the two major developments in present-day Western society is emphasized by Beck to a limited extend only. Feelings of anxiety and insecurity are more likely to increase through the mutual influence of mechanisms of individualization via the breakdown of the traditional institution of social integration, such as the family and class, and the growing dependence of individuals on modern institutions such as science and technology.

12) Although the differences between socio-economic groups (or classes) in Western society have remained largely intact, the distribution of wealth has lost its relevance as the main topic for social struggle and organisation due to the so-called *Fahrstuhleffekt*: the overall increase of the level of welfare in Western society.

13) Others, of course, have also pointed to the relation between the distribution of wealth and the distribution of risks (for example, Schnaiberg et al., 1986).

14) "Im internationalen Masstab gilt besonders nachdrücklich: Materielles Elend und Risikoblindheid fallen zusammen".

15) "Not is hiërarchisch, Smog is demokratisch".

16) "Wegreisen hilft letzlich ebensowenig wie Müsli essen".

17) The technical criticism of standards can be summarised in four key points: 1. the incomplete range of the method (not all substances can ever be covered by standards because there are too many of them); 2. the so-called cumulative effects and interactive effects are missed out; 3. disputable assumptions are

used when translating the results of experiments on animals to effects on human beings; 4. social factors which influence people's sensitivity (life-style effects) are omitted.

18) See, for instance, the increasing number of studies on the social construction of science and technology (for example, Latour, 1987; Bijker, Hughes and Pinch, 1987; Callon, Law and Rip, 1986).

19) "Die Entzauberung greift auf den Entzauberer über und verändert damit die Bedingungen der Entzauberung".

20) In his analysis of the problematic position of science and technology under the conditions of the risk society, Beck discusses the (natural) sciences almost exclusively. The social sciences are given short shrift, in contrast, for example, to the central position they are afforded in Giddens' work.

21) One of the few times that a connection is established between his work on individualisation and that on the risk society is when Beck seeks to explain this angst-wonder. It is especially the middle classes that are most individualized, or 'institutionally homeless', and possess most knowledge of the risks. This correlation, incidentally, between the insecurity felt by the middle classes as a result of swift social changes, on the one hand, and the rise of the environmental movement, on the other, was already discussed explicitly by Hofstee as early as 1972.

22) "Die Risikogesellschaft enthält eine Tendenz zu einem legitimen Totalitarismus der Gefahrenabwehr".

23) "Das Projekt der technischen Unterwerfung und Perfektionierung der Natur, weitergedacht und durchgeführt, muss früher oder später (und dieses Später sind wir) auch auf die Menschennatur übergreifen".

24) In fact, Beck pays only limited attention to the first category.

25) Although Giddens is primarily concerned with the reflexivity of modernity through social science knowledge, he also holds it to be valid for the natural sciences, Beck's main object: "...the reflexivity of modernity actually undermines the certainty of knowledge, even in the core domains of natural science. Science depends..... on the methodological principle of doubt". (Giddens, 1991: 21).

26) Providential reason is defined by Giddens as "the idea that increased secular understanding of the nature of things intrinsically leads to a safer and more rewarding existence for human beings". (Giddens, 1991: 28).

27) This sketch of the knowledgeability of agents will easily be recognized by those who are familiar with Giddens' work, as one of the main threads running through his work from 'New Rules of Sociological Method' (1976) to 'The Constitution of Society' (1984).

28) These differences of course correspond to the class structure of modern societies.

29) Giddens sees the juggernaut of high modernity as "a runaway engine of enormous power which, collectively as human beings, we can drive to some extend but which also threatens to rush out of our control and which could rent itself asunder" (Giddens, 1990: 139).

Chapter 5
Sustainable lifestyles
Dutch' Social Science and Policy Perspectives on Promoting 'Sustainable' Behaviour

Gert Spaargaren

1. Introduction

At the world conference on the environment in Rio de Janeiro in 1992 the need to change existing patterns of consumption was a prominent theme for discussion. Representatives of non-governmental organizations, both from the North and the South, suggested that without a substantial alteration of 'Western' consumption patterns and lifestyles the industrialized countries' environmental policies would not only lose their credibility, but also fail to achieve their self-imposed objectives, for instance with regard to climatic changes.

The second Dutch National Environmental Policy Plan (Nationaal Milieubeleidsplan, NMP-2), published in 1993, gives a full account of the need for a policy which is aimed specifically at influencing consumption patterns and lifestyles. In fact, influencing consumer behaviour is now one of the most central new priorities of the government's environmental policy in comparison with the first national environmental plan dating from 1989[1]. It largely remains unclear, however, how consumers can be either tempted or coerced into adopting alternative behaviour patterns. The policy plan does not even begin to outline a new approach to the so called 'consumer target group': the unspecified call for a 'broad social debate on (more) sustainable consumption patterns' can be readily interpreted as an expression of the government's inability to develop relevant and manageable models to influence consumer behaviour. Seen in this context it is easy to understand why the signatories of the NMP-2[2] included an explicit plea for a more active contribution from the social sciences in their discussion of this policy issue. After all, it is the social sciences which supply the expertise needed to study human behaviour and to change lifestyles and consumption patterns.

But do the environmental social sciences have anything to offer the government when it comes to influencing environmental behaviour? Have over two decades of theory building and research into the 'determinants of environmental behaviour' yielded results which can capture people's imagination and steer policy-making? Or does the question of how to approach citizen-consumers[3] in an imaginative and effective way embarrass environmental scientists as well? In view of the current state of the debate in the environmental social sciences, it would seem appropriate to take a modest stance. Not only is there still little clarity and considerable disagreement with regard to the 'instruments' - the means by which lifestyles and consumption patterns can be changed - even the debate about the *content* of a

more sustainable lifestyle in environmental science and policy is far from being settled. To some, a more sustainable lifestyle would constitute a radical break from our current Western lifestyle, characterized by squandering and over-consumption. Sustainable lifestyles are described using key words such as sobriety, frugality and austerity, which implicitly or explicitly refer to lifestyles characteristic of earlier periods of technological and social development. To us, the quest for a more sustainable lifestyle does not automatically imply looking back on past history, be it romanticized or not. We intend to analyze more sustainable consumption patterns and lifestyles in the context of a theory which centres on the ecological modernization of the current production and consumption systems[4].

The remarks made above serve to briefly outline the social and political relevance of the themes which will be discussed in more detail in this chapter. Section 2 will argue that the government's inability to chart a clear course in its approach to the citizen-consumer target group cannot be explained solely in terms of the admittedly special characteristics of this target group. The lack of a clear perspective is partly due to a one-sided orientation on *institutional* actors and processes which is typical of Dutch environmental policy. A policy which attempts to influence the lifestyles and consumption patterns of citizen-consumers should transcend and adjust existing frames of reference in order to develop a 'micro-level' approach[5] aimed at the citizen-consumers themselves, next to and in connection with the existing macro-level oriented approach.

Several theoretical models have been developed in the environmental social sciences to study the behaviour of actors at the micro-level. These models not only differ according to the discipline they originated from (economics, social psychology, sociology), but also - as a consequence - in their diverging views on the exact nature of 'environmental' behaviour, on the relationship between micro-level behaviour and macro-level structures and on the scope for action on the part of the government to influence environmental behaviour. In section 3 we will scan the horizon of the environmental social sciences for an approach in which 'environmental' behaviour is related in a theoretically sound way to institutional developments in society. An exploration which will start with the attitude-behaviour model and lead us via game theory and figuration sociology to a 'lifestyle model' which - constructed from the formal building-blocks of the structuration theory - owes its policy-relevance to the substantive theory of the ecological modernization of production and consumption patterns (section 4).

Lifestyles and consumption patterns are usually mentioned in one breath, almost as if they were synonymous. After all, through consumption, by 'purchasing goods and services', people give expression to their lifestyles, their personal identity and their social relationships with others. It is impossible for a theory which focuses on (more) sustainable lifestyles to avoid the issue of 'consumption' as a personal and social phenomenon. The epilogue will deal briefly with these problems as they are defined by anthropologists and sociologists in

the framework of a 'sociology of consumption'. A systematic account and discussion of the different theories about consumption and consumer behaviour constitutes the subject matter of the next chapter.

2. Micro and Macro-Level Actors in Dutch Environmental Policy

The 'target group approach' has slowly but surely gained a highly central place in Dutch environmental policy. The government divides society into a number of more or less homogeneous target groups (agriculture, refineries, metal industries, etc.) and then enters into negotiations with (organizations representing) these target groups so as to elaborate the general environmental policy and develop specific measures geared to their particular situations. This philosophy has led to the conclusion of over 50 so-called covenants between the government and organized branches of industry during the past ten years.

The most recent national policy plan (NMP-2) draws a distinction between 'easily accessible' and 'not easily accessible' target groups for policy. The first category comprises (sections of) industry, agriculture, the refineries, the building industry and the large chain stores. Consumers, (parts of) the small-scale retail trade and several sectors from the small and medium-sized business community are assigned to the second category. Target groups are termed 'not easily accessible' if they are "inaccessible by means of the current policy instruments" and if the current, government-set "frameworks (objectives) show insufficient signs of behaviour change". Finally, the 'not easily accessible' target groups "lack an insight into the environmental damage resulting from their activities" (VROM, 1993, p.12).

The 'solution' to the problem of gaining access to these difficult target groups is already implied in the diagnosis of the problem. A personal environmental test should help citizen-consumers realize the burden which their actions place on the environment. Information must be provided highlighting alternative action frameworks for consumers. Also, social and intermediary organizations should be involved more in approaching the consumer target group (VROM, 1993, p.153).

It is not difficult to establish that the chosen approach to the consumer target group can be derived from the existing frameworks for environmental policy. Frameworks which are mainly geared towards changing the organization of *production* and which see the *institutional* actors involved in the production organization as the addressees/discussion partners for the government's environmental policy. Cooperation between the government and these institutional actors in discussions and decision-making with regard to the increasingly specialized policy area of the environment relies heavily on a rapidly growing group of environmental professionals within the target groups and the organizations they represent. Employed by the companies, trade advisory organizations or umbrella interest groups they devote all

or most of their time to environmental politics. These environmental professionals are accustomed to discussing objectives in terms of pollution prevention, desiccation or over-fertilization; they think nothing of developing systems for environmental care, product care or comprehensive chain management; they are familiar with the jargon of a cycle-closing, leakage losses and life cycle analyses; they work with ecological indices and environmental profiles in the context of the available environmental utilization-space. Using sociological jargon, they are the expert systems in which the rules and resources for an ecologically more rational organization of production and consumption are (re)produced. They are the agents of the processes of the 'ecologization of the economy' and the concomitant 'economization of the ecology'. Their work has gradually become more embedded in the existing institutional economic and political frameworks and is guided in a general sense by objectives or political programmes to realize an ecological modernization of the production and consumption systems (Spaargaren and Mol, 1992).

The problems which arise if such a macro-level and production-oriented approach is unthinkingly applied to the citizen-consumer target group are all too obvious. This heterogeneous target group has (virtually) no specialized institutions to look after their environmental interests. Consumers are not a group that one can conclude covenants with, for the simple reason that this target group does not participate in the neo-corporatist consultation circuits that have emerged in the field of environmental policy. Moreover, the consumer target group is not familiar with the highly specialized, differentiated jargon developed by the environmental professionals. Many of the concepts and instruments developed in the context of industrial environmental management do not seem to apply to the everyday world of the citizen-consumer. It is highly unlikely, therefore, that a consumer-oriented approach can be generated within the existing frameworks of policy. And as long as no route becomes visible for a policy renewal, policy makers will tend to hold on to the existing, theoretically weak 'common sense' approach to the consumer.

The best way to attract the consumer's attention, the government appears to think, is by addressing environmental issues in practical terms and providing simple dos and don'ts: separate your different types of waste, save water and energy, buy eco-labelled products and leave the car at home (more often). But it is not only the government which has a low opinion of the consumer's capacity for independent thought. Both the environmental movement and commercial companies have already published numerous guides and books for environmentally friendly housekeeping, living, cooking and dressing. Such books are all characterized by a highly 'instrumental', domineering approach to the citizen-consumer and do little more than offer recipes for selecting the most durable or 'green' options with regard to a host of partial, fragmented activities.

It may well be this instrumental approach to the citizen-consumers which leads some observers (Van Hengel, 1993; Schnaiberg, 1980) to suggest that it would be better to just

forget about treating the citizen-consumers as a separate target group in environmental policy. In their view, a more serious, well considered approach to citizen-consumers is not only a complicated affair, but a superfluous one at that, since the potential contribution of citizen-consumers to the ecological modernization is slight in comparison with the contribution that can be expected from institutional actors. Consumer power is a 'derivate' of the power held by producers and government, since it is these two who, to a large extent, condition the citizen-consumers' selection processes. Sustainable lifestyles and consumption patterns will appear 'as if automatically' once the sphere of production and, consequently, the supply of goods and services have been reorganized on a more sustainable basis.

In our view, however, to do away completely with a specific approach aimed at the citizen-consumers would be as unsatisfactory a solution as the recourse to single-minded schemes of thought and recipes for action. A sustainable society, characterized by sustainable lifestyles and consumption patterns cannot be developed 'behind the backs' of the citizens. The importance of their behaviour is not limited to the situations in which they, as consumers of goods and services, constitute a sometimes vital 'link' in the different chains or cycles of production and consumption. The behaviour of citizen-consumers is of prime importance since institutional developments at the macro-level of society cannot and should not be detached from the developments at the 'micro' level of people's everyday actions. People's actions take place in widely diverse contexts of everyday life, the organizational principles of which can be reduced only partly, if at all, to the type of rationality which prevails in the sphere of production. A fully fledged environmental policy should therefore adopt an active approach to the citizen-consumer target group, employing 'objectives and instruments' that are geared to the situations in which the citizen-consumers live, to their knowledge and responsibilities, their capacities and limitations. If the existing macro-level oriented policies are to be complemented by a policy trajectory aiming specifically at micro-level actors, then policymakers require a better understanding of the factors and processes which influence citizen-consumer behaviour at the micro-level. It is these factors and processes at the micro-level which will be highlighted in the next section, devoted to an examination of the 'behaviour models' which have been produced by the social sciences and which are referred to in the debate on how to influence environmental behaviour.

3. Models for Studying and Influencing 'Environmental' Behaviour

From the very start of the debate on the environment, the environmental social sciences have achieved a great deal in performing their job, i.e. in reading out the barometer of public support for 'green' politics. Be it at the request of policymakers or independently, a substantial effort was made in terms of manpower and means to keep a close watch on the priority

given to green policies on the citizens' personal agendas, on whether citizens are prepared to make sacrifices or take action for the sake of the environment, on their willingness to pay for a cleaner environment and on the value - in terms of money or otherwise - which they attach to cleaner air or a more natural landscape. Such research, which can be grouped under the heading of 'measuring environmental awareness' largely determines the image of the environmental social sciences in the eyes of the public at large.

Although simply measuring the potential or actual social support for (more stringent) environmental policies is not without political significance[9], the aims of social-environmental research have of course always been more ambitious. Research has been carried out, for instance, to find out whether environmental awareness differs between the various population categories (young-old; rich-poor; men-women; religious-non-religious; left-wing - right-wing) and whether a plausible explanation for such differences could be found.

For a long period of time, however, the prime pretension or ambition was to uncover the relationship that was assumed to exist between environmental *awareness* and environmental *behaviour*. Working on the hypothesis that (the degree of) environmental awareness would be one of the main determinants of actual environmental behaviour, it was hoped that a careful analysis of the degree of environmental awareness in different population categories would provide the key to the promotion of (more) environmentally friendly behaviour among broad segments of the Dutch population. Since this so-called attitude-behaviour paradigm has played such a dominant role in the environmental research tradition in the social sciences, we will deal rather extensively with the behaviour model, the conceptual framework which guided theory building and research in this tradition (section 3.1). During the more than 20 years that the behaviour model was used, this essentially socio-psychological approach to environmental behaviour met with increasingly profound criticism. One of the most serious objections that can be raised against the attitude-behaviour paradigm (section 3.2) is undoubtedly its inability to provide a satisfactory description of the relationship between behaviour/action and structure, or between processes at the micro- and the macro-level. This has led researchers in the environmental social sciences to start looking at the micro-macro problem from other points of view, building on the attitude-behaviour paradigm to a greater or lesser extent. We believe that the assumption that environmental goods can more or less be equalled to collective goods largely explains why the game theory approach to the micro-macro problem has gained such widespread acceptance in the environmental social sciences. However, the application of social dilemma models to the issue of the environment does not provide the sought-for understanding of the relationship between the behaviour of individuals as 'rational actors' on the one hand and the collective 'results' of their individual selection processes on the other (section 3.3), either. It seems as though environmental research in the social sciences has only very recently begun to benefit from the promising leads for a solution to the micro-macro issue that have sprung from sociology. Both Norbert Elias' figuration sociology and the structuration theories developed by Anthony Giddens and Pierre

Bourdieu owe their popularity to a large extent to the way in which these theories seek to bridge the 'gap' between action and structure. Within the tradition of the figuration sociology in Holland, initial attempts have been made to establish a link between environmental behaviour and the long-term civilization process that is believed to take place in modern society. I will argue, however, that Elias' theory of a long-term civilization process cannot be used as a model from which one can directly, as it were, derive strategies for promoting environmental behaviour. An analysis of environmentally friendly behaviour as the result of an elite-led 'civilization offensive' draws objections on both theoretical and empirical-factual grounds (section 3.4). However, we will start at the beginning as we intended to do, which is the attitude-behaviour paradigm.

3.1 The Attitude-Behaviour Paradigm

In view of its roots in social psychology and more particularly in view of its similarities to the so-called Fishbein-Ajzen behaviour model, the approach that has until very recently been dominant in environmental research within the social sciences is known as the attitude-behaviour paradigm. We are justified in using the term 'paradigm' as we are not simply dealing with a theory or a conceptual model which serves as a basis for empirical research. Theory building and research are in turn embedded in a more comprehensive philosophy with regard to the promotion of environmental behaviour and the relationship between the government and the citizen-consumers.

A characteristic feature of the attitude-behaviour paradigm is the fact that it is a 'mature' paradigm, in the sense that many of the objections that have been raised against the model have been removed by solutions which do not transcend the boundaries of the paradigm as such. This explains the well-nigh inexhaustible variety of conceptual schemes that can be found in the literature, all of which amount to little else than further expansions, elaborations or refinements of a fundamental schema. We have elected to begin our discussion with this basic schema in the form as it was advocated by the Dutch environmental scientist Van der Meer in his doctoral thesis. This schema has been outlined in figure 1.

Naturally, the centre of the model is occupied by the relationship between attitude and behaviour. In this model, (environmental) behaviour is conceived of as (the result of) a conscious, rational process of selection on the part of the actor. This process of decision making or selection is determined both by the individual's assessment of the consequences of different behaviour options in terms of personal 'rewards' and by the individual's assessment of the wishes and demands stemming from the social environment. These two aspects of the individual's weighing-up process are indicated as the motivational and the normative (social norm-related) components of attitude, respectively.

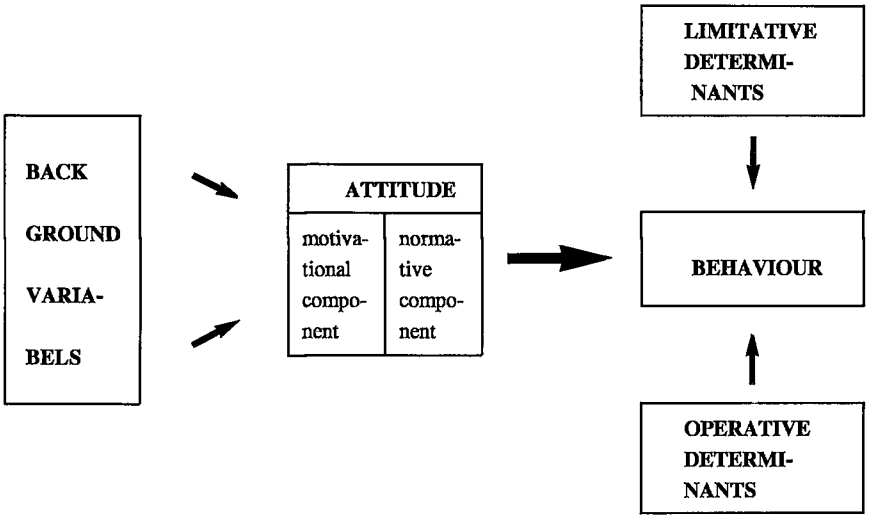

Figure 1: The Attitude-Behaviour Model
(Based on: Van der Meer, 1981)

'Measuring' an individual's attitude with regard to, for instance, buying either a bottle or a carton of milk enables us to find out something about the individual's behaviour intentions and this will in turn tell us something about the probability of her actually buying the bottle or the carton. This basic schema has been applied in Dutch environmental research for the past fifteen years, not only with regard to packaging, but also with regard to such issues as household waste (separated or not separated), means of transportation (bicycle or car), washing powder (phosphate-free or with phosphates) and (the willingness to accept) power stations (nuclear energy or windmills). The knowledge obtained about the function of different attitude components was supposed to provide leads for strategies aimed at influencing environmental behaviour. Thus, for instance, the government can use public campaigns and extension-programmes as a means of influencing not only the individual's factual knowledge, but also his/her assessment schema with regard to a certain attitude object.[7]

3.2 Criticism of the Attitude-Behaviour Paradigm

The attitude-behaviour paradigm has been criticized, partly by researchers who used to work, or are indeed still working, within the paradigm themselves. We will draw on this 'internal' criticism and highlight three subjects in our discussion. We will subsequently discuss the

emphasis on single-issue behaviour, the relationship between consciousness and action and the interplay between action and structure. The section will be concluded with a discussion of consequences of this criticism for the position of this paradigm within the environmental social sciences.

3.2.1 The Emphasis on Single-Issue Behaviour

Wolsink was right in noting that the predictive value of the attitude-behaviour model depends highly on the level at which attitudes and behaviour are measured. The predictive value was found to be greatest in the case of so-called single-issue behaviour and corresponding attitudes. Individual, single-issue behaviour proved impossible to explain or predict from more comprehensive concepts such as 'general environmental awareness' or 'environmentally friendly attitude'. "Environmental awareness is far too general an attitude, which is not linked to practical behaviour. It follows that the scope for influencing such behaviour differs greatly with respect to specific strings of action" (Wolsink, 1990, p.70).

This focus on single-issue (environmental) behaviour is indeed an important characteristic of the attitude-behaviour paradigm. The emphasis on separate, individual 'behaviour strings' flows from, and in turn contributes to, the predominantly *empirical* nature of this paradigm. Scholars have piled research upon research into singular aspects of environmental behaviour, which were 'explained' in terms of the attitudes (which proved to be) relevant (only) for this specific action-string at this specific level. The aspiration to explain or predict environmental behaviour by means of the more embracing theoretical concept of an environmentally (un)-friendly attitude was soon lost: "In practice, and all the more so in applied research, the bottom line is that attitudes are simply defined in operational terms. In other words: attitudes are made out to be that which can be measured by means of the research strategies employed" (Wolsink, 1990, p.66).

This predominantly empirical nature of the research tradition can be explained partly by referring to the academic (socio-psychological) backgrounds of the researchers involved. A second, but no less important, explanation is the desire among researchers to make their research relevant for policy and the specific meaning that was given to the concept of policy-relevant research. In the initial stages of Dutch environmental politics, as we saw in section 2, there was no well-formulated, differentiated approach to the citizen-consumer target group. What the government wanted was information about the determinants that were relevant to 'the' environmental behaviour of 'the' Dutch population. The object was to find keys that could influence the behaviour of the target group at large.

For researchers, the desire to come up with results that could instantly be applied in policy meant - seen against this background - that they had to lift the complex phenomenon of 'environmental behaviour' out of its context, as it were, and divide it into singular, 'operationalizable' acts. Researchers were expected to tell policymakers which factors were decisive

in the population's preference for phosphate-free detergents and other isolated 'items' that were relevant for environmental policy at that time. In research into such single-issue and policy-relevant behaviour items, individuals were confronted with the definitions of 'environmentally friendly' and 'environmentally unfriendly' behaviour as promulgated by the researchers and policymakers. These definitions were deemed universally applicable, in the sense that they were assumed to measure 'the same thing' for each individual and for each social context in which this sort of behaviour exists.

With hindsight, it is hardly surprising that researchers eventually had to conclude that this approach to environmental behaviour yielded little in terms of applicable results (Nelissen et al., 1987; Ester and Leroy, 1986). They made a plea for a different approach, one which on the one hand would differentiate between different target groups and/or contexts of environmental behaviour and on the other hand would shift the focus to 'composite' behaviour, sets of 'clustered' (environmental) activities. It was advocated that research into the choice of phosphate-free detergent on the part of individual A or B should be replaced by research into the 'purchasing behaviour' of certain types of households. Research into the individual's choice of means of transport (car or bicycle) should be replaced by research into people's mobility-behaviour in different transport contexts such as commuter traffic, social and recreational traffic.

3.2.2 Environmental Consciousness and Environmental Behaviour

Besides Wolsink, Van der Meer too made a great effort to find out why, time and time again, there proved to be such a discrepancy between general environmental awareness and practical environmental behaviour. However, he did not follow Wolsink's example by looking for an explanation in methodological terms, either of a specific (relationship between different levels of measurement) or a more general nature (relationship between theory and empirical reality). In his discussion, he concentrated on the behaviour model itself, on the type of research strategy it entails. The model, in Van der Meer's view, is highly conducive to a fixation on attitude as a determinant of behaviour and thus of the conception that (environmental) behaviour primarily results from a *conscious process of selection or choice* on the part of the individual. This obscures other 'determinants' of environmental behaviour which have little or nothing to do with the individual processes of selection as outlined within the social-psychology approach. There are at least two instances in which environmental behaviour does not result from a 'conscious choice'. In the first place, people are often *unaware* of the choices they make, as they are led in their actions by everyday routines which lend their behaviour a matter-of-course character. The introduction into the model of a box which contains so-called 'operative' determinants aims to give expression to the fact that people's behaviour is often steered 'unconsciously' by habit, routine or tradition. In the second place - we are still pursuing Van der Meer's argument - one can think of many situations in which

people have *few options*, even if they are very much aware of their behaviour. After all, the 'social environment' limits the number of options that are open to the actor. To account for this limiting or constraining aspects of social structure, a square is introduced into the model which contains the 'limitative' determinants of behaviour.

We will postpone a more detailed discussion of the influence exerted by limitative determinants to the next section since they are connected to the interplay between action and structure. We will first consider the role of operative determinants - the influence of tradition and routines in shaping everyday life.

Behaviour models and theories about human action all require assumptions about the sort of knowledge people apply in their behaviour, about the degree to which such behaviour is goal-oriented and motivated, etc. In drawing up a certain model of behaviour, those elements are usually emphasized which are assumed to have the greatest explanatory power within a certain theory or school of thought. Thus, the economic theory of the 'rational actor' emphasizes the rationality (defined in economic terms) in or behind the selections which the actor makes.

Within the attitude-behaviour model the emphasis is more on the nature of the process of selection itself, on the 'state of mind' in which the process of selection takes place. People are asked about their 'attitude', their 'consciousness', their mental 'state of being' in order to find the indicators of the behaviour which they will consequently exhibit. In other words, behaviour is seen as the outcome, sum and result of intentions, reasons and motives which are to be defined and even 'measured' as the causes of such behaviour.

Van der Meer rightly notes that people do not spend all their time making choices in order to direct their behaviour according to specific, self-defined and conscious objectives. Few of us will recognize the image of an individual who is continuously and consciously considering pros and cons as an adequate portrayal of our everyday life. We 'just simply' do many things, because 'that is the way these things are done', without 'thinking too much about them'. This fact leads Van der Meer to assign the operative determinants a separate place in the attitude-behaviour model. However, the way in which this is done suggests that routines have a direct influence - bypassing the actor's knowledge and consciousness, as it were - on people's behaviour. It would then seem that behaviour is either the result of a conscious choice or else the result of routines which determine a person's behaviour 'behind her back', as it were. This solution is unsatisfactory because, even though routines do indeed play an important role in everyday life, this does not mean that we go through life like 'zombies', 'incognizant' of what goes on around us. In section 4.5 we will deal more extensively with the relationship between consciousness and behaviour as it is perceived of in Giddens' structuration theory. This discussion will also serve to underpin the two points of criticism which lead us to the conclusion that the attitude-behaviour model is not a theory which adequately describes the relationship between consciousness and behaviour. In the first place, it is

inadequate because it deals with reasons, intentions and motives of the actor 'in isolation' from the behaviour itself. Secondly, it falls short because it limits itself to one form of 'consciousness' of actors, namely their discursive consciousness. In doing so, it ignores practical consciousness, which plays such an important role in the routinization of everyday life.

3.2.3 (Environmental) Behaviour and Social Structure

In his thesis, Van der Meer rightly criticizes the attitude-behaviour model for its one-sided orientation on micro-factors and processes. He adjusts the model, as we have just seen, by introducing the influence of macro-factors in the form of limitative determinants which can 'directly' determine behaviour effects, bypassing the influence of attitude.

We believe that here, too, Van der Meer's criticism does not go far enough and his solution is unsatisfactory. In his basic schema, the influence of the macro-structure on micro-processes is conceptualized along two different lines.

In the first place the 'social environment' is included in the analysis to visualize the fact that, when choosing between different behaviour alternatives, actors take into account the approval or disapproval they are likely to meet in each case: the normative component of the attitude. People estimate whether a certain line of action will be judged either positively or negatively by other actors, by the wider social environment. It is important to note here that this conception implies the assumption of a one-way causal relationship between structure and action: the (normative) structure, after all, is regarded as 'given'. Social norms with regard to car use, waste disposal etc are accepted as being 'fixed'. The actor can only determine the degree to which he or she wishes to comply with the norms of the wider social environment by either 'conforming' to or ignoring that which is seen as desired or correct behaviour. Thus, the analysis leaves no room for the possibility that the actors themselves have a role to play in changing these normative structures.

In the second place the effect of structure on action is included in the model via the limitative determinants. Here, too, 'structure' is defined exclusively as a constraining factor. Structure 'constrains' in the sense that it rules out certain behaviour options since 'society' is organized in a certain way. An oft-cited classic example is that of an environmentally-conscious user of public transport who lives in a village without any train or bus services. This is an example, again, of a one-way causal relationship in which a structure - as such deemed unchangeable - has a determining effect on the actor's behaviour.

In the first place, it can be concluded that the concept of 'structure' is always introduced into the attitude-behaviour model as a 'constraint' on the individual's behaviour. However, it is even more important to conclude that the attempts to 'open up' the model conceptually in order to do justice to the interplay between action and structure have failed.

3.2.4 The End of a Paradigm?

This concludes our critical evaluation of the attitude-behaviour paradigm. An evaluation which concerned itself primarily with the theoretical assumptions inherent in this paradigm. In the social sciences, a paradigm is not normally 'rejected' (using either theoretical arguments or empirical evidence) as is assumed to be the case in the natural sciences. Still, if a continued absence of empirical confirmation coincides with a rising tide of criticism against the paradigm's theoretical foundations, it will sooner or later lose its power of persuasion. Having dominated the scene in social-environmental research for twenty years, the attitude-behaviour paradigm, rooted in social psychology, seems to be gradually losing ground to a 'lifestyle-social practice'-paradigm, rooted in sociology.

If this change of paradigm simply means replacing one isolated micro-approach by another, then nothing is gained. With its inability to solve the micro-macro problem, the attitude-behaviour paradigm has confirmed and reinforced the unhappy 'division of labour' which exists in the environmental social sciences, too. A division of labour between on the one hand social psychologists, who are concerned with the micro-level - the behaviour of individuals - and the philosophers and sociologists on the other hand, who are interested in the macro-level - the long-term development of society. Any new approach to environmental behaviour will also have to be judged in the light of the contribution it makes to the abolition of this division of labour. If we are to bridge the gap, then the micro-macro issue itself will have to be placed at the centre of the analysis.

There are at least three approaches which meet this criterion, in the sense that they claim that their very strength lies in their treatment of the micro-macro problem. Before introducing figuration sociology and the structuration theory, we will concentrate on the approach to the micro-macro problem which is most closely connected to the attitude-behaviour paradigm: game theory.

3.3 Environmental Behaviour and Collective Goods: the Game Theory Approach

The problems which arise when attempts are made within the attitude-behaviour paradigm to translate the outcome of micro-level processes to their consequences at the macro-level have been noted on a number of occasions. The environmental behaviour of 'the' population cannot simply be seen as equal to a social aggregate of individual processes of selection. It has become clear that changes in society cannot simply be deduced or predicted on the basis of the selection processes of separate individuals.

Within the environmental social sciences, frequent attempts have been made to overcome this discrepancy between micro-choices and macro-consequences with the help of 'dilemma models' derived from game theory. Social dilemmas present themselves in all those situations in which 'rational' behaviour on the part of the individuals leads to a sub-optimal result at

the collective level. Arguments based on game theory are particularly used to substantiate the claim that collective environmental goods will not be produced without some form of government intervention (Van Asperen, 1986).

In our discussion of game theory we will focus on two issues which are relevant to a theory on (the influencing of) environmental behaviour. It will be demonstrated, in the first place, that within this stream of thought, too, a specific, 'restricted' conception of individual social actors is employed. A conception which differs from that of the norm- and intentions-led actor who figures in the attitude-behaviour paradigm and is defined by the assumption that actors are 'rational' calculators (section 3.3.1). In the second place, the game theory approach throws a rather peculiar light on the role of the government in influencing environmental behaviour. Whilst the attitude-behaviour paradigm recommends public information and conviction as the appropriate instruments, this approach indicates coercion as prototypical of (government) strategies to influence people's behaviour (3.3.2).

3.3.1 The Rational Actor

Ever since 1968, when G. Hardin described the loss of the commons in his 'Tragedy of the Commons' as the outcome of a process or dilemma which he believed to be prototypical of the loss of the environment as a collective good, variants of his basic model have been applied to a range of environmental issues (Hardin, 1968; Ester and Leeuw, 1978; Van Asperen, 1986; Tellegen and Wolsink, 1992). Hardin has been rightly reproached for completely misinterpreting the historical situation in which the commons in England were expropriated in the 16th and 17th centuries (Cox, 1985; Achterhuis, 1986), but we will not go into that issue here. What does concern us here is the theoretical schema, the type of (game theory-inspired) explanations for the relationship between micro-level behaviour and macro-level effects which were developed by environmental scientists inspired by Hardin's article.

Social dilemma models portray the individual as a rational actor; 'rational' action is perceived as the conscious pursuit of one's individual interests, which in turn are defined in economic terms. Seen through the eyes of a philosopher or sociologist, this is of course a highly 'limited' definition of rationality. A definition which befits the situation of 'the homo economicus in an economy of scarcity' (Achterhuis, 1986, p.222). For Hardin, so write Tellegen and Wolsink, rational action is little more than economic egotism.

This is enough to put off some authors, who refuse to accept such strict, limited, 'reductionist' if you like, assumptions about human action. Environmental behaviour cannot be studied meaningfully on the basis of such a limited definition of rationality, with its concomitant logic of scarcity and its economistic models to explain the abuse of 'collective goods' or to predict (non-)participation in the creation of such collective goods. It is the very history of the commons, says Achterhuis, which shows us an alternative way of using environmental goods. A way in which they are not perceived of as 'collective goods', but as 'communal

goods' in the historically correct meaning of the word 'commons'. Knowing how to use such communal goods presupposes a sense of shared responsibility and thus requires a broader concept of rationality than the one put forward by Hardin.

If Achterhuis rejected this type of model on the grounds of its restricted assumptions with regard to the nature of human action, others have amended the model of a rationally calculating homo economicus by introducing insights from psychology. One example of this within (Dutch) environmental sociology is the analysis put forward by Ester and Leeuw (1978). Within the framework of Mancur Olson's economic theory on pressure groups, they tried to specify the conditions under which individuals will participate in realizing collective goods. According to Olson, in the case of large groups, it can be said that 'rational self-interested individuals will not act to achieve their common or group interests' (Olson, 1971, p.2). It follows that individuals will not participate in the creation of collective goods, unless such participation has certain clearly evident advantages for them, too. After all, it is inevitable in larger groups that the individual's view of his or her own contribution will be obscured by the cumulative effect of the contributions made by others. Add to this the experience that non-participants, too, will benefit from a collective good once it has come about and one will understand why actors tend to say 'after you' or try to take a 'free ride'.

According to Ester and Leeuw, the solution to the type of dilemmas which are bound to arise with environmental goods which are collective goods, is twofold. In the first place the individual's own contribution should be made visible. In the second place the forms of environmental behaviour that have been made visible should be coupled to 'selective stimuli'. Participation should be rewarded and non-participation should be punished. On the basis of research which unequivocally demonstrated the effectiveness of such a model of influencing behaviour, they advocated the punishment-reward model as the point of departure for policy aimed at influencing environmental behaviour. An important advantage of environmental policy based on such an 'incentives model' is that 'it will even motivate environmentally unaware people, who know little or nothing about ecologically sound and well-adjusted behaviour, to opt for environmentally friendly behaviour, too' (Ester and Leeuw, 1978, p.27).

3.3.2 The Government and the Commons

Hardin's article did not only become a classic in the environmental sciences because of the debate it triggered off about the motives behind people's actions. The second reason was that it combined a specific definition of the concept of the rational actor with another key issue in environmental sciences: the role of the government vis-à-vis the citizens with regard to the use of environmental goods. The solution to the dilemma of the commons put forward by Hardin was: either there will be a privatization of the common grounds or as a result there will be a need for some form of government intervention. If the consumption of environ-

mental goods is to be restrained, write Tellegen and Wolsink, practical experience shows that there are two roads that can be taken: state regulation or privatization c.q. resorting to the private ownership of collective goods. In view of the nature of many environmental goods, privatization is often impossible and, moreover, does not guarantee proper management. For this reason, "all these considerations ultimately lead in the direction of the government as the guardian of the collective interest and, consequently, as the protector of the environment" (Tellegen and Wolsink, 1992, p.90). Seen in a historical perspective, too, environmental arrangements - like any of the arrangements of the welfare state - appear to necessitate (or make desirable) centralization and collectivization on an ever-widening scale, up to the level of a world government (De Swaan, 1990).

Whether it be in a rather straightforward, non-historical fashion (Ester and Leeuw, 1978) or in a highly sophisticated historical fashion (De Swaan), every application of Olson's theory leads to the conclusion that the use of environmental goods as collective goods requires (government) coercion in order to regulate/constrain the rational actor's freedom to act. After all, "the social arrangements that produce *responsibility* are arrangements that create *coercion*, of some sort" (Hardin, p.1247, ital. GS). Without government coercion, the freedom to keep on driving cars, to pollute or to have children will bring about the end of the world. Environmental arrangements are not brought about by appealing to the conscience and responsibility of the individuals. Responsibility, that is to say action which deviates from perceived self-interest, is the result of force.

This - simplified - basic schema of the relationship between action and structure as it is seen in game theory can be criticized on two counts, both of which are connected to the non-historical character of game theory itself. In the first place the model of the rational actor assumes that people will always and everywhere behave as if they have "just completed an undergraduate course in welfare economics and games theory" (Offe, 1990, p.154). However, that which counts as 'rational' action not only varies with what a certain author assumes to be typical of human behaviour, it also varies historically, due to the emergence of new arrangements or social structures which change the context of behaviour. That which is perceived at point in time X as a legitimate form of action, i.e. a 'rational' pursuit of one's self-interest, can be perceived at point Y as an action that is neither legitimate nor rational in terms of what at that time counts as self-interest. In order to illustrate this process one could refer to long-term historical processes, as Achterhuis does, in which the 'logic of scarcity' gradually undermines the 'logic of communality' and thus produces, as it were, Hardin's rational creatures. The process can also be illustrated by referring to changes which have taken place in a much shorter time-span, even during our lifetime. Definitions of 'good entrepreneurship' or 'responsible lifestyle' are changing due to processes of institutional reform and the subsequent emergence of environmental arrangements. These new environmental arrangements reshape the conditions of behaviour for entrepreneurs and citizens and are in turn reproduced by their actions[8]. The 'rationality' of individual choices cannot be

ascertained without studying the historical social context in which such choices are made. In the second place the outcome of social dilemma processes is not historically invariable either, nor automatically equal to state-governed arrangements. Several decades of environmental politics have shown that environmental arrangements can appear in numerous hybrid forms, from collective, via quasi-collective, to private. Not all environmental roads lead to the state.

For the meantime, it seems we are justified in concluding that the game theory approach to the actor-structure problem does not offer any satisfactory solutions, either[9]. If the attitude-behaviour paradigm reduced the model of the acting individual to that of a 'homo psychologicus', the game theory approach - even when applied by sociologists - wrongly reduces the actor to a 'homo economicus'. Moreover, it can be said about both these approaches that they equate 'structure' primarily with coercion, with constraints on people's freedom to act.

The game theory approach is not the only stream of thought within the social sciences which made (the proper conceptualization of) the relationship between the micro- and the macro-level its central concern. Within sociology, both N. Elias' figuration sociology and the so-called structuration theories put forward by A. Giddens and P. Bourdieu owe much of their popularity to their dealing with the actor-structure problem in such a way that the gap between the existing micro-level and macro-level approaches within sociology can be bridged. We will first address figuration sociology and its applications in the Netherlands within the field of social-environmental research.

3.4 Figuration Sociology: Civilizing for the Environment?

The concept of civilization sums up the long-term changes in human behaviour which Elias studied in his magnum opus 'Uber den Prozess der Zivilisation' (Elias, 1982). Studying this process of civilization, Elias combined a 'sociogenetic' with a 'psychogenetic' line of approach, creating a direct link between the long-term structural developments in the societies of Western Europe on the one hand, and changing modes of individual instinct control or affect control on the other. Civilization progresses wherever and whenever people become more, and multilaterally, dependent on each other and increasingly have to 'attune' their behaviour to that of others. Over the centuries we have seen the emergence of increasingly complex forms of social organizations in which - in the terms introduced by figuration sociology - the chains of interdependence are becoming longer and more branched. Such growing interdependence requires or leads to a process of increasing self-control on the part of the individuals. One of the examples given by Elias to illustrate the differences in behaviour between simple and complex societies is that of people's traffic manners. An example which, in view of the current debate on modern traffic and new forms of 'environmental' civilization, merits a full-length quotation:

"One should think of the country roads in a simple warrior society with a barter economy, uneven, unmetalled, exposed to damage from wind and rain. With few exceptions, there is little traffic; the main danger which man here represents for other men is an attack by soldiers or thieves. When people look around them (...), they do so primarily because they must always be prepared for an armed attack, and only secondarily because they have to avoid collision.Life on the main road of this society demands a constant readiness to fight, and free play of the emotions in defence of one's life or possessions from physical attack. Traffic on the main roads of a big city in the complex society of our time demands a quite different moulding of the psychological apparatus. Here the danger of physical attack is minimal. Cars are rushing in all directions; pedestrians and cyclists are trying to thread their way through the *mêlée* of cars; policemen stand at the main crossroads to regulate the traffic with varying success.But this external control is founded on the assumption that every individual is himself regulating his behaviour with the utmost exactitude in accordance with the necessities of this network. The chief danger that people here represent for others results from someone in this bustle losing his self-control. A constant and highly differentiated regulation of one's own behaviour is needed for the individual to steer his way through traffic." (Elias, 1982, p.243-244)

This description of modern traffic comes from a sociologist who actually experienced the days when there were hardly any cars on the road, and for that reason must have been singularly aware of the fact that the self-control which modern traffic imposes on people is the outcome of a historical process. For later generations, contemporary traffic has become a matter of course, in the sense that they have grown accustomed to applying - automatically, as it were - a highly complex set of rules to a multitude of traffic situations. The rules that have been agreed upon and defined in a social process have become 'second nature', even to the extent that they are applied in the 'automatic pilot mode', as it were. Social coercion has become self-coercion.

In much the same way as the highway code has been developed and 'introjected' by people over the course of several decades, so the rules of good environmental behaviour currently being developed should be introjected in the decades to come. Social environmental coercion will have to be transposed into environmental self-coercion, in such a way that environmentally friendly behaviour becomes a matter of course. Once this process has been completed, we will have acquired an automatic pilot steering our environmental behaviour in the right direction.

Explained with the help of these examples, the concept of (environmental) civilization is a more or less neutral concept. It draws attention to the fact that a reversal of social trends, as advocated by the Dutch Committee for Long-term Environmental Policy (CLTM) among others, will eventually have to bring about profound changes in peoples' way of thinking and acting with regards to all the minutiae of everyday life (CLTM, 1990). In other words: few will object to the concept of environmental civilization if it is used to describe the long-term changes in Western culture in much the same way Elias used it to describe the development of eating habits, clothing habits and sexuality.

However, the specific use that has been made of Elias' theory within present-day (Dutch) environmental research presents two problems which require further explanation and analy-

sis[10]. In the first place there is the question of whether, and to what extent, environmental civilization is to be seen as the outcome of a planned process in which the 'exemplary' behaviour of an elite is somehow 'transferred' to other parts of the population. In the second place there is the question of content - the nature of that which can count as 'civilized behaviour' from the point of view of the environment. Current research answers the latter question by indicating that environmentally civilized behaviour equals moderation, sobriety and 'abstention from consumption'. Just as many people have given up smoking or unhealthy food they will also be able to give up driving a car. We will return to this question in more detail in the next chapter, where we will contend that the strategy of making use of status motives in encouraging environmentally friendly behaviour can equally be applied in the context of a subtler and more differentiated critique of the consumer-society. We will initially address the first question, concerning the nature of the civilization process and the role of the elite in promoting environmental civilization.

The civilization process as Elias described it should not be seen primarily as a pre-determined, rationally planned process of change, but as a partly unintended consequence of changing social power-relations. In a gradual process - intensified in the period between the 16th and 18th centuries - power was concentrated in the hands of the monarch and a centralized state bureaucracy, as a consequence of which 'courtly manners' became important as a means of distinguishing oneself as a member of a certain social class. Good manners, civilized behaviour, distinguished the nobiliary elite. In an attempt to gain social recognition, the emerging bourgeoisie started to adopt this type of behaviour, too. Although there was considerable variance in form and content between different countries (Elias gives a detailed description of the differences between France and Germany), the 17th, 18th and 19th centuries saw the emergence in Europe of an amalgam of aristocratic and bourgeois manners and these manners gradually seeped through to lower social strata climbing the social ladder.

This general idea of a social elite serving as a model for that which is considered civilized behaviour is also found in, for instance, studies about the domestication process that took place in the 1850-1950 period, when workers and their wives were taught how to manage a household, keep their house clean, etc. However, contrary to Elias' analysis of the long-term civilization process as a partly unintended consequence of changing power relationships, these studies explicitly portray civilization as something that is purposefully planned and taught. What we saw here was a civilization *offensive* aimed at the lower classes, an offensive which covered more fields than that of domesticity alone. The object of this civilization offensive was to combat 'anti-social' behaviour in the sense of alcohol abuse, immorality, ignorance, etc.

The distinction between a civilization process and a civilization offensive is not without meaning. When a neutral concept such as that of an environmental civilization is turned into an active, intentional, concept such as that of a civilization offensive, we should ask our-

selves whether the same conceptual schemas derived from Elias' studies of the role of (self)-civilizing elites can still be meaningfully applied to research into environmental behaviour. Although it is tempting to use the conceptual schemas of the civilization theory for the analysis of 'environmental' civilization, we believe prudence is called for. When it comes to civilized behaviour with regard to the environment, can it be maintained that the actions of the upper classes can serve as a model to be passed down to the lower social strata? And is the contrary equally valid - that it is uncivilized behaviour, i.e. environmental pollution, which is typical of the lower classes? Are the upper classes making an attempt to distinguish themselves in their behaviour by turning the 'distance to necessity' (Bourdieu) into a 'distance to pollution', thus accentuating environmental behaviour as an instrument of distinction? And, if so, would it not be a natural thing for this distinction process on the part of the 'rich' to go hand in hand with negative stereotyping of the environmental behaviour of the 'poor'?

These questions cannot (yet) be answered unequivocally. The reason for this is simply that research into the relationship between social class and environmental pollution is still in its infancy. The lack of systematic research on this issue[11)] may be partly to blame for the fact that analyses of the distributional effects of more sustainable patterns of consumption are as yet highly speculative in character. If R. Janssen believes that a 'society of sobriety' will benefit the lower social classes since it will bring about a societal revaluation of their sober lifestyles (born of necessity), Goudsblom suggests, entirely in line with Elias' theory, that experience with regard to eating and smoking habits justifies the contrary - he expects that abstinence is to become the new trade-mark of the elite (Janssen, 1990; Goudsblom, 1993).

As long as we cannot dispose of empirical data on the target group of citizen-consumers that is every bit as good as the information we do have about, for instance, the industry and agriculture target groups - that is to say, data about who the biggest polluters are (subdivided according to group: rich-poor; large-small and the issues concerned: pollution, depletion, damage, energy use etc.) - it is only fitting that we should be modest and unpretentious in issuing recommendations as to the way in which status motives should be employed in strategies to influence the consumer target group's environmental behaviour. Therefore, Goudsblom's advice 'not to hesitate (...) to use morally less prestigious incentives such as the status motive - even to stigmatize and criminalize environmentally harmful behaviour' (Goudsblom, 1993, p.18) seems premature to us in view of the current state of affairs in social-environmental research. Not only do we lack accurate empirical data with regard to the actual burden on the environment caused by (the lifestyles of) different citizen-consumer categories, the theoretical concepts on which such research can be based have not been sufficiently developed either. The next section will be devoted to this latter task, the development of a more detailed conceptual framework for the study of environmental behaviour.

4. In Search of a New Approach: Ecological Modernization and the Structuration Theory

In our discussion of existing perspectives on environmental behaviour we have come across a number of elements that are indispensable as parts of a theory about (influencing) environmental behaviour. The attitude-behaviour approach, for one, has pointed out the important role played by the actor's norms, values and motivations in her decisions with respect to environmental behaviour. The rational choice approach drew our attention both to the economic rationality underlying and motivating the acts of calculating actors and to the macro-effects of micro-decisions. And finally, when we discussed environmental behaviour in terms of its connection with the civilization process, we came across status motives and processes of distinction and power and the important role they play in the environmental behaviour of different social groups. These are valuable elements which ought to be included in any approach to environmental behaviour which aims to do justice to the points of criticism raised against the existing theory and research models. Criticism which, as indicated in more detail above, was levelled against research focusing on single-issue environmental behaviour, against detaching reasons and motives from actual behaviour, against poor conceptualization of the relationship between action and structure, against limited definitions of the actors' 'economic' rationality and, finally, against insufficient elaboration of the relationship between 'environmental' status and social class.

If Anthony Giddens' structuration theory is chosen here as our point of departure for developing an alternative 'behaviour model' which will in turn lead us to alternative strategies for research into environmental behaviour, this by no means implies that we consider this theory to be a panacea, a ready-to-use recipe for environmental research. The structuration theory is a so-called formal theory, a complex of interrelated concepts, which - contrary to a 'substantive' theory - does not refer directly to an empirical reality such as, for instance, the developments in Dutch environmental policy. It is a theory which does not even contain a term such as 'environmental behaviour', since it is a general, sociological action theory. It is a theory which, consequently, will have to be elaborated upon if it is to be applied meaningfully to empirical environmental research. The way in which this general sociological theory can be fruitfully applied within environmental sociology will be discussed in section 4.1, where we broaden the scope of this theory by introducing two concepts that the Dutch sociologist E.W. Hofstee identified as being the decisive concepts for environmental sociology: 'environmental destruction' and 'environmental management'. Since most of the concepts of Giddens' structuration-theory by now have become shared knowledge in the social science community, we will refrain from giving an independent 'general introduction to' the structuration theory[12]. For the purpose of our discussion we will summarize this theory in the form of a simple 'behaviour model' similar to the attitude-behaviour model (section 4.2).

On the basis of this model, three recurring themes that have run throughout our previous discussion will be further elucidated: the interplay between action and structure (4.3), the lifestyles of individual citizen-consumers (4.4) and the role of intentions, reasons and motives in the behaviour of actors (4.5).

The structuration theory being a formal theory, it lacks a normative 'Leitbild' for behavioral change in the direction of a more sustainable society. For this reason, the central concepts of this theory must be related to the theory of the ecological modernization. Only when the connection has been made with this substantive theory will it be possible to address the question of what *more sustainable* lifestyles are (4.6).

4.1 Environmental Management by Citizen-Consumers

Environmental behaviour, according to Wolsink, is not a meaningful concept in itself and we would be better off not to use it in theory building and research (Tellegen and Wolsink, 1992, p.98). This radical suggestion is inspired by the observation that an endless variety of definitions of what can be called environmentally friendly and environmentally unfriendly behaviour appear to have gained currency in environmental research. Does the Public Gardens Department employee who removes litter display environmentally friendly behaviour? Is deliberately not going on a skiing holiday a form of environmentally-friendly behaviour? Not only does the attempt to categorize environment-related behaviour prove to be a cumbersome task, the very criteria by means of which this should be done are equally problematic. Should people's behaviour be categorized as either environmentally friendly or unfriendly on the basis of the objectively measured environmental effects of their actions, or would it be better to base the division on the subjective meaning which actors attribute to their behaviour, in which case behaviour is labelled environmentally friendly if it is 'experienced' and 'rationalized' as such by the people themselves? These are all questions which complicate the task of designing an unambiguous typology of environmental behaviour to such an extent that Wolsink suggests it would be better just to forget the whole thing.

It seems to us that Wolsink is a bit too hasty in suggesting to throw out the baby with the empirically cloudy bath water. We believe the existing chaos only allows us to draw the conclusion that terms such as 'environmental behaviour' and '(more) sustainable lifestyles' are of no use unless their conceptual content is specified and clarified. Wolsink is no doubt aware of the fact that a formal theory contains formal concepts which will always be specified in a particular sense before they are applied in empirical research. Therefore, his question refers to the right to existence within general sociology of formal - trans-historical - concepts which can continue to play a key role in any type of theory building and research on the environmental issue. If Wolsink seems to shy from acknowledging the need for such new concepts, E.W. Hofstee had already defined two such concepts as early on as 1972: *environmental destruction* and *environmental management*[13]. They are the concepts which,

in his view, should constitute the key concepts and objects for study in environmental sociology as a new subdiscipline or field of application within general sociology. Environmental destruction was defined by Hofstee as: 'human (non)action leading to a change in the physical environment which has an adverse present or future effect on human well-being'. Environmental management was defined as: 'conscious human action to prevent or reduce environmental destruction and/or to remedy or compensate for the effects of environmental destruction' (Hofstee, 1972, p.1). The primary task of environmental sociology is to apply the theories and research methods on (influencing) human behaviour available within sociology to the study of environmental destruction and environment management as social phenomena.

Initially, and certainly in the early seventies, the Dutch concept of 'milieubeheer' was mainly associated with (the infrastructural planning 'branch' of) government policy. However, as Hofstee rightly claimed, there is no reason why environmental management or control should be limited to government intervention. Companies, schools and citizen-consumers 'practise' environmental management or control. We will focus on environmental management on the part of citizen-consumers here. In order to study environmental management as practised by citizen-consumers, one will ask different questions and use different methods than when one studies environmental management on the part of companies or the government.

Hofstee's definitions do nothing more (and nothing less) than make us aware of the fact that the analysis of environmental management at whatever level centres on two basic principles. In the first place environmental management refers to human action which is made a matter of consideration on the basis of (knowledge of) the effects of such action on the physical environment. In the second place, environmental management implies 'conscious' human action, in the sense that it implies action directed at realizing certain self-defined objectives. Conscious action, in Hofstee's view, stands for intentional action. We will return to our interpretation of these principles after we have introduced a formal theory which allows for a more refined analysis of environmental management on the part of citizen-consumers: the structuration theory.

4.2 Sketch of an 'Action Model' derived from the Structuration Theory

Within Giddens' structuration theory the analysis of environmental behaviour focusses principally on the (empirically infinitely variable) behavioral or *social practices* in which human agents participate. This means that the behaviour of individuals, the reasons, interests and motives that actors have, or profess to have, for behaving as they do are studied in the context of social practices situated in time and space and shared with others.

Beliefs, norms and values with respect to (environmentally friendly) action are therefore not assumed to exist in a 'social vacuum' - as they are in the socio-psychological model - but

in a context, that is to say that they are analyzed as the *rules* which 'belong to' that specific social practice shared with others. The (relative) 'power' of the actor to change the course of her action, too, is specific for a certain context, depending on the *resources* which are implied in the reproduction of social practices. Within the structuration theory, rules and resources together constitute the structures that are involved in the reproduction of social practices.

As was mentioned above, a formal theory does not indicate specific sets of social practices that researchers should focus on. This choice is left up to the (environmental) researcher in question. In view of our theme, that of (more) sustainable lifestyles and consumption patterns, we have selected some social practices that are directly related to (the consumption behaviour of) households or primary communities. The concrete social practices mentioned in figure 2 have only been included for the sake of illustration.

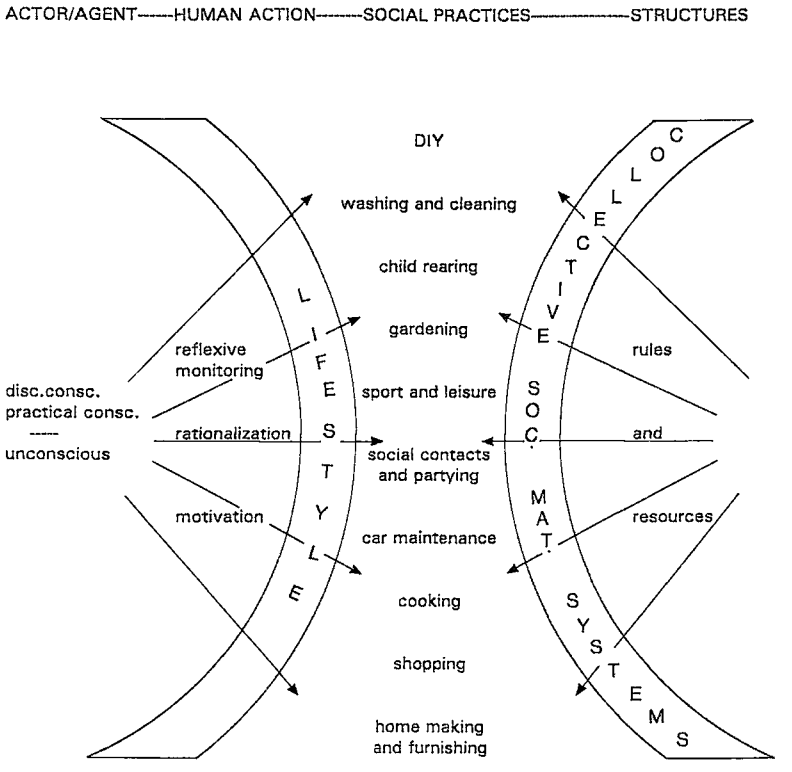

Figure 2: Social Practices within the 'Domestic Mode of Consumption'

4.3 Social Practices and the Micro-Macro Problem

Before going into the relationship between action and structure and the corresponding distinction between micro-level and macro-level processes we should introduce one of the core notions of the structuration theory, the concept of the 'duality of structure'. This concept refers to the 'dual character' of structures, i.e. the dual character of the rules and resources involved in the (re)production and transformation of social systems (sets of social practices). On the one hand actors are 'forced', as it were, in their actions to draw on and make use of existing rules and resources; in such cases, structures are 'media' in the sense that they enable a human actor to act. On the other hand these structures are in turn confirmed and reinforced, as it were, by the actors' very actions. Structures are in this sense both media and outcomes of human action.

A wide variety of examples can be used to illustrate this principle of the duality of structure. Giddens often uses the example of (speaking a) language. In our context, an example given by Van der Poel is illuminating: participation in the traffic system. "Compare a single car journey with the existence of a 'traffic system' structured by traffic regulations, road system, signposting, vehicles, etc. Every time you go for a drive, you do so in accordance with the rules and resources of the traffic system (driving characteristics of the car, stopping at red lights, keeping to the correct side of the road). However, as you make use of the structure you confirm the (continued) existence of this structure, and thus of the traffic system." (Van der Poel, 1993, p.128)

The structuration theory has deliberately banned the concepts of micro-level and macro-level from the vocabulary it uses to analyze social reality. The reason for this is that throughout the years too many connotations have become attached to these terms which might put researchers on the wrong track. Micro-processes have become associated with 'subjectivity' and 'freedom of action', whilst macro-processes are seen as 'objective', as 'structures' which restrain the freedom of action. To avoid the micro-macro terminology, the different lines of approach for research into social practices are referred to as 'institutional analysis' and 'analysis of strategic conduct', respectively. What is at issue here is, put in simple terms, the question of whether social practices are approached from the 'right' or the 'left' as shown in figure 2. In an institutional analysis of social practices the actors' knowledge and skills are 'bracketed out' for a while in order to focus on the institutions as recurrent reproduced rules and resources. In the traffic system example we would study the changes in automobiles under the influence of technological developments, changes in traffic regulations, developments in the traffic infrastructure and the adjustment and tuning of car mobility to other forms of mobility, etc. In the analysis of strategic behaviour, the focus of research is on the left-hand side of our sketch. Here, the characteristics of the interaction setting, the context of action practices is 'bracketed out', assumed to be a given point of departure for research, so as to focus on the actors' use of structures, on the knowledge they use to monitor their

actions and on the resources they can mobilize in order to do so. In terms of our traffic example one would focus on the type of car a person selects, the purposes for which she uses it after having considered alternative means of transportation, his observance of traffic regulations, his (in)dependence vis-à-vis experts in keeping his vehicle going and on the road, etc.

In the following section we will discuss a number of concepts which play a role in the analysis of strategic (environmental) conduct on the part of individuals or actors. They are concepts that are particularly likely to be used in the type of research termed micro-studies. As formal concepts, however, the duality of structure means their validity is not restricted to micro-processes. Within structuration theory, a distinction between individual behaviour and institutional behaviour (Tellegen and Wolsink, 1992, p.98) becomes untenable.

4.4 Lifestyles and the Role of Individuals

The actions performed by actors, as suggested in figure 2, 'fan out' into a large number of distinct social practices. But fanning out is not the same as falling apart or disintegrating altogether. The concept of 'lifestyle'[14] as a formal concept refers to the specific form of integration brought about by the actors. In their lifestyles, people bring about a - partial - integration of the variety of social practices which span their daily lives. Actor 'bind' their distinct (sets of) social practices into a more or less 'coherent' unity. As a descriptive concept, Mommaas (1993, p.160) notes, 'lifestyle' as seen in this context has become synonymous with the classic concept of 'behaviour pattern'. However, the lifestyle concept does not only refer to the formal process of integration of social practices but also to the 'story' which the actor tells to go along with it. With each lifestyle there is a corresponding life story, in the sense that by creating this specific unity of practices the actor expresses who he or she is or wants to be. The lifestyle serves to express a person's individual identity, a 'narrative of the self'. Both these elements are indicated in Giddens' definition of the lifestyle concept: "A lifestyle can be defined as a more or less integrated set of practices which an individual embraces, not only because such practices fulfil utilitarian needs, but because they give material form to a particular narrative of self-identity". (Giddens, 1991, p.81)

Thus, the concept of lifestyle refers to the connection between distinct social practices at the level of the individual. It lends coherence to people's behaviour. More precisely, the lifestyle concept refers to the *degree of coherence* to be found in people's behaviour. Munters has pointed out that in this context the lifestyle concept is really an anachronism. It would seem more fitting for the era of a strictly pillarized (Dutch) society. The same era in which protestants, for instance, sought to direct their behaviour in the widely divergent contexts of daily life according to the 'foundational principles' contained in the Reformed tradition. In this sense, lifestyle is a 'totalizing' concept which does not fit in with today's modern, post-traditional and multiform society. Instead of giving centre stage to the concept of lifestyle as

a medium of integration and coherence, one would do better, in his view, to speak of the 'pulverization' of lifestyles (Munters, 1991). This problem of the fragmentation or segmentation of lifestyles was acknowledged by Giddens, too: "partly because of the existence of multiple milieux of action, lifestyle choices and activities very often tend to be segmental for the individual: modes of action followed in one context may be more or less substantially at variance with those adopted in others. I shall call these segments lifestyle sectors. A lifestyle sector concerns a time-space 'slice' of an individual's overall activities, within which a reasonably consistent and ordered set of practices is adopted and enacted". (Giddens, 1991, p.83) If a person is to maintain a certain level of credibility, both for herself and for others as regards the story of his or her own identity, then a certain degree of coherence in lifestyle and, consequently, tuning and integrating his or her actions in widely varying practices becomes essential. Referring to this problem, Giddens points out that a coherent life story can make an important contribution to maintaining a sense of ontological security which enables actors to survive in the plurality of interaction contexts they are confronted with in daily life.

We will return to the question of the coherence of lifestyles when we discuss the issue of (more) sustainable lifestyles. However, nothing can be said about the integration of social practices in the context of a more sustainable lifestyle before we have discussed the way in which actors - as 'knowledgeable and capable agents' - bring about such integration. How deliberate, planned or intentional are the actor's actions?

4.5 Environmentally **Conscious** Action and Lifestyles

In section 3.2.2 the attitude-behaviour paradigm was criticized for its one-sided emphasis on intentions, reasons and motives of individuals, treated in isolation from the process of acting itself, and for limiting the concept of consciousness to discursive consciousness. In order to further explain these points of criticism and to show how they are solved within the structuration theory, we will concentrate on the concepts shown in the left-hand part of figure 2.

Firstly, within structuration theory behaviour is not analyzed as a 'derivative' of intentions, reasons and motives of individuals. An analysis of environmental behaviour should focus on what people *do* instead of on the 'intentions' or 'reasons' for acting as they present them when questioned by the researcher. Human action can best be defined and studied at the level of social practices, with individuals perceived as agents who are involved with the 'ongoing stream of events-in-the-world'. In this view, consciousness or reflexivity do not relate to the isolated intentions, reasons or motives of agents, but to the "monitored character of the ongoing flow of social life". (Giddens, 1984, p.3) "A human individual is an agent who, in a chronic and routine way, reflexively monitors the course of her or his action in the *durée* of day-to-day life". (Giddens, 1990, p.301) Seen in terms of the attitude-behaviour model, the whole image is reversed, as it were: the focus is on social practices and it is only in the

context of these socially shared behavioral practices that the intentions and reasons expressed by the actors can possibly and meaningfully be analyzed. Consciousness is implied, as it were, in the behavioral practices themselves and is not some preface to the actual process of acting; something that can be isolated for analytical purposes. The focus on behavioral practices serves to undermine any attempt to study knowledge, reasons and motives out of their context, as it were, as was the case in the attitude-behaviour paradigm.

Besides, in the second place a distinction is made within the structuration theory between various dimensions of 'consciousness' itself. Research within the attitude-behaviour paradigm focuses mainly or exclusively on that part of consciousness which Giddens has termed 'discursive consciousness'. This part of consciousness concerns the knowledge that can be verbalized by the actor. However, discursive consciousness is not the only constituent of consciousness. In the reflexive monitoring of his or her behaviour, the actor also makes use of a great deal of knowledge which cannot be (instantly) verbalized and should thus be seen as part of the actor's *practical consciousness*. It is knowledge of a 'practical' nature, in the sense that it is connected with day-to-day routines; it is the knowledge that is required to 'cope' with every-day life. If a neighbour or a researcher asks the actor 'how she managed to cope' with this or that, this constitutes an 'intervention' in the daily stream of events. It is as if a switch is turned on which makes the person 'aware' of things that came naturally or went without saying beforehand. An oft-used example to illustrate this process is that of speaking a language and the perfectly natural mastership of the attendant grammatical rules. People 'know' how to speak a language, but are often unable to verbalize the grammatical rules, the knowledge involved, at a discursive level. It is not uncommon for a person who has mastered a foreign language to (temporarily) know more about this language at the discursive level than a native speaker.

The acknowledgement of the important role played by practical consciousness in the reflexive monitoring of action enables us to discard as meaningless the dichotomy of 'conscious selection' and 'routine action'. As the examples show, the boundaries between discursive and practical consciousness are fluid. Actors can become 'aware' of certain habits and 'things that go without saying' and thus learn something about their own behaviour which can eventually induce them to change that behaviour.

Making use of a number of formal concepts from the structuration theory we have now indicated how we can arrive at a more satisfactory perspective on the actor-structure problem. In addition, we have also discussed how the role played by intentions, reasons and motives of actors should be incorporated in the analysis of environmental behaviour. In doing so, we have given a further interpretation at the conceptual level of environmental control as a form of 'conscious' human action, as indicated by Hofstee. The second element in Hofstee's definition - considering action in terms of its *environmental effects* - is the subject of the following section.

4.6 More Sustainable Lifestyles

In the framework of a recent research project entitled 'The Energy-Intensiveness of Lifestyles', a Dutch inter-university group of environmental scientists tried to make a rather exact quantitative assessment of the energy required for the total 'consumer goods package' of different categories of Dutch households (Vringer and Blok, 1993). To this end, calculations were made for 350 separate consumption items - grouped in a number of main categories such as housing, traffic and transport, clothing, food, etc. - to establish the energy requirements resulting from the production, packaging, storage, transport, use and disposal of the product or service in question. The products examined varied from houses, cars and washing machines to kitchen rolls, frying pans and prams[15].

The aim of this - government-commissioned - research project was to find out whether variations in energy consumption could be found within and/or between the different household categories which "cannot be attributed solely to factors which are difficult to influence, such as income, family stage etc". (Blok, 1992, p.2) What was sought for was, in other words, a variance in spending patterns which might indicate that a household's 'lifestyle' could be a relevant factor which influences the consumption of households. Only when a significant and substantial variation in energy consumption between a number of differentiated lifestyles has been established in quantitative terms can it be properly concluded 'whether influencing people's consumption patterns can be an aspect of environmental policy'. (Vringer, Potting and Blok, 1993, p.8)

This research is of interest for our discussion in at least two respects. In the first place the research set-up shows that the purpose of the investigation was to calculate the environmental effects of people's actions in distinct lifestyle segments within a wide range of households in a quantitative fashion, inasmuch as this was possible. The fact that this type of research - as the authors themselves have openly acknowledged - has yet to overcome numerous methodological bottlenecks does not detract from the intentions of the researchers to develop an exact, quantitative picture of the environmental impacts of different lifestyles.[16]. A second remarkable feature of the research in question is the fact that no attempt was made - possibly in reaction to the attitude-behaviour research tradition - to include the actors' reasons and motives in the investigation of their lifestyles. The possible existence of different 'lifestyles' is simply deduced from domestic spending patterns.

The general approach we would opt for in studying and influencing sustainable lifestyles differs from the perspective sketched above on both aspects. In the first place our conception of lifestyle is deliberately and explicitly related to the thinking and acting of citizen-consumers themselves, who must be regarded as 'knowledgeable and capable actors' whose actions 'do matter'. We cannot simply do away with human agency, with the story-telling,

rationalizing and accounting potential of human actors. In the second place we are strongly opposed to an approach in which sustainable lifestyles are defined primarily in terms of technical calculations of the environmental impacts of product packages. There must be more to sustainable lifestyles than just the emission figures of eating meat or driving a car.

In order to develop a more sophisticated approach we will use the central concepts of the structuration theory and try to connect these formal categories with insight from the substantive theory of the ecological modernization of the organization of production and consumption.

Until now, the theory of ecological modernization was worked out mainly at the level of institutional analysis. The theory is built on the assumption that the past decades have seen the emergence of a transformation process induced by environmental demands, which has given rise to new 'rules of the game' for the social organization of production and consumption. Ecological modernization not only refers to a sociological theory which has chosen the long-term transformation of Western society as its object of analysis. As a 'political programme' it also refers to the central perspective and strategy which feature throughout the environmental policies of the Netherlands and other industrialized countries (Spaargaren and Mol, 1992). The nucleus of the theory is the view that the newly developed rules of the game, the sets of rules and resources defined at different levels of abstraction, together constitute *an independent set of criteria,* independent from, for instance, economic objectives and criteria, by which institutions involved in the social organization of production and consumption can make judgements about their 'sustainability'. In the process of ecological modernization, the criteria by which an assessment is made of what may count as an ecologically more rational mode of production, gain increasing independence vis-à-vis socio-economic and political or cultural criteria.

An initial analysis on the level of strategic conduct which is aimed at producing criteria for 'more ecologically rational ways of acting' on the part of citizen-consumers can benefit from the concepts and lines of thought that have already been developed at the institutional level. In addition to the concept of 'environmental utilization space', which stems from economic theory, we will also introduce a number of central elements from the theory of ecological modernization in order to initiate an 'environmental policy programme' which centres on environmental control by citizen-consumers.

4.6.1 Lifestyles and the Concept of 'Environmental Utilization Space'

Analogous with the meaning of environmental management in the sphere of production, environmental control by citizen-consumers can initially be defined as a 'conscious' effort on the part of actors to achieve a reduction in the environmental impact associated with the lifestyle characteristic for that person or group; this effort is based on the acknowledgement

of a 'flexible ceiling' on the total environmental impact of that lifestyle. This definition requires further explanation on at least two points.

It needs to be said in the first place, in order to avoid misunderstandings, that 'a conscious effort' should not be interpreted as meaning that actors are constantly 'on their toes' at a discursive level, applying an environmental yardstick to every practical aspect of their actions. What we are talking about is, in terms of the structuration theory, a process of reflexive monitoring of behaviour by knowledgeable and capable actors, who routinely - at the level of practical consciousness, the level of the automatic pilot - 'stay in touch' with certain rules of the game, i.e. with a set of criteria for ecologically rational behaviour. Only when actors are questioned, either by themselves or by others, about the reasons for their behaviour will they begin to verbalize distinct reasons for their actions. It should be noticed that, if we make an attempt here to develop a political programme for environmental control by citizen-consumers and speak about objectives and methods to be employed, it has no bearing on the diverse ways in which actors 'deal with' these discursively formulated objectives and schemes of thought in actual behaviour practice, - e.g. whether they welcome or disapprove of the objectives.

In the second place the concept of 'environmental utilization space' or 'flexible ceiling' requires further elucidation. The work of the Dutch economist J.B. Opschoor, among others, has given the concept of environmental utilization- space broad acceptance in the environmental debate in the Netherlands. The idea that there *are* limits to the 'sustenance base' on which the social organization of production and consumption rests is combined with the notion of a *flexible* ceiling. A ceiling which is set partly by 'hard', technological-ecological criteria which refer to 'the functional components of eco-systems that play a crucial role in the sustainability of social systems', but also partly by criteria which are (more) open to political debate, such as 'quality of life' and 'integrity of nature' (Opschoor and Van der Ploeg, 1990). Given this definition, the concept of environmental utilization space can never be fully operationalized by means of one-dimensional technical-scientific concepts and analytical frameworks. This is true for the application of the concept in the sphere of production. It is equally valid, and perhaps even more so, for the application of this concept in the analysis of more sustainable lifestyles and consumption patterns.

In (policy) practice, however, this theoretically flexible concept is not seldom used in a very limited way. The experiments conducted left and right with the idea of all-encompassing 'environmental ration cards' for citizen-consumers reveal an empiricist reduction of the concept which, given our current knowledge, is not only unfeasible but politically undesirable as well. In our opinion, the very value of the concept of environmental utilization space lies in the way in which it expresses, at the highest level of abstraction, the 'rationale' underlying the pursuit of a reduction in the environmental impact associated with a certain production

organization or a certain consumption pattern or lifestyle. It is a characteristic feature of this rationale that it combines the idea of physical limits with the idea of actively making use of a certain amount of space. Contrary to a concept such as 'limits to growth', the concept of environmental utilization space evokes the image of available space that can literally and legitimately be 'made use' of.[17] Indeed, the concept thus refers to the different ways in which, within partly technologically and partly politically determined limits, environmental resources are being utilized - efficiently or inefficiently, prudently or recklessly, etc.

Moreover, the principle that there are different ways of 'dealing with' the available utilization space is essential to the analysis of environmental control by citizen-consumers. The use which groups of citizen-consumers make of the environment - highly differentiated both in size and nature - has to be related to their different starting points or social positions on the one hand and, on the other, depends on the specific set of behaviour practices which jointly encompass an individual's lifestyle. Therefore the range of opportunities available to actors for reducing their use of environmental space depends both on their initial situations and on their specific lifestyles.

In order to completely avoid any identification with the 'one-dimensional' ration-card system, it might perhaps be better not to use the concept of environmental utilization space in future analyses of environmental control by citizen-consumers and to substitute it with a term that can be deduced from the work of P. Bourdieu, namely 'ecological capital'. Just like the concept of environmental utilization space, the concept of ecological capital refers to the available reserves, or space for the use of, environmental goods. However, the concept of ecological capital has the additional advantage that it immediately draws our attention to the issue of social class. It brings to attention the diverging ways in which environmental space is used both between and within social classes or categories. Between classes, since groups of people differ in the amount and composition of the economic, cultural, social and ecological capital which they have at their disposal. Within classes, since people's specific lifestyles offer them various opportunities for exploiting their capital, for increasing their ecological capital by converting it into other forms of capital. This conversion depends in part on the socially determined 'rate of exchange' between the different forms of capital.

When using the Bourdieu inspired concept of ecological capital, the following question for environmental social research on sustainable lifestyles come to one's mind. Are environmental gains obtained by investing economic capital (buying more expensive products because of their higher environmental quality) and/or investing social capital (substituting domestic labour for household appliances), and in what way does this contribute to a possible growth in cultural capital? Questions indicating the fact that there are several roads that can lead to an 'ecological modernization' of one's lifestyle.

4.6.2 Towards an 'Environmental Profile' of Lifestyle (Segments)

In Huber's view, the ecological modernization of the current organization of production and consumption requires two essential steps. Firstly, a process of 'monitoring' of all environmental effects of production and consumption processes will have to take place. The second step involves the 'monetarization' of environmental effects in order to provide us with the means by which our '(making) use of environmental utilization space' can be permanently anchored in the organization of production and consumption. Once the handling of environmental goods has been made 'visible' and 'valued' in this way, 'rationally' functioning enterprises will begin to undergo a process of ecological modernization of production with the objectives of maximizing (product) output while simultaneously minimizing (raw material) input, of balancing the materials and energy cycles at the optimum level of energy consumption and of adopting new production methods so as to prevent external environmental effects. The deployment and further development of environmental technology at all levels of production will play an important role in this process. (Mol et al., 1991)

If the ecological modernization of production and consumption is seen from the perspective of citizen-consumers it becomes clear that the methods and instruments developed in the sphere of production can only be applied to a very limited extent to environmental control by citizen-consumers. An instrument such as that of the 'environmental care systems', for instance, has been developed within industry but can nevertheless be applied to households provided they are perceived as production units. Generally speaking, however, the instruments designed to monitor environmental effects in the sphere of production cannot be directly used for environmental control by consumers. Such concepts as integral chain management, product policy, life-cycle analysis and environmental measures are inextricably linked to the sphere of production.

If the methods are only partly applicable, this is not the case for the basic philosophy, the underlying principles of ecological modernization. They are as applicable to the environmental behaviour of citizen-consumers as they are to the behaviour of producers.

The pursuit of a more sustainable lifestyle implies that actors consider all the distinct segments or sectors of their lifestyles in the perspective described above. In doing so, they create an 'environmental profile', as it were, of the different segments of their lifestyles. This process of monitoring - using instruments which for the most part still have to be developed - can then be followed by a process of monetarization in which an optimum distribution or 'rate of exchange' is sought between the economic, ecological, cultural and social capital that the actor has at his or her disposal. The determination of the optimum use of the available environmental utilization space results in a process of creative bookkeeping or housekeeping by means of which actors try to achieve the most beneficial distribution between the different segments of their lifestyles. In an analogy to the sphere of production, 'rational action' is

therefore no longer determined by economic criteria alone, - the rationally calculating citizen is just as keen on making an 'environmental profit' as she is on making an economic one.

Thinking in terms of environmental profiles of lifestyles or lifestyle segments should not fix our attention again on the idea contained in the ration-card philosophy, namely the idea that all environmental effects of all our actions can and should be made visible and measurable to such an extent that they can lead to unequivocal conclusions and (policy) measures. Instead, it should direct our attention to the factors which complicate such a straightforward, technical and unequivocal strategy for influencing people's lifestyles. One such 'complicating' factor was discussed in more detail above, namely the differences between and within social classes or categories of citizen-consumers. We shall finish with a second complicating or differentiating factor which our approach to the actor-structure problem brings to the fore: the (relative) power of agents in bringing about environmental change.

A sociological analysis which aims at changing people's lifestyles and consumption patterns is obliged to analyze environmental control by citizen-consumers in close connection with those forms of environmental control which have emerged in companies, social organizations and the government. The actors' latitude in reducing environmental impacts in certain segments of their lifestyles does not only depend on the rules and resources to which they have access. The possibilities for changing the course of one's action also depend on the social distribution of the rules and resources involved in a certain social practice. This question cannot be solved or answered by using a formal theory. Only empirical research into the structuration of social practices and their concomitant sets of rules and resources can provide an answer to the question of the 'relative power' of the consumer vis-à-vis other (collective) actors in bringing about a more sustainable lifestyle. Such research will have to focus on specific behavioral practices and on the possibilities for realizing, within the context of those specific practices, an ecological modernization of lifestyle segments of distinct groups of citizen-consumers. This kind of research must be regarded as a necessary pre-condition of a policy aimed at influencing lifestyles.

5. Epilogue: Lifestyles and Consumption

'Lifestyles boil down almost entirely to styles of consumption,' is Bauman's concise summary of his views on the relationship between lifestyles and consumption patterns. (Bauman, 1990, p.207) The 'narrative of the self' expressed in an individual's lifestyle can be 'read' almost entirely, in his view, from the package of goods and services people surround themselves with. Indeed, people enjoy being judged by others on the basis of their clothes, their gardens, their cars or their clothes driers. In their lifestyles - perceived as consumption styles - they express how they relate to other people: who they would like to be associated with and

who they wish to distinguish themselves from. In his book 'Distinction', Bourdieu has painted an unparalleled picture of the distinction mechanism as one of the most powerful motives in people's actions. The commodities they surround themselves with serve to testify to their 'good taste' or to a certain standard of 'civilized behaviour'.

In a more sustainable lifestyle people will express their relationships with other people as well as their relationships with 'nature', as it were. Whether this relationship with nature can be fully or largely deduced from the consumer goods package they acquire is a question that needs to be addressed in greater detail. This much is clear: an analysis of more sustainable lifestyles is incomplete if it does not deal with consumption as a social phenomenon. It is the 'sociology of consumption', therefore, that will concern us in the next chapter.

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Notes

1) 1989 saw the publication of the first Dutch National Environment Policy Plan (VROM, 1989), the first document to outline a comprehensive strategy for a medium-term environmental policy. It set an ambitious objective (a sustainable development to be achieved within one generation) and announced a package of far-reaching measures which prompted a great deal of debate in Dutch society. The second Lubbers administration fell over a financing aspect of the plan and in the ensuing elections the environmental theme played a prominent role. Since the Dutch planning system requires environmental plans to be renewed every four years, the sequel to the first environment policy plan appeared in 1993. This second plan led to less heated debate in society, partly as a result of a change in the social and political climate, but also because of the different nature of the plan itself. Instead of a renewal and further development of policy initiatives, the government opted for an evaluation of existing objectives and an effort to enhance the acceptance of existing policies in society. All the more remarkable, then, if influencing the consumer target-group is identified as a new spearhead of policy, an approach which runs like a red thread through-

out the document. Further information about environmental policy planning in the Netherlands can be found in, among others: Van Tatenhove (1993) and Van Ierland a.o. (1989).

2) Had the first NMP only been undersigned by the minister for the environment (ministry of Housing, Regional Development and the Environment), the second NMP came adorned with the signatures of five different ministers (apart from the minister for the environment, the ministers for Economic Affairs; Agriculture, Nature Conservation and Fisheries; Transport and Public Works and Development Cooperation).

3) We will use the term 'citizen-consumer' to indicate that consumer behaviour involves a wider range of aspects than consumer activity in the market sphere. For a further elucidation see Mol, Spaargaren et al., 1992.

4) The theory of ecological modernization of production and consumption is a 'normative' theory, in the sense that the necessity to arrive at a substantial restructuring of the existing production and consumption systems is assumed as a basic principle. For a more in-depth justification of this 'normative' character of our theory - which is characteristic of the environmental sciences - see Mol and Spaargaren (1993) and Mol (1994).

5) We will argue in section 4 that we would do better to ban the concepts of 'macro' and 'micro' levels from the analysis altogether. If we nevertheless continue to make use of the two terms in our discussion of contemporary theories, it is only to stay in line with current terminology until further notice.

6) Indeed, a survey of the Dutch citizens' willingness to pay for a cleaner environment revealed that people had an amount in mind that was well over the amount calculated by the government in the NMP as the sacrifice required of the citizens (Hoevenagel, 1989).

7) For the role of public information about the environment as a policy instrument for influencing environmental behaviour, see Van Meegeren, 1989, a.o.

8) For an example of changing definitions of good entrepeneurship as perceived by different actors within (Dutch) chemical industry, see A.P.J. Mol, 1995.

9) We are aware of the fact that 'the' games theory approach harbours a wide variety of currents. Our discussion and criticism are directed at those currents (as they are applied in the environmental field) which use the theory of a rational selection process as a 'general theory' for the explanation of human action. (See also: Craib, 1992)

10) The studies of Aarts (1993) and Aarts et al. (1995) provide a good example of the general approach discussed here.

11) Although systematic research into the environmental impacts of the lifestyles of various social classes was initiated in the framework of the so-called NOP (a major Dutch National Research Program on Global Change) most of the research carried out until now is limited to some single aspects of environmental behavior such as energy consumption, car-mobility, etc. (Vringer and Blok, 1993)

12) For those readers who are less acquainted with Giddens' work we notice that the following books provide the general background of this section: Giddens, 1976, 1984, 1991. Even in the Dutch language we by now can dispose of an excellent introduction (Munters et al., 1991) and some detailed elaborations and applications (a.o. Mommaas, 1993; Van der Poel, 1993) of the structuration-theory.

13) Within the Dutch language, the concepts '*milieubederf*' en '*milieubeheer*' both have a slightly different connotation than the concepts we use as their counterparts in the English language. Hofstee initially uses the term beheer*sing*, which is rather close to the term *control*. In the Dutch language, the term 'milieubeheer' has gained currency because of the more active meaning it shares with the concepts of 'management' or 'stewardship'. The term 'management' is usually employed in the context of the production-sphere only. We prefer the concept of management to avoid the technical meaning of control and do not restrict its use to the sphere of industry or production alone.

Translating the concept of 'milieubederf' into 'deterioration' would also play down to a certain extent the active, social meaning of the Dutch concept; for this reason we would prefer the concept of 'destruction', which leaves no room for questioning the fact that the 'deterioration' of the environment is the result of human interventions.

14) Mommaas has indicated that - in spite of the somewhat trendy ring to this (marketing) concept - the term lifestyle or style of living is as old as sociology itself and was given a central place in the works of Veblen, Weber and Simmel, in particular (Mommaas, 1993, p.159-181). Giddens only begins to use the lifestyle concept in his later works, as part of his structuration theory on the one hand and as a 'hinge' between the formal theory and his discussion of (late) modern society on the other. We will use the concept of lifestyle as it is used by Giddens in the context of his formal theory.

15) On order to give an impression of the fineness of this attempt to assess energy-intensity, as a product of spending and environmental impact, we will give a literal rendering of the pram-example: "the category of *prams* contains buggies, stroller-buggies and large pushchairs. Prams cost between DFL 100 and DFL 500 (according to the Consumentengids [Dutch Consumer Monthly] of May 1990, p.2), weighing 4 to 12 kilos, respectively. Prams are estimated as being composed of 5 kilos of steel (frame), 1 kilo of rubber (wheels) and 1 kilo of polypropylene (various components)". (Vringer a.o., 1993, p.28)

16) The methodological problems referred to include: 1. the reduction of 'environmental impacts' to direct and indirect *energy* use, and 2. the fact that the method cannot deal with 'expensive durables' - people spending a lot of money on products that are more expensive for the very reason that they are more 'environment-friendly'.

17) Another considerable advantage of the term 'environment utilization space' is the fact that, contrary to the terms used in the limits-to-growth debate, it refers to the interest of the environment as an 'independent' concern which cannot be reduced to economic categories.

Chapter 6
Environment and Consumption
Sustainable Lifestyles and Consumer Culture

Gert Spaargaren

Abstract Within the environmental sciences and policies, the 'restructuring' of the way production and consumption are currently organized in the industrial society is a major objective. Up till now, a wide range of techniques and policy instruments were developed to steer production processes, and flows of materials and products. However, in order to influence the behaviour of the consumer - who constitutes a major factor in almost all production and consumption chains or cycles - an approach that is tuned to the production sphere alone does not suffice. In order to develop an approach that is specifically tuned to consumers, the contribution of the social sciences is indispensable. The sociological approach of consumption focuses on the identity value or distinction value of products and services. Products are seen as carriers or indicators of social processes that are hardly or not at all connected with or influenced by the intrinsic qualities or the use value of the products themselves. Our analysis tries to bridge the gap between, on the one hand, the environmental sciences with their fixation on substance and product flows and, on the other hand, the sociology of consumption, which seems indifferent to the objective characteristics of products. The starting-point of our analysis is the daily use of products, appliances and services within the context of household consumption. The day-to-day, routine handling and use of products is analyzed in relation to the various 'use provinces of everyday life' which, as we argue in following of Per Otnes, provide these products with a specific meaning and coherence. Kitchen, washing space or garden are understood as 'locales' for behaviourial practices. The changes in the way products and services are handled in the household cannot be understood without paying attention to the way people act as knowledgeable and capable actors. Households are no black boxes that simply 'absorb' technological innovations because advertising persuades them to do so, or because the neighbours, that 'black box next door', also do so. Douglas and Isherwood have shown that the rationalization of certain domestic tasks plays an important part in the aim of households of tuning their scale of consumption to relevant others. On the other hand, changes in the handling of products and services cannot be understood without paying attention to the 'socio-material collective systems' and 'expert systems' that households (have to) make use of in shaping everyday consumption routines, from drinking water and sewerage systems to insurance agents. A policy aiming at the promotion of more sustainable consumption patterns should therefore focus on the way in which actors use the various, publicly or privately-organized environmental arrangements that are supporting daily life.

1. Introduction

When the Dutch Minister for the Environment suggested the idea of several households sharing one washing machine in the future, this sparked off mainly giggly reactions and his plans fell on deaf ears. The days when the man from the laundry was just as familiar as the milkman, the days when - out of sheer necessity - these facilities were shared, seem to have gone forever. After World War II the electric washer, the automatic washing machine and the washer-drier combination successively made their appearance in many households and the launderette has disappeared from the streets. In view of the reactions on the statement of

the minister, the Dutch population is not yet up to the image of the 'pooling citizen' (Ettema, 1994), which lies behind the minister's suggestion. No matter whether 'doing the laundry' or 'travelling from one place to another' is concerned, the possibility of an increased use of shared or public means and appliances in satisfying our needs does not seem to fit our current consumer culture. That other reactions are possible is proven by the modest success of the so-called 'nappy service': a new-fashioned laundry which considerably reduces the household waste of young families.

These examples illustrate that there is more behind the demand for sustainable consumption patterns than simply purchasing and using products that are more ecologically sound. The analysis of sustainable consumption ranges from the choice of individuals for alternative products, through a changed package of available goods and services, to a changed social organization of the satisfaction of needs - and vice versa. This analysis cannot be restricted to the changing physical characteristics of products or the (eco)-technological aspects of consumption patterns. The giggly reactions to the suggestion of reorganized washing routines illustrate that quite ordinary patterns of behaviour are normatively charged and that the development of more sustainable consumption patterns can meet with social barriers inherent to the organization of the daily life of citizen-consumers[1)].

In order to be able to study sustainable consumption from a broad environmentalist and social scientific perspective, it is important to bridge the gap between two disciplines that so far have studied the organization of production and consumption processes independently from one another.

On the one hand, there are the environmental sciences, that primarily deal with consumption from a technical point of view oriented on the flows of materials and analyze changes in consumption patterns in relation to the changing way production is organized. They point out that the aim of recycling materials in production and consumption cycles requires a different attitude of consumers towards waste and involves a different approach to products in the waste disposal stage. They analyze how the objective of creating more efficient production methods, reveals itself to the consumer in, for instance, ecologic product information, etc.

On the other hand, there are sociologists and anthropologists, who situate consumer behaviour against the background of changes in modern society and its (late or even post-modern) consumer culture. They see products as carriers of meanings, as status symbols or as objects with an aesthetic value, and emphasize that in the (post-)modern consumer culture the physical characteristics and the practical use of products are, literally and figuratively, no longer significant.

1.1 The Changing Assessment of Consumption

The environmentalist literature usually discusses consumer behaviour and consumption patterns in a negative light. That people express their life styles and group identities by handling goods may be true, but the only thing that counts for environmentalists is that the use of products inevitably puts a claim on raw materials and entails pollution and waste. Winward describes the prevailing attitude in environmentalist circles as 'the most recent, negative, scientific judgement' on this social phenomenon (Winward, 1994: 75).

Sociology, too, used to take a critical stance towards consumer behaviour and mass consumption. Where consumer behaviour was the object of serious research, it was primarily oriented at problem behaviour in the form of addiction or abnormal behaviour in the form of over or underconsumption. Developments in consumption were generally used as a starting-point for criticizing the modern, industrial society.

The past decade, however, saw a remarkable change in the attitude towards consumption in sociology and anthropology. Not only did the interest in consumption increase, but, even more remarkably, the present-day consumer culture was also reevaluated in a positive sense. The prevailing view - particularly in neo-Marxist circles - that consumption was merely a 'derived' problem, derived from the production sphere, and needed no separate theorizing, has given way to the belief that 'the world of goods and their principles of structuration are central to the understanding of contemporary society' (Featherstone, 1991: 84). The vocabulary that members of the Frankfurt School acquainted an entire generation of sociologists with, a vocabulary that depicted the consumer culture in terms like drab conformism, manipulation of needs, alienation, etc., has given way to a terminology appropriate for a detailed description of the diversity, freedom of choice and individuality of the modern consumer culture.

Up till now, the changing appreciation of consumption seems to have had hardly any influence on the environmental sciences. This means that they have insufficiently benefitted from the progress the 'sociology of consumption' has made in the past decade - partly as a result of the changed attitude towards consumption.

Due to this, the environmental sciences have not given enough attention to themes that are important for the development of theories and policies on sustainable consumption; themes that refer to the changing place and meaning of household consumption, the shift in the supply of goods and services from a public supply, organized by the state, to a private supply, organized by the market, and the new forms of inequality the modern consumer culture entails.

In their approach of consumption, the environmental sciences could benefit from sociological studies on consumption. But this is also true the other way around. There is a striking blind spot in the anthropological and sociological literature on consumption behaviour: despite all renewal in the disciplines the influence of the 'environment' was ignored almost

entirely. In none of the sociological theories that deal with consumer behaviour the environment problem is more than casually referred to. If the environment was mentioned at all, it merely played a role as a 'ceiling' or (uncertain) external precondition for consumption as a continuous play with meanings and identities. That the environmental aspects themselves play a part in the process of attributing meaning when handling goods or that they might be a major factor in distinction processes, is not recognized as an important factor in the sociology of consumption. This is why the sociology of consumption might in its turn benefit from theoretical developments within the environmental sciences.

1.2 The Organization of the Argument

The approach of consumption suggested in this chapter tries to bridge the gap between the disciplines mentioned. This may result in a two-way traffic between, on the one hand, the sociology of consumption and, on the other hand, an environmental science approach of consumption. The writing of this chapter was motivated by the belief that this exchange can yield fruitful issues for theory building and research on consumer behaviour. The organization of the argument runs as follows.

In the following two sections two main premises underlying our approach of consumption are accounted for. The first one is the choice to consider the study of consumption a full and independent branch of sociological research and theory; the second one is the decision to take the theory of the ecologic modernization of production and consumption as a starting-point for theorizing on sustainable consumption.

The choice for a sociology of *consumption* requires in the first place, that the question why an independent conceptual approach of consumption is needed, as opposed to studying it in relation to the sphere of production, has to be accounted for. Section three focuses on the relationship between production and consumption and discusses some authors who more or less directly consider consumption as a 'derivate' of production. The second aspect that needs justification is our choice for the theory of ecological modernization as the starting-point for studying consumption. Section 2 discusses the relationship between ecological modernization and views or trends in the environmental sciences that, implicitly of explicitly, reject this theory as a starting-point for the study of consumption.

This preliminary exercise to account for an independent sociology of (sustainable) consumption is followed by a detailed discussion of the sociological literature on consumption on the basis of three themes that are considered relevant to this discussion. Section 4 focuses on the issue of 'the meaning of consumption'. It is the subjective meanings that make the consumption process a fascinating object of study, apart or at least independent from the sphere of production. Sociologists agree on the notion that the 'subjective' dimension of the way in which goods are handled cannot be completely derived or reduced to the use or exchange value of products. However, the opinions differ on the interpretation of, on the one hand,

the symbolic or semiologic dimension of goods and, on the other hand, the question whether in the analysis, the bonds between the symbolic function and the practical use function can be cut entirely. Obviously, from an environmental science point of view, the premise that the character of the goods themselves and their use value do not play any part in the way people handle goods, is unworkable.

Sections 5 and 6 will discuss the social context in which consumer behaviour takes place. Whereas in most cases environmental science literature implicitly restricts consumer behaviour to choice, c.q. purchase behaviour within the context of the free market, consumption-oriented literature makes a distinction between at least three contexts or 'modes' of consumption: the market context, the state context and the household context. We have already discussed our preference for the term citizen-consumer instead of the more usual term consumer, as it covers the broader meaning of consumer behaviour. Section 5 will elaborate on consumption behaviour within the context of households. The term households here refers to all social systems that are involved in the (re)production of daily life in and around the house as a physical setting or 'locale' for interactions. Section 6 deals with the (changing) relationship between consumption behaviour in a private, market-oriented context on the one hand, and consumption in a public, state-organized context on the other hand. Since the supply of collective goods (whether or not by the state) plays such an important part in environmental issues, the theme of a 'social balance' (Galbraith, 1969) between market provision or state provision of goods and services forms a crucial issue in the discussion about sustainable consumption patterns. Moreover, in the so-called 'consumption cleavage debate' the question of market versus state provision is directly linked to the discussion about new forms of inequality in contemporary society.

2. (Environmentalist) Criticism on Consumer Culture

Criticism on consumer culture is as old as the (mass) consumption society itself. Although the roots of the modern consumer culture go back several centuries, most authors situate the birth of the contemporary consumption society in the late nineteenth century. At that time various European countries saw the advent of big department stores, which were a symbol of the new relationship that was developing between man and product, between producer and consumer, between customer and commodity. The British and French stores offered an abundance of goods at fixed prices and a way of shopping that was more impersonal and 'free'. The ambience, the way in which goods were presented and purchased, became part of the consumption process itself (Chaney, 1983). Not until this century, however, in the period during the two World Wars and after World War II, did the technology flourish that encouraged the world-wide spread and promotion of the consumerist society and the 'American way of life' (Featherstone, 1983). In the same period that the world-wide expansion of

the consumer society took shape, members of the Frankfurt School lay the foundations of the critical attitude towards the consumer society that was typical of sociology for a long time.

Without doubt a major source of inspiration for criticism on the consumer culture is the work by H. Marcuse. In his book *One Dimensional Man* Marcuse analyzes how the 'halved', instrumental logic and the 'commodity logic' which are characteristic to the capitalist sphere of production, also invaded the sphere of consumption. By means of an endless flow of goods directed at the satisfaction of 'false' needs (working-class) consumers are 'tied' to the system: "consumers are more or less pleasantly bound to the producers and, through the latter, to the whole" (Kellner, 1983: 67). Fully controlled and manipulated by industry - in the culture connected with capitalism - the consumer puts his or her heart and soul in (useless) consumer goods, not realizing that in this way they keep the system alive and cheat themselves: "the people recognize themselves in their commodities; they find their soul in their automobile, hi-fi set, split level home, kitchen equipment" (Marcuse, 1975: 29).

The legacy of the Frankfurt School partly accounted for the fact that in the social sciences consumer culture had a negative ring to it for a long time. Their criticism on consumer society was not only subscribed in neo-Marxist circles, but also served as a major frame of reference for scientists writing on environment and consumption. As a rule criticism on consumption functioned as the starting-point for a romantically-inspired criticism on late-capitalist society and its culture.

In the Netherlands, cultural sociology and social philosophy produced several studies on consumption that fitted the tradition of the Frankfurt School and contained a fundamental critique on the roots of the Western consumer society. We will discuss an example of both disciplines (section 2.1) and then discuss the way in which consumption is treated in the environmental sciences (section 2.2). At the end of this section we will situate the ecological modernization theory in relation to the trends we have discussed (section 2.3).

2.1 The 'Treadmill of Consumption'

An interesting example of the negative attitude towards the consumer society in Dutch cultural sociology can be found in the study 'Konsumptieverandering in maatschappelijk perspectief' [Changes in consumption in a social perspective], published in 1979 by the WRR [the Dutch Scientific Council for Government Policy] (Hogervorst et al., 1979). This study, which the authors themselves call an 'experimental reflection on consumption', does not only sketch the developments in post-war consumption but also gives critical comment on these trends. After the real income of the Dutch citizen had doubled in the relatively short period between 1950-1970 and the consumer had been assured of the safety net of the welfare state (which made saving behaviour less necessary) and more leisure time had become available, consumption soared. Total consumption doubled (even when measured in volume units) and the consumption of consumer durables even more than doubled. However, the WRR study

concluded, people did not seem to have grown happier: in the period of mass consumption - in the late 1960's - a protest movement arose throughout Europe which reacted against the consumer culture and its emphasis on material goods, quantity and technology. Basically, the hippie movement was an anti-consumption movement. There was a quest for non-material values. Fifteen years later, one of the authors who contributed to the WRR study, P. Thoenes, specified this reflection on consumption with regard to the environmental aspects of the consumer culture. Consumption was still seen as an essentially poisonous phenomenon. Capitalism had turned virtuous and frugal citizens into 'consumers': egotistic, hedonistic squanderers. In one of the few Dutch sociological essays on environment and consumption the author formulates it as follows: "the once so prudent, God-fearing and frugal citizen sees his offspring consume carelessly, in a way that he himself would have characterized as sinful and wicked" (Thoenes, 1990: 260). Although he doubts whether his proposal is realistic, the author, as a natural consequence of his diagnosis, advocates a thorough cultural renewal to produce a new - frugal and neat citizen - as the solution for the environmental crisis.

One of the leading Dutch social philosophers who criticized the consumer culture is H. Achterhuis. This author, too, regards consumer culture as a culture of unlimited growth of material objects that no longer have real functions in the satisfaction of man's needs. Consumer society is portrayed as a 'merry-go-round spinning faster and faster', which will not be calmed down. Following Baudrillard, Achterhuis argues that the disappearance of the link between goods and their function (use, exchange or symbol function) is the ultimate form of boundlessness of the consumer society. Consumption has become the consumption of signs and these signs only derive their value from their (varying) position in the self-referring system of signs. Consequently, this meaning or value has become completely arbitrary in relation to the objective characteristics of the products themselves. Seen as 'the playing with signs', in the structuralist sense of the word, consumption has neither a beginning nor an end, only movement. Hence the image of the merry-go-round. In the system of exchange of consumptive signs the objective is to express identities and meanings in constantly varying ways, by means of 'points of attachments' or products that are changing time and again: the merry-go-round or 'treadmill of consumption' is the perfect counterpart of the 'treadmill of production' (Schnaiberg, 1980). The main difference with Thoenes' socio-cultural analysis is that Achterhuis locates the origin of the boundlessness of the consumer society and culture in the (capitalist) structure of that society and its technology. No 'silent revolution' (Inglehart) or any other temporary swing in the pendulum of our norm and value system have been able to change this autonomous growth, which is entrenched in the structure of society. Consumption continued to spiral, despite any hippie, personal-growth or New Age movement. This is why he does not look for the solution in the consumption sphere or its culture itself: 'changes in consumption will, to a large extent, have to be given shape through actions in the spheres of government, production and technology' (Achterhuis, 1993).

2.2 Consumption Growth and the Power of Numbers

Whereas cultural sociology and social philosophy try to trace the roots of consumption growth, many environmentalists consider this growth and the high consumption level as self-evident starting-points that can easily be illustrated empirically: *too many* people consume *too many* goods and services and use up *too many* environmental functions. The total absorption of the 'environmental utilization space' is a function of the numbers of people and the nature and volume of the claim on the environment per head of the population. Although logically irrefutable, this consumption growth equation hides fundamentally different views of man and society. This is not only shown by the current debate on consumption growth, it was also highlighted in the debate on the 'limits to growth' that was held more than two decades ago. The public debate that took place in the US at the time featured exponents of two opposing views, the 'quantity-oriented' view and the 'quality-oriented' view: P. Ehrlich versus B. Commoner. Whereas the first blamed the environmental crisis on overpopulation, his opponent considered the changed character of technology the major culprit (Ehrlich, 1971; Commoner, 1972). The current debate on auto-mobility for example, shows striking similarities with the debate of that period.

On the one hand, there are the 'neo-Ehrlichians'. They do not make a profound analysis of the underlying social factors leading to the enormous growth of mobility: they see a direct (empirical) connection between the increase in pollution and the growth in the number of cars and car use; they point out that the environmental effects of this growth cannot be sufficiently combatted by means of end-of-pipe technology (like for instance catalytic converters) and advocate a volume policy as a solution: regulation of the number of kilometres per person, in first instance on a voluntary basis.

On the other hand, there are the 'neo-Commonerians'. They point at the social factors (changed temporal-spatial organization of society) which are at the basis of the growth in auto-mobility; they place the increased pollution in the wider context of the structure and organization of the transport system (which is primarily based on car use); they point out that when the environmental effects of this transport system cannot be sufficiently combatted by an (in itself reasonably efficient) end-of-pipe technology, interventions at a higher level of technology and organization are necessary. They primarily see the solution in a conversion or reorganization of the transport system and situate the call for behaviourial changes in the broader context of changes in the behaviour of people towards mobility. Somewhat simplified, the transition from water- and rail-based transport system to a car-based mobility system can be compared with the transition from a labour-intensive mode of production based on natural materials to a capital-intensive mode of production based on synthetic materials, a transition that was described by Commoner at the time.

In retrospect, Feenberg (1979) reconstructed the two positions, and put them in a broader perspective. In his view, there was no simple contradiction between population growth and

technology as monocausal factors of pollution. The two contrasting approaches showed fundamental differences on various aspects. Ehrlich's neo-Malthusian analysis tried to characterize the environment issue as a non-politic ('suprapolitic') issue and his solution strategy (voluntary birth control) was characterized by a moral appeal to individuals. On the other hand, Commoner's neo-Marxist approach directly linked the environment issue to the structure of post-war industrial society and his solution strategy consisted of drastic changes in the organization of production and consumption.

Described as above, the current debate on environment and consumption among environmentalists can be considered a micro version of the debate on the 'limits to growth' that was held in the early seventies.

2.3 Ecological Modernization and the Approach of Consumption (Growth)

Our analysis of consumption is based on the theory of ecological modernization of production and consumption. In earlier publications we developed this theory, originally formulated by Joseph Huber, by applying it to the level of institutional analysis (Spaargaren and Mol, 1991; Mol, 1995). Later, we applied this theory to the level of strategic actions of actors (Spaargaren, 1994). This survey will show how the ecological modernization theory relates to the environmental science approach of consumption growth on the one hand, and to the socio-cultural and socio-philosophical approach of consumption on the other hand.

As far as the relation to the environmental science approach is concerned, it can be stated, firstly, that the simple, quantity-oriented approach of consumption growth is abandoned. The observation that the negative environmental effects of consumption will decrease if fewer people consume less is logically correct, but not very adequate as a starting-point for a solution strategy.

The theory of ecological modernization fits in more directly with the quality-oriented approach as proposed by Commoner. It tries to find social changes in technology and organization that can result in a decrease in the claims on the environmental capacity available, by changing the character of these claims themselves. (Eco)-technological developments are considered of major importance in this respect. Contrary to Commoner, however, we do not assume beforehand that a technology is 'better' if it is more 'natural' or smaller in scale. Even with respect to sustainable consumer patterns we agree with Huber's statement that "all roads *out of* the environmental crisis lead us further *into* the industrial society"[2)].

What the theory of ecological modernization has in common with social philosophy and cultural sociology is their focus on the social processes that are hidden behind the changes in consumer behaviour. However, our approach differs from the perspectives as delineated by Achterhuis en Thoenes in at least two aspects.

In the first place, their approach does not differentiate the concept of 'consumption culture' any further, and, in consistence with the tradition of the Frankfurt School, regards consump-

tion mainly as something 'negative'. Even where the long-term developments in society and consumption culture are concerned, it cannot be overlooked that the character of modern consumption is a most differentiated one, particularly in comparison with the nineteen fifties and sixties, a period that in retrospect has been labelled the *mass consumer society* period. According to W. Leiss (1983), the contemporary consumer society in particular, is characterized by the fact that people use so many things in so many different ways for so many different purposes, that an undifferentiated accusation against 'the consumer society' no longer suffices. Secondly, the ecological modernization approach makes it clear that an analysis focusing on the contradiction between economy and environment, c.q. environment and consumption growth, may well have been a realistic reflection of the social reality in the early seventies, but has since been outdated by social developments and is now no longer valid. Environment is no longer an 'external' factor in the organization of production and consumption. It has become an important independent factor in adjusting production and consumption towards a more sustainable development.

A third point of criticism on consumption theories in social philosophy (Achterhuis) and cultural sociology (Thoenes) is that, conceptually, the role of actors disappears from sight in these analyses. In their actions, actors are determined, as it were, by the production system or the 'culture'. Compared to this deterministic model, the ecological modernization theory analyzes the relationship between actor and structure in such a way that the behaviour of people who, as capable actors, give shape to their everyday lives on the one hand, is linked to institutional developments in society on the other hand. As we have illustrated elsewhere (Spaargaren, 1994), it is to be preferred to analyze consumer behaviour in terms of temporally-spatially situated social practices that are involved in the functioning of the duality of structure.

In section 5 we will show in more detail how actors, while actively giving shape to the consumption practices in the household, (have to) use the sets of rules and resources that are organized in the form of socio-material systems. While doing this, the actors at the same time contribute to the reproduction of these systems that 'surround' the households.

In this section we have given our approach of consumption a place between a number of existing trends in (social) environmental sciences and explicated the major premises the theory of ecological modernization is based on. Before elaborating on the theory and applying it to consumer behaviour, a further premise, one that was already mentioned in the introduction, needs to be discussed, namely that a separate application of this theory to the sphere of consumption - apart or relatively independent from the production sphere - is useful and necessary. For someone who believes that developments in the consumption sphere merely derive from developments in the production sphere, an independent sociology of consumption is hardly relevant. In the following section we will discuss some authors who, to a greater or lesser degree, consider consumption as a phenomenon derived from production.

3. Consumption as a 'Derivate' of Production

The dependence of consumer choices and consumer behaviour on developments in the production sphere is a theme which is especially stressed by neo-Marxist authors. Consumers, they argue, are not free or autonomous at all in their choice for particular commodities or services, because the social relationships in the production sphere determine to a large extent which products - within a particular context - are offered. Their main goal is to point out that consumers are relatively 'powerless' by stressing that consumption behaviour is determined by factors and relationships in the production sphere. However, the extent to which and the way in which structural factors within the production sphere are considered to determine individual choices, differs from one author to another. Some examples, taken from the neo-Marxist literature on consumption may illustrate this.

First of all, there are the traditional, straightforward explanatory schemes that consider consumption needs to be created and manipulated entirely by advertising (seen as an instrument of State and Capital). A recent example of this is Kellner's analysis. Despite his warning against overly biased analyses that assume that "com-modities are all uniformly seductive instruments of capitalist manipulation", this author proposes to buy neither products that are produced by multinationals nor those that are advertised on television (Kellner, 1983: 71).

Less rigorous is the analysis of M.J. Lee, who attempts to show how the relative increase in the freedom of choice of today's citizen-consumer is connected with the changing 'orchestration' of consumer demand which resulted from the transition from a Fordist to a post-Fordist production process. Like Kellner, his fellow neo-Marxist Lee argues that commodities do not just appear out of thin air. Although they are allotted their own significance and function in the consumption sphere, they nevertheless derive a number of their qualities from how they were created. They are 'precoded', as it were, in the production sphere. "Commodities have already been positioned into domestic life and lived culture as the bearers of particular ideologies and as representatives of certain social relations" (Lee, 1993: 38). According to Lee, up to the mid-seventies everyday life was 'produced' by State and Capital, as cars are produced in the production sphere: the consumption culture was as uniform and efficient as assembly lines in factories. The advertising world, the media, and the business world had the consumption culture firmly in their grasp. With the transition to a different production process, the eighties saw a change. When flexibilization, individualization, human resources management, etc., changed production procedures, the consumption culture also became more flexible and fluid. Lee's analysis aims at describing how through the transition to a post-Fordist production system "the cultural dimensions of consumption and commodity relations could be adapted and stabilized *according to the requirements of production*" (Lee, 1993: 88, Italics GS). Lee's question as to whether or not changes in the daily life of citizen-consumers are 'orchestrated' from within the productional sphere and have to be regarded as a new form of 'post-Fordist regulation' to us does not seem as relevant as his attempt to

prove that actual changes did take place in the consumption culture and that these changes are reflected in the nature of the commodities. Where the author considers cars, refrigerators, and terraced houses as typical commodities of the Fordist regime, he names VCR's, microwaves and amusement parks as the typical commodities of the post-Fordist era. Where the characteristics of Fordist commodities are described in terms like durable, standardized, functional and use-oriented, post-Fordist commodities are characterized by their non-durable and customer-oriented nature, the stress on styling and design, etc. In this way we see that the products reflect as it were the more flexible character of production and consumption, in which "the key commodities of the 1980's have been those goods that were best attuned to the freeing up of the previously static and relatively fixed spatial and temporal dimensions of social life" (Lee, 1993: 133). As everyday life becomes more 'fluid', commodities with flexible applications, for instance because they are smaller, require less time, or combine several functions in one product, will play a larger role.

Lee's analysis applies to the general changes in the productive and consumption culture which occurred in the industrialized world from the 1980's onwards and were reflected in the nature and the composition of the product and service packages available to the citizen-consumer. However, according to Fine and Leopold it is hardly possible to do research into the changes in the nature and the composition of product and service packages on such a general level of analysis. The changes in, for instance, the food package sector differ substantially from those in the clothing sector. As a third starting-point for research into the relations between pro-duction and consumption, they therefore propose an interdisciplinary approach to consumption that pays attention to the 'vertical' relationships between consumption and production within different sectors. This approach "expects different commodities or groups of commodities to be distinctly structured by the chain or system of provision that unites a particular pattern of production with a particular pattern of consumption" (Fine and Leopold, 1993: 4). Carrying out empiric research into the changes that took place in the products and the corresponding social relationships per sector or 'system of provision', makes it possible to evade generalist theories that are not interested in the differences that occur between separate clusters of commodities. After all, when describing processes of envy and distinction, it does not matter whether one chooses cars or earrings as an example. As a result of their bias towards generalist theories, the existing consumption theories do not pay sufficient attention to differences in the way commodities are handled in for instance the traffic system, the food system, the energy system, or the housing system. The vertical approach to the 'systems of provision' advocated by Fine and Leopold, does make the "distinct set of imperatives governing different sets of commodities" visible[3].

A positive element in these neo-Marxist analyses is their focus on selection, (selective) clustering, and the ways, originating in the production sphere, in which commodities are offered. It is not possible to study (the handling of) commodities in the *consumption sphere*

without taking into account the *production sphere*. The different systems of provision constitute an essential part of the 'context' of consumption behaviour. A second positive aspect is that they do not condemn the analysis of products, their composition and the way they change, as an irrelevant aspect of the sociology of consumption. They pay serious attention to the changes that take place in the packages of goods and services under the influence of changing production methods and technologies. Instead of non-historical classifications in commodity types (like sustainable versus non-sustainable, necessities versus luxury goods, etc.), they adopt an approach that relates the changing qualities of commodities to changes in the social organization of production and consumption.

One does not have to be a neo-Marxist to recognize that the questions raised by this or a similar approach are directly relevant to the analysis of environment and consumption. Tellegen, for instance, described how social relationships in two systems of provision relevant to the environment - the energy sector and the waste sector - could influence the possibilities to establish a demand-affecting policy (Tellegen, 1989). And Ansems analyzed the possibility of solving the problem of the two apparently contradictory terms sustainable products are expected to meet, namely the wish to prolong their life span on the one hand and the wish to always be able to profit from the latest (eco)technological developments on the other hand, by 'modulizing' these products (Ansems, 1991). Both analyses deal with developments in production that directly affect the organization of consumption and the role of the citizen-consumer.

However, the positive elements mentioned are countered by the prohibitive objection that all the neo-Marxist authors discussed here tend to completely reduce the choice processes in the consumption sphere to developments in the production sphere. By doing this, they do not only ignore the own dynamics of consumption itself, but they also ignore the role of individual actors in the consumption process. The citizen-consumer only appears as a passive actor, as someone whose choices with regard to clothing, food, cars or houses are determined exclusively by the systems of provision, (post)Fordist production or the 'society at large'.

We will return to the relationships between production and consumption in sections 5 and 6, where we will try to illustrate that a contextual approach of consumption behaviour cannot limit itself to the origin of consumption goods in the various sectors of the production sphere. These sections will also show that a contextual approach of consumption does not necessarily imply a deterministic view.

"To consume is a way of exploring, shaping and confirming a socio-culturally mediated world" [P. Otnes, 1988: 20].

4. The World of Goods and the World of People: Views on the 'Meaning' of Goods for People

In 'The World of Goods' Douglas and Isherwood present an approach to consumption that links a clearly recognizable actor perspective to an institutional analysis. Although they do not refer to the work of Giddens and therefore do not embed their analysis in the structuration theory, their 'ethnographic approach' to consumption and their view on consumption as being related to the rituals or routines that provide a 'structure' to everyday life, their theory does fit the approach to consumption behaviour proposed by us. This is why in this section Douglas and Isherwood's anthropological model functions as a starting point for looking into the 'significance' of goods to people. After a general introduction to their approach (4.1) we shall discuss the views of a number of authors who, more than Douglas and Isherwood themselves, stress the role of display, taste, distinction, and envy as central elements in the process of attaching meaning. A process which, according to Bourdieu, at the same time should be seen as a 'game' which is serious in the sense that it accentuates and reproduces class boundaries (4.2). The last section of this paragraph poses the question as to what extent the 'environment' could function as a new framework for attaching significance to the way goods and services are handled (4.3).

4.1 Consumption and Reciprocity: 'Keeping to the Level'

We associate the term 'culture' in the first place with language and symbolic signs, and the term 'material culture' mainly with the reflection of this culture in buildings, art and architecture. Douglas and Isherwood, however, in their analysis associate the term 'culture' with what is reflected or expressed, as it were, in the goods that play a role in everyday life, like cutlery or washing machines. They consider these ordinary consumption goods to be the building stones of culture, of the meaningful world as actors know it and constitute it time and again: "goods are used to constitute an intelligible universe" (Douglas and Isherwood, 1979: 5). By purchasing and using or consuming goods and services, people acquire knowledge of society and its (production) organization and at the same time demonstrate this knowledge. By observing the right 'conventions' in their daily interaction with commodities, people show that they are competent and knowledgeable actors, 'knowing how to go on in daily life'. Unlike many individual choice models seem to indicate, Douglas and Isherwood also see consumption as a pre-eminently social activity. Through interaction with the products that surround them, people, together with others, construct a world of knowledge and mean-

ing. In this process, products function as 'mediating materials for relating to other people' (ibid.: 4).

From these basic principles, which constitute the core of their anthropological approach of consumption, Douglas and Isherwood enter into a critical dialogue with the economists and their approach to consumption. A critical dialogue, because economists, despite having dealt with the phenomenon of consumption for the longest time and in the greatest detail, should not have succeeded in finding satisfying answers to questions like 'why do people want goods?' or 'why do people save?' According to Douglas and Isherwood, their answers are not satisfactory because the models they work with are based on a very limited, economic reality, because they have a static (non-historic) character and because they are mainly geared to the choice behaviour of atomic individuals with regard to separate goods and services. Of course, the economic tradition boasts a few people who have adapted and partly expanded the neo-classical model. The economist Scitovsky, for instance, searched for the deeper, (even neuro-)psychological mechanisms and motives that were hidden behind the 'revealed preferences' of economic actors (Scitovsky, 1978). Others introduced less static definitions of income in order to explain saving and spending behaviour like, for instance, the term 'life-expected income' or a definition that related the income of a person to the average income of the group culture he or she belonged to.

However, even these adapted models do not suffice to explain the phenomenon of consumption which, according to Douglas and Isherwood, is primarily related to socially meaningful actions in the handling of clusters of related products and services. They illustrate the shortcomings of the 'separate actors and separate commodities model' by giving the example of buying a (terraced) house in a particular neighbourhood. The purchase of the house also determines a particular level for the furnishing of house and garden that is specific to that neighbourhood, and, especially for (working) people with school-going children, indirectly affects their choice for particular means of transport, choices which in their turn cast ahead their shadows on the patterns of future holidays and on the ways leisure time is spent, etc. These choices cannot be understood apart from the social relationships, the frameworks of meaning in which the choices for separate items are embedded. On the one hand, people are aware of these relationships and actively provide them with form and content. On the other hand, the clustered behaviour practices are also structured by housing policies, town and country planning policies, etc.

If economic models fail to provide satisfactory answers, how do anthropologists respond to questions like 'why do people want goods'? Why do people in this particular situation surround themselves with those particular (sets of) products and services? The question why, the question concerning the reasons and the (underlying) motives of people to consume

particular goods and services, is dealt with from different angles in Douglas and Isherwood's analysis and they phrase their answer on different levels of abstraction.

In the most abstract and general sense, their answer seems to be that people use goods and services in order to maintain useful relationships with as many as possible relevant others. Borrowing Bourdieu's terms, one could say that Douglas and Isherwood in this instance discuss the social activity of consumption in relation to the 'social capital' of people. The cultural anthropologist Douglas repeatedly refers to the large significance of *festivities*, that is those events that are of great importance for the reproduction of social capital. A big party, many friends, an 'open house', a good occasion; they show that goods are used to build bridges to other people. Products and services, the 'mediating materials' in this process, are themselves neutral - they can also be used to put up walls against one's own kind - and derive their meaning from the activities they are 'deployed' for.

This is the next step in the analysis that derives the value of goods from the activities they are used for. This value is therefore not readable from or inherent to the products themselves. However, according to Douglas and Isherwood, there are parties and parties. The character of joint breakfasts, or regular pub or sports nights differs substantially from that of birthday parties, graduation parties and weddings. Following the line from breakfast to wedding, there is a transition from High-Frequency-Low-Esteem (HFLO) events to Low-Frequency-High-Esteem (LFHE) events. Goods and services function - are actively used by the actors in the process - as 'markers' for specific kinds of events. Although the samovar is ultimately used for pouring coffee or tea, its 'value' is not inherent to the product itself, but depends on the role it fulfils on special occasions. Consumption as a knowledgeable activity of actors refers to the 'correct' use of products and services within a specific context. Douglas and Isherwood fill in this context in terms of festivities or occasions with different positions on the HFLO-LFHE scale of events.

Although Douglas and Isherwood on the one hand distance themselves from (economic and other) models that neglect or pay too little attention to the 'meaning' of commodities or the social dimension of consumption, they also oppose approaches that consider 'display', 'being different' or 'envy' as the most important underlying motives behind consumption. Since Veblen's theory on 'conspicuous consumption', this approach has deeply rooted in sociology. Douglas and Isherwood summarize their criticism on this approach in a single question: "How else should one relate to the Joneses if not by keeping up with them?" (ibid.: 125). The authors illustrate the fact that 'keeping up with them' can have a connotation that differs substantially from the one derived from the envy theory by pointing at the habit of 'keeping to the level' when drinking beer: New glasses are lifted at the same moment, each participant (involuntarily) makes certain that, while drinking, the beer level in his glass does not deviate too much from that of the others, and finally, the drinks are finished simultaneously too. This principle of reciprocity, of keeping pace, also applies to other forms of consumption in which

people try to 'synchronize' their consumption behaviour with or tune it to the activities of those they consider to be relevant others.

4.2 Consumption and Distinction: There is no Accounting for Classes or Tastes

4.2.1 Douglas and Isherwood on Consumption and Inequality

The process of 'keeping to the level' is a general mechanism or principle that applies to all social classes. The character of this 'level' may differ from one social category or class to another. People that belong to particular social units, do not only differ in the quantity of money they spend, but also in the type of commodities they spend their money on. Within this framework, Douglas and Isherwood distinguish three 'classes of commodities' that distinguish 'classes of people'. The 'staple set' refers to those goods that - analogous to the 'primary sector' - belong to primary necessities of life, like food, clothing, etc. The 'technology set' refers to products that - analogous to the industrial sector - represent the modern consumer equipment, those goods and services that people use as instruments to save time and work. The 'information set' finally, refers to those goods and services that - analogous to the service sector - play a role in the (formal and informal) acquisition and processing of all kinds of information, like for instance training courses.

Groups of citizen-consumers are consequently classified according to their spending behaviour with regard to the different sets of commodities, where it depends on the amounts spent and the elasticity of income per group of commodities whether one belongs to the 'small-scale', the 'medium-scale' or the 'large-scale' consumers. Douglas and Isherwood's key assumption with regard to the relation between consumption and social class is that "the consumer's rational objective is to continue to choose rationally in an intelligible world, and *to increase scale of consumption* is a rational way of trying to *control an expanding information system*" (ibid.: 178, Italics GS). In other words, an increasing scale of consumption is connected to a higher level of expenditure with regard to goods from the information set. Especially the positions of the social classes on either end of the consumption continuum are elaborated on by the authors.

At the bottom of the range are the poor, who in economic terms are characterized by a lower real income, of which a relatively large part has to be spent on staple-set commodities. According to Douglas and Isherwood, an analysis of the empiric data - derived from the situation in England up to the nineteen seventies - with regard to the amounts spent by various (professional) groups from the bottom end of the consumption scale on products belonging to the technology set shows that the poor spend less money on commodities like telephones and bank accounts. The fact that these products and services, which are indicative for the number of social contacts or social relationships a person maintains within society at large, do not score many points in the group of small-scale consumers illustrates their thesis

that "to be poor is to be isolated". Less social contacts and an (involuntary) lower consumption level imply that this group, of which the unemployed are a prototypical example, has a relatively large amount of 'time' at its disposal.

At the top of the scale are the 'top-consumers' who, confronted with the choice between consumer-durables like a new freezer or even a house on the one side, and information-set goods and services (like training courses, etc.) that play a key role in maintaining a certain information level on the other side, choose the latter option. They opt for the information set because they recognize the increasing, crucial importance of information in modern society. The fact is that in many cases they are also the ones who are involved in producing these information set commodities and who know that controlling information provides access to relevant sectors of the labour market. Another important difference with the small-scale consumers is that of time-economy, as, among top-consumers, 'time' is a scarce commodity. According to Douglas and Isherwood, this is not, with working hours staying the same, because they have to convert more income while the consumption time does not expand, as many economists argue. According to them, this is mainly because the consumption of goods and services from the information set has become a more and more time-consuming activity. The market for goods from the information set has become more hectic and competitive and the 'circulation time' of goods and services has shortened due to the increased pressure to innovate. This accounts for the 'great sense of shortage of time' within this consumer group.

In a society that is rapidly developing into an information society the contrast between poor and rich is a contrast between isolated people possessing much time and little money versus well integrated people possessing much money but lacking time. In a nutshell, this is the social background that, according to Douglas and Isherwood, explains the differences in the consumption behaviour of social classes.

4.2.2 Bourdieu on Consumption and Distinction

Yet if we understand Bourdieu well, this image of consumption behaviour as a rational activity that aims at increasing the quantity of social capital in a given time-money-economy situation, is incomplete. The fact of the matter is that the consumption of information set goods not only requires more money and time; most of all it requires a specific 'judging competence' and is therefore related to tastes. Within the consumption sphere, differences between social classes can - with economic capital not taken into consideration, of course - primarily be explained from differences in the possession of *cultural* (Bourdieu) rather than *social* (Douglas and Isherwood) capital. In his book 'Distinction', Bourdieu shows that 'tastes differ', not in the superficial, commonplace sense of the phrase, but on the more fundamental level of the class-specific habitus (Bourdieu, 1979). The habitus - 'that group-distinctive framework for social cognition and interpretation' (Lee, 1993) - of a social class, expresses itself in a preference for specific cultural practices as well as in the handling of everyday

consumption goods like, for instance, food. Bourdieu points out that, rather than 'time' and 'money', the key notion with regard to the handling of commodities is the (class-specific) power of judgment or discernment that is required for handling goods correctly. What is important is the 'mastery of the code', the ability to decipher the code that provides access to, and enables 'the consumption' of, for instance, a work of art or a tool. The lifestyles of civilian-consumers, as an expression of their class-specific habitus, should therefore not primarily be assessed on the basis of the social capital expressed by the (classes of) goods and services people surround themselves with. The key issue is the ability to interpret and differentiate, the cultural competence that expresses itself in being able to handle these products (casually).

According to Bourdieu, this mainly concerns products that come from the world of art and literature, in other words, those of the 'higher' culture, that make an appeal to a person's judging competence. "Of all the objects offered for consumers' choice, there are none more classifying than legitimate works of art, which, while distinctive in general, enable the production of distinctions ad infinitum by playing on divisions and sub-divisions into genres, periods, styles, authors, etc." (Bourdieu, 1979: 16). How a person handles goods from the World of Culture shows whether she disposes of a good, 'legitimate' taste, a 'middle-brow' taste or a 'popular' taste: taste classifies, and it classifies the classifier. No matter whether it concerns music, painting or photography or fashion, interior decoration or eating and drinking habits, the social differences always appear most clearly in the handling of products from the world of art and 'luxuries', which is hardly surprising as "the relationship of distinction is objectively inscribed with them, and is reactivated, intentionally or not, in each act of consumption, through the instruments of economic and cultural appropriation which they require" (ibid.: 26).

Assessed in terms of handling luxuries and works of art, the judging competence of classes possessing much and classes possessing little economic and cultural capital appears to differ substantially and systematically. The habitus of the lower social classes is characterized by a preference for 'quantity and functionality', where on the contrary, the upper strata, through their sophisticated forms, tend to stress their 'distance to necessity'. Where the tastes of the lower classes express a habitus that is 'forged by a lifestyle of necessity', the upper classes are invested with a habitus that is 'directly cut to the imminent requirements of the cultural and social game; they do not have to do anything but be themselves to make a distinguished impression" (Bourdieu, 1989: 5)[4]. In the discernment strategies the lower social classes play a derived, passive role; they function as the negative reference point for what is considered to be 'classy' in the sense of quality. They are the "'dark areas' that accentuate the light" (Pels, in: Bourdieu, 1989: 28)[5].

4.2.3 The Post-Modern Consumption Culture and Social Injustice

That the concept of cultural capital adds a new variable to the analysis of consumption as proposed by Douglas and Isherwood, is not the only implication of Bourdieu's analysis. His theory also differs from Douglas and Isherwood's because his analysis, rather than on the material culture of everyday consumption goods, focuses on the world of 'higher culture'.

Thus Bourdieu's work has become the central reference point for authors who consider the interaction with art and special commodities or luxuries as the central theme of the sociology of consumption. This theme has been picked up and elaborated on in the 'post-modernist debate' on the consumption culture; a debate in which the notions 'lifestyle' and 'consumption' are connected in a very tight but rather specific way. In his essay 'Lifestyle and Consumer Culture', Featherstone describes how the pre-occupation with tastes, styles and lifestyles particularly characterizes the expanding social class of people who earn their living in the culture industry: the world of advertising, the media, the film industry, etc. Following Bourdieu, Featherstone claims that "the new conception of lifestyle can best be understood in relation to the habitus of the new 'petite bourgeoisie' as an expanding class which seeks to preserve and legitimize its own particular dispositions and lifestyle. A class fraction most closely involved in symbolic reproduction" (Featherstone, 1991: 84) These groups set themselves up as the cultural intermediators that promote a general interest in style by, on the one hand, 'estheticizing' products and commodities from everyday culture and, on the other hand, by popularizing and marketing commodities from the 'higher culture' to an increasing extent, thus making them available to larger groups of consumers.

Bourdieu, according to Featherstone, "did superimpose the space of lifestyle onto a map of the class structure". He considers a too straight or direct projection problematic, as the cultural order of differences is rapidly losing its clear structure[6]: "the constant introduction of new tastes, the inflation of tastes caused by the adoption of higher group tastes by lower group tastes etc. give this field its own dynamics. Especially the popularization and marketing of cultural goods causes a leap-frogging social race to maintain recognizable distinctions" (Featherstone, 1991: 89). Factors like the increasing volume and variety of consumption goods, the increasing fragmentation of the market and fading class boundaries have just as much contributed to this own dynamic of the cultural field as the fact that the bulk of all consumption goods have become available to the bulk of the population due to the general rise in the standard of living.

4.3 Environment and Consumption: Use Value versus Identity Value?

> "We must always seek to understand consumer behaviour (..) as the outcome of a complex process that binds objective entities (physical tokens) with subjective states - 'expectations' in the broad sense, including affective impulses, imagery, social roles, and social standing" (W. Leiss, 1983: 14).

William Leiss's quote summarizes the key issues of the debate on the 'meaning of consumption'. On the one hand, it raises the question as to how the objective characteristics of products relate to the subjective elements that play a role in the handling of these products. On the other hand, it signals the fact that this subjective dimension can be described in many different ways, thus implicitly raising the question from which angle the subjective dimension should best be approached.

Initially, the environmental sciences mainly - and justly - focused on the changing physical characteristics of products, goods and services as well as on the changes in the way products and services are handled in relation to their changing physical characteristics. The changed packaging of products and its consequences for the processing of these products in the waste disposal phase, is a simple example of this. There is still a lot of significant research to be done into the changes in the objective characteristics of products which result from the striving for more sustainable production and consumption processes. If, for instance, the existing product packages are screened in the light of criteria that are derived from the requirements of a more sustainable consumption, almost all subdivisions and classifications of products, as they have been proposed in social studies, prove inadequate or not specific enough. Existing distinctions between luxuries and necessities, consumables and durables, 'material' goods and 'immaterial' services, goods belonging to the staple-set, the technology-set, and the information-set, etc., are completely mixed up or even put upside down when using the criteria of 'ecological rationality'.

The classifications and interpretation schemes proposed by environmentalists have to be 'picked up' by actors and also be applied to the consumption process. With regard to consumption, this will change the rules of the game as it were, and add new elements. Sooner or later, the environmentalist analysis will be confronted with the problem how new, objective ecological characteristics relate to the subjective dimension of the consumption process, a question environmentalists have not given sufficient attention as yet. They keep focusing on the changing use value of products instead of analyzing their symbolic or semiotic value.

If we understand the message of authors dealing with the subjective dimension of consumption correctly, to many consumers today, the symbolic or semiotic value of products has even become more important than the physical, material aspects of consumption goods. Leiss points at a curious, contradictory tendency that reveals itself in advertising: at a time when products are becoming more and more complex and an increasing amount of relevant product information has become available, advertising tends to less and less use this information and attach its communication processes more and more to arbitrary (with regard to the quality of the product) images.

One might wonder whether the question of the relationship between the subjective and the objective dimension of consumption is still a significant one. Do the physical characteristics of products still play a role in the consumption process at all? Is there, to quote Winward, in the post-modern consumption culture still room for modern consumer organizations, whose

existence is mainly based on providing independent information on objective qualities of products and services?

Allen Warde proposes the following approach to the problem: the exchange value, the use value, and the 'identity' value should be recognized as three independent values or objectives that play a role in the consumption process. It is not advisable, however, to attach absolute priority to any one of these three values. The identity dimension does not have the absolute primacy because, says Warde, with a wink at Bourdieu, it is hardly tenable to claim that particular occupational groups should prefer particular brands of cereals, or that a person's identity really stands or falls with the brands of toilet paper, sanitary towels or napkins he or she uses. The use value, on the other hand, does not have primacy either, because one does not have to be a keen observer to notice that the car industry has more to it than making products with a particular use value alone.

Therefore, all three values mentioned play a role without any of them, theoretically speaking, having the absolute primacy. But how can we assess the relative weight of each of these values in a concrete analysis? One thing is certain. A 'solution' that considers the use value to play the central role in the handling of ordinary, everyday products and reserves the identity value for goods belonging to the realm of higher culture, will lead us to a deadlock. In our view, it was the great merit of Douglas and Isherwood to have shown us that it is of little use to try and relate the discussion on the relative importance of the different aspects or values of consumption to the characteristics or inherent qualities of the products themselves: what goods 'do' to people can best be understood by analyzing what people 'do' with goods. Products and services, the way their nature and composition changes in the course of time due to technological developments, the specific handling forms that link them together, and what they mean to actors, have to be analyzed within the context of the various behaviour practices which, taken together, constitute the everyday life of citizen-consumers.

For a 'praxiology' or 'chreseology' of this kind, the consumption behaviour within the household context can provide a significant, although apparently not too obvious, point of departure. The sociological literature on consumption often treats the household as a 'black box', where the introduction and implementation of new products, techniques or equipment is concerned. Because we consider the handling of goods within the daily consumption practice of households to be of crucial importance, the subject of household consumption will be dealt with rather extensively in the next section.

5. Household Consumption

In more than one way, the term household consumption is an inadequate designation of the issues that will be discussed in this section. First of all, the notion of consumption - as the opposite of production - has the undertone of a 'passive' process of using and consuming

goods and services, as distinct from the 'active' process of producing commodities or rendering services. Particularly in the context of the household, this distinction between production and consumption is problematical. Consumption always involves 'labour', it is true, but in the case of household consumption labour - often performed by women - forms such a vital part of the consumption process, that the term 'household production' would be equally justified here. Secondly, the term 'household' is likely to be interpreted and misinterpreted in different ways. In English literature various notions are used to designate this context: home-based consumption, household consumption, household-based consumption, housing-consumption, domestic consumption and domestic mode of consumption. In our definition 'households' are all the social systems that are involved in the (re)production of everyday life in and around the home as a physical setting or 'locale' for interactions. This definition would thus include not only the traditional family in a terraced house, but also a commune in an integrated housing project or students in a students' flat.

There are many viewpoints from which to start the study into (changes in) patterns of household consumption. It is possible, for instance, to relate consumer behaviour in a rather direct way to the physical characteristics of the home (energy consumption); one can also try to explain consumer behaviour through the characteristics of the (group of) occupants, such as the different phases of the life cycle. In our view, however, only those approaches to household consumption which put the changing attitude towards products, equipment and services at the centre of everyday routines that are situated in the temporal-spatial framework, offer any perspective. We refer here to everyday routines that are carried out in a spatial setting that is itself part of the interaction process. The example of the kitchen as a setting or locale for the practice of 'cooking' illustrates this interrelationship between physical-spatial characteristics and practice.

In our discussion we will further put some emphasis on the influence of technological developments on the changes occurring in the organization of everyday life. Technological developments do not only affect the arsenal of products, equipment and services which are available to households and which they (must) use actively in the reproduction of everyday life. Technological developments - again perceived here within the broader meaning of technology systems as well as the corresponding forms of organization - also affect the relations that link the social system of the household with the world outside and thus influence the degree of autonomy or dependence of households in relation to social systems that are 'external' to the household - ranging from water supply companies to window cleaners. Finally, technological developments also affect the type of knowledge and skills vital to running the household.

The changes in the organization of household consumption resulting from technological developments, changes which are defined here in neutral terms, are interpreted and valued in extremely divergent ways by individual authors. Each of them provides a very different answer to the question why people, in the context of their household, started to apply certain

commodities and technologies, and each of them differs in the assessment of the consequences of these choices for the nature of everyday life. To start with, we will be contrasting two approaches that are both concerned with the processes outlined here, but reach different conclusions. Zygmunt Bauman analyses the changes in household consumption as a process of increasing dependence on technology, a process which, to a large extent, has come to determine everyday life, too (section 5.1), while Douglas and Isherwood describe this 'modernization of household consumption' as a development which is purposefully pursued and embraced by actors and creates the possibility of an improved 'economy of scale' of household consumption (5.2). In section 5.3 we will deal extensively with the relations or connections that households as social systems maintain with the world outside. Per Otnes' analysis of the 'public underpinnings of private life' offers a valuable starting-point here, while at the same time enabling us to discuss the issue of the 'economy of scale' of households from the perspective of more sustainable consumption patterns in relation to household consumption (5.4).

5.1 'Technology and Everyday Life': Zygmunt Bauman's Analysis

When Z. Bauman sets out to look for an answer to the question why he has started to shave electrically and why his grandmother's washtub was replaced by the washer-drier combination, he uses these changes in the organization of everyday life as illustrations of a more general process of actors' increasing dependence on technological developments. Throughout the post-war period the household has changed gradually from a situation in which manual labour using traditional methods and limited technological means, was the standard, towards a situation that is characterized by a high degree of dependence on technological equipment and the corresponding 'external' expert systems. This is something we realize all the more when our electric razor or washer-drier combination breaks down or when we try to install a VCR ourselves.

This process of increasing dependence is a gradual process which is directed mainly 'from outside'. After all, Bauman maintains, we as consumers have not asked for electric shavers and washing(-up) machines. Advertising talks us into buying them, or even urges these products on us. As an individual consumer I have no choice, as 'not joining' the technological rat race will mean loss of respect from my environment: "to restore my own and other people's respect, I truly must obtain the skilful and powerful objects which will allow me to do things properly and give me the power to do them" (Bauman, 1990: 202).

According to Bauman, the underlying motive for the application of new products or equipment in everyday life is to be found not with the citizens-consumers themselves, but primarily in technological developments. First, the new technology and the new products are developed; only then are consumers seduced into actually buying these new products. Adver-

tising serves to persuade people that they need the new products and will fall behind if they will not join the others.

The way in which Bauman outlines the dynamics in (or rather: behind) consumption does not essentially deviate from the cultural-sociological or socio-philosophical criticism of the consumer culture. His analysis contains a powerful deterministic element, in which consumers are as it were the passive 'victims' of the steadily advancing technological system. Bauman's analysis is unique in that it illustrates a technological-deterministic view through the process of 'going about the business of life', borrowing all examples from the application of everyday products in everyday life. The analysis shows, as it were, from an actor perspective in what way consumers are losing grip on their environment and their everyday lives as a result of changes in the organization of production and consumption.

People can only survive in our consumer culture if they pick up the 'consumer attitude', that is to say, if they learn to solve all problems that occur in everyday life through the acquisition of products on the market. The consumer attitude means "translating the task of learning the art of living as the effort to acquire the skill of finding objects and recipes, and gaining the power to possess them once found. Bit by bit, problem by problem, the consumer attitude refers the whole of life to the market; it orients every desire and each effort in the search for a tool or an expertise one can buy" (Bauman, 1990: 204).

The essential point in Baumans analysis is the increased application of technology in everyday life. The household turns, or even degrades, into a 'technotope' with a corresponding specific 'lifestyle' and its corresponding dependence relationships. His negative evaluation of this process of increased application of technology contains at least two distinctive elements. Firstly, increased application of technology means that technology is applied to replace labour that is performed by actors themselves and traditional knowledge and methods. In this process, Bauman finds that something is actually *lost* when for instance the problem of washing is solved by applying a machine instead of the "nimbleness of hands and the love of hard work your grandmother might have been proud of" (ibid.: 204). From a somewhat romantic vision, Bauman arrives at a negative appreciation of the fact that the modern industrial household makes less use of traditional labour and knowledge in relation to the pre- or early industrial era. The products no longer embody human labour performed by actors themselves, but instead form the material results of worldwide production networks. According to De Swaan, people "only remember the application, rather than the working or origins of everyday objects around them; the networks of knowledge and production have been extended far outside their horizon. Modern people are both as familiar with and as ignorant about their everyday environment as the most primitive tribes" (De Swaan, 1990: 40-41). The inscrutability of nature has been replaced by a just as inscrutable technological task-environment. A second element in Bauman's negative assessment of the process of increasing application of technology is that it results in the 'deskilling' of actors. He depicts the applica-

tion of ever-new products and techniques as a linear process in which households become increasingly dependent on expert systems which are external to the household. Thus, human behaviour in the context of the household is increasingly determined or defined by the developments in these external systems. With a reference to Ellul, Bauman perceives these external systems as technology systems that limit human creativity and freedom of choice in favour of an impassive, technological rationality.

5.2 Douglas and Isherwood on 'Technology and Household Consumption'

L. Uusitalo has studied the long-term changes in consumption patterns of households in post-war Europe from an empirical approach (Uusitalo, 1983). Using data from a number of industrialized countries she documents the fact that 'household patterns of consumption have been modernized', pointing out that this modernization is indicated primarily by "the increased expenditure on mass-produced products and services as opposed to the time-old tradition of home production of commodities" (Uusitalo, 1983: 126). This modernization coincided with a trend towards greater variety and diversity of products and services and increased automobility.

Whether one refers to a modernization of household consumption or analyses this process in terms of a radically increased application of technology and increased dependence, the fact remains that place and function of household consumption in modern industrial post-war society have changed dramatically and that these changes have not failed to affect the internal organization of households either. Because Bauman sees changes in household consumption as a simple derivative of technological developments, he pays little attention to the internal organizations of households proper or to actors' reasons and motives to implement or accept certain changes. To get a better view of the processes that take place in Bauman's 'black box' households, we will once again consult Douglas and Isherwood.

It will take some time before we are able to develop a theory that offers a satisfactory explanation for consumer behaviour in the context of household consumption. There is no magic formula, no passkey to the lock of 'consumer wishes', 'sets of commodities' and 'types of applications'. But when one wonders why people buy certain products, types of equipment or technology, Douglas and Isherwood suggest that the working hypothesis that they do this to increase their 'personal availability' offers a more promising starting point than theories which explain purchasing behaviour from the wish to satisfy needs or the urge to show off, or similar motives. Products are employed to achieve a reorganization or rationalization of the household in such a way that people set themselves free to carry out other tasks or engage in other activities. To the anthropologist Douglas, the desire to liberate oneself - through technology - from household tasks is, as pointed out above, strongly linked to the necessity to be available for activities that increase the status of actors in terms of an increase in social capital: visiting friends, organizing a big party, etc. This specific applica-

tion of the motive behind the increase of 'personal availability' is less important to our goal than the working hypothesis itself[7].

An important characteristic of household labour is that it consists for a large part of periodically recurring activities or jobs that cannot be put off. Douglas and Isherwood illustrate these 'periodicity constraints' of households, as they call them, by means of two types of activities, without further differentiating these two types analytically. On the one hand there are the household routines that are better known as 'chores': making the beds, cooking dinner, cleaning the bathroom, doing the shopping, etc. On the other hand there are the activities relating to child care and upbringing: breastfeeding, taking the children to the day-care centre or school, the daily care of an elderly parent living in your home, walking the dog, etc. These are activities that each have to be performed according to a fixed pattern in time; as partly complementary activities, they result together in a more or less constraining 'pattern of periodicities of household processes'.

In relation to the periodicity of household labour Douglas and Isherwood introduce two further assumptions. First of all, constraints are held to differ with social class or status groups, according to the principle that "the higher the status, the less periodicity constraints; the lower the status, the greater periodicity constraints". Secondly, they are directly linked to the division of roles between men and women: "the most general account of the division of labour between the sexes that fits everywhere would be based on the periodicity of women's work" (Douglas and Isherwood, 1979: 120). Because a number of high-frequency tasks literally and figuratively limit the action radius of people - in this case mostly women - in their efforts to arrive at a greater 'personal availability', they will naturally try to get burdened with as few of these tasks as possible. Douglas and Isherwood are rather positive in their formulation when they observe that "anyone with influence and status would be a fool to get encumbered with a high-frequency responsibility" (p. 120). People will try to hive off these tasks to third parties (babysitter, domestic help, window cleaner, etc.) and/or try to reduce the claim on personal time by 'rationalizing' the labour involved, through the application of technology. People make use of commodities and services in order to free themselves from the most demanding tasks that belong to their specific consumption scale. For this reason, 'scale-facilitating goods' form the key to understanding when we are looking for the relationship between technology and household consumption.

The essential point in the analysis of Douglas and Isherwood is that actors in their efforts to attain a higher personal availability are trying to free themselves from the demand on time that High Frequency Low Esteem tasks involve. Moreover, actors will also first purchase those products, pieces of equipment or services which increase their 'scale of consumption' (section 4.2) and with that, their personal availability. They will look for an 'economy of scale', in relation to household consumption, at a continuously higher level and they will therefore not hesitate to use the products or the particular technology that will contribute to

the increase of the scale-of-consumption-level. The analysis of Douglas and Isherwood is significant because they relate developments in patterns of consumption at the institutional level directly to the processes that take place within the households proper. At the same time, they point out that these processes do not (only) intrude upon households from outside and somehow determine them in their behaviour, but that they can be perceived as the result of efforts and motives of actors who actively design their everyday lives.

However, we propose to modify two issues in the approach suggested by Douglas and Isherwood. We will discuss these issues in the form of a qualification and a supplement of their analysis, in that order.

In our view, the qualification entails the necessary distinction between various types of household activities and the apparently inextricable linking of household activities to the division of roles between men and women. Douglas and Isherwood classify all household tasks and activities according to the high-frequency-low-esteem and low-frequency-high-esteem continuum. It appears to us, however, that the equalization of high-frequency tasks and low-esteem labour is not as universal and absolute as suggested. When the authors point out that household jobs (chores) "tend to be ranked as menial tasks, and the goods associated with them, however necessary and intimate, ranked as ordinary stuff, of low value" (p. 118), this assessment scheme - apart from ignoring the fact that some people take pride in these chores, too - can hardly be applied to the care of children, for instance. Although both types of tasks are confined to a fixed time slot, the emotional value of feeding the baby or even changing its diaper is different from the emotional value of vacuum cleaning or cleaning the bathroom. We also need to qualify the 'iron link' between household tasks and the division of labour between men and women. Although male participation in household labour has certainly not kept in line with the increased participation of women in the labour market, we do observe a 'diffusion' of the cultural order of the differences between the sexes in this field, too. However, even without a rigid linking to the male-female division of roles the author's principle remains valid that "changes in lifestyle ought to be recognizable by a change in the pattern of periodicities in household processes" (ibid.: 122).

The analysis of Douglas and Isherwood requires a supplement when, in their debate with economists, they limit themselves to the application of goods and services in households which are 'purchased' on the market. Market relationships are only an example of the different ways in which households are embedded in a broader institutional context. For a proper understanding of the technology that is applied, and of the products and services that are employed in combination to increase the scale of consumption, the embedding of households into public, collective systems is of great importance. The next section is devoted to this institutional embedding of households.

5.3 Per Otnes and his Plea for a 'Chreseology of Consumption'

> "Durkheim's organic solidarity has acquired more of a socio-material body, now that piped water, sewage, electricity, gas, telephone, radio, television etc. are in fairly general use" (P. Otnes, 1988: 132).

If someone should ask me why I was doing the dishes, it would not - according to P. Otnes - be unlikely for him or her to receive the simple answer: 'because it is my turn'. The answer shows how much of our everyday life has turned into a routine, that is to say, how many of our activities are performed according to fixed, recurring temporal-spatial patterns. Because so many of our actions are carried out automatically, we do not interpret the question why we are doing the dishes as an invitation to reflect upon the organization of everyday routines and the time schedules, equipment and physical setting which we use as 'media' for our actions. Still, Otnes argues, we as actors would be wise to become reflexively conscious of the actions which we carry out, usually effortlessly and thoughtlessly, as everyday routines. If we were to dissect an 'ordinary day' in our discursive consciousness, the analysis would prove not only that our everyday lives are characterized by a large number of periodicities (Douglas and Isherwood) but also that our individual private lives are tied to the use of a large number of supra-individual, public services and systems. To illustrate this, the author outlines the course of the first part of an 'ordinary day' for himself and many others: we are woken up by the radio alarm clock (system 1: broadcasting), visit the toilet (system 2: sewage system), turn on the central heating (system 3: district heating with total energy power plant), then we take a shower (system 4: water supply). We boil some water to make the tea (system 5: gas network), collect the newspaper and other post from the letterbox (system 6: postal system). After breakfast we deliver one child at the day-care centre and the other at school (system 7 and 8: day-care and school system) and finally take the car or bus to go to work (system 9: transport system).

We could carry on with this description of an 'ordinary day', but from this sketch of the course of the first hour of the day it already becomes clear that it is not very useful to study household practice or routines in 'isolation'. "Much of our everyday routines, on reflection, prove to be shaped, guided, mediated by - and in the long run also actively shaping, guiding, changing, mediating - our *collective socio-material systems*" (Otnes, 1988: 131). These collective systems are defined by Otnes as "a fairly accessible or used subset of the material built environment, plus the interactions typically oriented to that subset, somehow capable of connecting all its actors or users" (ibid.: 120). These socio-material collective systems form the public underpinnings of private life and their influence is so omni-present that Otnes gears his definition of consumption in the household context to them: consumption "in actual fact consists of being served by, and serving, a number of essentially collective socio-material systems i.c. of the competent, knowledgeable use and maintenance of such systems".

The image Otnes evokes of household consumption depicts the household as an organizational unity which is connected through a set of 'terminals' to the collective systems corresponding to those terminals. The letterbox, the socket, the lavatory and the tap form the physical circuit linking the actions within the household with the world outside, the broader institutional context. Where we used to see relatively independent, isolated units, we now see that households in the course of time have been 'connected' to an ever-closer network of socio-material systems. It is against this background that we must see Otnes' conclusion that Durkheim's notion of organic solidarity has received as it were a material form of expression in modern society.

At first sight, Otnes' approach to household consumption seems to confirm Bauman's thesis that our actions are to a great extent determined by external (technological) systems. For with regard to the systems mentioned, the following rule applies: 'You either use the collective systems, or do without the type of services they provide' (ibid.: 160). Otnes himself, however, points out clearly that his plea to make the use of collective, socio-material systems the central issue in the analysis of consumption, does not at all imply that actors do little more than follow the imperatives of technological systems. First, he points to the fact that, for a successful handling of these systems - their purchase, maintenance, reparation, modernization or replacement - certain skills are required on the part of actors, who, to a certain degree, must be familiar with the way these collective systems function. For a 'trouble-free' course of daily routines a certain compatibility between users and socio-material systems is required: 'many non-neophyte users come to establish their own cycles of routine control and maintenance of the systems' (ibid.: 136). Secondly, he points out that most of these socio-material systems are the subject of political discussions at a regional, national or even international level and that actors do not only take part in the reproduction of these collective systems in their role of 'user-consumers' but also in that of 'citizens'. Therefore, there is no real ground for the assumption that household consumption would be a more technical or non-political issue than, for instance, industrial production.

The emphasis Otnes puts on collective, socio-material systems can best be understood as a consequence of his critical comments on Douglas and Isherwood's analysis of household consumption. An analysis which, as we have seen before, focuses to a great extent on the purchasing, use and consumption of (sets of) goods and services *bought on the market*. It is true that Douglas and Isherwood - criticizing the 'independent product flows' that are so popular with economists - emphasize the fact that products are inter-dependent and that decisions about product X that are made in the present, have consequences for decisions to be taken at a later stage about product Y, etc. Nevertheless, according to Otnes, in their definition of and general approach to consumption patterns they show insufficient understanding of the interdependence of products which results from collective systems playing a part in private, household consumption. Moreover, on account of the strong emphasis Douglas

and Isherwood put on the dimension of meaningfulness in their theories about consumption, the aspect of 'practical use' retreats into the background.

With his analysis of collective, socio-material systems, Otnes tries to explore the 'framework' or context within which the goods and services bought on the market will be actually 'used'. This way, they are allotted a context-specific place and function within day-to-day consumption patterns. To a certain degree, these contexts or frameworks are unique and specific for individual households, but they are also partially reproduced in cooperation with other households. This concerns frameworks or contexts that are specific to household consumption and therefore cannot be analyzed on the basis of concepts and theories that were developed in connection with processes in the production sphere.

For Otnes, the analysis of these use-related contexts of goods and services is such a crucial issue that he even proposes to give it a specific name. The term he uses in this connection is "the chreseology of consumption", a branch of the sociology of consumption that should aim at charting and studying extensively the different 'use provinces of everyday life' (ibid.: 163). The author illustrates the importance of studying products within their use contexts with the following example. Imagine a congress visitor who has to spend a few nights outside the context of household consumption, e.g. in a hotel. Between discussions he pays a visit to the town and instead of visiting a souvenir shop, he walks into an ordinary grocery store. 90% of the products at display there, to the congress visitor will appear of 'no use' to him. Most groceries turn out to be merely things to look at, as soon as one is deprived - be it on a voluntary basis, in this case - of the use context these goods are strongly associated with: kitchen, cooking utensils and technology, as well as the collective socio-material systems that are conditional to their proper functioning. The realm of the kitchen is a so-called 'use province of meaning', a term that can be considered to be the materialization of the concept introduced by Schutz, 'provinces of meaning of everyday life'. These use provinces of meaning should, on the one hand, be studied in connection with the everyday activities of actors and, on the other hand, be analyzed in connection with the collective socio-material systems transcending individual households. In other words, as the physical-spatial settings or 'locales' for everyday household consumption routines, the use provinces are subject to the functioning of the duality of structures. In the next section we will use the approach proposed by Otnes to specify the demand for more sustainable household consumption practices.

5.4 Technology, Environment and Household Consumption

How can the understandings of the sociology of household consumption mentioned above, be put to use in the debate on more sustainable life styles and consumption practices? This will be the central issue in the conclusion of this section. We will try to link the developments within the institutional context of household consumption - the changing patterns of

household consumption in modern society - with attempts made by actors to establish more sustainable life styles in the context of household consumption.

In an earlier study we have defined the pursuit of more sustainable life styles as the efforts made by actors to optimize their use of the available environmental utilization space by changing different sectors or segments of their life style. Actors draw up 'environmental profiles' for the separate segments of their life styles, followed by a process of 'creative bookkeeping' in which the available environmental space - given the means an actor has at her disposal in terms of economic, social and cultural capital - is divided optimally among the different life style segments. This process, we found, will differ for each separate household due to differences in their economic, social, cultural and ecological starting capital. The question concerning the ability of consumers to adopt more sustainable life styles should be approached from two different angles. On the one hand, this question refers to the access actors and households have to the rules and resources that constitute the different consumption practices. On the other hand, the issue of the relative power of citizen-consumers should be connected with the distribution of rules and resources within society, with processes that take place on an institutional level. This concerns the various environmental policy measures taken by authorities, companies and social organizations. They constitute the structures, the sets of rules and resources actors (have to) use in constituting their practices (Spaargaren, 1994: 30). Both ways of approaching these matter are displayed in fig.1. By approaching social practices within the 'domestic mode of consumption' from the left-hand side and from the right-hand side successively, one can get hold of the idea of the interplay between action and structure.

In our view, credit is due to Per Otnes for having given an onset to the formulation of a theory of household consumption in which the central issue is the interaction between the organization of everyday life by actors on the one hand, and the influence of the institutional context on the other hand. With his plea for a chreseology of consumption the author advocates a thorough investigation of the ways in which actors deal with the opportunities and constraints connected with the collective socio-material systems involved in the reproductive activities of everyday life. Unlike Douglas and Isherwood, he focuses on the collective systems that structure household consumption as the central element of his analysis, without relapsing, like Bauman did, into a determinist explanation model for the way people handle products and technology.

So far, the policy debate on sustainable consumption patterns and life styles has concentrated on the purchase of ecologically sound products by consumers on the market, an activity in which the citizen-consumer is 'coached' by various forms of product information and economic stimuli. A policy strategy aimed at citizen-consumers in order to promote more sustainable life styles and consumption patterns should, against the background of the approach presented here, not limit itself to consumer behaviour 'on the market' but should

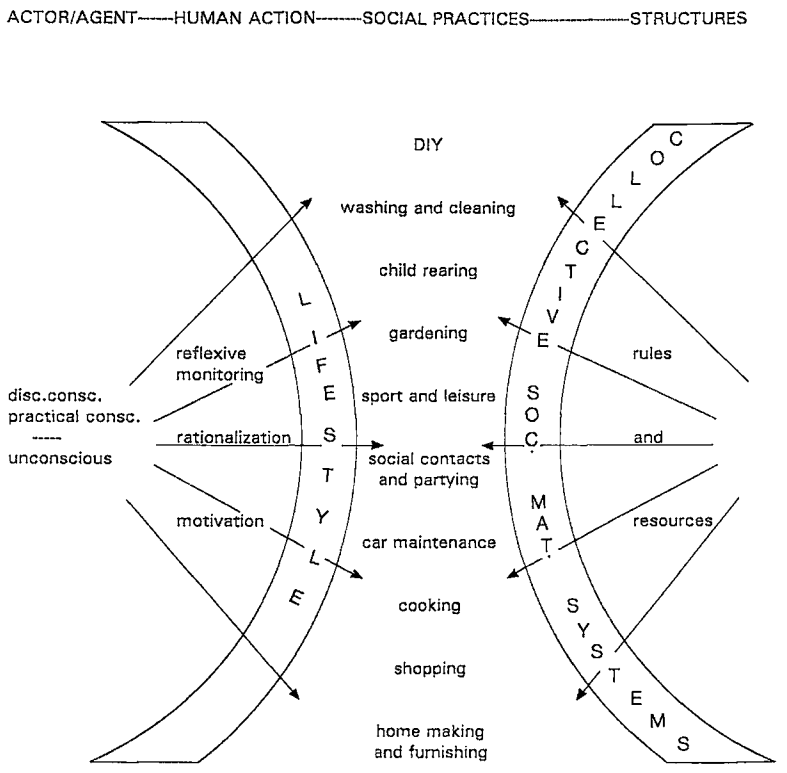

Figure 1 : Social Practices within the 'Domestic Mode of Consumption'

also be directed at intermediary organizations and systems which can have a direct influence on changes in household consumption patterns.

In the first place, an analysis should be made of the shifts that have occurred in society during the last few decades with regard to the organization of consumption, and of the opportunities and impediments these shifts caused with regard to sustainable life styles and consumption patterns. The next section will explicitly discuss the shift from public forms of consumption, organized by the state, to private forms of consumption, organized by the market. This section explicitly dealt with the changed place and function of household consumption. We found that the post-war modernization of household consumption has caused a shift from 'autonomous' household units, relying strongly on personal manual labour, towards units connected with various collective socio-material systems which, with the help

of the available technology, have disposed of most of the manual labour due to rationalization.

Through these changes in the social position and function of household consumption, the demand for a more sustainable consumption in a household context has, to a greater extent than before, become dependent on the developments in the socio-material systems households (have to) use. For a policy that aims at establishing more sustainable consumption practices, the question whether or not these collective socio-material systems have a sustainable character themselves, has become particularly relevant. From the viewpoint of a sustainable development, the question is to determine the optimum organization scale for consumption and the relation between activities (the use of labour) at household level on the one hand and those at higher or other levels on the other hand.

Out of the almost endless range of variations that are possible within this context, Alan Warde uses the process of food consumption as an example. Household units - provided their members have enough space and time at their disposal - can themselves produce raw materials and process these along more or less traditional lines to food. They can also buy their materials in unprocessed form at the grocery's or the butcher's and process them in the classical way, with or without a whole range of technical appliances. They can 'store' the materials in a more or less processed form and serve them at table, adding only minimal extra effort. They can have (frozen) meals delivered at home by catering services. It is also possible to eat outside, in (chain) restaurants, and in theory, they can even try to persuade the authorities to organize the distribution of free food from public kitchens. Up till now the literature has discussed the great variety in the organization of food consumption by households exclusively against the background of the social significance citizen-consumers attribute to food consumption (indoors - outdoors; own labour - labour by others, etc.), the increase in consumer options and the demand on time and money budgets involved in each option. The claim on the available environmental utilization space is not yet considered an issue that deserves empirical and theoretical attention.

The example of food consumption could be extended with many other examples, for instance with the example of shared washing facilities that we presented in our introduction. No matter whether washing behaviour (with regard to clothes, napkins, cars, crockery, etc.), or heating methods (with solar collectors, district heating systems, central heating systems, stoves, etc.), or house maintenance and reparation (D.I.Y, professional contractors or fitters, neighbours) are concerned, it is always possible to look into the most sustainable alternative in the organization of household consumption practices. The fact that the discussion on a more sustainable washing behaviour, so far has mainly focused on the issue of the least environmentally harmful detergent, indicates that there is still a broad field for research and theory development ahead of us. Should this kind of research lead to the conclusion that, from the viewpoint of the desirability of sustainable life styles and consumption patterns, consumption - interpreted as 'the serving and being served by collective socio-material

systems' - should move (back) to public spheres, then the question arises whether this 'return to the public sphere' should automatically lead to a more important role for the government in the organization of consumption patterns or whether these services can also be provided by the market. The closing section of this survey deals with the issue of state-organized consumption versus market-organized consumption.

6. Sustainable Consumption and the Market or State Provision of Goods: the 'Social Balance' Thesis

An important contribution to the sociology of consumption was made by a group of British sociologists and social geographers who, until recently, were mainly involved in urban sociology. Their approach that regarded the town as a 'locale' for industrial production was exchanged for an approach that regarded it primarily as a reproductive unit: the location where the 'factor labour' is fed, transported, educated and entertained. Or rather, the place where the workers, by using an available supply of services and facilities, have to feed, clothe, educate and entertain themselves. This resulted in an urban sociology approach of consumption that concentrated on 'collective consumption' as its object of study (Castells, 1977; Dunleavy, 1980; Saunders, 1987, 1988). In view of the neo-Marxist or ex-Marxist background of this group and their consequent interest in issues like inequality and social classes, it will hardly be a surprise that their studies on collective consumption mainly focused on the new forms of inequality and class differences that characterized the modern consumer society. Saunders directly related the hypothesis of the rise of new consumption classes, of a consumption cleavage within the modern consumer society, to the differences between the market and the state as providers of goods and services. In the modern society, the so-called 'privatized mode of consumption' has become the predominant form at the expense of the 'socialized mode of consumption'.

First, we will discuss P. Saunders' thesis that the predominance of what he calls 'the privatized mode of consumption' should be welcomed, as this form of consumption leads to more freedom of choice and self-determination opportunities for the citizen-consumer (section 6.1). That this privatized mode of consumption also has its drawbacks, was put forward by Bauman, who pointed at the risks involved in the individualization of social problems. Implicitly, Bauman brings back a question that Galbraith had already formulated in the sixties, namely that of the 'right balance' between state provision and market provision (section 6.2). According to Allen Warde, the contrast between a 'privatized mode of consumption' and a 'socialized mode of consumption' is based on a simplification of the difference between market and state provision of goods and services and a more differentiated and more balanced approach is required (section 6.3). Again, we will conclude with the question

into the implications the discussion on market versus state provision should have for a policy directed at ecologically sound consumption practices and life styles (section 6.4).

6.1 Pete Saunders and the 'Privatized Mode of Consumption'

As Saunders' analysis has become the central issue in the debate on consumption cleavage, we will present it briefly here. Throughout history, the author claims, the contributions of the market and the state to the provision of goods and services have always fluctuated. A 19th century period in which the 'market mode' (no state interference; volume of consumption left to market and charity) predominated, was followed - after World War II - by a period in which the state, through a great number of rules and regulations, tried to regulate the consumption volume: the 'socialized mode of consumption'. Towards the end of the seventies and especially in the eighties this organization form of collective consumption had to give up its predominant position in favour of the so-called 'privatized mode of consumption', according to which citizen-consumers, through goods and services obtained on the market, satisfy their consumption needs themselves.

As we mentioned earlier, the transition from the 'socialized mode of consumption' to the 'privatized, individual mode of consumption' is the central issue of the consumption cleavage debate. This debate cannot be considered without linking it to the Thatcher government (from 1979 onward) that managed to cause a gap in the ranks of social scientists studying the welfare state. During the eighties people in the UK witnessed a phenomenon that many social scientists in the seventies would have considered impossible: a decrease in state influence; in Saunders' words: "the state has been 'rolled back', albeit slowly and unevenly, in significant areas of economic and social policy" (Saunders and Harris, 1990: 58). If we are to believe Saunders, this should be considered a positive development, in the interest of the citizen-consumers. When given the means and opportunities, people will consciously opt for the 'privatized mode of consumption', as is shown by their preference for privately owned houses instead of rented houses and for private cars instead of public transport. Within the privatized zone of consumption, the citizen-consumer has more personal influence because of the 'exit option' the market offers to her, an option that goods supplied by the state lack. Within the 'socialized mode of consumption' customers or consumers do not have the opportunity to punish the state for the bad quality of goods and services - which seems to be a persistent flaw - by deciding not to use them any more. Historically, Saunders claims, the socialized mode of consumption will prove to have been a transitional stage, "a period when the state performed a 'holding operation' in order to cover people's basic consumption needs *until such time as they were able to reclaim responsibility for providing for these needs themselves*" (Saunders, 1987: 316, Italics GS). An increase in the standard of living, among other things, resulted in a 'culture shift' in industrialized society, with the result that "most

people prefer to buy a car rather than to rely on public transport, to buy a house rather than to rent from the local authority, and so on" (ibid.: 316).

The fact that not all citizen-consumers are able to take part in this culture shift, has resulted in a consumption gap that has opened between a reasonably prosperous majority, able to satisfy its needs on the market and a poor minority that remains dependent on the provisions of a decaying welfare state. New class differences are drawn up along the dividing line between owners and non-owners of the 'key means of consumption': "The majority satisfies most of its consumption requirements through private purchase (subsidized where possible by the state through income transfers, discounts, tax relief or whatever), while the majority is cast adrift on the waterlogged raft of what remains of the welfare state" (Saunders, 1987: 318). The metaphor of the welfare state as a waterlogged raft serves to illustrate the process, or rather the downward spiral resulting from the development that more and more relatively well-to-do people opt for private solutions, a development that will weaken the public support of state provisions to an increasing extent.

In Saunders' view there is no way back. The privatized mode of consumption will increasingly penetrate those fields that so far have been under state control. Education, health service, social security will have to be brought in line with the mechanisms of the market. Saunders' motto is: opt for the market where possible and as soon as possible. He presents his theory as a variant to Gorz' thesis on the dual society. Eventually a society will emerge where, along with the heteronomous sphere of production (the realm of 'necessity') an autonomous sphere will be created in which free consumers will determine their own fortunes through private consumption. The role of the state in the organization of consumption will be restricted to forms of direct income transfer to socially weak groups, in order to allow them access to the realm of free, autonomous choice too, to that miracle of autonomy and self-determination we know as the 'free market'.

6.2 The Necessity of a 'Social Balance' between Market and State Provision

With his remark that the consumer attitude "refers the whole of life to the market" Bauman refers, as Saunders did, to the growing predominance of the 'privatized mode of consumption' within modern consumer culture. All problems must be solved by the people themselves, by purchasing goods and services on the market. The new contrast between 'the seduced' and 'the oppressed' that Bauman observes, also accords with Saunders' thesis of a dual society. However, the authors differ in their assessment of these developments in consumer culture. Though Bauman too, emphasizes that the 'privatized mode of consumption' entails more freedom and more opportunities for self-expression, he is much more aware of the drawbacks of these developments in consumer culture. One of these is the 'de-skilling' of actors, caused by new forms of dependence on the part of citizen-consumers on technology

and the know-how of experts (see section 5.1). A second drawback is the tendency towards privatization of supra-individual, social problems. The consumer attitude "makes life into an individual affair", it proposes individual solutions to social problems and reduces problems that call for political solutions into questions that can be solved in the private sphere. The examples listed by Bauman include the 'solution' of noise pollution by installing double glazing; the 'solution' of urban air pollution by buying eye drops; responding to a degenerated public transport system by buying a private car, etc. Social problems that were previously solved in the public sphere, c.q. by the state, are now passed on to the individual who has to find a solution in the private sphere with the help of means he or she has to buy on the market (Bauman 1990: 204). For some social problems the 'privatized mode of consumption' does not offer the best solutions, which justifies the question which 'division of tasks' between market and state is desired and required with regard to the provision of consumer goods.

Back in 1958, when Galbraith wrote his critical review on the 'Affluent Society', nobody would have thought of a consumption cleavage debate in the UK as a reaction to the privatization wave that would flood British society under Margaret Thatcher's regime. Nevertheless, Galbraith's plea for a 'social balance' between the provision of goods and services by the private market sector on the one hand, and by the state or public sector on the other hand, ultimately originates in the same problem. Galbraith defined social balance as "a satisfactory relationship between the supply of privately produced goods and services and those of the state" (Galbraith, 1969: 225). The funny thing is, Galbraith says, that in the production sector the concerted development of different subsectors of the economy is the regular practice. If the car industry wants to produce more cars, the steel industry has to step up its production accordingly. However, more cars means more roads, car parks, police and hospitals; goods and services that are only partly provided by the market and that, normally speaking, will make new demands on public (state) resources. Imbalance is produced where the private flow of products keeps growing and the (planning of) public expenditure is lagging behind.

In principle, decisions on the level of expenditure are political decisions. However, as soon as public services are concerned, a debate starts about their financing and, consequently, on the distribution of the financial burden among the population. According to Galbraith, this is one of the main reasons why "all private wants, where the individual can choose, are inherently superior to all public services which must be paid for by taxation and with an inevitable component of compulsion" (Galbraith, 1969: 237). In other words: in the market sector, there is a direct relationship between 'paying and enjoying', a relationship the production of public or collective goods lacks. People, Galbraith seems to say, will rather opt for a VCR than for a good education. Without active interference on the part of the state, not only with regard to the production sector but also with regard to the provision of consumer goods and the public infrastructure which is a precondition for the consumption of goods and

services, we will end up in a situation where people in the latest type of Cadillac are cruising through a totally deteriorated scenery on their way to a lavish picnic on the banks of a completely polluted stream.

6.3 Allan Warde on Market Supply set against State Supply

According to Allan Warde, both Bauman and Saunders in their analysis of consumption start from a too unambiguous distinction between consumption within a market and within a state context. Especially Saunders makes a caricature of the way the state supplies goods and services. When writing about the market context, he does not spend a single word on the social determinants of consumption behaviour, the market power of producers, or the negative effects of the 'ideology of consumerism', and simply starts from the premise that "market choices give meaning to individuals' life through consumption" (Warde, 1990: 231). When, on the other hand, the subject changes to public services, the stress is on dependence, lack of options, inferior quality and obligation. He considers it some kind of 'rest category' in comparison with the market supply of goods and services. In Saunders' analysis, the 'privatized mode of consumption' and the 'socialized or collective mode of consumption' as two prototypes of consumption are set against each other in roughly the following way:

Mode	Privatized	Collective
property rights	ownership	non-ownership
access	purchased	allocated
control	consumer	bureaucratic
sector	market	state
quality/satisfaction	good	poor

Figure 2 : Two Modes or Contexts of Consumption [Warde, 1990: 232]

According to Warde, working with these two prototypical forms of consumption would rather lead to a distorted image of reality than contribute to acquiring more insight into it. To a large extent, the model is derived from the handling of one kind of product, namely the house. Private ownership of a house is supposed to be one of the indicators for the existence of a consumption gap, the dividing line between the new social classes within the consumption culture. Attempts were made to show by way of empirical research that these new

dividing lines would also express themselves in the preference for particular political parties (Dunleavy, 1980; Saunders and Harris, 1990).

Although the superiority of the privatized mode is arguable even in the housing sphere (Kemeny, 1980), it is important to realize that what is investigated here is indeed an important, yet single consumption good, and that private house ownership cannot function as a model for the way the pluriform package of goods and services is handled. As soon as commodities other than houses are at issue, for instance the linking of 'ownership' and 'control' and the relation to 'quality' becomes less unambiguous. A second major objection to the model is that it distinguishes only two major forms of consumption, and thereby passes over consumption in a household context as well as the handling of consumption goods in the 'informal' economy of neighbourhood and family networks.

Finally, equating consumption with the purchase of goods, in line with the model of products that are sold across the counter, is also disputable. Consumption is more than the purchase of goods. There are many different ways of supplying products, maintaining products, and disposing of products. If these stages or episodes in the production-consumption cycle are also included in the analysis, a bi-polar model like the one used by Saunders really proves to be an unadmittable simplification of the consumption process. In various articles, Warde therefore developed a number of alternative multi-dimensional models that do more justice to the complex character of the consumption process (Warde, 1990, 1992, 1994).

6.4 Sustainable Consumption and the Changing Relations Between the Private and the Public Sector

The theory of the ecologic modernization of production and consumption deals with the changes that are taking place on various levels of society due to the fact that the 'environment' is no longer considered a factor that is 'external' to social reproduction. As J. Huber initially formulated it, the theory to a large extent focuses on changes in the production sphere. Within the context of the production sphere, a major role is attributed to private actors and the role of the state is restricted to initiating and controlling developments in the market sector. The supplements and amendments to Huber's theory with regard to the role of the state that we proposed elsewhere (Spaargaren and Mol, 1992), are also - and possibly to an even larger extent - valid when this theory is applied to the organization of consumption in modern society. As the sections 5 and 6 show, the role of the state is of vital importance where the adjustment of existing consumption patterns in the direction of a 'sustainable development is at stake. In the 'public underpinnings of private life' the provision of goods and services by the state is still essential, as Otnes has shown. And from the point of view of sustainable development, the issue of the 'social balance' between market provision and state provision of goods and services belongs to the key themes of the sociology of consumption.

When environmental policy makers associate the concepts of sustainable consumption patterns and lifestyles with an increased 'consumption' of public goods and services, provided by the state or other institutions (think of stimulating public transport; promoting the image of the 'pooling citizen' interacting with consumption commodities, even using launderettes and diaper services), the question arises how this 'public image' of a sustainable consumption culture relates to the 'culture shift' which is connected in the existing literature with the predominance of the 'privatized mode of consumption'. In his study 'From Vaudeville to Video' W. Knulst recorded the decline of public forms of entertainment since the 1950's (Knulst, 1989). This decline was directly related to the increase in home-based forms of entertainment centring around TV and video. His study has shown that - at least in the leisure time sector - the 'privatized' mode of consumption' does entail a marketization and privatization in the sense of a stronger focus on private life. The author concludes his study with an epilogue in which he warns against 'the growing indifference with regard to the use of public space'. Literally he states: "People who do not consider the public space to be a place that has to surround them time and again, will have less scruples about abusing and fouling the 'empty nest' (vandalism/criminality, GS)" (Knulst, 1989: 232). There still are challenging subjects open to research in the field of the sociology of sustainable consumption patterns.

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Notes

1) The concept of 'consumer' is used in all kinds of contexts and the literature does not agree on the scope of the concept (Keat, 1994). The concept of 'citizen-consumer' expresses that there is more to consumer behaviour than the actions of citizens as economic agents in the market sphere. For the sake of readability, this article will use the term 'consumer'.

2) Because of the positive stress on the role of high quality (eco-)technology, the ecological modernization theory is sometimes also referred to as a 'technological fix' approach. However, the idea that, for instance, the environmental consequences of transport system in our supermobile society could be sufficiently combatted with some new kind of clean supercar does not have anything to do with the core of the ecological modernization approach. For a further elaboration on the role environmental technology can play on various technical and organizational levels, the reader is referred to Mol and Spaargaren, 1991.

3) In their book, Fine and Leopold correctly criticize the generalist character of many consumption theories. However, the authors do not succeed in proposing a solution to this problem on a theoretical level, because they take refuge in empirical research that does not go beyond illustrating that differences between the food and the clothing sector do exist. They fail to draw conclusions from these empirically established differences that would also apply to other sectors or 'systems of provision'.

4) This is the reason why Bourdieu points out that his theory, unlike often suggested, is not a contemporary version of Veblen's conspicuous consumption theory, that considers the *conscious* display of distance to the realm of necessity as the essential issue.

5) A separate essay could be written on Bourdieu's thesis regarding the more differentiated perceptivity on the top of the social ladder. A worker in modern shipbuilding will recognize the type of battleship or cruiser the moment a ship appears on the horizon as a tiny dot. And where people disposing of much 'cultural capital' will usually classify different production lines, types, versions and even brands of cars in the category of 'means of transport', workers in this branch will 'as a matter of course' be familiar with the relevant differences. Schuurman suggests that it might be possible to rephrase Bourdieu's thesis in a more

general sense: "By definition, insiders observe in more detail than outsiders and therefore see a wider range of options" or differences (Schuurman, 1989: 25).

6) It should be considered that Bourdieu based his analysis largely on empirical data collected in France in the 1960s.

7) In our view, the wish or necessity for a more intensive participation of women in the labour process is an equally important motive; in addition, the increase of 'obligations' or activities in the fields of leisure, recreation and tourism may be mentioned as a determining factor.

Samenvatting (Summary in Dutch)

Milieusociologen maken studie van milieubederf en milieubeheer als maatschappelijke verschijnselen. Zij bestuderen de manier waarop milieuproblemen samenhangen met de organisatievorm van de moderne maatschappij alsmede de wijze waarop het tegengaan van milieubederf onderdeel wordt van de reflexieve sturing van de samenleving door gouvernementele en niet-gouvernementele actoren. De centrale stelling die in het proefschrift wordt ontwikkeld is, dat milieuproblemen de inzet kunnen en moeten vormen van een moderniseringsproces dat erop is gericht milieu-overwegingen blijvend te verankeren in de organisatie van de productie- en consumptie-cycli die het industriële karakter van de moderne maatschappij bepalen. Door dit proces van milieu-geïnduceerde veranderingen te bestuderen op het niveau van de institutionele organisatie van de samenleving en op het niveau van de organisatie van het alledaagse leven, kunnen sociologen een bijdrage leveren aan zowel de milieuwetenschap als het milieubeleid. De theorie van de ecologische modernisering van productie en consumptie zoals in eerste aanleg ontwikkeld door Joseph Huber en Martin Jänicke, representeert een van de centrale stromingen binnen de milieusociologie en kan worden gebruikt om tot een beter inzicht te komen in processen van milieuverandering in samenleving en beleid. In de verschillende hoofdstukken worden steeds onderdelen van de ecologische moderniseringstheorie verder ontwikkeld en besproken tegen de achtergrond van de sociaal wetenschappelijke en in het bijzonder de sociologische literatuur.

In hoofdstuk 1 worden de hierboven beschreven doelstelling en algemene benaderingswijze van de ecologische moderniseringstheorie nader geïntroduceerd en geplaatst in de context van het veranderende milieudebat zoals dat vanaf het begin van de jaren zeventig werd gevoerd met name in enkele westers-industriële landen. Het feit dat het een moderniserings-theorie betreft, impliceert dat afstand wordt genomen van de 'grenzen aan de groei' benadering die in de jaren zeventig een dominante positie innam in het milieudebat en waarin de ontwikkeling van een alternatieve, kleinschalige organisatievorm van productie en consumptie werd gezien als het wenselijke en noodzakelijke alternatief voor de gangbare, grootschalige, industrieel-kapitalistische organisatievorm van moderne samenlevingen. Als moderniseringstheorie kwam zij echter op haar beurt onder kritiek toen vanaf de jaren negentig de discussie over 'global (environmental) change' de aandacht richtte op de veranderende rol van enerzijds de politiek en anderzijds wetenschap en techniek in de huidige fase van de 'reflexieve moderniteit'.

Hoofdstuk 2 schetst de situatie in de Nederlandse milieusociologie wat betreft theorievorming en onderzoek in de periode tot het midden van de jaren tachtig. Deze situatie vormt de institutionele en disciplinaire achtergrond waartegen onze bijdrage aan de ecologische moderniseringstheorie moet worden begrepen. Met de milieukunde als dominante organisatievorm voor het bedrijven van milieuwetenschap en met een milieusociologische onderzoekstraditie

die zich kenmerkte door een eenzijdige oriëntatie op empirisch, sociaal-psychologisch gefundeerd onderzoek, kon de uitgangssituatie voor de ontwikkeling van de milieusociologie tot het midden van de jaren tachtig niet als gunstig worden getypeerd. Tegen deze achtergrond wordt de noodzaak besproken om te komen tot de ontwikkeling van een theoretisch adequaat, sociologisch perspectief op het milieuvraagstuk. Daarbij wordt beargumenteerd dat de klassieke en hedendaagse varianten van de sociale ecologie noch de (neo) marxistische traditie veel bruikbare uitgangspunten bevatten voor het ontwikkelen van een dergelijk theoretisch perspectief.

In hoofdstuk 3 wordt de ecologische moderniseringstheorie besproken in relatie tot de verschillende de-, anti- en postmoderniseringstheorieën van zowel neo-marxistische als niet-marxistische aard. Daarbij concentreert zich de aandacht vooral op (de confrontatie met) de stroming van de 'contra-productiviteits'-theorieën die binnen de milieubeweging in de jaren zeventig veel aanhang en invloed hadden. De idee van een kleinschalige maatschappij als alternatief voor de modern industriële samenleving wordt besproken en bekritiseerd tegen de achtergrond van de veranderende relaties tussen het lokale en het globale niveau van moderne samenlevingen, die gekenmerkt worden door het zich steeds verder over tijd en ruimte uitstrekken van sociale relaties. De door Joseph Huber ontwikkelde theorie van ecologische modernisering neemt afstand van de kleinschaligheidsgedachte in zijn klassieke vorm en bepleit in plaats van een ontmanteling van de centrale instituties van de moderniteit juist een modernisering van deze instituties. Zijn theorie wordt besproken in relatie tot de veranderingen die zich in de loop van de jaren tachtig steeds duidelijker aftekenden zowel binnen het Nederlandse milieubeleid als in de Nederlandse milieu-beweging. Veranderingen die een ondersteuning lijken voor de centrale these van Huber, namelijk dat - na een fase van 'opbouw' - de fase van'ombouw' van het industriesysteem is aangebroken. Een ombouw of 'switch-over' die in belangrijke mate gedragen wordt door niet-gouvernementele actoren en die een belangrijke rol toekent aan daartoe 'herprogrammeerde' wetenschap en techniek.

In hoofdstuk 4 wordt de schijnwerper gericht op een benadering binnen de (milieu)sociologie die op het eerste gezicht de centrale premissen van de ecologische moderniseringstheorie fundamenteel lijkt te weerspreken. De theorie van de risico-maatschappij zoals met name door Ulrich Beck gelanceerd en door Anthony Giddens mede ontwikkeld, legt grote nadruk op de onbeheersbaarheid en onomkeerbaarheid van milieuproblemen en brengt dit 'apocalyptische' karakter van milieuproblemen direct in verband met de onttovering van techniek en wetenschap en (het besef van) grenzen aan de stuurbaarheid van maatschappelijke ontwikkelingen. In plaats van een omslag in de richting van duurzame ontwikkeling wordt hier het perspectief geschetst van een samenleving waarbinnen de verdeling en toedeling van (milieu)risico's de dominante logica wordt. De ramp met de Tsjernobyl kerncentrale heeft volgens Beck een 'antropologische schok' teweeg gebracht waarbij mensen zich in een klap

bewust werden van het feit dat essentiële in de zin van uiteindelijk levensbedreigende milieuproblemen niet langer zintuiglijk waarneembaar zijn en daarmee slecht met behulp van expert-kennis kunnen worden geduid. Terwijl enerzijds het besef van expert-afhankelijkheid toeneemt, is er tegelijkertijd een groeiend bewustzijn van het feit dat wetenschap en techniek niet langer de onfeilbare bakens zijn voor onze omgang met onzekerheden. Het proces van 'onttovering' treft niet alleen wetenschap en techniek maar strekt zich ook uit tot de politieke arrangementen die in de periode van de 'simpele moderniteit' werden ontwikkeld: nationale politieke (milieu)arrangementen worden in werking en betekenis uitgehold onder invloed van een toenemende transnationalisering van politiek en economie. Hoewel de theorie van de risico-maatschappij op de hier genoemde onderdelen zeer waardevolle inzichten en vraagstellingen voortbrengt voor de milieusociologie, schiet zij naar onze mening tekort als milieusociologische theorie. Door een scherper onderscheid te maken naar onderscheiden categorieën van milieuproblemen, wordt het mogelijk de apocalyptische horizon van milieuhervorming specifiek te verbinden met een categorie van milieu-problemen die door Giddens als 'High-Consequence-Risks' (HCR) wordt aangeduid. Door niet op voorhand de specifieke kenmerken van HCR's ook van toepassing te verklaren op de overige milieuproblemen, ontstaat ruimte voor een meer genuanceerd beeld met betrekking tot de mogelijkheden voor het beheersen van milieuproblemen en de daarbij behorende rol van politiek en wetenschap.

In de hoofdstukken 3 en 4 ligt het accent in belangrijke mate op milieu-veranderingen op het institutionele niveau van de samenleving, waarbij bovendien de analyse van productie- en consumptiecycli voornamelijk vanuit de logica van de productiesfeer wordt ondernomen. In de hoofdstukken 5 en 6 wordt het accent verlegd naar het niveau van het alledaagse leven, naar het handelen van mensen die als kundige en bekwame actoren betrokken zijn bij de reproductie van milieu-arrangementen. Daarbij wordt bovendien aandacht gevraagd voor de noodzaak om productie- en consumptiecycli (ook) vanuit de logica van de consumptiesfeer te analyseren. Door de ecologische moderniseringtheorie op beide punten te corrigeren en aan te vullen ontstaat een theoretisch meer adequate variant van het door Huber en Jänicke ontwikkelde basisschema.

Hoofdstuk 5 is geheel gewijd aan het klassieke micro-macro probleem in de sociale wetenschappen in het algemeen en in de sociale milieuwetenschappen in het bijzonder. Besproken wordt de manier waarop het actor-structuur dualisme binnen zowel het attitude-gedrag paradigma als in de zogenoemde rational choice en sociale dilemma benaderingen elk op een eigen wijze gereproduceerd wordt. Als alternatief worden besproken enerzijds de aan Elias ontleende civilisatie-theorie en anderzijds de door de Britse socioloog Anthony Giddens ontwikkelde structuratie-theorie. Beargumenteerd wordt dat de door Giddens ontwikkelde handelingstheorie een theoretisch adequate oplossing biedt voor het klassieke micro-macro probleem alsmede voor het conceptualiseren van het 'keuze-proces' van actoren dat zo cen-

traal staat in het denken over milieu(on)vriendelijk gedrag. Door aan Giddens ontleende centrale begrippen als sociale praktijken, leefstijl, praktisch bewustzijn en dualiteit van structuur toe te passen op en uit te werken in het kader van het streven naar duurzame(r) leefstijlen, wordt een 'actor-georiënteerde' variant van de ecologische moderniseringstheorie ontwikkeld.

In hoofdstuk 6 wordt geconstateerd dat binnen het Nederlandse milieubeleid lange tijd een op de productiesfeer toegesneden analyse van het gedrag van burger-consumenten de dominante benadering vormde. Waar vanuit het beleid de grenzen van een dergelijke benadering steeds duidelijker worden onderkend, vraagt men de sociale wetenschappen nadrukkelijk om een bijdrage met betrekking tot de vraag hoe vanuit het beleid de zogenoemde 'moeilijk bereikbare doelgroepen' benaderd zouden kunnen worden. Om het gedrag van deze doelgroepen beter te begrijpen, dient men de dynamiek in en achter consumptiegedrag en de consumptiecultuur nader te onderzoeken. De relatie van mensen met goederen en diensten vormt het centrale object van de sociologie van de consumptie. Binnen de consumptie-sociologie wordt een sterke nadruk gelegd op de sociale of symbolische waarde van producten in plaats van op de objectieve kenmerken of de gebruikswaarde van producten die zo centraal staan in de milieuwetenschap. Tussen de eenzijdig op stofstromen gerichte milieuwetenschappen enerzijds en de eenzijdig op processen van distinctie en spel gerichte sociologie anderzijds wordt getracht een voor de milieusociologie bruikbare analyse te ontwikkelen, waarbij aan zowel de objectief-materiële als aan de sociale dimensie van consumptie aandacht wordt besteed en waarbij de wisselwerking tussen de sfeer van productie en de sfeer van consumptie een belangrijke plaats inneemt. Als startpunt voor een dergelijke analyse wordt de huishoudelijke consumptie genomen. Aan de hand van een aan Giddens ontleend model wordt inzichtelijk gemaakt op welke wijze de sociale praktijken die een rol spelen in de huishoudelijke consumptie, kunnen worden geanalyseerd. De door de Noorse socioloog Per Otnes ontwikkelde variant van Giddens' basisschema maakt inzichtelijk op welke manier huishoudelijke consumptiepraktijken verbonden zijn met wat hij noemt sociaal-materiële, collectieve systemen (SMCS) als het energie-, water- en afvalnetwerk. Door de ecologische moderniseringstheorie toe te passen op en uit te werken voor deze SMCS's, ontstaat een minder exclusief op de productiesfeer toegesneden variant van deze theorie. De huidige ontwikkelingen in de nutssectoren tonen daarbij aan dat klassieke vragen als die van de balans tussen markt- en staatsregulering van productie- en consumptiepraktijken of die van de groot- versus kleinschalige organisatie van techniekSystemen, nog immer relevant zijn.

About the author

Gerrit Spaargaren was born 2 October 1954 in Aalsmeer, The Netherlands. In 1973 he finished his Gymnasium-B education at the 'Herman Wesselink College' in Amstelveen. He started to study 'Plant-diseases' in Wageningen in 1973, to switch over to sociology in 1977. Having specialized in theoretical sociology and extension sciences, he graduated cum laude in 1983 at the Wageningen Agricultural University. After a short period as research assistant, he was appointed staff member at the sociology department in 1984. He specialized in environmental sociology and issued a number of publications on international environmental policy, environmental technology and environmental education. He served as an associate editor of the international journal 'Society and Natural Resources' and is actively involved in the ISA-network of environmental social scientists.