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Examples from the Electricity and Waste Sectors

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NATURE AND THE SOCIAL SCIENCES

Mikael Klintman

Nature and the Social Sciences

Examples from the Electricity and Waste Sectors

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Nature and the Social Sciences

Examples from the Electricity and Waste Sectors

By Mikael Klintman

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Lund, March 21, 2000

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Introduction

Research Aim

In the introduction to his book, *Method in Social Science,* Andrew Sayer (1984/1992) holds that

> [t]he status of social science is seriously in doubt. Outsiders' attitudes toward it are often suspicious or even hostile, and social scientists themselves are deeply divided over what constitutes a proper approach to social research (Sayer, 1984/1992:1).

Concerning the branch of social sciences exploring environmental issues, nothing could be truer. As the environmental situation has been subject to dynamic discussion and media attention since the early 1970s, research in environmental social science—not least environmental sociology—has been debated almost equally intensely. Some of the questions have been: "What theoretical and ideological background should research have in order to be part of the core of environmental sociology? What kinds of environmentally related questions could be properly asked within this specific field?" In 1979, Dunlap & Catton suggested that the relevant literature be divided into two categories: "sociology of environmental issues" on the one hand, and "environmental sociology" on the other. The former category would according to these authors denote social research on specific, environmentally related phenomena. One example is the kind of research on resource management common in the late 1970s. The former type of research was described as particularistic, traditional research, rarely based on a holistic view of the relation between man and environment. The latter category, however, was said to reflect such holistic awareness, concerned with the physical environment as a factor that may influence (or be influenced by) social behavior. Here they consequently included built environments, and for instance the impact of natural catastrophes on social communities. Buttel (1987) called this category (although excluding the built environment) the "core of environmental sociology" or the "new human ecology." This core of "genuine" environmental sociology must

> shed its anthropocentrism and reject the notion that humans, because of their capacity for culture, technological innovation, and so on, are exempt from the ecological laws that govern the existence of lower species (Buttel, 1987:468, referring to Dunlap & Catton, 1983:119).

This dichotomy between environmentally focused sociology—with, on the one hand, an anthropocentric, technocratic basis, distanced from ecological laws and, on the other hand, with a holistic and ecological understanding—may have been useful a decade or two ago. However, I dare say that most environmentally focused sociologists today would (rightfully) claim that their work involves criticism of the obsolete values described as the former category. Assuming that most of environmentally focused sociology today to some extent includes this sort of criticism, I will outline a broad way for environmental social sciences to go on from here. Instead of trying to isolate environmental sociology or the social sciences, this book suggests opening it up within itself and toward social sciences as a whole. This is a call for more diversified research with one common and broad goal: to achieve understandings of environmental issues, which may help us toward solutions to the "problems" experienced directly or indirectly, the actual environmental condition, and the real mechanisms behind the condition.

The book has two interrelated objectives. One objective is *meta-theoretical*, and concerns the exploration of theoretical debates connected to issues of studying society and environmental problems; another objective is *empirical/analytical*, referring to the analysis of "green" public participation in the electricity and waste sectors in Sweden and partly in the Netherlands and the UK. The overall aim is that the two objectives bear fruit by attaining the goal stated above.

The Empirical Choice: The Electricity and Waste Sectors

There are several reasons for choosing to study public involvement in the electricity and waste sectors, with particular focus on windpower, waste separation and composting. A few reasons should be mentioned already. The two sectors have a number of parallels and differences of great value to a sociological analysis of public environmental involvement. One similarity is that both are utility sectors. By *utility sectors* I simply refer to the sectors from which households provide themselves or are provided with electricity products and waste services. This is a broader use of the term *utility* than what can be found in most of the relevant literature in Sweden and elsewhere. In Webster's dictionary the term denotes:

> A service provided to the public, as electricity, water or transportation (Webster's II, 1984).

In Sweden, *utility* has often been synonymous with public utility, with services provided by the state or the lower public levels. This study, however, explores which actors or institutions provide households with the various services today—the state, counties, municipalities, cooperatives, private companies, or the households themselves. The fact that both electricity and waste belong to utility sectors makes them integrated parts of daily life for practically all households. Being utility sectors raises

interesting questions of household awareness of green adaptation, since practices in the sectors are closely associated with habits and routines which are difficult to change. Hence it is also a challenge to try to develop *green identity concepts* in these utility sectors which traditionally have not been held to be tied to conscious processes of identity building.

An additional reason for choosing electricity and waste pertains to their environmental relevance. The sectors have in various ways been symbols of environmental struggles. Controversies over nuclear power and alternative energy sources, the greenhouse effect, and local programs of Agenda 21 have all been, and are still, vital parts of both sectors. As such, electricity and waste involve local public practices as well as local and global consequences. Another important similarity is that both sectors have seen a tendency toward product and tariff differentiation.[4] Certain schools within environmental social sciences have a priori been quite optimistic about new product and tariff choices triggering an increased public concern about environmental issues. Based on the approach of this book, I find it important to scrutinize such assumptions in concrete, local contexts. It turns out that there are considerable differences in environmental commitment based on specific social and material contexts.

On the other hand, electricity and waste reveal important differences regarding supporting social structures which may bridge the gaps between providers and household consumers. Typically, the greening of electricity practices has much less supporting social structures between providers and households than is the case in the waste sector. Still, by focusing on different organizational forms of windpower we learn that these differences are not materially determined in any irrevocable way. Instead, structural reform may strengthen the social support substantially. In other words, studying these sectors can help us learn about both possibilities and impediments to the social facilitation of environmentally sound household practices.

The Structure of the Book

The meta-theoretical and empirical objectives mentioned above are manifested in two separate but interrelated parts of the book. The means and ends shift between the two parts. In Part One, empirical results are employed to shed light on the meta-theoretical framework; in Part Two, theoretical arguments from Part One constitute tools for analyzing the results from the electricity and waste sectors.

Part One consists of five chapters. *Chapters 1 and 2* analyze the ontological bases of nature and environmental problems mainly in three theoretical traditions: empir-

4 Product and tariff differentiation was the subject of the chapter that I have written for the final DOMUS report based on case studies from Sweden, the Netherlands, and the UK. The reason that this tendency of differentiation is sociologically interesting is that is can be studied from the perspective both of sub-technical public involevement and new types of sub-political interaction between the public and utilities (see Klintman, 2000).

icism/positivism, constructivism, and realism. The background to my writing these chapters is a firm conviction that a scrutiny of the ontological foundations of environmental research is vital in order to come to terms with sometimes irreparable inconsistencies in certain schools of thought. How can, for instance, a social scientist who holds the view that there are as many equally invalid statements about the environmental condition as subjects with perceptive abilities be convincing in his or her academic struggles to reduce environmental damage? However, these chapters also try to highlight theoretical inconsistencies that do no harm to their practical applications. A conclusion is still that the approach of this study has to rest on ontological realism, at least concerning the environmental condition (O). As to environmental *problems*, however, the critical sociological tenet of this work argues in favor of *problem subjectivism*—that the environmental condition (O) does not become problematic until it is placed in relation to subjects, as ("O"). In addition, Chapter 2 explores relationships between environmental problems and (other) social problems, partly as conceived by the sociological classics.

The third and fourth chapters move on to epistemological and axiological questions—about the potential of, and conflicting goals related to, learning about environmental issues. *Chapter 3* refers to the importance of recognizing diverse perceptions of problems in the environment. This emphasis has one of its backgrounds in the sociological awareness that scientific expert systems are central and immensely important, although neither perfect nor sufficient as the only sources of knowledge. Various realist positions—including Bhaskar's critical realism—are here criticized for being too preoccupied with scientific knowledge. A background to the focus on *knowledge democracy* in this book is the pragmatist concern with experiences and experiments in the widest senses of the words. The role of the environmental social scientist is here twofold. The main role is the analyst of the coevolution of social agency and structure in creating the environmental situation. Besides, or within this role, environmental social scientists are parts of the lay public, perceiving the environmental situation and interpreting its problematic through everyday experiences. In *Chapter 4* I stress the sociological interest in a plurality of action types, rather than in a limited focus on behavior patterns based on top-down initiatives. Sociology here has a special interest in environmental bottom-up initiatives, and interaction (including conflicts) between various activist groups and public institutions. Does collective action, prescribed by most environmentally conscious institutions and political stances, get sufficient recognition and feedback, so that the public finds collective involvement in environmental issues worthwhile? Such questions are moreover studied empirically in Part Two. Furthermore, I discuss the importance of neither putting all faith into individual changes in behavior, nor ascribing environmental problems only to sociological abstractions, such as *modernity* or *consumer culture*. Again, openness toward the coevolution between agency and institutional framework becomes central.

The *fifth chapter* deals with political and ideological elements of environmental research and policy. How should the social sciences relate to various environmental strategies and visions? The matter of institutional preconditions for and obstacles to

an environmentally sound society is also elaborated on. I refer to a sociological openness toward various, often ideologically conflicting, strategies and visions. This means analyzing the whole spectrum of strategies and visions, and not rejecting them for ideological reasons alone—before they have been theoretically *and* empirically scrutinized. I use the program of *ecological modernization* to show how visions and strategies can be openly and critically analyzed by the social sciences. One question that is important to ask in the analysis is: "What is the relation between the principles behind the strategies on the one hand, and the practical, environmental consequences on the other?"

Part Two of the book also has five chapters: *Chapter 6* discusses concrete methods and the methodological considerations which are not brought up in Part One. The rationales for the selection of cases and interviewees are also considered. A combination of methods has been used, involving quantitative and qualitative data from Sweden, as well as a few examples from the Netherlands and the UK.

The seventh chapter is the most descriptive one. It explores the natural, cultural, and socio-political situation in the Swedish electricity and waste sectors. Here one can note that both sectors have been quite thoroughly reorganized in the 1990s. Instead of (as is commonly done in other countries) merely referring to any involvement of private actors as *privatization*, it is in the Swedish case fruitful to divide it into (i) denationalization and (ii) liberalization (Saunders & Harris, 1990:59).[5] The former concept denotes the process of private producers taking over the ownership and responsibility for something that has previously been within the realm of the state or the public sector. I examine whether or not recycling in Sweden has gone through this process. The latter concept, liberalization, means that public companies lose their monopoly and have to start competing with private companies on a market. The Swedish electricity sector can be regarded as a partly liberalized market. Yet it must be stressed that this change is an ongoing process with interesting dynamics between various actors, something that we will explore in a later chapter. The term *deregulation* is often used synonymously with liberalization. However, in many cases it is more correct to use *re-regulation*. In the case of electricity in Sweden, for instance, the old regulation of state monopoly has been replaced with another regulatory system—that of free competition. Still I usually refer to deregulation, since that is what the process within the Swedish electricity sector is most frequently called. It is interesting (and sometimes problematic) to note that the stated motives for reorganizations have partly been environmental concern. This is a useful ground for moving down to the provider level of the sector, and studying some of the results of the reorganizations.

Chapter 8 deals with providers of green electricity and waste schemes. Swedish provision is given chief attention, although certain examples from the Netherlands and the UK are also presented. Firstly, socio-material characteristics of electricity and waste provision are examined. For this purpose it is especially appropriate to make

5 For a more extended discussion see Van Vliet, 1998. Here, he, like Saunders & Harris, includes two more concepts: commodification and marketization, which are not very relevant in the Swedish cases.

international comparisons; differences in organization across countries ought not to matter as much for the socio-material characteristics. Three socio-material challenges to green provision can be found here, and I label them *making visible, making doable*, and *making acceptable*. Furthermore, the chapter analyzes the impact of differences and shifts in organization on concrete provision. The general tendency of product and tariff differentiation is examined from a provider perspective. The chapter concludes with an extended socio-material model, including three main instruments—"modifiers"—of green provision.

The ninth chapter presents a household and consumer perspective on greening processes in cases of windpower, waste separation, and composting. As regards cases of windpower and public involvement, a distinction is made in the study between *green electricity consumers* and *windpower cooperative members*. In the Swedish case studies of windpower illustrated in chapter 9, this separation is made clear. *Green electricity* is the windpower-generated product provided by the southern Swedish energy company in the study. However different countries have their own definitions of green electricity, commonly also involving hydropower. The windpower coop members in the Swedish study, on the other hand, own shares in a cooperative. Yet, they are dependent on the energy company for electricity provision. In certain sociological contexts it is not very important to distinguish between, for instance, hydropower labeled green and windpower labeled green. Nevertheless this is environmentally crucial, and thus important to a critical realist/pluralist analysis, such as this one: to attempt to compare "O" with O, and not to regard all "O" as impossible to evaluate (see Chap. 1). Still, it is often sociologically most necessary to compare different organizational forms of green electricity and cooperative windpower. In the same chapter, four green identities are developed, which are associated with the socio-material provision challenges examined in Chapter 8. The four green identities can be argued to exist among most household consumers confronted with green innovations. These green identity types have important connections with Part One of the book—in particular cultural views of nature, as well as different types of environmental knowledge among experts and the lay public. Thus, these identities are very relevant to what I have labeled *knowledge democracy.* Moreover, the chapter calls for providers to take into account the social and physical specificity in local areas. It is vital for providers to learn about local needs for various supporting structures, in order for households to move their daily lives in an environmentally sound direction. Environmental standardization versus pluralist solutions is hence one of the most difficult policy choices, not least in the European Union. *The tenth chapter*, finally, draws conclusions from Parts One and Two. Certain policy relevant key points are outlined.

PART I

The Metatheoretical Context

I am standing in front of the sea.
There it is.
There is the sea.
I am looking at it.
The sea. Well.
It is like at the Louvre.

(Göran Palm, 1964).[6]

Jag står framför havet.
Där är det.
Där är havet.
Jag tittar på det
Havet. Jaha.
Det är som på Louvren.

(Swedish original.
Göran Palm, 1964, "Havet.")

6 The poem is called "The Sea." I have translated it from Swedish into English.

CHAPTER ONE

Who Is Mother Nature?

"O" | O

Figure 1: *Understanding of Nature, the object ("O") versus Nature, the object as such (O)—the latter also called the external nature, physical world, physical reality, physical condition, and, for our purpose, environmental condition (cf. Djurfeldt, 1996).*

At first glance, this question may appear too metaphysical for a book on environmental problems written within the social sciences. However, experience in the research field indicates how crucial it is to begin a social analysis of the environmental problematic with this very query. The answers differ substantially between social scientists, and there is much confusion as to what is really meant by the term nature. At another level, the very confusion and disagreement over *nature* turns out to be of great sociological interest as well.

1.1 Definitions and Cultural Views of Nature

In Webster's Dictionary (1984), the following definitions of *nature* are the most relevant:

> 1) The material world and its phenomena 2) The processes and forces that produce and control all the phenomena of the material world. 3) The world of living things and the outdoors.

These definitions are concerned with the *essence* of things. This essence of the material world has been interpreted in numerous ways in different cultures and epochs, as have the images of Mother Nature's "own soul" (see Schwarz & Thomson, 1990:5,9).[7] Even in Western secularized society these images are central to our relation to environmental issues. This book suggests that cosmology has practical implications. For instance, on a macro-level it impacts institutional funding

7 Nature has been described in different cultures as capricious, benevolent, robust or fragile. See also Lidskog et al., 1997:144 ff.

considerations for renewable energy; on a micro-level, it affects household waste management practices. One cultural difference lies in the relation between nature and culture. In certain cultures (e.g., Native American) people perceive themselves as integrated with nature. In contrast, modern industrial society draws a sharp line between nature and culture. It is well known that this latter worldview has fostered an expansionist and exploitive way of life. Furthermore, functional differentiation, regarding for example heat generation and food production, has distanced humans from nature's subtle and intricate signals. This distance is exemplified by the invention of the household garbage chute. It was introduced in Sweden in the 1930s in apartment blocks by a tenant owners' association as part of modern development. The chute serves to separate citizens from the waste component of the ecocycle—a physical disembeddedness not only from the waste bin but also from nature (Klintman, 1998:37).

In modern society, the public's contact with nature is largely mediated by *expert systems*, mainly from the natural sciences, but also from other professional groups (see Giddens, 1990; Freidson, 1986).[8] The waste sector is no exception; it is highly scientificized and politicized. Once households have disposed of their waste they are separated from it and the waste is transferred to technologically advanced management sites. Even earlier in the process expert systems are involved—in assessments of sites through scientific recommendations of environmental impact reports.

An example of a classical thinker who criticized the separation of modern society from the natural world is Karl Marx. His ideas have been incorporated by contemporary environmental thinkers (e.g., Goldsmith, 1990). Yet Marx's stance, strongly influenced by his Zeitgeist, reflects an exploitive view of nature—regardless of how much he stressed the *importance* of nature.[9]

> The worker can create nothing without *nature*, without the *sensuous external world*. It is the material on which his labor is manifested, in which it is active, from which and by means of which it produces (Marx, 1844/1978).

The term "external world," and his emphasis on nature as merely a *means* to human societal *goals*, reveals Marx's exploitive position. The Frankfurt school, particularly Horkheimer and Adorno, accordingly pointed at the early Marxist reifying of nature as exploitable raw material. Early Marxism was in this respect quite similar to liberal

8 At the same time as modern urban culture has drawn a sharp border line between nature and culture, as well as tried to dominate nature, a "natural determinist" perspective emerges from time to time in modern society. Briefly, natural determinism holds that nature determines (and N.D. not rarely holds that nature *should* determine) how people live and act. Social Darwinism and other forms of socio-biology are the fruits of natural determinist thinking. The section "The fallacy of inferring one natural way… will expand on the normative parts of N.D. I will later argue in favor of the idea of a *coevolution of natural and cultural systems* (cf. Norgaard, 1994).

9 Accordingly, Passmore (1991:135) argues that nature to Marx is "negativity:" Nature truly exists, but only to be overcome—humanized. I want to stress that this, interestingly, does not impede Marxist social theory from being a powerful tool for analyzing certain environmental problem levels in society. An intriguing social/environmental research field during the last decade where Marxism has successfully been used focuses on biotechnology in agriculture, especially in the Third World, mainly Latin America (see e.g., Juma, 1989).

capitalism, something which has made it difficult for subsequent ecocentric versions of Marxism to become influencal (Eckersley, 1992/1994:69; cf. Adorno & Horkheimer, 1944/1979).

Still, modern industrial society, emerging roughly during Marx's time, was definitely not the first type of society to affect the natural world substantially. As early as the dawn of agrarian society nature started to be changed by humans.[10] By our time human cultures have affected the physical world to the extent that the concept of nature has become quite problematic. Is a huge, dazzling park planted in a modern city part of nature? Is it not possible to have real nature *experiences* in such a place? Should even nature reserves be labeled *natural* when they involve modern bureaucracy for access, strict opening hours, and regular controls by park rangers?

Moreover: For hundreds of years people have transported plant seeds from one continent to another, and cultivated "wilderness" areas with foreign ecological origins. Naturalists walk in the outdoors categorizing plants by origin—as "native" (= good) and "non-native" (= not so good). Is it important or useful to distinguish between a natural part of nature and a man-induced part of nature, or to ascribe different levels of value to them?[11] Perhaps it is useful—for reasons of cultural (read: *societal*) and biological diversity or of food production. Proponents of this distinction need, however, to make clear how it relates to another normative claim, originated by several indigenous cultures and adopted by the same ecologically aware professionals: namely, that nature and humans (also in modern society) ought to be seen as *one inseparable unit*. It is far beyond the scope of this book to go into this issue in more depth; several environmental philosophers are already paid to do that (e.g., Elliot, 1995; Warren, 1990). And it is not an easy task; nature has been called the world's most intricate concept (Williams, 1976:84; Lidskog et al., 1997:34).

Below, I expand on the reasoning by exploring further implications of cultural views of nature. This study has so far taken the idea of *one ontological nature* for granted.[12] Subsequently, it will be examined how one ontological nature relates to nature as a social concept and as social constructions. The book argues for clearly distinguishing between, on the one hand, *one ontological nature* and, on the other hand, *social concepts, views and constructions of nature*. This I will do from a critical realist starting point, which will be illuminated throughout the book. I hold that such a distinction is vital, not least in order for the social sciences to produce results that can be a useful basis in, for instance, policy making about environmental problems.

10 See e.g., Flannert, 1973; Reed, 1977 for extensive analyses of the origins of societies influencing the natural world.

11 The categorization can be regarded as a "botanical speciesism." A sociologist's thoughts easily move to race- biological ideas within society, according to which each human race should move to the localities where it "originates." Expanding on that idea, I, as a Swede, do not know what to do—stay in Sweden, move to the center of "Germania" or to move all the way to the Caucasus.

12 One should note that I discussed a distinction between *parts* of nature and not different *natures*. For our purpose "ontological" denotes "physically existing nature independent of man." "Independent of man" does not, however, exclude the fact that nature is highly affected by man and societies.

1.2 Nature and Humanity as One, Two, or Many

Like most other aspects of human language, the *concept* of nature is constructed by humans living in a society. This is plausibly why so many terms in languages are, in one way or another, anthropocentric—constructed from the viewpoint of humans, based on humans' motives. It has already been noted that modern society has put *nature* in sharp contrast to culture, as if human society somehow could or should be free from crude nature. The very terms *environment, natural surroundings* and *the external physical world* are also constructed from a human center—as something that surrounds us out there.

To study nature as a social and cultural concept teaches us a lot about the worldviews of different cultures—not least the Western one. How is it for, instance, that the Judeo-Christian tradition uses the term *Mother Nature*, or *Mother Earth?* Raymond Williams (1980) suggests that it has to do with the monotheistic religions:

> In the orthodox western medieval world a general formula was arrived at, which preserved the singularity of both: God is the first absolute, but Nature is His minister and deputy (Williams, 1980:69).

In accordance with certain eco-feminist perspectives, I would like to go further, and suggest that it can be closely linked to the patriarchic origins of Western societies. God is seen as a man, who stands above Nature: a woman.[13] It is not far-fetched to draw a parallel with the traditional Western division of man (closer to refined culture, planning and rational, large-scale organization) versus woman (closer to nature, instinct, intuition, and routinely operating in small-scale contexts).[14] It goes without saying that the patriarchal view of nature and the woman's realm has been pendulum-like over the centuries, oscillating between disrespect, romantic admiration, and worship. The latter viewpoint is in turn similar to the enlightened man's periodical admiration for savages—closer to nature as well.

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13 Williams (1980) only sees nature as an abstraction of Man (read: the human being). Williams misses what I regard as the more interesting gender implications of the relation of culture (man) and nature (woman). I would change Williams' separation between "abstracted Man [human being]" and "abstracted Nature" to a separation between "abstracted Male—Culture" and "abstracted Female—Nature." This would fit better with Williams' (ibid., p. 84) parallel separation of "*economics* [I: male, culture, linear orientation, expansion, exploitation]" and "*ecology* [I: female, nature, cyclic orientation, ecocycle]."

Another parallel can be drawn between the patriarchal view of woman as *the other (the stranger)* and the Swiss theologian Karl Barth's view of nature as: *"the strange life of beast and plants which lies around us"* (in Passmore, 1991:129). To consider something or someone as "strange," as in foreign and alien, affects how one acts in relation to the strange.

14 Merchant (1980/1994:31) provides the reader with illuminating examples of the "cognitive dissonance" (the term is based on Festinger) that emerged when nature was regarded as a creative and lifegiving mother, while at the same time commercial mining (in the sixteenth and seventeenth centuries) required exploitation (rape) of her. A more consonant metaphor with the increasing mining was one of nature as a passive woman, who should be domineered and reformed through technical progress.

The idea of Mother Nature also has roots in many non-Western cultures. influencing certain environmental coalitions. Nature—the earth—can be regarded as one living organism, which people live in and are highly dependent upon (cf. the Gaia hypothesis, Lovelock, 1979).[15] Just as in the earlier discussion of worldviews and nature, these views of nature prove to be fruitful to analogize regarding how nature is treated in different cultures. The roles of women in late modern society are especially interesting in this context, particularly as everyday household chores are increasingly associated with (national and global) environmental impact, and in turn with economic implications at all levels of society. Women still have the main responsibility for household labor in late modern society (Lindén, 1994),[16] for example spending more time in grocery stores than men, and comparing products and prices more (Sommer, 1992).

To sum up, and to move on, I will briefly return to the question of dualism. In the text, (a) *natural part of nature per se* versus (b) *man-induced part of nature per se* was followed by *nature per se* versus *people*. It was argued that the latter separation might be problematic. Sayer (1979) adds to this reasoning:

> We must begin by recognising that people and Nature are not separate: we are part of Nature and to start in the conventional manner with such a separation followed by a listing of interactions would be to prejudice every other aspect of the exposition. Nature is internally differentiated and properly speaking we should refer not to interactions between people and Nature but to "inner-actions" within Nature. This leads us immediately to the question of the form of this internal differentiation, in particular to a discussion of those characteristics and "inner-actions" which humans share with other parts of Nature and those which are particular to humans. Failure to resolve these issues, as will be shown later, into conceptions which oscillate between a naturalisation of humanity and a humanisation of Nature (Sayer, 1979:20).

It is easy to spontaneously agree with Sayer. He speaks in favor of holism (something that sounds appealing to most of us) instead of early modernity's dualism, which has moved society to an unsustainable way of life. Nevertheless, it is important to analyze what is meant by recognizing people and nature as one, and ultimately to address how a holistic image can make things better in practice. To merely change a prefix, *inter-* to *inner-*, will not do. If a change into holistic terms means a stronger emphasis of the intimate, mutual dependency of humanity and nature, I thoroughly subscribe to it—especially if it inspires a practical focus on balancing ecocycles and thus on improving health.[17] Accordingly, this study stands behind the idea of *coevolution of*

15 The Gaia hypothesis (by Lovelock, 1979, inspired by non-Western cultures) maintains that Gaia is a living organism, who can also be seen as a collective. Contrary to what we usually think, she is not fragile. No matter what humans do, Gaia will live on. But her climate may change so that humans, animals, and plants cannot live in her. For further reading about the origin of the Gaia concept in Greek mythology, see Burkert, 1987.

16 Lindén (ibid.) thus provides us with a less naturalistic interpretation than is common of why women seem to be more engaged in environmental issues. In the literature, women's natural closeness to life and creation is usually stressed. Yet one interpretation does not exclude the other.

17 And reversely, if a sharp border line between nature and society (culture) per se tends to connote a society hiding from nature, being irresponsible for it, and unreceptive toward its reactions, I naturally do not accept it.

social and natural systems (as in Norgaard, 1994). It must be stressed that acknowledging the coevolution of social and natural systems is central, and that treating the systems as one analytical unit requires a certain caution. For as one unit (in an unrefined sense) it could be as problematic to study nature as sociologists complain that it is to study society (due to the problem of reflexivity when humans in society study society). Researchers must be able to conceptualize and analyze the physical world *minus* humans as well. One ought to be able to use a term like Marx's *sensuous external world* — yet without regarding the world as merely an instrument for (modern) people.[18]

1.3 The Fallacies of Inferring Norms from Nature

After having analyzed the dualism of humanity and nature, the book moves over to still another one: *nature* versus *natural*. The common normative implication of *natural* is central here.

It was earlier noted that nature evokes many values and sentiments in society—positive or negative. People frequently mention *natural* as if it were something intrinsically or inherently *good.* And, conversely, *unnatural* is used as a synonym for *bad*. In the section on non-native versus native plants the prevalent normative claim was introduced. Another practical example, which is closely linked to the empirical study, is the location of windmills for electrical power generation. Is it sufficient to be opposed to windmill sites on land or in the sea by stating that windmills are "not natural"? I firmly hold that *natural* or *unnatural* are insufficient parts of normative claims in one or the other direction. This is relevant to several other issues of nature and culture. There are two central problems here. The first is ethical and the second sociological.

1.3.1 The Ethical Problem

The philosophical (ethical) problem of the *natural* leads to a discussion that has been going on for centuries: of how something existent (an *is*) relates to something normative (an *ought*). In the eighteenth century the Scottish philosopher David Hume emphasized that the former has no formal logical connection with the latter:

18 I hold that the idea of coevolution of natural and social systems overcomes the problem, since it acknowledges the two systems as *two* although highly interdependent, thus as parts of a whole. The issue of monism or dualism in this context is essential for how one regards the "division of labor" between the natural sciences and the social sciences. I address this in a later chapter. (See also Benton, 1994; Dickens, 1992.)

> as this *ought*, or *ought not*, expresses some new relation or affirmation, 'tis necessary that it shou'd be observ'd and explain'd; and at the same time, that a reason should be given, for what seems altogether inconceivable, how this new relation can be a deduction from others, which are entirely different from it (Hume, 1739:III.i.i.).[19]

Is can for our purposes be exemplified with an occurrence or condition in nature that one can for now assume that everyone agrees upon—for example that windmills do not grow in nature the way trees do. Windmills are in this sense less natural than trees; perhaps windmills could even be labeled *unnatural*. Yet I want to argue, in accordance with Hume, that their simply being unnatural cannot be a legitimate reason for not building them. Something must fill the logical gap between *is* and *ought*. In the case of windmills appeals to preferences must be made:[20] for instance that windmills in a specific area disturb the ecosystem substantially, or spoil the character of rare segments of nature important to many living beings.

Or to use another relevant example: This chapter discussed Western culture's linking of women to nature—the common belief that women are more nature- and life-oriented, and thus perhaps more environmentally responsible than men. Let us, as a mental experiment, suppose that this is true, so that a closer orientation to nature is inherent in women and to a lesser degree in men. Even if this were reality (an *is*) it by no means follows that men *ought not* to be required to take equal responsibility. Nor, to even a lesser degree, does it imply that those supposedly inherent differences between males and females would be bad to get rid of in cultural, everyday realms. The problem again lies in the fallacy of inferring natural from nature, and to equate *natural* with *morally justified*. Let us use still another example in a similar vein. The German social constructivist Klaus Eder analyzes the idea of a natural economy. He claims that

> There is no natural economy; only a moral economy (Eder, 1996:26).

What Eder refers to is that society has normatively constructed the idea of "exchange value of nature," the basis of what has been called "natural economy." This leads him to conclude that since economy is not natural it must be moral, which means that it is up to society to assess what its structure of economy ought to be. Eder's point of view is plausible, in both his questioning of the existence of a natural economy and in stressing that economy for society is an issue of open, moral choices. Still, I want to go one step further than Eder, analogously with my claim about gender and nature: Even if everyone were to agree upon which type of economy is the most nat-

19 Inferring an *ought to* from an *is* has usually been called "the naturalistic fallacy." One should note, however, that the meaning of this term has shifted through the years (by e.g., Moore, 1959) and runs the risk of being used in more than one way today. Moreover, Hume's own statement (above) has been subject to questioning—regarding what he exactly means—does he imply that the same rule applies to *good* as to *ought*? Bernard Williams (1985:123) argues that this would require further arguments. For my problematizing of *nature* and a normative *natural* it will nevertheless do to analogize *ought* and *good*.

20 Along the same lines everything natural could not reasonably be sought for: painful diseases should not be left untreated on the mere basis that diseases are natural. That would be to commit the naturalistic fallacy.

ural one, this existence *(is)* is not a sufficient reason to accept it. A normative step is still needed—a thorough ethical consideration based on the demands and needs of living beings.

One should note that this book argues throughout for considerations far broader than what is (a bit sloppily) labeled *utilitarian*, that is, according to *economic man*. Eder (ibid.) uses the "utilitarian concept of nature" to denote "capitalist interaction with nature" (1996:27), that is, calculations in the purely economic sense, such as quantifying preferences by putting a price tag on every part of nature. This is by no means what I refer to here as the appropriate bridge between *is* and *ought*. There are much more refined forms of utilitarianism.[21] In addition, there are other alignments within moral philosophy in this context. What is referred to, and called for here, are views in which the economic interest is regarded as only one of many preferences and (to use a wider term) *demands* of individuals in social, as well as natural, systems. William James puts it elegantly:

> Take any demand, however slight, which any creature, however weak, may make. Ought it not, for its own sole sake to be satisfied? If not, prove why not (James, 1948:73).[22]

The ethical problem can be summarized in a rhetorical question: Are natural occurrences intrinsically normative, and can natural occurrences tell us what is good? My answer is *no*.[23]

1.3.2 The Sociological Problem

The sociological problem expands on the earlier analysis: the social ambiguity of *natural*. Much of what has been labeled as *natural* in Western society has been unveiled through inter-cultural comparisons as *cultural*. Gender roles have deep-rooted cul-

21 See e.g., Hare, 1981, who, however, does not analyze ethical aspects of ecosystems.

22 William James here compassionately builds a bridge from *is* to *ought* by replacing the utilitarian term *preferences* (which tends to out-define "lower-standing" life) with *demands* of every creature which does something more than merely *exist* (cf. *is)*. It is beyond the aim of this book to analyze *comparisons* between different preferences or demands. For an in-depth analysis of weighing different preferences, see Hare, 1981.

23 I thus oppose Merchant's (1980/1994:26) critique of labeling this a fallacy. She holds that the labeling is based on an "older positivistic distinction between the "is" of science and "ought" of society. Her critique is based on, as she says: "all philosophers of language" who hold that descriptive statements about the world may presuppose something normative and have in those cases embedded ethical aspects. However, her claim represents knowledge common to all—namely, that descriptive statements may carry normative connotations. The fact that this may occasionally be the case in language is not an argument against the logical distinction between *is* and *ought*. Moreover, in a pragmatic vein one can only assume the perils of presupposing the "natural" conditions and occurrences that are also "good"— *without open ethical discussions*.

tural components, as has economy—no matter how natural it may be regarded.[24] The fact that cultural and social systems have strong power components is illuminated by Yearley's (1996) reflection on *the planet*. On the label of a yogurt product that Yearley buys it says that 10 per cent of the profit from selling the yogurt is contributed to "the planet." Contributions of this kind may at first warm our hearts, but where does the money go? What is the planet? Let us leave aside the possibility that the money might end up in the pockets of powerful men. On what basis are the organizers choosing where and how to support the planet? The chapter has reasoned all along in terms of one physical world. Still, can one expect that all consumers have the same ideas of where and, perhaps more importantly, through whom the contributions would be used the best? The organizers of "the planet" project are missing all that sociology has taught us. They commit the fallacy of assuming that it is possible to infer one naturally superior[25] way of supporting the planet from acknowledging one planet; or at least they assume that consumers will not realize the fallacy. Power aspects emerge regarding whose (what persons', organizations', and cultures') conflicting interests regarding nature should be defined as self-evident. Accordingly (although only referring to humans) Yearley states that:

> Any movement or ideology which purports to represent the interests of the human race as a whole demands critical scrutiny (Yearley, 1996:ix).

In the planet case, power dynamics are not only involved when perceiving and evaluating nature *as such*. It is not as if parts of nature could simply be irrigated by money in fair amounts. In effect, money itself is socially constructed with all the complications that this adds to the planet project.[26] As a sociologist, Yearley seems to acknowledge a tendency close to naturalist reductionism: to treat social and cultural phenomena as if they were purely natural.[27] He is undoubtedly right in his comment. However, I hold that with his appraisal Yearley moves very close to the other dangerous edge—*social* reductionism.[28] A bit below it is shown how he does so.

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24 What kind of economy is most natural? Laissez-faire economy à la Malthus—"naturally" selecting individuals by their strength and sorting out the excess to thus balance the Earth? Or an economy based on "natural" solidarity in human societies with individuals supporting one another, and sticking together? I cannot answer, for what is right remains elusive. All I can do is argue for what kind of economy I *prefer*.

25 The term *objective* (as in "that everyone can agree upon") could also be used here.

26 For a sociological classic on social and philosophical aspects of money, see Simmel (1907/1978). The Philosophy of Money. Cf. Eder, 1996 (who, as above, addresses economy as a social construction).

27 Natural here concerns something obvious, free from conflict and diverse interests. Naturalistic reductionism is likewise criticized by Macnaghten & Urry (1998): *"Nature does not simply provide an objective ethics which tells us what to do. It is too ambivalent, contested and culturally paradoxical for that"* (pp. 3).

28 Ted Benton (1994:44) chooses to call it "oversocialized views of humanity and nature." I do not know why he is afraid of the clearer opposite of "naturalistic reductionism," which he uses. In any case, by social reductionism I refer to treatment of natural occurrences as if they were social constructions. This is not to be confused with reductionism, as in methodological individualism, where all occurrences in society are reduced to the individual level, either by psychological or social psychological conclusions (see Little, 1991:190 ff.).

1.4 Three Perspectives of Nature: Ontologies

Debates about natural and social reductionism require an open discussion about ontology. In the social sciences which allocate their resources toward environmental problems it is quite common to avoid making explicit one's ontological postulate.[29] This omission runs the risk of making even the most practical studies blurred. Bringing it up is thus not a question of useless hair splitting. This study presents three types of ontological postulates. The first one I call *ontological atomism*. Its proponents (especially from the natural sciences) tend to be particularly critical of social reductionism. Subscribers to the second postulate, ontological subjectivism, are generally "soft sociologists," mostly concerned about naturalist reductionism. Thirdly, an alternative is brought up: ontological realism. Based on this postulate, I am skeptical about both forms of reductionism, and below suggest a way of avoiding them.

1.4.1 Ontological Atomism: There Is an Objective and Closed Nature

Atomism is mainly the ontology of the empiricist (positivist) traditions.[30] Empiricism was originally the theory of knowledge closest to the natural scientific community.[31] Positivism was adopted (and named) by the social sciences early on, most notably by Auguste Comte in the mid-nineteenth century.[32] In this book the positivism in both scientific communities is relevant.

Ontological atomism assumes that the object (O) exists independently of subjects (S) perceiving it.[33] Or it rather claims that any statement about what *really* exists is metaphysical and hence meaningless to bring up in scientific discussions.[34] Nevertheless, atomism cannot escape the ontological (cf. metaphysical) postulate about an existing (O). The critical realist Roy Bhaskar (1989) is of this position:

29 Ontological postulate refers to an assumption that cannot be proved about "the existing," in our case whether or not an independent nature per se exists.

30 In Merriam-Webster's Collegiate Dictionary (tenth ed.), *positivism* is refered to as "a theory that theology and metaphysics are earlier imperfect modes of knowledge and that positive knowledge is based on natural phenomena and their properties and relations as verified by the empirical sciences." The positivist beliefs *in natural phenomena* and the sovereignty of *the empirical sciences* are especially relevant to us.

31 The natural scientific community, in turn, were originally influenced by e.g., the positivistic antimetaphysics of the German thinker Georg Lichtenberg, as well as by the empiricist David Hume.

32 See Comte, 1848; about the sociology of Comte, see Thompson, 1975.

33 One must be careful not to mix up nature as the object and society as an object. Naturally, positivist sociology agrees that the social sciences are parts of what they study—both subject and object. Nevertheless, this tradition is optimistic about minimizing the influence of the researcher and making the study "objective."

34 We should note that so-called *logical positivism*, also called *logical empiricism* (founded in Vienna by Moritz Schlick in the 1920s) actually is even closer to our focus. It claims that metaphysical statements (such as whether or not nature per se exists independently of perceiving subjects) are *meaningless*, rather than—as Comte would hold—*false*. But this difference does not change my arguments.

> Positivism is a theory of knowledge. But any theory of knowledge presupposes an ontology—for it must be assumed, implicitly if not explicitly, that the world is such that it could be the object of knowledge of the specified type (Bhaskar, 1989:49).

Unique for the atomist ontology (proposed by a branch of positivism) is that it regards parts of the natural and social systems as closed—or at least closeable. Experiments are seen as the superior research method, where closing and isolating parts of the systems allows the researcher to control and observe them. According to empiricists—in both the natural and the social sciences—this makes science able to predict future occurrences within systems with reasonable probability. Methodological issues will be further examined in a subsequent section on the subject–object relation.

Whether or not positivism presupposes a belief in the hardest form of causality is subject to dispute.[35] This book will definitely not try to solve this issue. All it will conclude about causality at this point concerns the language of causality. People engaged in "softer sociology," especially the interpretive and hermeneutic schools, are overly concerned about avoiding a positivist causality language. This makes them inclined to avoid clearly stating what they really hope to provide evidence of. It is all too common that sociologists want to show that a certain kind of causal relation applies between parts of the object per se, between A and B. But they do not dare to write it; they merely imply it. This becomes fuzzy, and leads to confusion. Howard S. Becker (1986), one of the famous "soft sociologists," criticizes his own research tradition:

> Sociologists have many ways of describing how elements covary, most of them vacuous expressions hinting at what we would like, but don't we say, "there is a tendency for them to covary" or "They seem to be associated." But many people use such expressions to hint at stronger assertions they just don't want to take the rap for. They want to discover causes, because causes are scientifically interesting, but don't want the philosophical responsibility (Becker, 1986:9).

This book tries to be more straightforward. But it is actually very difficult to present all one's strongest assertions, especially in analyses of empirical material.

35 In his illuminating article, Thomas Brante (1997) provides nuances to the causality issue, by mentioning a number of forms of causality useful to what he calls "causal realist" sociology: structural causality, expressive causality, reciprocal causality, intentional causality, etc. He consequently argues that causality can comprise less absolute phenomena, such as tendencies. Brante thereby states that "positivism does not have monopoly on this concept [of causality]" (ibid., p. 320, my trans.). On the other hand, certain positivists (such as Kyburg, 1968, as stated in Hunt, 1991) holds that any positivist ought to avoid making conclusions about A causing B, as it is in the "realm of metaphysics," even stating that "it is questionable to what extent causality is of scientific interest" (ibid. p. 236). This would apply if positivism in an orthodox way would, as they claim, base its world view on Humean scepticism. However, we have noted above how positivism as ontological atomism is forced to make postulates beyond the realm of scientific scrutiny. Brante is thus correct if he refers to positivism in practice.

To conclude about ontological atomism, its fundament relevance here is: *a belief in an objective reality, possible to close and thereby to observe directly and predict*.[36] This will be further investigated in other chapters, such as the one on how to study environmental action.

The opposing position is what can be called *ontological subjectivism*. Many of the social sciences studying environmental issues touch upon ontological subjectivism. Consequently, it should be examined more closely than ontological atomism. The examination of ontological subjectivism will concentrate on the ontology of *nature*, thereby leaving aside for a moment the ontology of society.

1.4.2 Ontological Subjectivism: There Are as Many Dependent Natures as There Are Subjects

The stance of ontological subjectivism is introduced in this subsection. Nature (the object, O and its parts) does not exist without any subject perceiving it. This is, as I see it, in two overlapping respects an "anti-naturalist" position. The first is methodological, and concerns the social sciences. It claims that the object of the social sciences is so fundamentally different from that of the natural sciences that the social sciences should only use its own softer, interpretive methods (e.g., Taylor, 1985). Applied to environmental issues, Macnaghten & Urry (1998:75ff.) argue against the use of statistics and other harder scientific methods for studying *perceptions* and attitudes to nature. In a subsequent chapter I oppose this somewhat monist methodology, and call for methodological pluralism. At this stage, the study examines the anti-naturalist position in the *ontological* sense, to which ontological constructivists subscribe. Constructivists plausibly emphasize that what subjects perceive as nature (and natural) is affected by various frames of reference, power relations, interests, and so on. However, this emphasis frequently moves constructivists one step further—a step across the line of ontology. Devitt (1984/1997) recognizes that the object, according to constructivists, is constructed "by the imposition of concepts" (p. 235). Since denotations and connotations of concepts vary across different social, cultural and scientific groups, there may be as many worlds as groups:

> People in different groups literally live in different worlds. As a result, the world-views of the different worlds are incommensurable (Devitt, 1984/1997:235).

36 How this relates to naturalistic versus social reductionism is rather complex. Empiricists (from all the sciences) hold that the originally natural scientific research methodology, for instance experiments, are superior for all the sciences. Little (1991:222) calls it *naturalism*. But is this necessarily relevant to the problem of naturalistic versus social reductionism? I maintain that positivism forces us to create another ontological level which would expand on the issue of causality. There would hence be two levels of reductionism; one where action is referred to as based on some sort of causal law, and one stressing intention, motives, etc.—teleological aspects. Positivism would be inclined to subscribe to the former type of explanation, which implies an optimism regarding the possibility of predicting future occurrences, both in natural and social systems.

Without perceiving subjects the world (nature) simply does not exist.[37] A short dialogue between a non-constructivist (Scheffler, 1980) and a constructivist (Goodman, 1980) will shed light on the matter.[38] Scheffler states that

> the claim that it is we who made the stars by making the word "star" I consider absurd, taking this claim in its plain and literal sense (Scheffler, 1980:205).

In a section called "On starmaking," Goodman replies:

> we do not make stars as we make bricks; not all making is a matter of moulding mud. The world-making mainly in question here is making not with hands but with minds, or rather with languages or other symbol systems. Yet when I say that worlds are made, I mean it literally; and what I mean should be clear from what I have already said (Goodman, 1980:213).

It would be a waste of space to bring up such endless metaphysical debates in this book on environment and social science if it were not for the fact that several of the well-known social environmental thinkers use statements rather close to Goodman's. Although taken out of their contexts, it is worthwhile to present a few quotes from noted books in the environmental social sciences.[39] The first quote comes from Macnaghten & Urry (1998:249):

> We have empirically examined a range of processes hugely significant [… which] constitute the lineaments of an approach which both recognises, and goes beyond, the starting point of this book, namely, that *there is no single nature, only natures* (p. 249, my italics).

The following one is drawn from Klaus Eder (1996:9):

> the naturalistic analysis [where Eder uses Durkheim and Marx as examples] of the relation between nature and society is opposed by a culturalistic interpretation [to which Eder subscribes] of this relationship, *viewing nature as something that is constituted symbolically rather than objectively given* (Eder, 1996:9, my italics).

The last quote comes from the most cited book in the discipline—Ulrich Beck's Risk *society*:

> At the end of the twentieth century, nature is neither given nor ascribed, but has instead become a historical product (Beck, 1986/1992: 80).

Just like Goodman, these constructivism-influenced sociologists run into the problem of ontology. They confuse ideas and perceptions of nature with nature itself. Macnaghten & Urry have not dealt with nature itself in their study, but have made

37 Cf. Berkeley's idealism. A variation of the constructivist theme is that the object per se might exist, but that we as subjects have no way of saying anything about it. The object is beyond the reach of our knowledge and language. All we have are our own constructed worlds. Cf. Kant's idea of "the thing-in-itself."

38 This dialogue can also be found in Devitt (1984/1997:241).

39 These quotes are not presented with ambitions of being representative of the authors complete works. Rather, they ought to be regarded as isolated examples of ontological subjectivist remarks in social constructivist writings.

an important contribution to the understanding of *ideas* about nature. What they ought to have stated, instead of the italicized part of the quote, is that "there is no single, complete and uncontroversial *understanding* of nature; *the views* are many, and in important ways conflict." I argue along the same lines above when claiming that Yearley in his example of *The Planet Project* moves toward the dangerous edge of social reductionism: The project formulators' confusion of the planet itself with interest regarding the planet cannot plausibly lead anyone to the conclusion that there is no planet itself to talk about. Claus Eder's quote is, at best, a rhetorical juxtaposition of nature and culturally complex conceptions of nature. In the final quote, Beck contrasts late, reflexive modernity to early, simple modernity. He holds that during simple modernity nature was understood as something given. This "simplistic" view (to ontologically separate nature and the perceptions of it) leads, according to Beck, to treating nature as subdued, alien to people. But here Beck gets himself into trouble. He blurs an ontological distinction of *nature and perceptions of nature*, with the sharp separation of *nature and humanity in early modernity*, the latter calling forth an instrumental relation to nature (a type of relation which I have argued against above).

Devitt concisely sums up the general problem of ontological constructivist statements:

> If constructivist talk that is apparently about the world is metaphorically about theories, it is true. But then it will not be able to sustain Incommensurability and other theses distinctive of constructivism. To sustain what is distinctive, the talk must be taken literally. But then it is false. By blurring the distinction, the truth about theories can appear to do the job of the falsehood about the world (Devitt, 1984/1997:241).

My assumption is (although it is hard to know) that some of the ontologically constructivist statements in environmental sociology are metaphors, quasi-poetry. The title of Macnaghten & Urry's book, *Contested Natures* (1998) would thus be a metaphor for "Contested *views of* and *interests in* nature." Let alone the semantic clumsiness of my alternative, one may speculate that there was a more profound reason for the authors to choose the former alternative: My more modest alternative would perhaps reveal that their book is not as philosophically path-breaking as their chosen title suggests. However; in several parts of my study it will be emphasized that social constructivism—although it has little to contribute to enrich the ontological debate—may be immensely important and useful in helping us understand the social facets of the environmental problematic. This requires, however, that it goes beyond its by now commonplace observation that many parts of environmental problems that society takes for granted are constructed. Nevertheless, social constructivists will still have to wrestle with problems that emerge in their texts deriving from their ideas

of complete relativity and hence incommensurability between different perceptions of nature. This is dealt with further on in the book.[40]

Finally, perhaps as a curiosity, one can note how constructivist sociologists—who in one of their book sections may fiercely attack ideas of a subject-independent nature—can in another section subscribe to ontological claims originally made by atomism and realism. Here is just one example, by Macnaghten & Urry (1998):

> There is of course little doubt that some of these patterns of contemporary consumerism have had disastrous consequences for the environment. This is reflected in holes in the ozone layer, global warming, acid rain, nuclear power accidents and the destruction of many local environments (Macnaghten & Urry, 1998:25).

The cited paragraph is not only naturalistic in the ontological sense; it also largely relies on piecemeal scientific claims, that is to say the epistemic and methodological sense of logical empiricism and (scientific) realism. Ironically, Macnaghten & Urry hereby make stronger and harder scientific claims than the scientific community as a whole dares to make. In the sciences focusing on global environmental change, an animated debate is continuing, involving conflicting evidence (see Bryson 1990; Schneider, 1991 on global warming).

1.4.3 Ontological Realism: To Postulate an Independent, Partly Open, Nature

There are several versions of realism. Thus, we would give realism undue credit by presenting it as one fully consistent solution to "the ontological problem." We could place all its versions between atomism and subjectivism along a continuum—from weak, "fig-leaf realism" (next to subjectivism) to strong, scientific realism (next to atomism), although the ontology of realism is essentially different from that of atomism and subjectivism. A brief introduction of the versions of realism in order to position this book within ontological realism is within its scope—but not to provide profound analyses of nuances within each concept.

First a few words are needed about the common factors in all versions of realism. Proponents of realism assume that a nature exists out there—a nature independent of perceptions. They admit that this is a postulate—hence not scientifically provable; the issue is a metaphysical one. Yet they hold that this postulate is necessary in order to produce a thorough knowledge of underlying mechanisms that produce events in nature. Weak realism stops right here. What is problematic about stopping at this point is that this postulate is very general. Even certain advocates of ontological constructivism would, although not without problems, echo the postulate. Still, they

40 The classical problem of relativity is the following: If one argues that everything only exists relative to other things, one runs into severe problems as to how texts, cultures, and language should be understood. Texts would be unreal, nonexistent in themselves. There would be nothing to gather around in the environmental debates, not even around texts with various perspectives on the environment.

would add that there is no way for subjects to learn anything about this independent world; all that subjects can deal with is subjectivity. In order to distinguish between the three ontological ideas—atomism, subjectivism, and realism—it is necessary to present a few epistemological and methodological differences between positivism, constructivism, and realism. These differences are applied to matters of environmental problems further on. (For a more extensive survey within the "new realism," see Pawson, 1989). Realists are skeptical toward the atomist idea of closeable systems. Instead, they hold that many systems, especially in society, involve complex mechanisms operating simultaneously and coevolving with other systems. Causal laws should therefore be more modestly treated as tendencies (Danermark et al., 1997:287). This has profound implications for how one regards claims in environmental debates. It also touches upon another relevant issue: the common misunderstanding within environmental sociology about realism. Several constructivist environmental sociologists appear to treat all versions of realism as one: as strong scientific realism. Marten Hajer is one example:

> A realist approach assumes incorrectly that the natural *environment that is discussed in environmental politics* is equivalent to the environment "out there" (Hajer, 1995:16, my italics). This [Hajer's own] discourse-analytical approach to the investigation of the environmental conflict differs from mainstream analysis primarily in its anti-realist and anti-determinist stand. This means that it does not accept that the ecological conflict is inherent in the physical facts of environmental change (ibid. p. 264).

There is nothing in the general realist tenet that assumes an equivalence of the natural environment and discussions in environmental politics. Realism is united in the ontological sense—not in terms of epistemology or methodology.

1.5 Conclusion

Why does the approach of this study have to rest on ontological realism? As regards atomism, I hold that too many cases have emerged where nature and the environment have been oversimplified and generalized. Specific ecosystems are too frequently referred to as closed systems in the same manner as objects in a laboratory.[41] An overly optimistic view about how changes in nature can be predicted is also a direct consequence of the atomistic ontology. Finally, a consequence, although not inherent in ontological atomism, has been that environmental problems are frequently handled in the naturalistic reductionist way: as if environmental change were mainly an issue for technology to solve. The atomistic (to an extent positivistic) cor-

41 See e.g., Wynne's (1996:44ff.) study of sheep farmers in Wales.

respondence in the human sciences is when environmental problems are reduced to problems of individual behavior, which the behavioral sciences might help alter.[42]

In subsequent chapters it becomes clear how social constructivists fruitfully problematize the oversimplistic conclusions made by both natural and social atomism. Constructivists acknowledge the crucial roles of perspectives, group interests, coalitions, power inequality, etc., in the environmental debate. The scope of this book covers more than just different story lines of various actors and ideologies. What social constructivists leave out is how "expressions of preferred future scenarios for society" (stated by Szerszynski in Lash et al., 1996:23) are to a large degree based on implicit assumptions about *how real, natural ecocycles can be balanced and closed*. Constructivists consider irrelevant the congruence between the physical world and environmental/societal issues (Jokinen & Koskinen, 1998:57). On the other hand, constructivists on many occasions stand behind the metaphysical idea that nature in itself cannot in any way be reached, if it even exists. Their ontological subjectivism hardly involves an interest in real, physical states of affairs.

This interest which separates my approach from the main constructivist one is not only based on a concern for nature itself. It also stems from a more general interest in the practical consequences, in society and nature, of human activity.[43] Philosophical pragmatism has been influential in this respect:[44]

> The pragmatic method in such cases is to try to interpret each notion by tracing its respective practical consequences. What difference would it practically make to anyone if this notion rather than that notion were true? If no practical difference whatever can be traced, then the alternatives mean practically the same thing, and all dispute is idle. Whenever a dispute is serious, we ought to be able to show some practical difference that must follow from one side or the other's being right (James, 1907/1995:18).

This book takes an interest in the consequential facts that Swedish households have increased their electricity use from 13 to 45 percent of their total energy use, while domestic oil use has decreased from 72 to 24 percent between 1970 and 1996 (Johansson, 1997:184). The approach is also interested in the fact that as much as 81.4 percent of the domestic waste in Sweden was either put in a landfill or incinerated (39 + 42.4%) in Sweden as late as 1994, with an increasing trend to incineration (Na 28 SM 9502, Statistics Sweden). Regarding household practices, I claim that composting and other changes in waste management have the potential of actually reducing the imbalance of the ecocycles, following for instance the principles of ther-

42 See e.g., Buckley (1967:42ff.) for a more extensive survey of closed and open systems in the social sciences.

43 Still another reason for the interest of this study in the physical world concerns the issue of scientific democracy, a less rigid *ad hominem* division of labor between the different sciences. This is ultimately a question of knowledge democracy in society as a whole. More about this is brought up in the chapter about environmental knowledge.

44 When referring to pragmatism it is necessary to make clear that one does not subscribe to all tenets within this philosophical tradition. The pragmatism of Rorty (1983:169), for instance, would in this specific case speak diametrically to my standpoint, since he conceives knowledge as a way of coping with the world and not as a representation of the world. Thus, social science becomes moral inquiry and nothing else for Rorty (Bryant, 1995:122).

modynamics. Furthermore, I hold that alternative electricity generation has the capacity of reducing the speed of man-induced climate change.

How can this interest in facts about environmental impact be integrated with a focus on social and political influence in modern generation of knowledge? This is subject to analysis in the chapter "Who Can Learn What about Nature?" Prior to that, it is necessary to demonstrate why facts really are useful. It should thus be clarified what I mean by an *environmental problem*.

CHAPTER TWO

What is an Environmental Problem?

S — "O" | O

Figure 2: *Subjects' (S) evaluations of the environmental condition as problematic or not ("O") versus the object per se (O)—"external nature" (cf. Djurfeldt, 1996).*

To elaborate on this question from the perspective of the social sciences, it is necessary to initially examine what is a quintessence of sociology: *social* problems. I do this by associating social problems with the environmental condition. Here the environment (nature) is referred to in accordance with my ontological realist stance presented in the preceding chapter. The initial examination of social problems is followed by taking a critical look at the concept of *environmental problems*. What is really social about them? I suggest that while the natural condition is not a social construct, environmental problems are. It is of great concern that the social sciences explore the social complexity of environmental problems. Ecological risks are continuously subject to controversies in the public debate as well as in theoretical works of the social sciences. The chapter discusses ecological risks very briefly, and the interested reader is recommended to consult the cited literature.

2.1 The Sociological Focus: What Is a Social Problem and What Is Its Relation to the Environmental Condition?[45]

As noted by the classical social thinkers, modernity brings features that many people consider promising—technical progress, abundance of goods and commodities, freedom and personal fulfillment. These features are, however, also matched by drawbacks—various kinds of social pathology: social problems. After their initial conceptualization in the 1830s and for several decades onwards, social problems were addressed as *one* problem: namely one of general, unequal distribution of wealth in early modern society (Schwartz, 1997:278). Actors in most of society were at the time eager to claim a thorough concern for solving *the* problem. The ruling class, for example the Prussian bourgeoisie, was one of the groups with the loudest verbal concern (according to Marx and Engels, 1848-9/1977[8]:287). (Perhaps this fuzzy social consensus is today paralleled with verbal consensual concern for "the environment."[46])

Marx soon acknowledged the significance of social position to the social problematic; different classes do not share one social problem. Each class has a social problem that is in conflict with the others (Schwartz, 1997:279).[47] Other classical social thinkers went back to analyze one social problem, although theirs was extremely broad and multifaceted: the problem tied to relations of state and civil society. Both Ferdinand Tönnies and Emile Durkheim focused on organic versus mechanical features of modern relations in state and society. Still, they had contrary views as to what these features would be. Tönnies (1887/1963:33) is renowned for his dichotomy of an organic, community-like Gemeinschaft and a mechanical, public society-like

45 *Problem* was in English used synonymously with *question* up to the mid-eighteenth century. This synonymity had its background in the Enlightenment: The social problem, like the mathematical problem at the time, was perceived as having one clear and undeniable solution. After the mid-eighteenth century, "problem" was gradually removed from question—toward "topic," i.e., something with no immediate and solutions obvious to all (Schwartz, 1997:276). To me it appears, however, that the treatment of social problems during the last half century has in practice moved somewhat back and forth between the two. Proponents of social engineering, for instance, have been rather close to the Enlightenment sense in their practical treatment of "problems." The duality "question-like problem" versus "topic-like problem" also raises the issue of an *objectivist* versus a *subjectivist* understanding of what a problem is: Perceiving problems as unambiguous and clear to all is closely tied to an objectivistic point of view and vice versa. To make things more complicated, "question-like problems" seem more akin to applied, public problems (in terms of soliciting answers) than do "topic-like problems," which appear closer to academic and basic research problems (of intrinsic value). The latter analogy is especially relevant to our environmental research interest, since we attempt to overcome the dilemma between, on the one hand, a practical, piecemeal and shallow focus and, on the other hand, a grand and unclear academic contemplation—for its own sake—of environmental issues.

46 National opinion polls reveal that 75% of Swedes in the early 1990s believed themselves to be highly concerned about the environment (Lindén, 1996).

47 This illustrates the social and situational aspect of perceived problems, similar to interest conflicts about environmental problems, which may seem ever so general. Although environmental problems have a democratic side (Beck, 1986/1992), they also have severely unequal sides.

Gesellschaft.[48] Durkheim turned Tönnies up-side-down by placing *mechanical solidarity* within traditional life (cf. Gemeinschaft) and *organic solidarity*[49] in modern life (Asplund, 1991:23ff). Nevertheless they, together with Marx and Max Weber, were worried about what they perceived as the dark sides of modernity. Durkheim was troubled by what he labeled *anomie*,[50] while Weber emphasized the negative social consequences of the "stiffened spirit" in modern society. He claimed that the stiffened spirit is constituted both by a dead machine (the factory) and a living machine (bureaucratic organization). The high level of discipline and routines in the modern bureaucratic apparatus turns what in a traditional setting would be community action into a highly systematic and rationally ordered societal action (Weber, 1909/1946:228). In *The Protestant Ethic*[51] Weber presents his pessimistic view of how the social problem of his time might invade the totality of modern life.

> For of the last stage of this cultural development, it might well be truly said: "specialists without spirit, sensualists without heart; this nullity imagines that it has attained a level of civilization never before achieved" (Weber, 1905/1958:182).

Later in the twentieth century, Horkheimer and Adorno analogously displayed the instrumental character of scientism and capitalist thinking. They furthermore acknowledged "ecological" implications of this tendency. The Enlightenment had lead, they argued, to disenchantment of "external nature" by having the subjective

48 The dichotomy Gemeinschaft-Gesellschaft was partly inspired by *Nikomachian Ethics*, where Aristotle separates *philia* (an intrinsically valued intimate form of social life) and *koinonia* (association as a means to pursuing a specific goal) (Rhea, ed., 1981:19—21). Tönnies attached two forms of will (or motives) to his own dichotomy. *Wesenwille* is natural feelings of solidarity constituting the basis of Gemeinschaft. *Kürwille* is the opposite form of will, which characterizes Gesellschaft. It is goal oriented and arbitrary. *Kürwille* can be compared with Max Weber's concept *Zweckrationalität*; a goal oriented rationality, in which means and goal are clearly separated. The goal is in this rationality usually individual or group profit—sometimes, not always, of the economic kind. (The opposite form of rationality is *Wertrationalität*, value-oriented rationality (Weber, 1983). Georg Simmel gives nuances to the static distinction between means and end in economic rationality. Money is used both as means and end. In fact, the modern way of life involves very complex goal-orientation, where small goals may or may not be given up for larger goals further on (Simmel, 1978:331). This is highly relevant to the common situation where a reduction of environmental impact conflicts with short-term economic profit, but might be in line with long-term economic security.

49 This can be regarded as a critique of Tönnies, since *organic* is regularly used in a positive sense, connoting life, a whole—intimacy and "natural" integration.

50 Anomie is, according to Durkheim, "the malady of infinite aspirations," due to the decline of traditional institutions, community and religion. The concept is well illuminated in his book *Suicide* (1897/1951:241ff.). As a curiosity, we note that Durkheim partly equals anomie and "de-regulation," the latter, which I illuminate in my study of the Swedish electricity sector. Does deregulation lead to apathy and resignation or to the opposite? "The state of deregulation or anomie is this further heightened by passions being less disciplined, precisely when they need more disciplining" (ibid. p. 253). Merton (e.g., 1964) is one of many sociologists who have elaborated on Durkheim's concept of anomie. Merton does it by studying causes of normlessness. He finds it mainly in the discrepancy of cultural goals and the means to achieving these goals in various social groups. Perhaps environmental policy makers ought to keep this in mind when setting goals for citizens to "alter their daily behavior."

51 In *The Protestant Ethic*, Weber coins the term *iron cage*, as part of his pessimistic scenario of modernity.

human spirit despiritualized, a dehumanizing process (Merchant, 1994:4; cf. Horkheimer & Adorno, 1944/1979).

In a subsequent section I connect *differences* between social thinkers with an analysis of environmental visions. At this point it suffices to explore the relation between social problems *as a whole* and environmental issues. Are classical sociological analyses relevant to analyses of the changing environmental condition of today? Several environmental social scientists believe they are not. Norgaard is one of them. He writes that:

> Sociology's modernist beginnings have constrained sociological thought on progress and the environment in a manner which has made it ill-suited for interpreting current environmental crises (1998:1).

It is obvious that the old social analysts cannot shed light on the whole present-day environmental situation. One reason is that the classic thinkers seldom explored directly the relation between society *and nature* (yet it would be severely misleading to say that they never did[52]). Regardless, I claim that the classic sociological thinkers are very useful in indirect ways for yielding understanding of the present environmental condition, much by virtue of their interest in the dark sides of modernity. In a pluralist and eclectic vein, one can say that the classical social thinkers had certain ideas about social problem(s) in common. They shared an explicit or implicit recognition of a term that Marx has made well known—*alienation*—although they had different interpretations of it[53] (cf. Israel, 1971). Certain aspects of alienation include powerlessness, cultural estrangement, social isolation, and normlessness. Applied to the environmental problematic these aspects may provide the environmental social sciences with a range of fundamental questions: What roles do lack of participatory local decision-making, economic inequalities, social segregation, loneliness, individualization, and so forth, play for the current environmental "crisis"? To expand on *alienation* in the broadest sense of the term (also alienation of society from nature) it can be fruitfully applied to social preconditions and obstacles to ecocyclic adaptation in different realms of society, such as: short-term individual goals, distance between

52 For instance, the early Marx (1844/1975:328) stressed: "To say that man's physical and mental life is linked to nature simply means that nature is linked to itself, for man is part of nature" as part of his larger analysis of society-nature. Also, Tönnies' Gemeinschaft-Gesellschaft dichotomy (1887/1963) involved ideas of the mutual impact of society and nature. Even Durkheim, the most "sociological" of the early social thinkers, took the possibility of environmental influences on suicide rates seriously. Only after a (for the time) comprehensive empirical analysis of "cosmic factors"—e.g., climate, temperature, length of days—he concluded that the environment does not provide us with independent variables to explain suicide rates (Durkheim, 1897/1951:104—122).

53 Marx used the term "alienation" in several stages of his work life. He began to use it in a sociological sense in his *Grundrisse der Kritik der politischen Ökonomie (Rohentwurf)*, written in 1857. In the latter *Das Kapital*, he changes his alienation analysis to a theory of commodity fetishism (Israel, 1971:12). According to Gunnar Aspelin (1969:209), Marx begins with the idea of the free and comprehensive formation of personality. Marx's development of the alienation concept traces the threats to these essential needs. I, in line with several of the other classical thinkers, strongly oppose Marx's belief that only *capitalist* society, and not *socialist* society, creates alienation. I refer to alienation in *modern* societies, which encompass both capitalist and socialist ones. Cf. Giddens' (1990) *disembeddedness.*

production and consumption. The bottom line: Much of the content of environmental issues can be analyzed with the tools introduced by classical sociology.

Moreover, several schools have been highly influenced by Marxism, in their ambitions to take nature into closer account. Horkheimer and Adorno in the Frankfurt school are an important example. They expanded Marx's focus on political economy to an analysis which included additional spheres, such as nature, psychology and culture (Merchant, 1994:1,4). In extension, they called for "the ressurrection of nature," with a new understanding of the unity of society and nature (Eckersley, 1992/1994:71).

Nevertheless, the relations between social problems and environmental change are frequently quite complex. It is tempting, and problematic, to a priori place *social* bads (or goods) a par with what one perceives as *environmental* bads (or goods). Two examples serve to show how this is problematic. Increased amounts of household waste during the last thirty years can be associated with changes in society that most people regard as *positive*; higher average education and more women in the workplace are obvious ones. The association is based, for instance, on the fact that households today consume more semi-manufactured articles than before, with more packaging, as women do not spend all their days at home making everything "from the ear to the loaf." On the other hand, and related to excessive use of energy resources, negative social changes, such as an augmented proportion of households with financial difficulties during the last three decades (in the U.S. especially), have made the uphill slope of car ownership less steep than it would have been during this period without the increased inequality (Klintman, 1998). These are a few of the reasons why this book calls for a critical perspective for studying environmental implications of social conditions.

2.2 What Is Social about Environmental Problems?

Social as well as environmental problems are treated in the literature in either an objectivist or subjectivist manner (see the footnote on "problems" above in this chapter).

2.2.1 Problem Objectivists

A "problem objectivist" holds that problems—both social and environmental—constitute an objective reality; problems are "conditions," embedded in the social or environmental world. The problem objectivist stance is licensed by the ontological atomist approach, prevalent in certain empiricist tenets. Importantly, realism does not subscribe to this; not even scientific realism does. In accordance with realism, I maintain that the objectivist perspective is fruitful when dealing with nature per se,

while it is highly questionable when dealing with environmental *problems.* There are two reasons for my position: one ontological and one epistemological/methodological.[54] (The next chapter on environment and knowledge deals with the latter.) The ontological reason is that it is in a strict sense incorrect to hold that problems are objective, that is to say, value-free. *Problem* is simply a value-ridden term in the language. The evidence is abundant in environmental controversies. When presented with the very same "facts" about the environmental condition, such as how much emissions derives from fossil fuels or waste incineration, certain actors may very well regard it as a problem while others may not. Moreover, even if different actors were to agree about the extent of the actual environmental consequences, actors can interpret the situation within a wide value spectrum—from very problematic to not problematic at all.[55]

2.2.2 Problem Subjectivists

As argued by the subjectivist standpoint, the environmental condition does not become problematic until it is placed in relation to subjects. Subjects may be anyone involved—in local issues, for instance, people living next to an area where a new landfill is planned, local authorities, environmental agencies. The figure at the beginning of this chapter illustrates this: Subjects (S) evaluate the environmental condition (O) as problematic or not ("O"), or as problematic in different ways. The subjectivist definition of problems is thus circular. But this is not a very powerful critique of subjectivism, since the circularity merely supports the subjective and social construction of environmental *problems*.

The location of energy-generating windmills sometimes raises animated protests among several groups of people, who all argue that it causes environmental problems. Yet the different groups talk about different problems: noise, aesthetics, disturbance of military defence. Others regard these factors as negligible compared to the environmental benefits of generating energy from wind. The subjectivist position stresses the feature of relativity in environmental problem assessments.

Dryzek supports the view of environmental (ecological) problems as value-ridden:

> Any "problem" is simply a discrepancy between some ideal and actual (projected) conditions, which is amenable to amelioration, of not elimination. *Ecological* problems concern discrepancies between ideal and actual conditions stemming from interactions between human systems and natural systems. The character of the natural systems in question, and the way in which they interact with human systems, impose, as I will now seek to show, some very special demands upon human problem-solving as that activity is extended to the ecological realm. A great deal is special about ecology (Dryzek, 1987:26).

54 Ontology refers to "being," how reality can be understood. Epistemology has to do with what we can know about reality, while methodology involves questions of *how* we can acquire knowledge.

55 Still, this is just a small part of the complex nature of environmental problems. Even various actors would agree about how large the emissions are, what and who causes them, how the emissions affect the environment and how problematic this is, but the most difficult factor remains: to agree upon the *practical* strategies to solve the problems.

Yearley provides the reader with a constructivist echo:

> The constructionist approach argues that understanding environmental changes as environmental problems is far from self-evident (Yearley, 1991: 47-54).

This book shares the constructivist interest in the social and political components of "environmental awakenings" throughout modern history. Alarms over the environmental crisis, for example, were not very loud until the wealthy countries of the Northern Hemisphere began to feel threatened.

But is every environmental problem merely a construction? Is the condition never a problem until a subject *perceives* it at such? Cannot a problem exist without subjects being aware of it? If someone is asleep while a scentless, poisonous gas is leaking into the bedroom, could we, just because no one is aware of it, not say that the gas leakage (the environmental state) is a problem to the sleeper? To answer "no" would be counter-intuitive. Still, to be perfectly stringent, the leakage is a problem to the person only if we know that he would not have wanted the leakage to occur if he had known about it. Another less morbid and finicky question concerns environmental consensus. In several cases relating to waste and energy the majority of people appear to agree that the environmental condition—provided that the facts are correct—is a problem. The greenhouse effect and changes in the ozone layer due to waste incineration and emissions from other energy sources are examples of this. Also, if one looks up the term environmental problem in an encyclopaedia, one will most likely find descriptions of such environmental changes per se. Conditions that present broad consensus are reasonably labeled as environmental problems in the public debate. Nevertheless, the social sciences need to go deeper and reason in abstract and exact terms. And strictly speaking, environmental problems do not transform from a subjective to an objective character just because a vast majority puts the condition at the same spot on a problem severity spectrum. Democracy cannot fill the gap between subjective and objective. On the contrary, environmental consensus is *particularly* interesting to social scientists. Consensus frequently implies that certain actors or institutions have been especially powerful in convincing the public in an environmental case, despite the fact that environmental issues embed so many conflicting interest components.[56]

The severity of an environmental problem is ranked in relation to other environmental and nonenvironmental problems in everything but objective ways. Hannigan states the important task for sociology to unveil these political processes:

> [The social constructionist approach to environmental sociology] recognizes the extent to which environmental problems and solutions are end-products of a dynamic social process of definition, negotiation, and legitimation both in public and private settings (Hannigan, 1995:31).

In Sweden it has for instance been indicated how public opinion about environmental problems relates to the problem of unemployment. Through statistics Martin

56 Yearley (1996:ix) touched upon this, as we saw in the previous chapter, in his example about "the Planet" project.

Bennulf has shown the inverse relationship between the two. During times when people in Sweden regard (what they conceive as) the environmental situation as very problematic they tend to perceive unemployment as not so severe, and vice versa (Bennulf, 1994). Society has difficulties in emphasizing several grand problems at the same time. This is still a side of the arbitrariness (read: non-absoluteness) of environmental problems.

2.3 Are Ecological Risks a Form of Environmental Problems?[57]

Public opinion polls about the environment prevalently ask about ecological risks. Studies demonstrate that the severity of people's risk assessment correlates in certain situations with how motivated people are to act in order to mitigate environmental problems. These actions involve domestic practices, for example recycling and composting (Baldassare & Katz, 1992). But what is an ecological risk? Anyone who follows the public debate on the ecological condition keeps hearing about risks. Risks are for example generated through chemical leakage to the groundwater,[58] leakage from landfills, nuclear power production, and storage of nuclear waste. Both the media and the social sciences are attracted to the research field of risks. The ticking bombs of catastrophe appear to offer more attractive scoops and research questions than do the slow, insidious, but typically more comprehensive crises generated by regular fuel emissions and increases in the amount of waste (see e.g., Wärneryd et al., 1995).

Even in the research sphere of ecological risks, the social sciences are divided into subjectivist and objectivist stances. It is easy to imagine one tradition that subscribes to the subjectivist viewpoint: social constructivism. Lidskog (1994) has done research on the social contexts of nuclear waste management. He summarizes the constructivist perspective, which he also subscribes to in the following quote:

> The constructivist outlook breaks off the objectivist conception, since it assumes that risk is *socially constructed*. To regard risk as socially constructed implies a critique of the idea of a risk "out there" to discover and assess. Instead risks are perceived as something that is created "inside" society. The usual distinction between actual risks and risk conceptions is according to this view incorrect, since all we have to start out with are different conceptions of risk (Lidskog, 1997:86, my trans.).

57 The research field of ecological risks and society is only briefly touched upon. For more exhaustive accounts, see: Lidskog, R. et al., 1997; Lash et al., 1996; Renn, 1992.

58 One Swedish example can be found in a comprehensive analysis of the accident at the tunnel construction in Hallandsåsen in 1997. The poisonous chemical in Rhoca Gil jeopardized the quality of ground water (Hydén & Lindén, 1998).

Social constructivism provides a valuable methodology for unveiling much of the environmental problematic that in everyday life is regarded as nature-as-nature, while it actually is culture-as-nature. Limiting the levels of chemicals used in products that end up in landfills and incineration plants has largely political and social components. But the ecological risks that these modern social practices produce go beyond the social sphere: They become parts of nature as such (O). My criticism of ontological subjectivism in the preceding chapter applies to social constructivism's perspectives on risks as well. As Djurfeldt (1996:77) agrees, constructivism reduces the world too crudely to social factors. Ulrich Beck has been criticized (by New, 1995) for likewise engaging in social reductionism when avoiding recognizing objective ecological risks in his book Risk Society (1986/1992). His ambiguous ontology as regards risks is elucidated in the following quote:

> Because risks are risks in knowledge, perceptions of risks and risks are not different things, but one and the same (Beck, 1986/1992:55).

My outlook acknowledges ecological (environmental) risks as *potential changes of the environmental condition* (O).[59] The changes, if they occur and are observed, are in turn likely to be evaluated as problems by subjects (S). Risk perception or conception refers to how risk is assessed ("O") by various subjects. The research field of risk perception is both rich and important. Even if different actors agree upon how high a risk is, risk acceptance varies substantially between different people and groups depending on position and situation. An interesting issue is how risk perception relates to environmental concern: Do "high environmental values" covary with estimates of risk and what severity value one ascribes to a certain risk level? In what kinds of cases does a high estimate of risk lead people to extra concern in other environmental household practices (as mentioned above), and when does the high experience of risk induce feelings of helplessness and passivity? These are research questions posed in (cognitive) social psychology. As has been mentioned, social constructivism seeks to shed light on the social and political context of risk assessment. But constructivism's placing risk on a par with risk assessment is as problematic as doing it with nature and *ideas about* nature. And the basis is one and the same. Let us take a look at a constructivist statement about risk:

> From a constructivist viewpoint it is natural to claim that there exist different assessments of what constitutes a risk. In a pluralist and socially stratified society there are different rationalities and perspectives, and consequently a diversity and disagreement over something natural. One

59 My standpoint can be said to be in line with what Danermark et al. (1997:74) claim to be a critical realist one, namely the idea that physical (or social) phenomena *de facto* include combinations of mechanisms, i.e., potentials, tendencies, that may or may not be manifested as events or actions. This relates to Bhaskar's *transcendental realism*, which holds that one can show underlying mechanisms to be real. This can be done through *retroduction*, i.e., investigating what traits—internal relations—are necessary for X to exist: to study conditions (Bhaskar, 1986:11). Methodological strategies for retroduction (alternatives to traditional experiments) are: counterfactual thinking, social experiments, studies of extreme cases, and comparisons between cases (Danermark, 1997:159—165).

> could say that in our late modern society there no longer exists one truth, but several (Lidskog et al., 1997:86-87, my trans.).

The statement presents a logic, which from a critical realist/pluralist stance can be claimed to confuse ontology, epistemology, and methodology.[60] The same applies to the constructivist quote earlier in this section. The fact that one cannot be sure about the qualities of an environmental risk (epistemology and methodology) cannot possibly lead one to the conclusion that no absolute risk *exists* out there (ontology). Also, there is no ontological difference between whether it is rather difficult or very difficult to assess risks.[61]

2.4 Conclusion

Environmental problems are closely connected with the social world chiefly in three ways:

- through the obvious fact that most forms of life in modern society are not in balance with the ecocycles of the environment: Energy use, consumption and transportation patterns are examples of overlapping factors that disturb the ecocycles.
- that the (other) dark side of modernity—social problems, such as economic inequality, social segregation, individualization, lack of participatory decision making—turns out to correlate (in complex ways) with certain action and structures that disturb ecological systems.
- that environmental problems (i.e., the conception that the ecocycles are affected in negative ways) can fruitfully be regarded as social constructions. (Here I oppose the faction of positivists that claims that what scientific society has labeled environmental problems is roughly the same as objective environmental conditions.)

60 I his later work, however, Lidskog (quoted above) is influenced by critical realism, and thus moves towards a fruitful reconceptualization of "nature as materiality and nature as mechanisms" as a basis for integrating nature in social theory. Moreover, in that article he clearly separates reality itself (O) and knowledge about reality, where the latter does not in any simple way "spring out of reality itself" (see Lidskog, 1998:20, 24), something that critical realism would completely subscribe to.

61 Something that seems to be a constructivist attempt to get out of this mess is to separate *risk* from *danger*. Lidskog et al. hold that danger refers to the inherent negative potential of substances, whereas risk analysis explores levels and limits (1997:97). But this makes things even more confusing. Here, constructivists seem to stipulate their very own definitions. Danger becomes what in any dictionary is referred to both as risk and danger; risk becomes what dictionaries would label as *risk assessments*. For instance, Webster's (1984) New Riverside University Dictionary reads: "Risk: Possibility of suffering harm or loss: DANGER. 2. A factor, course, or element involving uncertain danger: HAZARD (p. 1013)."

Social constructivism provides the social sciences with a useful methodology for yielding understanding of social and political features of the environmental problematic. It recognizes that environmental problems are largely based on social, value-ridden statements. As to risk assessments it raises intriguing research questions about what power relations are behind the assessments, and at what points risk assessments begin to be used as objective facts. Yet, constructivists often fail to acknowledge—or to take into account—the physical reality behind the social factors. Neither do they accept that there are risks *out there*, behind sometimes socially biased risk assessments. Jokinen and Koskinen (1997) have made a succinct analysis of social constructivism. They hold that:

> According to the "strict" application of social constructionist ideas, only the problem-creating questions posed by actors and the associated processes of articulating these questions are of interest. The congruence between the questions and objective states of affairs is not considered relevant. Instead, the "contextual" constructionism accepts the prevailing states of affairs and their history as frameworks for claims-making and constructing definitions of problems (Jokinen & Koskinen, 1997:57).

In an almost ironic way, social constructivism, just like positivism, holds that the research focus has to be reduced to the visible. The difference is the following: Social constructivists suggest that the objective is not relevant, since people have varied understanding of the objective, if it even exists. Positivists, on the other hand, refuse to take any scientific interest in the subjective, since they only find visible the objective.

The approach of this book is interested in the *congruence between* social construction of environmental problems and the objective states of affairs. To a certain extent this implies standing with one foot in each research tradition, something that is always subject to orthodox complaints about incommensurability. This will be discussed further on.

All this nevertheless generates important questions, particularly concerning epistemology: What can people learn about the environment? And are particular actors or social systems better suited than others for obtaining knowledge about every aspect of the environment? The following chapter will explore these questions.

CHAPTER THREE

Who Can Learn What about Nature?

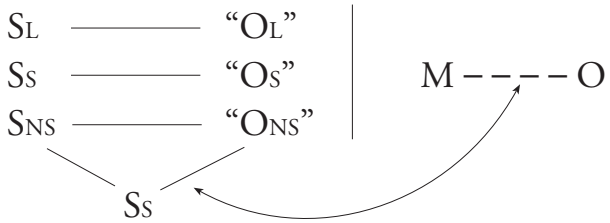

Figure 3: *Different groups of Subjects: Lay public (SL), social scientists (SS) and natural scientists (SNS) and their transient and perspective-based knowledge ("Os-ns") about the environmental condition (O) and its mechanisms (M). In addition, social scientists (Ss) aim at providing the overall social picture.*

One of the purposes of the previous chapter was to argue that environmental problem statements are contingent on social and evaluative factors—a problem subjectivist view. But what about *knowledge-based* statements about environmental conditions and mechanisms as such? Can societies generate objective knowledge about conditions of nature itself? Can the public be sure, for instance, that connections of waste incineration emissions with the greenhouse effect represent any "true" mechanisms (M) in the physical world? These questions are a bit more intricate than the one about problem subjectivity. This is so because knowledge-based statements about the environmental *condition* have more of a factual (neutral) character than have claims about problems. Questions such as whether or not it is possible to acquire genuine

and meaningful knowledge about reality fall under the philosophical domain of epistemology.[62] This is the subject of the first section of this chapter. The second part moves toward methodological questions, namely, *how* one can acquire knowledge by using empirical data.

3.1 What Are Environmental Statements Really Worth?

From the general point of view of naturalism, certain true correspondence is in principle possible between assertions ("O") about the environment and the environmental condition as such (O). This "epistemological postulate," as Brante (1997:316) calls it, is endorsed by empiricists and realists of all colors (myself included). Anyone who does not subscribe to this postulate ought to have a hard time appreciating any strategic attempt at attaining environmental knowledge. Statements about what *mechanisms* (M) lie behind occurrences in nature would be especially difficult for an anti-naturalist to accept. Constructivists can be placed among opponents of the idea that knowledge about one reality is possible to acquire. As to statements about *mechanisms behind* environmental conditions, constructivists are accompanied in their skepticism by extreme factions of empiricism. The former group would say: "Why work with questions such as 'Is waste incineration one of the factors contributing to acid rain and the greenhouse effect?' Reality (if it even exists) cannot be reached by us, since all theories and perceptions are induced by our own constructed concepts." The latter group would say: "Why should science look for invisible interactions of mechanisms generating the greenhouse effect and acid rain, when such mechanisms are almost impossible to prove?"

3.1.1 How Can the Realist Epistemic Postulate Be Supported?

Since postulates cannot be proven to be right or wrong, one has to appeal to other criteria than truth in the realist crusade in favor of the naturalist epistemological postulate. Intuition and the opinion of a majority are aspects which philosophers refer to, in order to support certain normative claims. But what about the postulate? Most people probably believe that it is fruitful to try to acquire knowledge about the environment. It is not, however, as evident that this would hold for intuitions regarding knowledge about all three levels of ontology whereof Bhaskar (1978:56) speaks: (a)

62 Epistemology is, in the English speaking cultures, the theory of knowledge as a whole. In contrast, the continental tradition uses the term epistemology when focusing specifically on *scientific* knowledge (*Encycl. of Sociology*, on *Epistemology*). My call for knowledge democracy presupposes the former treatment of epistemology, as the theory of knowledge as a whole. According to Fuller (1988:5), epistemology has been practiced as a discipline distinct from metaphysics (read: ontology) only since Kant provided a critique of confusions between the two.

the empirical (direct or indirect experiences), (b) the actual (occurrences that take place regardless of perceptions), and (c) the real domain (mechanisms/causes) behind the actual.[63] The model contains two ontological gaps—one between (a) and (b), and one between (b) and (c).[64] Of course, even if one knew that a majority subscribes to the whole model, this would not make the model true. And also, why practice philosophy at all, if all one wants to know is what the majority thinks? Majority claims are in this context only useful if combined with other (better) arguments. A fruitful one, as I see it, is Bhaskar's (1989:23—4) concept of *adequating practice* (see also Sayer, 1984/1992:65ff; Djurfeldt, 1996:23). It refers in our case to "return messages" that people get from reality (O) for some of their environmental actions (in figure 3 indicated by the arrow). Reduced emissions from waste incineration would thus be possible to measure or perceive indirectly. Such return messages are conceptually filtered, but may still allow people to learn provisionally about mechanisms in the actual and real domains of the environment. Bhaskar uses the concept of adequating practice when creating a theory about experiments in science (Djurfeldt, 1996:25). His interest in people's making practical sense of reality cannot avoid being paralleled with philosophical pragmatism. This will be examined more below. In studies of society and environmental action the practical relation between social and ecological systems keeps coming up. The classical pragmatists (e.g., Dewey, 1925/1965) reasoned in terms of *experience* rather than of knowledge.[65] Experience is a more obvious result of feedback than is knowledge (in the narrow intellectual sense). Without romanticizing over premodern ways of life, it stands clear that modern urban lifestyles have contributed to an immensely increased distance between nature and culture compared to earlier periods. Virtually all members of modern urban society are contributing to the diffusion of environmental risks throughout time and space. This diffusion leads to more diffused ecological feedback, where the question of responsibility becomes unclear. This distance between man and nature can to a large extent

63 It would be presumptuous to assume that people of all cultures share one and the same intuition about occurrences in nature. Yet, in a very general sense, it seems that many non-Western cultures also share a belief in (a) happenings that we can perceive with our senses, (b) occurences that we do not have perceptual access to, and (c) mechanisms related to events: whether causes or intentions—material or spiritual.

64 The separation of the three domains, and acceptance of them—despite the two ontological gaps—is a fundamental feature in Bhaskar's critical (or transcendental) realism. He asserts that empiricists commit the "epistemic fallacy" by reducing the three domains to one (Danermark et al., 1997:31). I agree with Bhaskar that it is very useful (not least in environmental issues) to separate the empirical, factual, and real. However, since we are dealing with postulates here, it is questionable that Bhaskar speaks in terms of a *fallacy* (denoting something that can be proven wrong) when someone stands skeptical to the link between the factual and the real. *Epistemic over-simplification* would perhaps be a better label in that case. To equate the empirical with the actual (and real) can however more easily be called a fallacy, since this equation in its naïvity does not even allow a possibility that the world *may be* different from what we perceive.

65 When referring to pragmatism, it is necessary to make clear that I do not subscribe to all tentets within this heterogeneous philosophical tradition. The pragmatism of Rorty (1983:169), for instance, would in this specific case speak diametrically to my standpoint, since he conceives knowledge as a way of *coping* with the (social) world and not as a representation of the (social) world. Thus, social science becomes moral inquiry and nothing else (Bryant, 1995:122). Rorty is thus an anti-realist in this respect.

be compared with modern social differentiation and decontextualization. The social distancing has run parallel with a more complex and distanced ecological feedback (Klintman, 1995:9). To be sure, Sayer (1984—1992:69) argues that "knowledge must generate expectations about the world and about the results of our actions which are actually realized," in order to be practically adequate. Yet, even if one could reckon that all public, scientifically-based knowledge about ecological changes were "true," the modern lack of ecological experience would make it harder—in the body—to sense the need to change routines. People do not feel the practical consequences of more than a fraction of their environmental actions. This is still an argument for the importance of the humanities and social sciences in analyzing how to come to terms with environmental problems, rather than merely leaving it to the natural sciences and technology. In this context it is crucial to acknowledge the difference between what Sayer (1984/1992:71) calls "thought objects and real objects," as well as the practical aspects of knowledge.

3.1.2 The Imperfection of Knowledge

This section returns to the question of the principal possibility of environmental knowledge. I claim that, while it in principle is possible to obtain (conceptually filtered) knowledge about the environment, all knowledge is fallible. This is in line with several of the thinkers mentioned. Brante (1997:316) takes this common idea as a methodological postulate in his realist approach. Anthony Giddens has, separate from the debate within critical realism, already noted:

> We are aboard in a world which is thoroughly constituted through reflexively applied knowledge, but where at the same time we can never be sure that any given element of that knowledge will not be revised (Giddens, 1990:39).

Bhaskar (1989:23) similarly maintains that all knowledge is transient. With the word *transient* he suggests that knowledge or criteria of rationality never emerge outside of, and separate from, a historical and social context. Bhaskar calls this view *epistemic relativism*. It is also widely maintained by other realist approaches and of course by constructivists. Many beliefs about mechanisms generating the greenhouse effect and ozone holes are controversial even *within* the scientific community. Environmental ideas during one period of time sometimes have to be changed. In Sweden, the long accepted separation of as many recyclable fractions as possible is now being questioned both scientifically and politically. The excessive transportation of recyclables from the far north of Sweden now appears to be more damaging to the environment than recycling there is beneficial. The social sciences have important roles to play in illuminating the mechanisms of epistemic relativism in concrete environmental examples. What then are the differences between a critical realist approach and constructivism in this context? The root of the difference is of course ontological. But, as was emphasized in the chapter about Mother Nature, metaphysical disputes without any differences in their practical outcomes are not worth spending time on. Both

constructivists and critical realists can hence do a good job shedding light on social and historical angles of environmental problems, if that is all we are interested in. Yet my approach involves a broader interest in environmental issues. This makes it important to mention a difference of principle between critical realism and constructivism. The former maintains that knowledge attainment is always *dependent upon* theories[66] and concepts; the latter, however, claims that knowledge acquisition is always *determined by* theories and concepts (Djurfeldt, 1996:10). As subtle as this difference may seem, its practical implications are immense. The constructivist stance in its orthodox form urges the idea of incommensurability, that is, conflicting claims of reality have no relation, no conceptual agreement and hence cannot generate comparable data. Furthermore, such constructivism necessitates what Bhaskar calls *judgmental relativism* (see Collier, 1994:90—1), namely the position that "all beliefs are equally valid in the sense that there are no rational [read: cognitive] grounds for preferring one to another" (Bhaskar, 1986:72). In practice, to put it bluntly, this means that there are no better grounds for believing suggestions such as (A) "to change from fossil fuels to alternative energy sources (e.g., windpower) would provide living beings with cleaner air to breathe," than for believing (B) "that such a change would not make much environmental difference." This form of relativism is strongly opposed by critical realism. Bhaskar stresses that opposing theories have different definitions and meanings. Yet they have the referent in common—for instance the environmental condition and its mechanisms. Accordingly, it should be possible to assess which theory best explains the more important side of a certain phenomenon (Collier, 1990:90—1). Finally, I want to provide the reader with three practical criteria for choosing between conflicting theories about environmental conditions and mechanisms, that

- the assessments are truly about the same referent (intransitive object),
- one assessment is the more logically consistent,
- one assessment is based on more convincing set of feedback—thus more useful.

Still another criterion is frequently mentioned when one tries to choose between knowledge statements: the *systematics* in the collection of information. However, I want to leave that aspect aside for a moment. The reason is that scientific knowledge by definition is more systematic in its strategic collection of information than is general knowledge among the lay public. And this is what I want to leave open to be explored in the next section: Is one type of knowledge better than another?

Finally, it is critical to keep in mind that different statements frequently discuss different *perspectives* of the same referent (read: of the environmental condition). The potential of combining knowledge about different perspectives has so far been underestimated. My approach holds that incommensurability can oftentime be avoided so that more than one theory about the same object can be discussed in a fruitful manner. Before his theory was misinterpreted and radicalized, even Kuhn (1970b), the founder of the paradigm debate, noted that incommensurability should not mean

66 "Theories" should here be understood in the broadest, scientific as well as extrascientific sense.

complete incomparability. He rather contended that comparing different theories requires "a good translation manual" (p. 270). Such a hypothetical manual should, according to Kuhn, explain the ontologies the theorists hold, since worldviews are closely tied to language: the explicit key to mutual understanding.

To move the idea of comparability further than Kuhn perhaps would appreciate,[67] I claim that different theories often complement rather than eliminate one another. This is a foundational idea of knowledge pluralism. It consequently tries to lessen judgmental relativists' disquietude about incommensurability.

3.2 Who Has Got the Best Environmental Knowledge?

Let us look at an environmental example which might be useful to have in mind when analyzing normative claims about knowledge types.

In many regions the amount of household-produced waste increases to a degree that it is regarded as a local environmental problem. Leachate from growing landfills is very difficult to avoid. There are limits to how much waste a site can receive before the environmental burden becomes excessive. In areas where landfills are on the verge of being filled, municipalities commonly plan to put new waste sites into operation.[68] To open a new waste site is economically costly and has several environmentally negative outcomes for the new area, but may lighten the burden on the old site (Klintman, 1996:38). In my fictive example, a river flows close to a waste site. Where the river begins, it is extremely pure; where it ends, a group of biochemists, who live close to its end, claim that it is very polluted. People working and living in different situations along the river have quite different experiences of the pollution. Parents worry that their children, who swim in the river, will get sick and that poisonous leachate in the river will affect their hormonal development. An elderly man who frequently swims there has noticed eczema on his back, but does not think that this has anything to do with the water quality. Immigrants fish for food there, and may see the pollution as dangerous to the way they live and make a living. Biologists do not worry about skeletal abnormalities in fish. A further outlook comes from the environmental lobbyist, proposing changes in the environmental regulation relevant to waste and water matters.[69]

Experiences are frequently much more diverse and dissonant between actors than this example indicates. If we were to add more actors to the example, we would probably discover more conflicting views.

67 As Bryant (1995:34) recognizes, Kuhn subsequently emphasized the different worlds that members of various scientific communities live in, a clearly ontological constructivist approach.

68 In the municipality of Ystad, for instance, experts assessed that the waste site of Hedeskoga will be replete in the year 2005 if the citizens and the public and private sectors continue to dispose the same waste amounts as they had in 1993 (*Delstudie Ystads bioavfall*, 1993).

69 The basic idea for this example comes from Schlosberg (1997:275—76).

3.2.1. Normative Claim No. 1: Scientific Knowledge Is Superior to Lay Knowledge

As was mentioned earlier, empiricists and positivists maintain scientific knowledge to be superior to everyday knowledge. According to them, subjects ought only to observe the environmental condition in a neutral way and then suggest one optimal way of improving it. To objectively observe takes theoretical and methodological training in science, something which only belongs to agents within an expert system. Worries among the people, who are in contact with the river and the area around the waste site, are understandable to empiricists. Still, the everyday experience of the lay public is not conceived as very interesting for the process of knowledge acquisition. Empiricists simply call for a group of scientist to make an optimal assessment of the condition of the river. The local biochemists mentioned in the case would do, since scientists are schooled in disinterested professionalism.

3.2.2. Normative Claim No. 2: Scientific Knowledge Is Highly Overestimated

The most fervent appraisal of empiricism and scientism comes from two (sometimes overlapping) directions: from anti-modernists and constructivists.

Constructivists would maintain that the example above (even if it had been real) is only a storyline in which different actors' stories are put next to each other. The stories of scientists in the example are in no sense more valuable than are the stories of the lay public. Just like extrascientific knowledge, certain expert statements have repeatedly been proven wrong. A common strategy of constructivists is to present anecdotes concerning instances of failed expert knowledge and correct extrascientific statements (e.g., Wynne, 1996:49).[70] *The anti-modern approach* stresses the macro-sociological feature of expert knowledge as problematic. Norgaard (1994) can be placed among the strongest anti-modern critics of the dominance and monopoly of science as a means to discover and solve environmental problems. He emphasizes that science was created as one of the main elements of early (i.e., simple) modernity. Scientific dominance can thus be questioned within a broader criticism of modernity, which in turn is regarded as the basis for environmental deterioration:

70 Here, Wynne seems to take an anecdote—for instance, about farmkeepers in Wales and their assessment of the consequences of the nuclear accident in Chernobyl—as sufficient evidence for the relative qualities of expert knowledge and lay knowledge. I find this highly insufficient. One reason is that one can, of course, collect anecdotes about virtually anything, although it may not represent a broader picture. Another reason is that the final criteria that Wynne uses to assess who was correct—the expert or the sheep farmers—is other *scientific* statements. Also, Wynne somehow showed that in their analysis of the situation the sheep farmers actually were better *scientists* than the scientists themselves. This can hardly be used as a criticism of scientific systems—only as a piece of advice about how certain specific scientific practices can be improved: by doing more field work and less laboratory work, etc.

> Environmental and cultural destruction can be linked to the dominance of these [modernist] beliefs about science (Norgaard, 1994:9).

Applied to the river case, anti-modernists could perhaps ask (rhetorically): "How could we take the expert claim of the biochemists, or the biologist, as the best knowledge when these experts are all constituents of a system, 'the Scientific Church', that has created the environmental and cultural destruction?"

The only thing that constructivists and anti-modernists can conclude from our case is that one should follow participatory democratic procedures to meet the wishes of the public. No final knowledge claims ought to be the basis for any solution.

3.2.3. The Confusing Category of Realism: Scientific Knowledge is Real

Should any position within realism be put in the same science-praising box as logical empiricists, including positivists? What about the thinkers who call themselves *scientific realists?* Wynne assumes so:

> It is important to distinguish here between their [Ulrich Beck's and Anthony Giddens'] recognition of the (in recent years only) *contested* nature of scientific knowledge, *and their uncritical reproduction of a "realist" concept of scientific knowledge*. A more constructivist perspective on scientific knowledge also problematises their conceptions of trust, and indeed of the nature of social relations generally (Wynne, 1996:45, my italics).

Scientific realism is a multifaceted term. Its proponents are very heterogeneous in their standpoints. The only common idea among them is, according to McMullin (1984), that: "[there is] reason to believe that something like the entities and structure postulated by the [scientific] theory actually exists (p. 26)."[71] This belief in the reality of scientific claims does not, however, say anything about if/how they would rank scientific knowledge in relation to extrascientific knowledge. All it says is that there are reasons to believe that (good) scientific statements ("O") correspond to aspects of (O). However, this by no means has to be connected with an excessive trust in science—scientism.

Referring to our example, scientific realists would probably stress *hope* for the biochemists and biologists regarding both their measuring of the maintained pollution accurately, and their mapping out of the mechanisms behind the pollution. How have the poisonous chemicals (if they are really there) ended up in the river? Does it

71 The fundamental difference between positivism and scientific realism can be seen in realism's interest in *postulated structures*, something that positivists would not accept, regarding it as metaphysical and unscientific. Examples of scientific realists are: Bhaskar (1978): transcendental realist; Leplin (1984): methodological realist; Harré (1986): referential realist. One must thus note that scientific realism differs from positivism in fundamental ways. One previously mentioned difference concerns the realist idea of open, complex mechanisms. Another refers to the realist stance that unobservables should also be taken into account in science. This will, according to (scientific) realism, provide us with multidimensional explanations of nature, something that the positivisms' mere focus on observables fails to do. For further reading, see e.g., Danemark et al., (1997); Leplin (ed., 1984).

really have to do with the landfill? Still, realists would have no reason for excluding the possibility of the lay public's being an important segment of the group that tries to obtain knowledge. Adequating practice may, theoretically, emerge from feedback that constitutes everyday experiences. Accordingly, the man swimming each day in different areas of the river could be useful. His practical experience is, like the scientific experiment, continuous, consistent, and open to feedback from the environment. A main difference is that the swimmer may not have knowledge acquisition as a primary goal.

Collier (1994) claims that Bhaskar, whose transcendental realism has been labeled "scientific," does not treat scientific knowledge as the only real form of knowledge. Nor does Bhaskar equate it with extrascientific knowledge (p. 21). He regards scientific knowledge as special. In effect, he gives it much more attention in his work than everyday experiences. That appears to be the case with a large proportion of realist work so far.[72] And, as Collier continues:

> A full confrontation between realism and relativism awaits the clarification of the grounds for everyday knowledge as well (Collier, 1994:239).

In practice, constructivists have been bolder than realists in confronting modern society's power structure regarding knowledge about the environmental condition. I want to show how focusing on lay knowledge and experience from a realist standpoint may result in what I call critical knowledge pluralism.[73] In this context it refers to taking into account the experiences of several "species of actors" at several system levels, aside from natural scientists and actors within other expert systems. Pluralism

72 A welcome exception is the study by Djurfeldt, 1996.

73 An instant problem with tentative introduction of the term *critical pluralism* in the environmental social sciences is that it instantly sounds so appealing to most of us: Which of us would not want to call ourselves critical and pluralistic, at least under some circumstances? The question is how it can be provided with a certain steadiness or at least contours—prerequisites for the usefulness of any concept or approach. Nevertheless, I soon found that there are numerous research factions on environment and society which can be argued to fall outside any framework involving both critical and pluralist traits—regardless of how poorly defined such a framework would be.

To combine the term critical with pluralism is not an entirely new idea, at least not if we depart from sociology. In drama and theater studies it has been used by, for instance, Kolin (1993). Moreover, in political science the combination of terms is found in a book by Schumaker (1991). Yet, the combination in these two works is utilized in very specific contexts, and is not at all comparable with my usage. It is first in a brief article within the field of consumer research (by Hunt, 1991:41) that the terms are mentioned (haphazardly), in a way that makes it relevant to this study. Still, Hunt does not provide us with much more than we already knew that the terms themselves denote. The critical pluralist approach is, as I use it, a basic strategy for approaching environmental issues, especially knowledge and experiences, which in its turn opens up a plethora of ways to do research. It is in this sense pluralistic. Moreover, I want to stress that theoretical reasoning of this study is regarded as a means, an instrument, toward an understanding of the social world. And if an unconventional combination of theoretical reasoning were to lead to new understanding, this could convincingly be argued to be good, as long as the combination is made consciously and systematically. Finally, pluralism (like democracy) is often subject to logical questioning based on its paradox: Should not a true pluralist accept all approaches, including the unpluralist ones? As is thoroughly elaborated in several chapters, I hold the solution to lie in the critical side: All research and approaches are not equally valid! To develop this critical side, this study partly makes use of Bhaskar's (and others') versions of *critical realism*.

largely concerns the problem of how one might combine viewpoints in order to generate a broader picture of reality. This problematic is explored a bit differently in the next section, regarding the question of how to one might draw upon both the social and natural sciences when analyzing environmental problems.

3.3 What Could Be the Role of Social versus Natural Sciences for Learning about the Environment?

As was addressed in the chapter on Mother Nature, the distinction between society and nature has its roots in classical—as well as modern—dualisms, such as the ideal world versus the material world, spirit versus matter, and culture versus nature. Moreover, and particularly relevant to the academic world, the separation of the natural and social sciences and the humanities can be derived from one of modernity's characteristics: functional differentiation. As applied to the environmental problems which were acknowledged before the late 1960s, functional differentiation was quite practical. As Lidskog et al. (1997) maintain, environmental research in Sweden and elsewhere consisted largely of effect research conducted within the natural sciences. Once the natural sciences had analyzed a concrete environmental case, all that was needed was policy decision-making, which was to balance the concerns about environmental protection and public economy (pp. 24—5). Despite this efficiency in recognizing and regulating a concrete issue rather quickly, much of the environmental concern in the 1960s was still characterized as fragmented and pragmatic rather than integrated and principle-based (Lundqvist, 1995:258). The idea of creating balance between interest sectors (such as what is technically/economically feasible, and environmentally sound) was predominant during the period that Jamison (1990) calls "the period of awakening (of 1960—67)."[74]

74 I recommend the book by Jamison et al., (1990) to readers interested in an in-depth analysis of the development of the "new" environmental consciousness in Europe.

Important administrative change took place in the late 1960s. Within the Department of Agriculture, what today is called the Swedish Environmental Protection Agency (SEPA) was established. At this point one could note two competing basic views. In the first view, the environment was considered intrinsically valuable, a view manifested in "natural" administrative problem areas: water, biotopes, etc.; in the other view the importance of creating balance between interest sectors was predominant (Lundqvist, 1995). Parallel with the extraparliamentary politics, the Environmental Protection Act (EPA) in 1969 (not modified until the 1990s) was established, and was considered fairly rigorous by international standards (Jamison, 1990). For instance, persons performing practices potentially harmful to the environment had to obtain a permit with restrictions from, for instance, the National Franchise Board for Environment Protection or the County Administrative Boards. The Environmental Protection Act is a basic act, a "skeleton law." It provides basic goals and guidelines for certain activities without providing details of means and concrete measures. In practice this means that the idea of balance between interests, judged by the different boards, rules—illustrated by formulations such as: "as may reasonable be demanded" or "technically and economically feasible."

The division of labor between the natural sciences (also functionally differentiated) and the policy apparatus can be seen in light of the political climate around environmental issues, which shaped the way that environmental "problems" were perceived. Environmental problems were initially regarded as local emissions with local consequences. By spreading the emissions over a larger area, or filtering end-of-pipe, many of the environmental problems could be regarded as solved, particularly when the polluting practices were too economically beneficial to be stopped.[75]

In the late 1960s and 1970s the environment was subject to increasing concern in Sweden, and was brought forth by a new and activist environmental movement. This concern was in some measure institutionalized into parliamentary politics in the 1980s. Negative environmental risks and changes were increasingly recognized (not only by the environmental movement) as diffusing through time and place.[76] A few of the most debated environmental problems at the time were sulfur dioxide emissions as well as acidification in precipitation and surface water (Lundgren, 1989:67). The political and scientific center of attention thus partly moved from local effect research to a broader interest in ecocycle processes of energy, and steps from production to recycling of materials. Technological and natural scientific analyses of these phenomena and practices were not exhaustive, however. They left out more essential issues of how modern society works, of human lifestyles and values, and about how to bring nature back in. It was at this time that the social sciences and humanities began to be allocated more research hours to deal with environmental problems from a fundamental point of view (see Lidskog et al., 1997:24—5).

Ever since, there have been debates both within and outside academia as to the role the social sciences ought to play in acquiring knowledge about environmental issues. Should the social sciences make any statements about the environment as such, or only about social factors of the environment? I outline the main positions briefly below.

3.3.1 Division of Labor between the Humanities, Social Sciences, and Natural Sciences

Empiricist and Positivism Voices: Division in Practice

At first glance it may appear obvious what the logical empiricist (or positivistic) viewpoint would be. Positivism, a fruit (or seed) of modernity, "must" propose a func-

75 One of the first kinds of emissions held to have environmental implications was mercury from Swedish pulp production.

76 Investigative commissions (kommittéväsendet) are central for Swedish environmental policy making. They are problem specific and generate the knowledge necessary for compromise on new policies between various professionals. The commissions include various specialists and administratives, in addition to the staff of the Ministry of the Environment. One if the commissions held in 1987 that "Research has indicated that [environmental] problems are many times more complicated and more difficult to handle than have previously been assumed" (my trans., SOU, 1987 (32), p. 243).

tional and sharp line between the research areas of nature and society. Still, there are false myths about positivism that need to be unveiled in order to nuance the picture of positivistic ideals.

One myth is that positivism only appreciates research using quantitative methods. Since the nonpositivistic researchers in the social sciences tend to avoid quantification, their claims about the environmental condition would (according to the myth) be considered invalid by logical empiricists (including positivists). But this is incorrect. Positivists are, it is true, inspired by the *rigor* of formal logic, mathematics, and statistics. Yet, it would be ahistorical to assume that positivism is the same as simply a quantitative research ideal (Hunt, 1991:37). As Phillips (1987) maintains: "A positivist, qua positivist, is not committed to any particular research design. There is nothing in the doctrines of positivism that necessitates a love of statistics or a distaste for case studies" (p. 96). The positivistic philosophy of science is rather of the position that "the qualitative-quantitative dichotomy is spurious. Although quantification has considerable merit, it is neither a necessary nor a sufficient condition for science" (Brobeck, 1968:573—4). Interestingly, August Comte, the father of positivism, was against statistics in his sociology. By coining the term *sociology* he separated the discipline from the quantitative *social physics* common at the time (Comte, 1877:15). Thus, a positivistic criticism to having the social sciences "interfering" in the environmental knowledge generating process cannot be based on any normative quantitative-qualitative divide.

Rather, such criticism could be founded on differences in axiology between positivistic and nonpositivistic sciences. Axiology refers to "goals underlying a particular approach to science" (Patterson & Williams 1998:284). Relevant differences in approach between positivism and nonpositivism (especially interpretivism in the social sciences) are (a) terminal goals (e.g., universal laws, predictive explanation, understanding), and (b) instrumental goals (e.g., generalizability, reliability, predictive validity, persuasiveness, insightfulness, etc.). As Patterson & Williams maintain, part of the failure to communicate (N.B., not to be confused with incommensurability[77]) between positivists and interpretivists is due to a lack of common research *goals* (1998:289). In sum, positivists could here hold that much of the softer sociology aims at "relevant" research, while positivistically-based research aims at "rigorous" research. Positivists would believe that the latter type of research paves the way for environmental knowledge of a higher quality than simply relevant research. Therefore, the softer branches of sociology should keep away from the hard scientific field of the environmental condition. Nevertheless, logical empiricists in the natural sciences might assume that the *positivistic* social sciences are *in principle* capable of making useful knowledge claims about the environment as such—as long as they use

77 Incommensurability is the term used by relativists such as Feyerabend (e.g., 1978) and Kuhn (e.g., 1977) to represent something more profound than a failure to communicate due to different goals. As Devitt (1984/1997) recognizes, incommensurability concerns semantics. Incommensurability denotes that "the semantic relations necessary for the comparison of theories do not hold between theories" (p. 299). Semantic relativism, in turn, implies *ontological* relativism (p. 237)—that we try in vain to communicate between entirely different worlds.

the scientific rigor and "objectivity" they have been taught. Still, it is highly unlikely that even positivistic social scientists should have the methodological, practical skills to systematically study the environment as such, logical empiricists might presume.

Quasi-Realism: Division by Principle

Certain anti-positivists are against social scientific accounts of the physical environment for fundamental (epistemological) reasons. Here I refer to factions within social constructivism. The social scientists that I label "quasi-realists"[78] assume that the social assessments of environmental conditions can be so different from the "real" conditions and mechanisms that it makes little sense to estimate such relationships (cf. Fox, 1990; Dunlap et al., 1991:1—2). Marten Hajer, whom I will refer more to subsequently, can be placed in this category. All accounts of the environment are, according to Hajer, social constructions. Therefore, he never regards one environmental statement as more valid than another (Szerszynski et al., 1996:23). This is in practice synonymous with the stance of judgmental relativism mentioned above. In effect, Hajer draws a sharp and normative line between what the social sciences ought to analyze—discourses and story lines about the environment—and natural scientists' attempts (good luck!) to study the physical environment.

3.3.2 Integration of the Academic Disciplines

It is intriguing to recognize that other anti-positivists hold a view converse to Hajer's concerning the scientific division of labor. One of these opponents tries to overcome the modern separation of nature and society. In his project of presenting "people and societies as, in certain respects, *part of* nature," Peter Dickens (1992) proposes that the natural and social sciences should move closer to one another, in doing so breaking the division of intellectual labor between social science and the natural/physical sciences. This would not mean that researchers from the two (former) antipodes would become instant experts within the other's field. But it would imply common working methods and perceptions. From his Marxist vantage point he maintains that this would help to reduce scientific elitism (p. 3).

Macnaghten and Urry (1998) are also in favor of erasing the sharp borderline between the sciences. They endorse as a starting point Catton & Dunlap's (1978) now classical proposal that environmental sociology ought to be "the study of interaction between environment and society," that is, societal development and human exploitation of natural resources (Catton & Dunlap, 1978). Nevertheless, Macnaghten & Urry see even such an approach as maintaining:

78 This stance one could call ontological *fig-leaf realism* in that it might assume there is a physical reality existing independently of the mental (Devitt, 1984/1997:347).

> a division of labour between the natural sciences, which provide the hard and factual base of the state of nature, and the more subservient social sciences, which identify the impacts of physical nature upon society, and the impacts of society upon nature (Macnaghten & Urry, 1998:5).

As nature according to these constructivists is socially constructed, there is no reason that the physical "reality" described by the natural scientific community should be more valid than the physical "reality" described by any other community in society—including the social sciences. This claim is in essence a denial of real environmental conditions that subjects may, or may not, evaluate as problematic (cf. Dunlap et al., 1991:1—2).

3.3.3 To Open up Academia

As the authors do above, I stress that it is central that the traditionally well-separated fields of expertise start to collaborate more. One way of doing this concretely would be for researchers from different fields to cooperate in research teams dealing with certain environmental issues and problems. The communication within the teams would make knowledge across the scientific fields both necessary and useful. When social scientists—from the viewpoint of politics and energy issues—study, for instance, society's slow replacement of conventional light bulbs with fluorescent ones, it is highly relevant to acquire knowledge of technologically and environmentally negative sides of the "energy-saving light bulb." Similarly, before the environmental social scientist gets too excited about studying the social preconditions of recycling schemes for hot household water, it is important to know that the Swedish water and sewage system needs a fair amount of temperate water in order not to collapse. The need for interdisciplinary knowledge is obvious, yet still forgotten.

In any case, Dickens' suggestions of how to get rid of the academic division of labor do little to challenge the simplistic modern idea of expert knowledge as the only *real* knowledge type, as opposed to the lay public's experiences. In fact, his suggestion fits rather well within these narrow modernist values.[79]

I strongly hold that, while much closer collaboration and insights are needed, environmental sociology can hardly make it one of its main tasks to examine the actual environmental situation. Or, as Hannigan (1995) has put it:

> as Buttel and Taylor (1992, 1994) have observed, it is doubtful whether most environmental sociologists are particularly well qualified to evaluate the veracity of environmental claims, especially those which are global in scope (Hannigan, 1995:189).

The competence of environmental sociologists is often limited with regard to getting first-hand information about the state of the global environment. And knowledge claims about the environment do not only differ depending on perspective, interest

79 It must be added that Dickens in his later work addresses the problems of scientific authority and elitism, nobly separated from the lay public's tacit, implicit, and situated knowledge. Sociology is, according to Dickens (1996, chap. 1) part of this elitism.

and power of the subjects. In certain cases it is also appropriate to admit that one knowledge claim is of higher quality than another. Yet natural scientists are not in all instances in the superior position to acquire the relevant knowledge. Critical knowledge democracy is a way out. Just like environmental claims made by scientists or the lay public, those made by social scientists ought to be discussed openly and critically. The lay public is better suited in certain local environmental cases, where the sciences may lack adequating practice (here: extralaboratory knowledge). In addition, social scientists might be especially well equipped for acknowledging environmental problems where experts make undue use of their charismatic authority. Social scientists are also capable of critically comparing evaluations made by environmental experts in different positions. Moreover, social scientists' environmental experiences and assertions should be taken as seriously as should other environmentally engaged lay people when discussing the environmental condition.[80]

3.4 Conclusion: Toward Critical Knowledge Democracy

From the perspective of critical knowledge democracy it is crucial that everyone involved in cases such as that of the river may have her or his voice heard. These are two reasons for this.

The *first* one is *methodological*. One aspect of epistemological relativism which critical realists stress is that all knowledge is fallible and transient—including scientific knowledge. Moreover, different knowledge claims can be shown to be of varying quality. Scientific expert systems are superior compared to other types of knowledge generators in analyzing certain fragments of the environmental state. Prognoses about the greenhouse effect, for example, are not easy for lay persons to make. Here, the scientific apparatus is special, in Bhaskar's sense. However, the expert systems do not produce the perfect knowledge that once was hoped for within the Modern project. Scientific knowledge claims are occasionally proven invalid, while environmental statements from the lay public have turned out to correspond better to feedback from physical reality.[81] It could therefore be that the swimmer (in the river

80 Cf. Habermas' discourse ethics and the "ideal-speech situation." Habermas' ethics is, contrary to the ideas of this book, ontologically constructivist, in that he maintains truth as the outcome of social and rational consensus (see McCarthy, 1978). Moreover, he claims this consensus to be the basis of objectivity, something that I argue against in the section about problem subjectivists. From my ontological realist standpoint I stress how knowledge democracy can help us move closer to the *real object of study* in a useful way.

81 Other types of knowledge, such as local and indigenous knowledge about certain ecological systems, have proven to be superior to some sorts of conventional scientific knowledge. Illustrative examples are certain projects with the use of (scientifically appreciated) biotechnology in Latin American agriculture, which have disturbed the ecological balance, once perfectly maintained by highly refined indigenous knowledge (see e.g., Kloppenburg (1988).

example above) is correct, while the scientists living next to the river are wrong, so that the water quality of the river does not constitute any real risk to human health at this point. Following Bhaskar's model with the division between the empirical, actual, and real domains, there is not only one domain about which knowledge claims can vary in quality, as empiricists (including positivists) would maintain. This is a critical feature of my approach. And the transcendent facets of a condition—such as mechanisms that trigger the possible pollution from leachate (or that trigger anxieties about it) partly involve subjective steps of interpretation. These are mainly methodological and epistemological arguments against a priori preference for expert knowledge over more practical everyday knowledge. One would commit the fallacy of *argumentum ad hominem* if one unreflectively assumed that agents who represent expert systems have the "truer" answers to environmental questions, and that they always are the best ones to define the environmental problems.

The *second* reason for taking all knowledge claims seriously refers to *democracy.* The constructivist and anti-modern traditions have helped illuminate the democratic and power issues of knowledge in society. This is addressed in the section on epistemological relativism above. Knowledge attainment is never neutral or sterile. Perhaps the biochemists that live close to the river are influenced by the location of their own homes when they interpret their data. Power issues may be especially important to note in the environmental "sphere," where knowledge so often relates to policy decisions about priorities in society. It is also frequently connected to legal issues of responsibility. In this light, the need for the lay public to be involved in knowledge claims about their environment becomes clear. There are many, not least local, examples where the lay public's direct observations of the environment should be studied as observations of valid environmental problems—even before the experts have defined them as such. Some of these cases comprise people's experiences of allergies, which have not yet been scientifically proven to be derived from pollution. Local environmental anxieties, sometimes toned down by scientific experts, should also be included.

Risk uncertainty, which can be regarded as a trademark of the contemporary environmental situation, requires that society broadens from the narrow focus on risk assessments to also include a genuine concern in public risk acceptance. In a joint, comparative research project between two universities in Kaunas in Lithuania and the Environmental Group at the Department of Sociology in Lund, one of the research aims was to compare public perceptions of risks of nuclear power in the two countries. Intriguingly, we found substantial differences between the levels of public risk perception, discomfort due to the perceived risk, and the opinion that nuclear power ought to be phased out (Klintman, Jörgensen, Rinkevicius & Gineitiene, 1999). This raises many economic and political issues, while knowledge becomes a bit less interesting here. Accordingly, it is important to place the lay public among those whose definitions of environmental problems are of interest. To include the lay public, their perceptions and acceptance, is to stress that *environmental problems* must not become a sacred label, monopolized by agents within the scientific community.

I argue that the methodology of constructivism can productively be coupled with taking as *preliminary* knowledge certain (scientific *and* extrascientific) statements about the environmental condition and its mechanisms. However, one cannot overemphasize the following reservation. Buttel & Taylor (1994:236) admit that most environmental sociologists hold a strong pro-environmental position while they have little formal training in the natural environmental sciences. While the (natural) scientific community has been quite uncertain about some global environmentally negative conditions, sociologists have taken them at face value. I hence believe that an open interest in comparing exclusively social and political sides of the environment with prefatory facts will help environmental social scientists to be more perceptive to nuances in the scientific community about these facts than if they merely see them as story-lines.

The preliminary and reserved treatment of factual statements reflects my critical approach; the dual interest in objective states in the environment and the multiplicity of social construction represents my pluralism.

Pluralism largely relates to issues of how to combine different viewpoints in order to generate a broader picture of reality. The customary lack of communication and understanding between the natural scientific experts and the lay public is a more fundamental obstacle to an environmentally beneficial society than is the relation between the natural and the social sciences. And here the natural science community has a lot to learn from the social sciences. Open discourse and communication between the lay public, the sciences, and the policy makers is necessary in order for the condition of the environment to be treated as an environmental or social problem (Dryzek, 1987). And this is the only way for the problem to receive "a political dimension and a place on the political agenda" (Lindén, 1997:5).

CHAPTER FOUR

What Are the Most Useful Levels for Social Analyses of Environmental Problems?

4.1 Studying Environmental Action

The study has presented a rationale for trying to achieve understanding of the (social) complexity of parts of the environmental situation labeled as *problems* in society. Within sociological research that to an extent is influenced by pragmatism, it is consistent to devote early attention to human actions which are believed to be positively or negatively associated with certain environmental *problems*. The term *environmental action* is used in a very wide sense here. It comprises human activities believed to be associated with the environmental *problem* of interest. Environmental actions or environmentally related actions can include policy making at the structural or systemic level. An example is scientific and political processes in which agents within powerful institutions decide what levels of pollution to define as *acceptable*. Environmental action can also refer to daily household practices, such as choosing sources of electricity or composting domestic waste. It is typical that an environmental action is linked to more than one problem within the environmental debates at different levels of society. As regards energy use, this type of activity has been linked to a number of environmental factors such as: river exploitation, CO_2-emissions from fossil fuels (both for heating and for transporting nonline-bound fuels), ecological hazard through nuclear power and waste. But implications of environmentally negative or positive action can in general not be fully understood when separated from the rest of the social world. The complete dominance of nuclear and hydropower as electricity sources in Sweden[82] can be connected to the Swedish tradition of large companies and corporations. In 1996, the five largest electricity companies generated 90% of

82 In 1996, nuclear power provided 52% (of 71TWh) of Swedish electricity, while hydropower generated 38% (or 51 TWh) (Energiläget, 1997:7).

Swedish electricity. In contrast, the Danish tradition of small-scale enterprises may be one reason for their success in small-scale alternative energy production. As regards windpower, it generates as much as 10% of Danish energy (2.0 TWh), compared to 0.2% in Sweden (SDS, 22 Nov. 1998). The close relation between environmental and other societal issues will be elaborated on in a later section.

4.1.1 Environmental Sociology, Behaviorism, and Cognitive Social Psychology

Within behavioristically based environmental research it is standard to use terms like *behavior change techniques*, and *behavioral intervention*.[83] One facet that this type of research may have in common with my position is an interest in the concrete and manifest cause of environmental deterioration: human behavior. The fact that human action is directly visible (as opposed to values and beliefs) allows a purely behaviorally-oriented researcher to avoid some of the methodological difficulties that, for example, studies of environmental attitudes can raise. A philosophical objection to behaviorism frequently refers to its claim that the specific, external situation is the absolute determinant of all behaviors. Behaviorism is hence hardly compatible with a scientific interest in human freedom of choice and creativity (Joas, 1996:2).[84]

One branch of behavioral research—the cognitive branch—has moved closer to the research direction that this book endorses. The cognitive school takes an interest in the inner, creative processes and formations of meaning within an individual. Accordingly, the concept of *behavior change techniques* has been replaced here by *motivational techniques*.[85] Sayer (1979) sheds further light on the separation of *behavior* and *action*.

> By "behavior" we mean nothing more than a purely physical movement or change, such as falling asleep, breathing, that is, doing things which lack "intrinsic meaning structure." In contrast, doings which we call "actions" are not wholly reducible to physical behavior even though they may be coupled with it. Actions are constituted by *intersubjective meanings*: putting a cross on a ballot paper, conducting a seminar, getting married, arguing, doing arithmetic, going on a demonstration are all examples of doings whose nature *depends* on the existence of certain intersubjective meanings (Sayer, 1979:20—1).

Although the approach presented in this study very much shares the interest in human behavior as well as the interest in human creative processes, its foci differ in fundamental ways from the other schools. A crucial difference is that behavioral and cognitive social psychology generally has a top-down perspective. Accordingly, these

83 See De Young (1993). See also Dwyer & Leeming (1993).

84 The very title of Skinner's best-selling book on behaviorism—"*Beyond Freedom and Dignity*" is sufficient to indicate a behavioristic viewpoint of human practices.

85 See e.g., Geller, Winett & Everett (1982). The research interest in inner processes makes it appropriate to label the basis of cognitive psychology *scientific realism,* and not positivistic, in the epistemological sense. Hereby I criticize the common claim that cognitive (social) psychology would rest on a strictly positivistic philosophy of science.

viewpoints may generate questions such as: "How can the leading institutions of society make people change their everyday habits in an environmentally respectful manner?" (Klintman, 1996:9). I am in favor of social research which also devotes attention to broader queries, such as: "How can society improve the conditions for its members to actively participate in the work toward environmental improvement; and how can organizations of society be modified so that citizens are ready to take their own environmental initiatives, initiatives that sometimes go further than governments appreciate?"[86] This type of question raises the essential democratic issue of a State and a Government, stimulating the public to require modifications of the State and the Government itself. Within pragmatism, this constant modification process initiated from *below* is regarded as central within democracy:[87]

> Social institutions constantly need reform. Their direction can legitimately be set only by the people they serve. For the pragmatists, "participatory democracy" is a political expression of the metaphysical idea that reality *is* involvement. Because the public consists of a vast plurality of people and things valued, and because the world is changing at every moment, the ways and means of best providing for the individual and common good have to be experimentally determined. The experiments, the political scientists who serve on a vast, ongoing "ways and means committee," should be the people themselves. Innovation is always needed in governance, and innovation typically arises at the level of one or a few people trying to resolve a particular problem, to reconstruct their corner of reality (Parker, 1996:27—28).

Because environmental sociology has a special interest in human initiatives and creativity at all levels of society, we usually prefer to use terms such as *action* or *agency* to denote these activities. The term *behavior* may also be useful within environmental sociology, but it has a tone of passive individuals responding in a mechanical way to stimuli sent from higher levels of society. And this imagery is not consistent with the sociological research aims of this study. The next section elaborates on bases for action within the individual.

86 See Joas (1996) for a comprehensive analysis of the concept of *action* in sociology. Joas holds that the sociological interest in human action has since Comte's beginning been an attempt to "limit the legitimation fo the principle of "laissez-faire" in the vulgarized forms in which classical economics has permeated European thought" (p. 36). Comte aimed at bringing forth a normative and moral dimension of action, hoping to moderate the dominant perspective of "rational" (as individualist and solely economic) action.

87 At first glance, this seems to contradict the criticism of pragmatism as undermining prevailing social and political structure. Pragmatism calls for reform, as do its critical voices. If we analyze the quote further, and compare it with the criticism of pragmatism, we find that the main difference between the two stances lies in their different emphases. While the critics often emphasize what the political ends ought to look like, pragmatists stress the means -- public involvement and action, participatory democracy, and so forth—which they claim will lead politics and social life the way the citizens want it to go. Some pragmatists appear to hope that these means would take us toward sloganic ends like *"democracy of wealth"* (one of Dewey's early ideas, in Ryan, 1996:1043) and *concerns for our co-evolution with nature* (Parker, 1996:29), although the means rather than the ends are stressed in the pragmatist discourse.

4.1.2 Action, Attitudes, and Values

In studies of humans and the environment it has become standard to survey people's attitudes toward the environment and environmental action. It is a pragmatist tenet that attitudes and values are reflected in action; thus, studying action and its social context can help us learn a lot about values. A couple of definitions are needed here. In classical attitude theory, *attitudes* consist of three components: (a) the affective, (b) the cognitive (knowledge), and (c) the conative components (the propensity to act with consequences for the environment). Individuals can have attitudes toward something concrete, such as mandatory recycling of household waste, or toward something more abstract, such as pollution prevention. When researchers in social psychology talk about *attitudes* toward *something*, they refer to the interaction of the three components (Secord & Backman, 1964:97). Within cognitive social psychology it is prevalent to see man as struggling for consonance between the attitude components as well as between his attitudes and different types of action.[88] Although this clear distinction between the cognitive and affective components is useful, there have been currents within pragmatism trying to avoid this split. From a point of view of philosophical pragmatism, facts and values (here: emotions) are not easily separable. One reason is that facts are usually selected and placed in relation to a particular inquiry. Inquiry, in turn, is always somehow based on values. Sociology may add a lot to this problematizing of facts and values. This was addressed briefly in the discussion about expertise and problem definitions. Different interests and power relations direct what facts to emphasize and how to interpret these facts. It is not far-fetched to analogize this with the discussion about epistemological relativism. But again, for practical purposes, the division between the affective and the cognitive, or, facts and "values," is convenient when trying to understand environmentally related action. Moreover, it may help us not to fall into *judgmental* relativism.

Attitudes should be distinguished from values.[89] In practice, attitudes usually refer to quite specific phenomena. Attitudes are easily affected by new information, or by suddenly intensive mass media coverage of a subject. Thus, they are rather changeable over time (Hackett, 1995). Values denote "deeply rooted conceptions about a set of phenomena" (Lindén, 1997:4).

It is appropriate to ask: "Why should environmentally related attitudes and values be studied? What role do they play for actions?" The most obvious reason that so

88 Central to this reasoning is Leon Festinger's (1957). *A Theory of Cognitive Dissonance*. The theory has through the years been applied to a multitude of social psychological areas, and is also highly relevant for analyses of environmental action, motives, and attitudes. In this theory, Festinger assumes that people generally are trying to achieve consistency between attitudes and actions. If we do not regard ourselves as consistent, this results in dissonance, a term that he prefers to the too formally-sounding *inconsistency*. In order to reduce dissonance, people have two main alternatives: We can (a) modify our actions. But if we choose to continue to perform the old action, we may have to (b) modify the cognitive part of the attitude in the motives that are related to the environmental action. This can be done by adding new cognitive elements, and/or changing present elements. Applied to my example about choosing electricity sources, this can be done by giving attention to new motives for choosing one or the other (Zajonc, 1968).

89 Here, values is not used as an "opposite" of facts or as equivalent to emotion.

many research projects get funding for studying environmental attitudes ought to be that it is assumed that attitudes and behavior/action interrelate in ways that one needs to understand. And, indeed, the day when we fully understand the gaps between, on the one hand, what people say that they find important, and, on the other hand, how they in practice treat this as important, there will be a more solid base for modifying policies.

Attitude research indicates that learning about people's attitudes is a problematic way of learning about people's actions. The variability of attitudes causes them to go out of phase with action. In addition, it is difficult to ask people about their attitudes at the correct level. Attitude researchers agree that it is vital to ask about specific attitudes toward specific ideas, phenomena, and actions (Ajzen & Fishbein, 1980). The more specific, the better. In order to get congruence between attitudes and action, it is not sufficient to choose a specific topic, such as: "How important do you find it that society—including households—is increasingly trying to move over to renewable electricity sources?" The result would perhaps be rather flat, with a large number of respondents finding it *important* or very *important*. And as soon as researchers go out and count the households actively choosing so-called *green electricity,* they see a big discrepancy. The pragmatist interest in human *experiences* supports an allocation of resources in the part of the specificity, which are the lifestyles and social realities of the interviewees. Once having moved to the everyday sphere and seeking to understand local circumstances, one will find closer correspondence between attitudes and action. Moreover, one can thus avoid the fallacy of assuming that environmentally beneficial action can easily be derived only from concern for the environment. Just as a certain environmentally related action may have several environmental outcomes, environmentally related actions tend to have at their basis complex patterns of experiences, motives, and values. This basis has many faces in everyday life: social, economic, cultural, practical, environmental, an so forth (Klintman, 1997a). It is tempting to overinterpret every environmental practice among the public, as if they always rested on profound motives. Many household chores are performed more or less on a routine basis: to turn off the light when leaving a room, to save returnable bottles for recycling. The less trivial is found in the societal background and context, in which the routine was once shaped. To seek such a context is far more than a curiosity. To make it easier for people to modify their everyday routines it is central to understand, and perhaps alter, the context that once rendered motives for actions.

Learning about human values is also of interest to environmental social sciences. But studies of values are of quite different applicability than are attitude studies. Thus, they should not be confused. The relative stability of values can help to generate pictures of how trends and value-orientation change over longer periods (Lindén, 1997:4). The more general and abstract character of environmental values than of attitudes makes it appropriate to study values in relation to larger patterns of actions, over longer time spans and at larger societal levels such as, for example, *the modern urban way of life*.

4.1.3 Individual Focus versus Social Context of Actions

Interrelations between values, attitudes and actions are closely linked to processes of experience and reflexivity. In people's daily lives, their environmental actions—positive or negative—are subjected to questioning from all of the angles mentioned above, with the environmental angle only one among many. These processes of reflexivity and questioning are not merely individual ones. They become more meaningful when seen in their social context. Even excessively individualistic and egotistic activities (in the ethical sense) tend to be formed by, and tied to, a social environment. That friends, acquaintances, corporations, and policy makers in society act in environmentally irresponsible ways is frequently seen as a rationale for doing the same. At a more abstract level, institutions based on excessively individualistic values may have these values spread and manifested in human action within a large variety of fields, including environmentally related action (Norgaard, 1994:122ff.).

The view that the social is embedded in actions and the meaning ascribed to these actions has been axiomatic within sociology since its start. The importance of the social for actions may be seen as rather self-evident. Nevertheless, is has in practice frequently been ignored when applied to environmental issues:

> the deep green ecologists, and arguably environmentalists more generally, severely underestimate the social and political obstacles to overcoming ecological crises and more satisfactory relations between people and nature. The deep greens in particular place enormous faith in changing personal consciousness. But they give nothing like enough emphasis to changing the social structures within which consciousness is created and changed (Dickens, 1992:3).

One of the salient roles for environmental sociology has become to render nuanced understanding as to how this *social* is structured, and in what ways it is significant. Pragmatism tells us to direct these clarifications and analyses toward solutions to environmental problems rather than keeping them within closed theoretical, and usually dogmatic, debates.

> Indeed, there is a kind of reductionism in our traditional way of thinking about society. We think in the first place that the problem is probably with the individual; if not, then with the organization. This pattern of thinking hides from us the power of institutions and their great possibilities for good and for evil…
>
> We need to understand how much of our lives is lived in and through institutions, and how better institutions are essential if we are to lead better lives. In surveying our present institutions we need to discern what is healthy in them and what needs to be altered, particularly where we have begun to destroy the non-renewable natural and nearly non-renewable human resources upon which all our institutions depend (Bellah et. al., 1991:4 & 11).

Experience and reflexivity always presuppose feedback on actions. Within a large segment of classical sociology and contemporary mainstream sociology, this feedback has been rather restricted to the social environment (Lindén, 1997:3). In order to understand the environmental problematic, the social environment remains extremely important, but it needs to be studied in its coexistence and mutuality with

the physical environment(s) (Norgaard, 1994:7). In conclusion: Action, attitudes, and values are intimately tied to the social and physical environments. Studying agency without social, environmental, and political context and institutional basis can bring about psychological understanding, but does not give the whole picture.

> Our growing sensitivity to the natural ecological context, rightly understood, should inspire a new focus on our social institutions: natural and social ecology are profoundly mutually implicated. Most of the threats to the planetary ecosystem are the results of habitual human ways of relating to the physical world, ways dictated by institutional arrangements. Inversely, our relations with nature—the way we have used land, materials, and other species—both reveal and shape the institutions through which we deal with each other. But we still have a long way to go in finding a realistic institutional approach to environmental problems (Bellah, et. al., 1991:14).

Human experience, in a pragmatist sense, develops and coevolves through the mutuality and feedback between man, the social and physical environments.

4.1.4 Environmentally Beneficial Action as Relatively Beneficial

The late 1980s and 1990s are sometimes characterized as a time of increasing environmental awareness and environmentally friendly behavior. What can the social sciences contribute in association with this picture? An early part of the book quoted pragmatist voices emphasizing the importance of directing more efforts toward practical resolutions of environmental problems. One conclusion, accordingly, is that there is an actual, environmental condition out there, but that the environmental condition becomes especially interesting to the social sciences once/if this situation has been called *problematic* by actors in society. Nevertheless, my approach is concerned with the actual environmental situation. This concern, in combination with critical sociological thinking, constitutes an important starting point for understanding environmental problems. The fact that my position acknowledges the possible openness and gap between the actual environmental situation and what is socially perceived as an environmental problem has logical consequences for how to look upon environmental action. It calls for more awareness of the recurrent gap between what is perceived as *environmentally beneficial behavior* and the actual environmental impact the behavior may have.

For instance, when a corporation has received an environmentally respectful profile the question is still open: Has any environmental adaptation, which is actual and worth mentioning, taken place? Consumers have difficulties in getting coherent answers to that question. For the term *environmental adaptation* is over and over again used as if it referred to something absolute, while it is of a highly relative nature. And once this adaptation that was thought to be absolute proves to be relative, consumers get confused. A product or an action that at one time is classified as *environmentally friendly* may be rejected for environmental reasons a month later. Furthermore, scientific expert judgments about environmental impacts vary across different institutions and countries, whose interests beyond the environmental also

may have consequences for the judgments. In additions, claims from corporations of being environmentally friendly may, but do not have to, be based on a rejection of one of the environmentally destructive parts of production, without the other stages of the production process being critically examined. In this modern time, called a time of increasing environmental awareness, the fundamental principle seems to be *many a little makes a mickle*. And there is always a risk that the relativity of the term *environmental adaptation* is used improperly. This is typically done by using (quasi-)scientific claims and language in a fashion as if scientific knowledge were absolute and unquestionable. A so-called *change of corporation policy* toward *environmental adaptation* can for example be starting to sell refills for dangerous household chemicals. The basic structures of today's modern urban way of life were created in a time when the natural environment and the mutuality of environmental and social systems were virtually ignored. When people try to modify their lifestyles today, they often do so within the prevailing structures. There are certainly reasons to believe that quite extensive improvement can be made to man's coexistence with nature within a reflexive modernity. Yet changes of individual action have their structural limits. In a vein of conspiracy theory, Dunlap (1991:18) maintains that there are ideological reasons for the strong emphasis of citizens' behavior change in the political discourse of environmental problems.

> the behavioral fix has considerable appeal in "free-market" economies, because it preserves individual choice and avoids coercion. Perhaps for this reason, it also seems highly recommended by mainstream economists and favored by many politicians. In general, the behavioral approach does seem to offer considerable hope for altering environmentally harmful behaviors at both the individual and corporate levels. It may meet less resistance by consumers who, when given the opportunity to behave in economically "rational" ways that are also environmentally beneficial, will gladly choose to do so, such as recycling beverage containers for which they have paid deposits (Dunlap, 1991:18).

Environmental sociology ought to illuminate how "environmental adaptation" is largely social, involves uncertainty, different interests, and relativity. By clarifying these things within environmental problem sets, actors can become more alert to illusory or marginal environmental adaptation. It will hopefully also bring about a warmer welcoming of more fundamental changes of structures and lifestyles, where people in practice acknowledge the coevolution of the social and the ecological. Such

changes may involve a constant dynamic between experiments, societal feedback, and experience:[90]

> genuine experimental action effects an adjustment of conditions, not to them: a remarking of existing conditions, not a mere remarking of self and mind to fit into them. Intelligent adaptation is always a readjustment, a re-construction of what exists (John Dewey, Later Works: 8. 98).[91]

4.2 The Roles of Social Scientists when Studying Environmental Implications of Modernity

One of the conclusions in the prior section is that explanations on the individual level of environmental action have their clear limits. They both underestimate the social influences, and tend to take prevailing structures for granted, as if fundamental social change were beyond the scope.

A large proportion of environmental sociologists acknowledge the importance of social structure for the environmental problematic. The intricate concept of *modernization* and its correspondent out there is often the chief object of study.[92] It is not an aim of this book to provide an all-embracing examination of various schools

90 I should mention a practical research matter in connection with the discussion of relative versus absolute environmental adaptation. Since many researchers within the wide field of environmental sociology are well aware of the limits of environmental adaptation within urban forms of life, it has become very common to focus the research on radical alternatives. Accordingly, a large part of research within the sociology of environmental issues has devoted attention to ecological social idylls. The most obvious example are studies of ecological villages and neighborhoods, which represent a tiny minority of urban neighborhoods. From a pragmatist point of view, this, although fascinating and hope-generating research, often falls short of in giving a full picture and understanding of how to come to terms with the environmental problems generated by our common social forms of life. However, when studies of radical ecological alternatives are put in direct relation to, and shed light on, some conventional life forms of modern urbanites, they can be thoroughly useful. Conventional modern urban neighborhoods can be radically modified to help their residents to live more in accordance with ecological sustainability.

The suggestion in this paper to try to relate environmental sociology to conventional forms of life can also be applied to the populations and actors we choose to study. And here it can be noted that a lot of research so far has addressed members of radical environmental organizations, etc., while a comparatively small part of the literature deals with the average citizen. A positive exception is Gould, Schnaiberg, & Weiberg (1996). They study what they call "citizen-worker groups," white, working- to middle-class individuals, most of whom have had little or no prior involvement in political movements. There is often a single environmental question that mobilizes them, rather than a broader ideologically based environmental activism.

91 Standard references to John Dewey's work are to the critical edition: *Collected Works of John Dewey,* edited by Jo Ann Boydston, Carbondale and Edwardsville: Southern Illinois University Press (1969—1991). The quote is also to be found in Hichman, 1996.

92 Among the sociological classics, modernization is described as the comprehensive process, during which the traditional and socially integrated society with strong norms, values, and social control gradually shifts into a rationalized and differentiated society. In modern society production has initially been industrial, and the logic of pecuniary economy prevails (Klintman, 1995:83).

related to modernization and the environment. Instead, a few specific aspects are brought up to smooth the path of related conclusions. For this purpose, I divide relevant theories into (a) demodernization theory, (b) simple modernity modification theory, and (c) anti-simple modernity theory. All these "schools" have descriptive, analytical, and normative components. This section pinpoints description and analysis, whereas the next chapter is largely devoted to normative elements—ecological and social visions.

4.2.1 Demodernization Theories

Demodernization theories deserve to be mentioned first, since they are closely connected with what Andrew Jamison et al. (1990) label the beginning of a "new environmentalism." The Swedish new environmentalism emerged in the late 1960s and early 1970s. It had the character of activism with protest demonstrations and local action groups. The protests against the exploitation of Swedish rivers for hydropower are one important example. It was typical that activists concentrated *ad hoc* on concrete and local matters. Nevertheless, this ecological critique was broadened to include substantial and radical opposition to the expansionist industrial paradigm as a whole.[93] The demodernization ideas roughly began with *The Blueprint for Survival* (Goldsmith, 1972, according to Spaargaren, 1997), an issue of *The Ecologist* containing a warning for the future, and suggestions as to how to reach a green, alternative, society. Naess' (1973) first call for a "deep ecology" is today a frequently cited classic. The title of Schumacher's (1973) famous book, *Small is Beautiful*, speaks for itself. Thought-provoking literature on environment and demodernization has continued to be published in the 1980s and 1990s, and encompasses a number of "subvisions" within the larger anti-modern one.[94] Radical ecofeminism is one of the stronger segments of this corpus of work (see e.g., Eckersley, 1992). In addition, Dryzek (1987) has attracted considerable attention even among broader social thinkers—despite the fact that his vision of radical decentralization with cooperative anarchy is far from the mainstream.

Norgaard has already been mentioned as one of the fiercer contemporary social researchers in his opposition to modernity. He expresses an anti-modern idea of environmental decay, which is more or less subscribed to in all anti-modern theory:

93 The "old" environmentalism mainly concerned nature conservation (national parks, protection of outdoor activities, etc.). This interest has a long tradition in Sweden ever since Linnaeus. The Nature Conservancy Act (1964:822) was a late manifestation of it, combining three acts from the turn of the century onward.

Until the early 1970s, the new and more radical protest groups had been rather unorganized, something that was changed by, for instance, The National Organization of Environmental Groups, led by Björn Gillberg. He started to use the concept of citizen's power, largely related to food consumption.

94 For more comprehensive examples of demodernization theories, see Merchant, 1996.

> The environmental crisis is not simply a flaw, whether correctable or fatal, of modernity but rather something that starts early in modernity's history and now runs broadly through it (Norgaard, 1998:8).

In sum, anti-modern theory regards modernity as *one* whole, with elemental, foundational constraints to a sound coexistence of social and natural systems. Science, technology, and market economy are usually conceived as the modern institutions that impede such a balance.

4.2.2 Simple Modernity Modification Theory

The environmentally concerned opposite of demodernization theory falls within the category which I call simple modernity modification theory. The best-known branch here is *ecological modernization theory*, with Mol and Spaargaren as two of the current front figures.[95] A more comprehensive examination will be made in the next chapter of ecomodernization theory and its critics; the theory will thus only be briefly introduced here.

A starting point of (institutional) environmental politics has been said to be 1972. That year two important summits took place: Club of Rome (*Limits to Growth*), and the UN Conference of the Environment in Stockholm. The latter conference was the biggest conference the UN had ever held. The overall policy strategy that followed had the form of functional differentiation, that is, classical bureaucracy; the environmental problems were divided into water, air, soil, and sound. Problems in each subsector would supposedly be solved using the existing organizational structures (Hajer, 1995:25). The *ex post* remedial strategy of the 1970s did not produce satisfactory environmental results. The failure has been explained as due to the UN's largely hierarchical management, where the recipe was technocratic rather than democratic and participatory. The early policy attempts reflected a certain environmental awakening; however, the organizational instruments were in the main a remnant of an unecological modernity.

Ecological modernization can be regarded as a direct critique of the bureaucratic practices of environmental improvement in the 1970s (Hajer, 1995:87—9). At the same time, governments seemed to appreciate the suggestions made within ecological modernization more than they appreciated the fundamental reordering of priorities prescribed by the radical environmental movement. Proponents of ecological modernization have consequently rejected the anti-modern ideas found in the discourse of the radical environmental movement. The *theory* of ecological modernization (à la Mol and Spaargaren) ought not to be taken as synonymous with the *political program*

95 See Spaargaren (1997) for an extensive presentation of Ecological Modernization Theory. In addition to Mol and Spaargaren, there is a wide range of sociologists working within that theoretical framework. Joseph Huber (e.g., 1991) may be regarded as the founding father. Martin Jänicke (1991) was also an early front figure. Furthermore, Joskinen & Koskinen (1998), Rinkevicius (1998), Weale (1992), & Cohen (1997) are only a few of the writers of Ecological Modernization Theory (see Mol & Spaargaren, 1998).

of ecological modernization. The authors consequently distinguish between a *substantial* approach (i.e., political program and historical empirical development) and a *formal* approach (as theory and conceptual models) (Spaargaren, 1997:21). Yet the program of ecological modernization and the theory have many points in common, not least ideological ones. By calling the ecological modernization theory a *simple modernity modification theory*, I allude to what Beck (1986/1992) calls the values of *simple modernity.* Within these values, the goals of society are mainly prosperity and welfare, achieved through technological expansion and innovations. In simple modernity, the "insurance principle" rules. This means a general confidence that the modern institutions—scientific, political, technological and economic—will (provided that the public participates) eventually insure late modern society against problems and dangers, including environmental ones. Scientific knowledge is highly trusted. Accordingly, scientific results are mainly questioned *inside* expert systems (Beck, 1986/1992; cf. Lash, 1993). It must be stressed that this is not my own scurrilous portrait of ecological modernization theory. One can find it in articles written by its founders:

> 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 (Mol & Spaargaren, 1993:551).

As the reader will learn, the ecological modernization theory does an important job of putting to debate the critical sociological clichés of categorical anti-science and anti-trust. At this point, I move over to what can be understood as mediation between demodernization theory and ecological modernization theory: *anti-simple modernity theories*.

4.2.3 Anti-Simple Modernity Theories

Anti-simple modernity theories differ from demodernization theories by acknowledging different stages within modernity. Furthermore, they tend to cherish a certain hope for what a radicalized modernity might bring regarding environmental adaptation.

Theorists of *risk society* and *reflexive modernization* (e.g., Beck, 1986/92; Lash, 1994) do not regard modernization as one, smoothly gradual process. As has been noted, they distinguish between early, *simple* modernity, and contemporary, *reflexive* modernity. Both Beck (ibid.) and Anthony Giddens (1990) conceive reflexive modernity as on the verge of permeating all realms of society—from the private to the public. Risk society is Beck's label for the stage that modern society has entered. While simple, industrial modernity was absorbed by the distribution of wealth and poverty, contemporary society moves toward an increased concern about the distribution of risks. Naturally, risks are ingredients in every society and epoch. Nevertheless, Beck maintains that the risks of risk society on several crucial points diverge

from the risks of earlier periods. At present, people in society shape environmental risks that are not clearly limited in time or place. In Sweden, mammoth amounts of waste are incinerated (1338 kilotons in Sweden in 1994), of which a large fraction could be recycled or composted. Although filters for incineration have become much more efficient than they used to be, emissions of pollutants from transporting Swedish waste 20,000,000 km per year have not yet been avoided (Johansson, 1997:206). These pollutants are spread far across national borders. Furthermore, Swedish generation of nuclear power constitutes cross-national and cross-temporal risks, both from the active plants and from nuclear waste. Every person is in daily life participating in environmental risk production, for instance through utilizing the energy and waste sectors. However, it is extremely difficult to pinpoint concretely the level of each person's negative environmental impact. Likewise, it is as hard to assess to what extent this impact is reduced after individual habit changes. Risk diffusion is very complex and its consequences difficult, sometimes impossible to predict—"even" for science (from Klintman, 1995:83).

4.2.4 A New Environmental Reflexivity?

If the environmental hopes of simple modernity modification theory lie in large measure in ecological modifications of prevailing modern institutions and public participation, anti-simple modernization theory cherishes environmental hope for a new self-critical rationality. The more skeptical viewpoint in reflexive modernity is embedded in all social realms. This reflexivity strikes more fundamental strings than in simple modernity—limits and imperfections of prevailing institutions of science, technology, politics, and economy. If anything can break ground out of environmental problems (which, by the way, ought to be difficult to discuss for the ontological relativists) it is, according to Beck, the skeptical attitude toward modern institutions (cf. Klintman, 1995:85). Perhaps they would maintain anti-nuclear power coalitions, as well as animal rights and vegan coalitions as signs of such new reflexivity.

Beck's and Giddens' "discovery" of a "new cultural consciousness which introduces modernity and its institutions to pervasive public skepticism, or *self-refutation*" (Wynne, 1996:44) has not been left unchallenged. Brian Wynne, like Beck and Giddens, can be placed in the category of environmental social scientists criticizing "simple" modern rationality. He actually does it to such an extent that he maintains that simple modernity never has existed—at least not in terms of a public, categorical trust in experts of environmental matters.

> Contrary to Giddens I argue that the supposed earlier conditions of unqualified public trust have never prevailed, and that Giddens has reproduced what is a widespread confusion between unreflexive trust, and reflexive dependency and private ambivalence (Wynne, 1996:45).

Wynne hence aims at shading off Giddens' rather crude history writing. Wynne opposes what he holds to be Giddens' methodological implication, namely "that an

observed lack of overt public dissent or opposition means that public trust exists." (Wynne, ibid., 49). Instead, Wynne infers that:

> Public alienation from and ambivalence toward expert institutions are not necessarily manifested in behaviour or overt commitments, so that observation of no dissent cannot be taken to mean that trust exists and alienation does not (Wynne, 1996:49).

4.2.5 A Critique of Grand Modernity Theories

So what are we left with after this academic controversy? Did there ever exist a simple modernity when scientific and technological experts were unreflexively trusted? And is society entering a time when the lay public (in soul or deed) is incessantly skeptical of environmental assessments made by experts? My answer to both questions is no. From the perspective of this book the gigantic, poorly grounded generalizations that Giddens, Beck, and Wynne have the ambition of making are too clumsy to be useful for conceptualizing environmental problems toward practical change. Evidently, people were not naïve as to take for granted all, or most, expert-blessed practices in early modernity. And, conversely, the public as a whole is in this age not constantly skeptical even toward nuclear power and waste sites in their own local areas. To be sure, Wynne makes welcome attempts to show that *trust* is a much more complex and fragile term than the concept of simple modernity manages to take into account. Besides, he is right when pointing out that an omission of protest actions is not equal to trust and satisfaction. However, omissions of actions make it methodologically difficult for Wynne to demonstrate the opposite: a general mistrust in Science through all modern times, that is. Unfortunately, his sporadic anecdotes do not help to create a plausible generalization—be it anecdotes from an Appalachian mining community's continuous distrust in mining community employers or from Welsh sheepfarmers affected by radioactivity from Chernobyl (see Wynne, 1996:51). My own casual example speaks in the diametrical direction of Wynne's: In a Swedish national opinion poll in 1997, 23.4% of the respondents had a *very high* or *rather high* confidence in *journalists'* information on energy and nuclear power. As we all know the purpose of journalism is to reflectively investigate modern institutions, including science and technology. Intriguingly however, more than three times as large segment of the public (72.6%) had a *very high* or *rather high* confidence in *scientists'* information on energy and nuclear power (SOM-survey, 1997).[96]

The three authors attempt to design theories of the kind that C. Wright Mills (1959) and Djurfeldt (1996) would perhaps call "grand theory." Djurfeldt defines grand theory as "the grandiose theorizing that might seem so impressive, but in which sterility appears once one attempts to apply it" (p. 51, my trans.). He continues by stating that those who try to ground a whole grand theory in empirical mate-

96 The part of the public trusting information by *the nuclear industry* between 1986 and 1997 has fluctuated between 36 and 58%, whereas for scientists it is between 80 and 89%. *Environmental organizations* working with energy or nuclear power were trusted by 52.9% in 1997 (Holmberg & Weibull, 1997).

rial constantly get frustrated, since the result frequently consists of complex descriptions of commonplace phenomena—trivial sociology (ibid. p. 51).[97]

Nevertheless, it is critical to analyze more specifically what is stipulated by grand theory (or general theory, as it is frequently called). Layder (1993) distinguishes between: (a) theories about comprehensive processes of societal development; (b) theories aimed at representing the totality of social systems, a representation where all types of social activity and processes are integrated; and (c) theories about foundational social mechanisms (in Danermark et al., 1997:207). Layder recognizes (a) and (c) to be essential to social science, and that these kinds of theory can be applied in research projects. However, projects within category (b) are bound to be fruitless in pursuits of aggregating thorough knowledge about social mechanisms. Merton states this clearly in a classical text:

> Some sociologists still write as though they expect, here and now, formulation of the general sociological theory broad enough to encompass the vast ranges of precisely observed details of social behavior, organization, and change, and fruitful enough to direct the attention of research workers to a flow of problems for empirical research. This I take to be a premature and apocalyptic belief. We are not ready. Not enough preparatory work has been done (Merton, 1949b/1968:44).

In which of the three classes do the modernity theories mentioned fit? Undoubtedly, they have traits common with (a), as they deal with comprehensive processes of societal development. Still, as we have seen, they have aspirations for producing master conceptual schemes of social structure and action *at all levels of society*, as in (b). Such writings would do well to moderate their scope to propositions which solidly connect with empirical evidence. The hubris of ungrounded, all-embracing theory might be better reflected when put in relation to advances in physics, a science which has been able to evolve for a period at least ten times as long as have the social sciences. The physicist Richard Feynman (1965:30) describes the still particularistic nature of theories within physics:

> Today our theories of physics, the laws of physics, are a multitude of different parts and pieces that do not fit together very well (Feynman, 1965:30, in Merton, ibid. p. 47.)

In practical research, the most severe problems with the theories of modernity mentioned above could be derived from Mouzelis' (1995) separation of general theories into (a) tools and resources, and (b) completed products. When constructed and treated as tools and resources, theories are constantly examined against reality. However, when theories are written as completed products, they run the risk of becoming quite static, and of confusing the practical researcher. I do not, it is true, subscribe to

97 In the case of public trust of environmental assessments made by scientific experts, there are probably other, more plausible ways of generalizing. Such generalizing might refer to *phases* of technological innovations and practices. Perhaps it is fair to suppose that environmentally-related technological innovations involve certain stages of public skepticism and trust intertwined. Yet even such stages might depend on several parameters, such as perceived gains with the innovation in a community, mass media coverage, etc., that a bare generalization of innovation phases would not have much applicability left at a macro-level.

Merton's requirement that all theories ought to be able to be completely testable through quantitative methods. Theories with a broader scope may prove to be valid tools for explaining real occurrences, even without quantification. Nonetheless it is fair to ask: To what extent may the elements in an all-embracing theory fail to illuminate real processes and mechanisms before it becomes unreasonable to take it seriously? Perhaps modernity theorists have the answer—I do not.

4.3. Stepping Stones in the Middle Distance[98]

In this section it is appropriate to analyze what means there are to overcome the difficulties of research schemes that focus either merely on individual action or on macro-structural processes. What is there in between? There are a couple of features of this *in between*, which has already been implied. The features are somewhat overlapping. One is that of generalization/abstraction, and another refers to organizational and physical realms—between the private and the public.

4.3.1 Middle-Range Social Science: On Abstraction and Generalization

Through his criticism of general theories, Merton arrives at the term *theories of the middle range* (TMR). The term represents what Merton regards as ideal in terms of theory accumulation. He defines TMR as

> intermediate to general theories of social systems which are too remote from particular classes of social behavior, organization, and change to account for what is observed and to those detailed orderly descriptions of particulars that are not generalized at all. Middle range theory involves abstractions, of course, but they are close enough to observed data to be incorporated in propositions that permit empirical testing (Merton, 1949b/1968:41).

In other words, TMR should be "moderately" abstract and generalizing. One must always, according to Merton, be able to see the empirically quantifiable correspondent to theoretical claims. And he holds that TMR does the best job here, reflected in rather specific theories on social control, social perception, and the interdependence of social institutions. However, Merton does not conceive TMR as the ultimate end. But at the current stage of sociology the best thing it can do is to develop TMR. Subsequently, sociology will slowly and progressively be able to generate more general theoretical assumptions and place the specific theories in relation to one another (Merton, 1949b/1968:41).

98 The expression is found in Marchall, 1946.

From my point of view the middle range is where specific social phenomena can connect with the general. Claims of a more reflexive society might fruitfully be divided into subaspects of this reflexivity that can indicate correspondence to occurrences in "real" society. Yet there are a couple of problems with Merton's sociological research ideal. One has already been mentioned: his criterion that theories ought to be supported by empirical quantification.[99] As was noted, quantification is something that not "even" the core of positivism necessarily proclaims. Moreover, each research question deserves unique attention as to what research method(s) might generate the most valid answers. This is the principle of critical methodological pluralism, subscribed to by me as well as by, for instance, Danermark et al. (1997). They present a range of quantitative *and* qualitative methodological alternatives to the traditional experiment: counterfactual thinking, social experiments, studies of pathological cases, studies of extreme cases, and comparative case studies (ibid. 158—9). Contrary to Merton, these authors maintain the alternatives to be "powerful," and that "they must not be regarded as inferior or as less satisfactory substitutes for an ideal, which the social sciences cannot reach" (Danermark, 1997:158—9). Their suggestion, in turn, ought not to be seen as a reformulation of the saying "that's just sour grapes." Instead, their position rests on critical realism, according to which combinations of methods are needed to draw conclusions about mechanisms and processes behind (O).

The second problem refers to Merton's theoretical pluralism. In several works (e.g., Merton, 1981) he is on a crusade for theoretical pluralism (about which we will learn more in the next chapter). Still, it is a pluralism *only of the middle range*. His research recipe is monistic regarding at what *level* theoretical accumulation ought to take place. Mouzelis (1995) presents his own modified ideal as "modest theorizing" (p. 152). In this term he includes the middle range, although "modest" is expanded to also call for

> the elaboration of a small number of interrelated concepts which, rather than offering a global map, are useful for reducing "distorted communication" and asking interesting empirical questions on specific problem areas.

My proposal is that true theoretical pluralism must allow theoretical work to take place at all of the levels of abstraction and generalization mentioned so far. The critical point is that concrete patterns that are described in the theory must correspond to those of "real" society. This implies taking empirical questions seriously and not rolling them out in vast generalizations. To continue my normative claims, I maintain that researchers should not go to a higher level if it causes them to oversimplify the meso-level of social life. Theory, at any level, must acknowledge the complexity

99 However, it is hereby fair to falsify the critical comments about Merton being a banal empirical realist. Reading the original work of Merton, one clearly learns this critique to be undue:

"each theory is more than a mere empirical generalization—an isolated proposition summarizing observed uniformities of relationships between two or more variable. A theory comprises a set of assumptions from which empirical generalizations have themselves been derived" (Merton, 1949b/1968:41).

of social life. I do not, like Merton, believe that this of necessity can be realized merely in middle-range research. Nevertheless, research at any level that takes social context and empirical findings seriously seems necessitated at least to solidly connect to results in the middle range—and never to ignore the middle distance, or treat it in a sporadic manner.

This leads to concrete manifestations of the middle range, namely to the meso-level of social research about environmental problems: organizational and physical realms. I have chosen to devote most attention to physical realms, since it turns out to be particularly important to the empirical section of this book on public participation in the electricity and waste sectors.

4.3.2 Modernity—Urbanism

The meso-level of society encompasses a wide range of institutions and organizations. The border between what are described as macro- and meso-levels is hardly sharp or exact. I do not aspire to construct a perfect separation of the two. Layder (1993:72) distinguishes between middle-range organization and social practice, instead of analyzing the range of social research objects in terms of macro-, meso- or micro-levels. His distinction can arguably be treated as a dualism *within* the meso-level—and reminds the reader of the classical separation of structure and action. The "institutional and organizational framing of meso structure" and "situation-bound practices" are difficult to separate in concrete cases due to their coevolution, reproduction, or mutual change. This is true not least regarding environmental problems in the electricity and waste sectors. When moving from the empirical to the analytical level, it still becomes important to separate the two. This is crucial in order to find where the root of the problem lies, and what needs to be altered in order to solve it—a job for the social sciences.

The book has already presented certain factors that sociologists have examined at the macro-level: Simple versus reflexive modernity, time- and space-diffusion, social disembeddedness, risk and trust—are only a few of these factors. How can one then move from these analytical macro concepts and closer to the meso-level—not only to impersonal middle-range organization but also to social practices of citizens, regarding the electricity and waste sectors? And how can this more concrete focus avoid too narrowly dissecting individual activity, since dissections of that kind often imply sacrificing institutional and positional slices of everyday life? One way is to relate modern life to *urban* life. There are both environmental and social rationales for "going urban" when doing social research on environmental problems produced in the Western world. As to problems of waste in Sweden, they are largely associated with an urban way of life. In urban areas waste became a problem very early—long before modernization and industrialization. The concentration of people in pre-industrial towns generated waste problems (Wärneryd et al., 1995). In medieval towns the waste caused bad sanitary conditions, despite the fact that food leftovers were given to animals—which also lived in the towns and cities. Waste management

and transportation of manure had the lowest status, and was customarily performed by the hangmen's assistants.[100] Yet most Swedish towns before 1850 were small and had a rural character where the waste could be recycled in ways similar to the countryside (Berg, 1993). One should not forget, however, the miserable sanitary conditions in the rapidly growing towns which led to severe epidemics (Wärneryd et al., 1995).[101] Environmental problems as a consequence of excessive energy use can also be closely connected to urbanism, not least due to the fact that most Western people live in urban areas, where consumption trends commonly emerge. Even though urban development is not necessarily dependent on modernity or industrialization, it is fair to say that the urbanism of the mid-nineteenth century onward has become the clearest manifestation of modernity (cf. Fischer, 1984:26—7).

Classical social thinkers frequently conceived urbanization as integrated in modernization (Klintman, 1995:88). One does not have to understand this as a careless juxtaposition. The level of urbanization in a country affects many more people than merely the urbanites themselves; in modern society it also affects all those who are comprised by the monetary economy, industrial production, and so on, for which late urbanization has been a prerequisite (Lindén, 1994). Urbanism is in this respect a modern phenomenon with a much wider geographical range than city borders reveal. Georg Simmel acknowledged this phenomenon at the last turn of the century:

> A person does not end with limits of his physical body or with the area to which his physical activity is immediately confined but embraces, rather, the totality of meaningful effects which emanates from him temporally and spatially. In the same way the city exists only in the totality of the effects which transcend their immediate sphere (Simmel, 1903/1971:335).

Many theoretical examinations of urbanism are analogous to those of modernity in their emphasis on the massification, disembeddedness and delocalization of contemporary social life. Even the institutionalist Hunter (1985) is keen on stressing the importance of taking into account the spatial distancing of modern urban life. He does so by using friendship as an example:

> the physical distribution of friendship is seldom constrained to physical proximity, as in the neighborhood, but is widely distributed throughout the metropolitan field (Hunter, 1985:234—5).

One must admit that time- and space differentiation is a central trait of modern urban society. Everyone who does research on environmental problems and public involvement ought to take this into serious account. Nonetheless, I maintain that the

100 *Nationalencyklopedin*, under the term *Avfallshantering: allmänt,* p. 154.

101 Rural communities have traditionally lived more closely integrated in the cycle of nature in which waste was degraded and integrated. This was partly true also as late as sixty years ago. A famous journalist, Lubbe Nordström, traveled around in Sweden at that time to give reports of the sanitary and social conditions. He wrote a book called *Lortsverige* (Filthy Sweden). Remarkably enough, however, he brought up fairly little about the Swedish waste situation. An interpretation of his not focusing on waste is that he was mostly interested in *rural* Sweden, which still had a fairly large share of the population at the time. Rural communities could manage the waste on a small-scale basis (Rosén, 1988).

spatial and territorial aspect is of great import when social life in urbanism is studied. Highly relevant indicators include the inelastic segregating borderlines in urban areas between groups of different social and ethnic backgrounds. As is demonstrated in the next section, such segregation is prevalent in Sweden with crucial consequences for environmental problem perceptions and motivations for change. In sum, both locality and distancing are essential to address in urban analysis. Olson asserts that:

> the local community is a long-term viable social structure that, although it varies in form and content, it is not an anachronism in industrial, urbanized society. The literature on local community studies strongly supports this latter view that the urban neighborhood continues to persist under widely varying social, economic, historic, and ecological conditions (Olson, 1982:508—9).

4.3.3 Toward Social Analyses between the Private and the Public

To overcome having to choose between emphasizing distancing and locality, the distinction of urban realms appears promising. Hunter (1985) and Lofland (1988) hence separate the *private, parochial*, and *public* realms of urban life. Operationally, the three realms are ideal types, which means that specific social phenomena are open to comprise degrees of private, parochial, and public characteristics.[102] The private and the public realms will at this point only be explained briefly, since they have striking similarities to what was presented above in the respective section on environmental action and modern structure. The parochial realm, closer to the middle distance, deserves extra attention here.

The Private Realm

The private realm includes a very limited number of people—usually one's own household and one's closest friends. It is a basis for the strongest spirit of togetherness, and therefore the closest we come to Tönnies' concept of *Gemeinschaft*.

> All intimate, private, and exclusive living together, so we discover, is understood as life in Gemeinschaft (Tönnies, 1887/1963:33).

The private and intimate life within this realm is well integrated. Here there is usually a high degree of consensus in values, attitudes, and patterns of action between the lifestyles of the members. According to Popenoe (1985) the private realm in the Western world lately has tended to claim increasing "timespace" in people's lives, while activities in the other two realms are reduced. He explains it as follows:

> The many structural features of metropolitan communities—their large and diverse populations, great geographic and functional differentiation of people and human activities, and weak local autonomy as political and social entities—make up a social and cultural climate in which there

102 An analogy can be made with the way in which Tönnies' (1887/1963) continuum of *Gemeinschaft—Gesellschaft* can be operationalized.

> is a progressive diminution of public life and a magnification of private life to a degree that is both historically unprecedented and socially harmful (Popenoe, 1985:111).[103]

What is it that Popenoe regards as alarming with the privatization process—if it exists? He probably refers to the risk of imbalance between the inner and the outer context. If one identifies with the private realm even when being in the parochial or public realm, this will be an obstacle to collective commitments and actions.

The types of environmental actions represented in the private realm are for instance electricity savings and choices of electricity supplier and power source. Separation of waste has private characteristics as well. The "environmental risk" of projects failing when directed solely to the private realm is that individuals might feel marginal in their environmental influence. But when changes in environmental action are followed by immediate positive consequences for the household, the motivation may increase. Reduced electricity use possibly keeps expenses down, and composting on a household basis is concrete in its reflection of the ecocycle (from Klintman, 1995:91—2).

The Public Realm

The public realm is largely what social thinkers mean when talking about mass society. Tönnies' concept of *Gesellschaft* can be fruitfully compared with the public realm. Gesellschaft is not founded upon a sense of belonging and togetherness. Instead it is shallow and temporary (Tönnies, 1887/1963). The public realm includes the non-private sectors in which individuals are physically close while rarely knowing one another. The public realm is unique to urban society (Lofland, 1988:90). Simmel (1903/1971) observed how the great dynamics in the diversified public realm of urban life affected its people socially and psychologically, such that they become blasé, reserved, and selective in their perceptions.

In this realm people share—despite a multitude of values, attitudes and actions—a common and general *way of life* (Lindén, 1994). The question as to what particular factors are encompassed in a shared way of life is mainly an empirical question. Whether or not environmental concern is trait of a "Swedish way of life" can for the moment only be answered ambiguously. The stereotype of Swedes as a nature-loving people was mentioned as early as 1911 in a book on Swedish mentality. In our time, the following assumption has been added: that Swedes' love for nature would have created a Swedish environmental awareness and concern (Löfgren, 1992). A certain support for this assumption (at least of a verbal concern) is presented by national opinion polls, which reveal that 75% of Swedes believed themselves to be highly con-

103 Lofland (1988:91), however, comments that such a privatization process is still not empirically supported in a systematic way. She nevertheless sees strong tendencies to a "disarmament" of the concrete preconditions to an active social life in the parochial realm: local bars, cafés, stores in residential areas have declined in prevalence lately. My comment is, in turn, that this tendency may vary substantially between countries and perhaps even between continents as well.

cerned about the environment (Lindén, 1996).[104] I, however, hope that the section on environmental action and the demurral of too grand generalizations demonstrated the problems and complexities involved in trying to draw all-embracing conclusions about environmental action patterns among the public.

The large-scale public realm has—especially during the "awakening" of environmental awareness in the 1970s and 1980s—been the target of mass information campaigns about the "environmental crisis." This strategy has proven effective for, at an elementary level, stimulating initial attention among the broader public (see Tichenor et al., 1970).[105] In proceeding from an initial awakening there are still problems with environmental information in the public realm. The social diversity of the public realm points to a multitude of interests among groups trying to make individuals adopt an ideal way of life. Different positions make individuals perceive the general mass information differently. Cross-pressure in the media and information noise is another feature of the public realm. The messages are recurrently contradictory in their environmental consequences. Furthermore, environmental trends presented in the public realm run the risk of being perishable.

Empirically it has been indicated that the Swedish feel only to a very modest extent motivated to become environmentally active at a public level. In the early 1990s, "not more than" 11% of Swedes were members of a larger environmental organization or ecological coalition (Gundelach, 1993). In another survey 12% of the Swedish people held themselves to be willing to write a letter to the press about an environmental issue; 15—16% would consider joining a demonstration or local action group for an environmental sake. This should be compared to 39% who said that they were willing—together with friends and acquaintances—to seek solutions to environmentally damaging actions that are part of daily life (Sifo, 1989; 1990a,b). In other words: Direct and socially/physically close forums for environmental change appear more motivating than diffuse and long-term instruments of change in the public realm (from Klintman, 1995:91).

The Parochial Realm

The term *the parochial realm* is a tool for illustrating how modern urban life is not, on the one hand, only a single, impersonal and pure Gesellschaft, or, on the other hand, a set of loosely interrelated private cocoons.[106] Accordingly, Simmel pointed out that urbanism is also a fertile breeding ground for regrouping in untraditional manners. The basis of gathering may not be a profound sense of community, but more frequently unifying interests and goals.

The parochial realm is the urban manifestation of organizational forms and situation-bound practices at the meso-level. Here, neighbors, acquaintances, colleagues

104 The relation between this self-reported concern and actual behavior is of course a rather different matter, since values, attitudes, and behavior tend to present complex relations.

105 Tichenor et al. do not, however, apply their research to environmental awareness.

106 Wirth's (1938) famous description of city life is insufficient because it fails to distinguish between the public realm and its social groupings. The urban trait that he addresses merely refers to its high social density and heterogeniety.

and members of local organizations get together. Lindén uses the concept of common *forms of life* to denote the shared values, attitudes, and interest-based action patterns in such groups. This should not be confused with more traditional social variables, such as class and status. These variables refer to social categories, which do not presuppose any direct social encounters between the people within them. It is nevertheless important to keep in mind that forms of life as exemplified above frequently are overlapped by categories of class, status, as well as ethnic background, generation, or life-cycle stage. Socio-economic status, ethnicity and lifecycle stage are examples of variables that in large measure converge in neighborhoods, units in workplaces, or local organizations. A certain degree of homogeneity in social variables increases the integration and the sense of community, since social variables partly reflect experiences.[107] Local proximity and other joint forms of life thus signify partly communal experiences, values and interests. But is not this communality in its consequence very similar to the way one conceives Gemeinschaft? To re-embed social groups in ways so that they come close to traditional Gemeinschaft in neighborhoods, workplaces or local organizations is hardly possible or desirable today. Here I subscribe to Isaacs' point of view:

> It is quite apparent, however, that the efforts to develop neighborhood cells within the city structure results, psychologically, only in causing people to look and think introvertedly within the relatively narrow confines of their neighborhood and not to the purposes and well-being of the town or metropolitan area (Isaacs, 1948:15—23).

The reverse of the coin of *parochial* was probably already clear to the reader at the beginning of this section, through the connotations of the very word *parochial*—as provincial, petty, narrow-minded, and "interested only in local affairs" (Chambers Dictionary, 1988). This is especially out of phase with environmental concern, as contemporary environmental problems are typically extralocal in scope, and are likely to have impacts on future generations. Something that makes the parochial realm of today different from a pure Gemeinschaft is that modern individuals participate in a range of groups, so that each group is disposed to be less intense in terms of requiring common experiences, interests, and values of its members. One form of parochial group is what Janovitz (1952) has labeled *community of limited liability*. The expression signifies a community in which rights and duties are balanced, meaning that the members—for instance residents in a housing area—take responsibility for certain cooperation, and freely devote some time to working toward collective goals. This requires a degree of community identity, while at the same time its members are involved in other groups.

The parochial realm is larger than the private realm regarding the number of members. This provides, in the ideal case, the parochial realm with the capacity of constituting a catalyst for environmental initiatives. A prerequisite is that the members to a certain degree identify themselves with the group. There are a couple of

107 See Lindén's (1994:143—65) analysis of urbanism, housing and forms of life in Swedish society, where she has studied forms of organization and environmental concern in residential areas.

advantages of the parochial realm over the public realm as to households' increasing environmental initiatives. Knowledge and experience exchanged by acquaintances have proved to be perceived as more reliable than experiences presented by strangers (McGuire, 1985), which ought to be the case for environmental issues as well. Furthermore, decisions in the parochial realm are made closer to the individual than public decisions usually are. In neighborhoods or local organizations, decisions are generally made in a more direct and participatory fashion. Here, environmental innovators and fiery spirits can be role models to the others, perhaps by contributing ideas and practices that go beyond the plans of local authorities. The social impact is more far-reaching in the parochial realm than in the public realm (cf. Bandura, 1969). Among acquaintances social impact takes place through norms and pressure to act in a somewhat conformist manner (Moscovici, 1985). Feedback from changes in environmentally related routines can be provided in the socially active neighborhood—both from neighbors and from representatives of involved environmental organizations. The subpolitical potential is an especially interesting facet of parochial activity related to environmental issues. People who gather in collective projects have a much easier time being heard by the political authorities than single individuals (from Klintman, 1995:95).

4.4 Conclusion

This chapter has attempted to shed light on different levels of environmental problem research in the social sciences.

It has noted that single individuals are frequently studied with all their private and specific lifestyle patterns. Studying specific lifestyles has the power of revealing more than just individual and specific circumstances. It may, in a preliminary fashion, illuminate structural conditions that hinder solutions to the environmental problem in question. If these conditions are not studied further, however, the research result will consist of a number of lifestyle anecdotes with little connection to the whole problematic. C. Wright Mills (1959:7) distinguishes between (a) "personal troubles" that have to do with the individual self and individual limited biographies, and (b) "issues," relating to problems of institutions and structure. The latter appears to be most relevant to the social scientist. Macnaughten & Urry describe how the particular is connected to the broader social world:

> First, people's particular concerns, attitudes, values, sense of responsibility, environmentally friendly behaviour, and so on, are not distinct and freefloating, but are powerfully mediated by longer-standing relationships with expert systems, science, global media, states, global corporations, new forms of risk, and so on. Research has to capture the complex and mediated interconnections of the personal and the general (Macnaugten & Urry, 1998:102).

Macro-structural research, on the other hand, provides the reader with generalizations about institutions and structure. Yet problems of modernity and environment encompass so many complex traits that grand generalizations hardly promote understanding of single environmental problems or larger problem sets. Moreover, theorists of modernity—especially those who argue against science as an, at least moderately useful, institution—criticize positivistic social scientists for treating the open reality (O) as closed by generalizing and making confident predictions. Yet the modernity theorists are not less grandiose in their generalizations about how people interact and how society is—and will be—structured. The difference is that the modernity theorists rarely bother to even try to delimit the unclosable society, or to systematically examine the world out there.

In sum, even if people in their daily lives can change a lot of things in order to live more in harmony with nature, it is misleading to put all spotlights on individual everyday actions in working toward sustainability. And the scope remains too limited even if one includes single corporations and their environmentally related practices. This is a crucial sociological insight. On the other hand, it is also dangerous and misleading to ascribe the *problematic* environmental situation merely to abstractions as *the social and political structure, modernity*, and *the consumer culture*. The prevailing political and social structures and *the consumer culture* can to a certain extent often be derived from concrete policy decisions by actors and institutions—from *pragma*—many times in the parochial realm. It is therefore critical to provide an understanding of the mediating structures and forms of life, in order to explain the roots to environmental problems. Modernity needs to be specified; macro structures need to be situated. Part of this process implies making closer ties with empirical work, and not committing the general fallacy of treating empirical questions as if they were theoretical in nature. When a researcher goes empirical, she/he probably notices the importance of somewhat narrowing down the scope. The middle range turns out to be manageable in its individual and structural aspects. Furthermore, individual feelings of helplessness regarding environmental problems can ideally be reshaped at the middle level to local initiatives and activism.

In a pluralist spirit we should underline that the order of this chapter does not reflect a normative movement from bad to good as regards how social sciences ought to study environmental problems. Although the importance of the middle range—as abstraction, generalization and urban realms—is emphasized, the text hopefully makes clear that this chapter does not subscribe to middle-range monism. Nevertheless, it is not too bold to conclude from the text a strong call for *a closer connection with* the middle range in the social scientific study of environmental problems. To study individual motives for changing electricity source from nuclear power to wind or solar power does not offer a sufficient picture of the problem if one neglects the environmental policy context, local discourse, and neighborhood standards of electricity provision. And conversely, constraints to more comprehensive recycling and source reduction cannot be fully understood only by studying structure and practices at the national level. A consequence is that methods—qualitative and quantitative—must be chosen and combined in an open manner based on the research question,

and not on a priori founded favorites in the methodological spectrum. In other words: Pluralism regarding social levels of research requires methodological pluralism.

This chapter is purposely rather normative in its formulations. Metatheory and epistemology have to be normative, not least when I construct the tenet of this study. As pointed out, theories below the meta-level are also full of normative and ideological claims. The next chapter examines how to relate to normative components of social theories and environmental policy programs.

CHAPTER FIVE

How Can Social Scientists Move from Ideological Question-Begging to Critical Openness?

5.1 Social Studies of Environmental Problems: Purely Analytical or Also Visionary?

When discussing the social sciences in relation to environmental policy the following question emerges: Should it be considered a task for the social sciences to propose alternatives to and fundamental changes of prevailing policy and social institutions? Is it not the job of politicians and the environmental movement to suggest changes such as radical decentralization, far-reaching restrictions on electricity consumption, and mandatory composting of all wet domestic waste? In sociology and other social sciences the general question of visions has been debated for a long time. Lundquist (1978:89—90), for example, has proposed that the goal of environmental social sciences should be to improve the discipline itself rather than to ensure that policy applications induce an ecologically sound society. This idea has many representatives among positivists, for whom value neutrality is their scientific ideal. Interestingly, the other side of the ontological and epistemic spectra—social constructivism—holds a similar academic goal. The social constructivist tenet is frequently associated with the claim that the social sciences should adopt an agnostic position in order to achieve an optimal vision of how environmental problems are socially constructed. As earlier chapters elucidated, however, the actual ground for their agnosticism is hardly *an objectivity ideal*, but rather an epistemic—or even ontological—subjectivism prevalent among social constructivists. When doubting the very existence of nature (O), it is difficult to maintain visions about it.

The separation of social environmental research from more value-ridden ideas of change has not been left uncommented. The social constructivist approach has been subject to especially serious attacks. In the field of social analysis of science and technology, Winner (1993) claims that the projects and aims of constructivists are:

> primarily academic ones, carefully sanitized of any critical standpoint that might contribute to substantive debates about the political and environmental dimensions of technological choice...
>
> ... Indeed, several social constructivists appear much more concerned to gaze at themselves within that endlessly enchanting hall of mirrors—sociological reflexivity (Winner, 1993).

He argues that social constructivism—unlike various stances such as liberalism, Marxism, and Heidegger's ideas—does not incorporate dreams or visions. To be sure, he admits as useful the constructivist insight that technological development (and environmental problems) is in fact a product of intricate social interaction rather than technological determinism. But since he maintains that social constructivism does not follow up these findings or call for change, he characterizes the school as excessively repetitive.

However, it is simply not true that the whole social constructivist school lacks visions of and ideas about how to render *political* and *social* change. A lack of visions is not something embedded here by definition, and we can find a wide range within social constructivism. Hannigan (1995), for instance, presents quite innovative suggestions about how news media and environmental communication could be improved—"with the longer-term goals of environmental education and policy reform." (pp. 74–5) He does so within a social constructivist context. Instead it can be said about social constructivism in general that it regards analysis as the by far most important part of their enterprise. But it does not have to mean that open, and sometimes radical, suggestions of social change cannot be made here. The limit of social constructivist visions is instead that they scarcely transgress the entirely *social* side. *Environmental* visions of solutions to environmental problems are always founded on knowledge about mechanisms behind (O) that subjects (S) assume to be valid. Constructivists are rarely ready to make such epistemic assumptions.[108] In contrast, critical realism, on which this book rests its epistemology, regards such preliminary knowledge assumptions as necessary.

This book has stressed all along the goal of "environmental social sciences" being able to explain environmental issues in a manner which might facilitate solutions to the problems associated with these issues. It follows the pragmatist idea that understanding and knowledge can be used as a basis for environmental and social change. I see this as a double emphasis—firstly on rigorous social analysis, and secondly on communicating the aggregated findings to other actors in society. If a segment of this field regards "pushing forward the frontiers of the discipline" as its main goal, it must nevertheless also communicate the results so that they become useful in practical enterprises such as policy making. Sociologists have on many occasions underesti-

108 Cf. social reductionism analyzed in a previous chapter.

mated the potential of their findings to generate understandings of the concrete environmental problematic among other actors. And, as Sayer (1994:79) points out, to explain and reject a phenomenon without drawing even the loosest lines of a desired and realizable alternative appears quite pointless—like criticizing gravity.

Values, in turn, are natural bases for choosing to analyze social environmental problems, as well as for choosing certain research questions (value type "a"). This includes choices of what theoretical framework to use. The process of interpreting data (value type "c") is theoretically ridden and thus always to a degree value-ridden. The value type "b" can be regarded as the only principally undesirable value type. It runs the risk of making the researcher omit data that do not fit the theoretical model; it may also lead the researcher to draw too far-fetched conclusions from data. It is impossible to completely avoid imperfections in systematics. Nevertheless, it ought to be the aim of researchers to keep this value type to a minimum in order to maintain analytical sharpness.

5.1.1 Problems with Visions

Are there any risks with environmental visions, even after one has made sure that they do not blur the sociological and consequential? There are in effect risks if one does not follow the suggestions made earlier. Visions are normally more than dreams about *ends*. Visions may include ideas or hypotheses which imply that certain means can be used to produce particular desired (by the visionary) end(s). In other words: Visions encompass the enterprise of *predicting* how the relation between extremely complex social and environmental systems can change. Here one has to keep in mind that immoderate belief in (scientific) prediction has long been part of the scientism so criticized by sociology itself—based on acknowledging epistemic relativism and the imperfection of knowledge (see the chapter on *learning*). Visions involve a large dose of uncertainty about partly open social and ecological systems, something that always has to be admitted. The uncertainty chiefly derives from assumptions about mechanisms behind (O), which can hardly be crowned as *the truth*. To equate visions with assumptions should logically invite scrutiny before they are to be treated as reasonable and useful. As we will see, this kind of testing is difficult, but not impossible, to do of policy related to environmental issues.[109] One motive for deregulating the Swedish electricity sector, for instance, was that people would be better able to perceive electricity use as an environmentally related practice sector (Deregulation…, 1996(3):6). Whether or not the deregulation stimulates actual alterations of household habits, with positive environmental consequences, remains to be seen.

Democratization of visions becomes just as important as democratization of knowledge. In practice this means a more open and critical discourse about different

109 Yet, being cautious with predictions in the name of science must not make policy makers pursue ends that appear to be difficult, almost impossible to reach. Weber acknowledged that without reaching for the impossible, it is likely that the possible is not reached either (Bryant, 1995:104 referring to Weber, 1919).

visions—between scholars, policy makers, and the rest of the lay public. This should ideally be done with one foot in practical applications of the visions. Natural scientific knowledge should be regarded as one valuable type of knowledge among many; the social sciences ought to be seen in the same way.

5.2 How Can Political Visions and Programs Be Studied?

5.2.1 Environmental Social Sciences and Policy Climate: The Case of Ecological Modernization

A main task for the discipline is to yield understanding of structural preconditions and obstacles to solutions to relevant problems. Important social factors to be addressed have been mentioned. To some extent they coincide with what environmental pragmatism has emphasized, for instance: public involvement (often local), democracy of knowledge, and sensitivity to different voices and experiences. In the field of sociology, the most important key to research success is to not take prevailing institutions and social structure as something given, but rather as something that should be critically examined and evaluated.

This section provides the reader with a brief and basic example of theoretical examination by discussing the most broadly accepted larger environmental strategy in today's modern society, which was introduced in the previous chapter: *ecological modernization*. Ideas about how to analyze this political program (and the theory behind it), as well as its alternatives, will shed light on the whole issue of how to study institutions openly and critically.

Ecological modernization has been defined as:

> the discourse that recognizes the structural character of the environmental problematique but none the less assumes that existing political, economic, and social institutions can internalize the care for the environment (Hajer, 1995:26).

This definition follows the Brundtland concept of sustainable development (WCED, 1987). Ecological modernization identifies modern institutions, such as science, technology, and market dynamics, as central for ecological reform. Instead of regarding modernity as inherently incompatible with ecological sustainability, theorists advocating ecological modernization have claimed that: "all ways out of the environmental crisis lead us further into modernity." Like most other approaches concerned with environmental sustainability, ecological modernization involves criticism of simple modernity. Ecological modernization implies the envisioning of a process of modernizing modernity "by repairing a structural design fault of modernity: the institutionalised destruction of nature" (Mol, 1996:305). Reorganization within a reflexive modern framework is called for. *Ecological modernization theory* is

influenced by the *reflexive modernity school* (e.g., Beck, Giddens, Wynne), but regards it as too pessimistic in its overemphasis on high consequence risks, such as nuclear power. Instead, ecological modernization theory is optimistic about reducing environmental problems with better developed modern tools. This optimism is directed not only toward chances of thoroughly improving the environmental situation, for environmental improvement is regarded as a positive-sum game, where pollution-prevention pays (Hajer, 1995:3).

Ideological Opponents of Ecological Modernization

The principles of ecological modernization, both the political program and its underlying theoretical framework, have been challenged from various standpoints. The most widespread critique is that it is nonradical, and that it leaves economic growth free from serious critique. Its technological optimism has also been problematized, as has its trust in modern science (Hannigan, 1995:183—5).

The basic ideas of ecological modernization seem annoying to deep ecologists from the start. Obviously, the hand-in-hand relationship between market economy and ecology that eco-modernists envision raises skepticism among environmental radicals. Radicals maintain that attempts to bring ecology and economy into harmony are bound to make ecological sustainability the means, and economic growth the end. This is an essentially ethical problem, and some opponents see the problem as so fundamental that they reject the whole idea of ecological modernization—before its actual environmental consequences have even been examined. Other opponents repudiate ecological modernization, not based on this ethical problem, but because they simply do not believe that the principle of combining market economy and ecology can actually bring about thoroughgoing environmental change.

Rejections of the latter sort include the question:

> Is ecological modernization in fact a rhetorical ploy that tries to reconcile the irreconcilable (environment and development) only to take the wind out of the sails of "real" environmentalists? (Hajer, 1995:34).

Proponents of Ecological Modernization

The answer from ecological modernization theorists (to the objections of the radical environmental movement) can be summed up as follows. Ecological modernization will include radical transformation of modern institutions—scientific expert systems, technology and the market. The main social component of transformation will be increased reflexivity and awareness of antecedent modern mistakes. We cannot abandon modernity if we want to improve the environmental situation; we can only make modernity more advanced, by better adapting the modern tools to today's environmental awareness (Mol, 1996:305). Economic practices must be re-embedded, taking into account their ecological consequences within modernity. Hence, the ecological dimension can be institutionalized in social pragma, such as production and consumption. But before this can become reality, the ecological dimension and its

rationality need to be "emancipated" from the economic sphere of modernity. Once the ecological sphere with its rationality has gained independence and strength, it will be mature enough to be integrated into the economic domain. This will cause an *ecologization of the economy and the economization of the ecology*. The economic practices will in this way become more ecologically reasonable in all of their steps.[110]

According to ecological modernization theory, ecological modernization has a deeper meaning than its opponents want to admit. It is a program focused on the environmental problem set. Therefore, it can be effective in dealing with environmental problems, while other social problems will have to be solved using other foci and strategies. This restriction of scope is an implicit critique of the broader social visions of the more radical environmental movement.[111] The transformation within the ecological modernization process will be far-reaching; but it will not alter institutions of modern society beyond recognition. [112]

5.2.2 Examination of Theoretical Constraints to Environmental Adaptation

If the social sciences treat prevailing institutions or social structure as something given or necessary, their research is bound to become a large set of management surveys, rather than thorough social research. What I propose, applied to the specific issue of this section, is that environmental sociology and other social science disciplines analyze ecological modernization as one vision or a set of hypotheses among many. Just like visions within bioregionalism[113] and cooperative small-scale anarchy,[114] the vision of ecological modernization is built upon assumptions and predictions which need to be examined and evaluated. This ought to be done by examining both its ideas and its practical applications.

Let us start with the ideas. One might examine at least three ideas embedded in the program of ecological modernization:

1) *The idea that scientific research is a reliable tool for predicting environmental decay of different environmentally related practices, for instance of industrial production*. Excessive trust in science as the only savior has, as mentioned earlier, a rather unpleasant history. Therefore, it is appropriate to examine if and how trust in science differed between the ecological modernization era and the time prior to it. Does ecological modernization comprise a belief that science itself has become more thoroughly reflexive than it used to be? Is ecological modernization open toward the knowledge pluralism that both demodernization and anti-simple modernity proponents

110 Mol, 1996:307. Here he comments on Joseph Huber.
111 For an analysis of the radical environmental movement, see e.g., Offe, 1985.
112 Mol, 1996:310. The claim that institutions will not be changed *beyond recognition* is a direct comment on Zygmunt Bauman, 1993:186—222. Bauman points out limits of reflexivity within modernity. He holds that risk society must change the institutions of modernity *beyond recognition*, in order to make sufficient use of reflexivity when dealing with the problems of risk society.
113 See for example Bookchin, 1991.
114 See for example Dryzek, 1987.

request? Moreover, how does ecological modernization relate to the idea of environmental impact as something relative, reevaluated and disagreed upon inside the scientific expert system? Is this "imperfection" of science perceived as a weakness or a strength among ecological modernists?[115]

2) *The idea that a somewhat modified economic system can become consonant with the ecological system*. This idea raises question marks, especially when we examine historically how the industrial economic system has affected the natural environment and society's relation to it. One possible obstacle to this economic-ecological harmony is the linear-expansionist nature of the prevailing economic system in the Western world, versus the cyclic nature of the ecological system. How can two natures so seemingly different in their *Gestalt* be brought into harmonic coevolution? Moreover, neoclassical economics and the market economy rest on the idea of *rational man*. This term denotes fully informed individuals and corporations who make their choices based on calculations of their own costs and benefits.[116] How a market economy based on this principle might come in tune with ecological balance needs to be scrutinized on a couple of grounds: Firstly, *fully informed* relates to the preceding theme of knowledge pluralism and knowledge uncertainty. If one expands the knowledge interest so that it takes ecological consequences into account, it is virtually impossible to be fully informed of all the ecological consequences of one's actions. Secondly, neoclassical economics uses the units of individuals and corporations, while acknowledging social units would move the analyst closer to reality, for instance to families, communities, bioregions, cultural groups, or nations. The emphasis on the individual's interest tends to be closely related to a larger distance from the natural (often local) environment than does recognition of the other units. But as Norgaard (1994:124) points out: "There is nothing in the logic of free choice or free trade that says the choosers or traders must be individuals." The economic system must be modified to account for larger social units, and treat them as more than the sum of the individuals that belong to these units. Another problem with economic rationality is that it is usually short-term based. In contrast, ecological rationality must entail concerns spanning over decades and generations. To fill this gap between short-term and long-term goals is another challenge for ecological modernization.

3) *The idea that collective action and the behavioral change of individuals, firms, and countries are effective ways of yielding solutions to environmental problems* (even if not accompanied by fundamental institutional change). This claim leads the critical social scientist to pose questions at two levels. The first level relates to motivations

115 I hold that this is a strength, once it is admitted openly by scientific institutions. When its uncertainties and are acknowledged, science becomes a natural part of knowledge pluralism. It should be noted that eco-modernization theorists have lately started to use the-imperfection-of-science phrases initiated by anti-simple modernity theorists (see e.g., Mol & Spaargaren, 1998). This, however, appears to change very little in the eco-modernist foundational view of the promises of modern institutions.

116 See Norgaard (1994:124,5).

for agency: What are the basic preconditions for this environmental action change within institutions modified by the eco-modernist program? Most agents and institutions concerned with environmental change have stressed the importance of public involvement in the work toward sustainability. However, the radical environmental movement in particular has revealed a number of institutional obstacles to broader participation. It claims that modernity has presented impediments to motivating people to change lifestyles and participate actively in quests toward environmental sustainability. Through modern differentiation and social disembeddedness culture has become distanced from nature. Modern production, consumption and environmental impact are complex and diffused through time and space, which makes it difficult to recognize the mutuality between culture and nature. The modern individualist emphasis is believed to be an obstacle to environmental—especially local—action by groups and collectives. The second level questions the salvation of merely enthusiastic, individual agency: Can an environmentally sound society be created in modern urban society, even if we were all to act more environmentally friendly? If everyone recycles, uses compost, and buys "green" electricity, will the environmental problems then be solved? Will there not still be transportation of products around the world, with certain links in the production chains having negative environmental impact—private travel patterns which are environmentally questionable, although "necessary" within the modern urban way of life? Are there not systemic limits to sustainability embedded in modernity, including ecological modernity? And must not collective action include more radical questioning of prevailing policies, structure, and organization in order to be called bottom-up decision making?

5.3 Critical Theoretical Pluralism

These questions about the ecological modernization ideology touch upon the idea of methodological pluralism introduced in the previous chapter. There I argued for broadening Merton's pluralism to encompass the levels above and below the middle range, provided that empirical support and connection with the middle range are satisfactory. The issues in that chapter were hence generalization, urban realms and methodology. This chapter has arrived at a focus on somewhat deeper questions of epistemology. This is by no means excessive philosophical navel-gazing, since the most common criticism of pluralism refers to its threat of ignoring *incommensurability.*[117] The phenomenon is, as noted above, most worrisome to judgmental relativists,

117 For the concept of incommensurability, see the chapters on Mother Nature, Environmental Problems, and Learning. One should note that I here refer to using theory as a tool/means, rather than as a provisional end-product (see Mouzelis, 1995:148). By using theories as tools, the risk of falling into ecclecticism in the unreflective sense is much reduced, where several theoretical universes are juxtaposed.

who can never see any cognitive basis for preferring one explanation of mechanism over another—since each of us lives in different subjective worlds. To criticize such a cosmology is a bit like criticizing another person's religion, as the reader could see. Be that as it may, there is another more down-to-earth critique of the idea that different theories cannot be combined or communicated. Leontief (1948, in Merton, 1981) observed that two different theories can be directed toward the same problem but still be compatible. The reason is simply that in the majority of cases the two theories, with their different perspectives, shed light on different aspects of the problem at hand. The idea of critical theoretical pluralism is that no harm is done as long as the researcher is well aware that—while the parts that she/he uses from different theories are compatible—the totality of the theories would not merge in a coherent manner.[118] Accordingly, the critical questions to eco-modernization above were based on a range of outlooks, including anti-simple modernity theory (about science as a green tool), ecofeminism (about the cyclic versus expansionist), and structural theory (about the limits of action change). And there does not appear to be much contradiction in this case. Such analysis is useful by its generating ideas of how to modify theories, as well as by stimulating clarifications and specifications in academic discussions.

5.4 Conclusion: Visions and Theories toward Practice

All these issues are important to have as a background when projects in the ecological modernization program are analyzed. However, there has been a tendency to oppose and even reject these projects merely on the basis of their having their roots in modernist thinking. The more vulgar rejections of ecological modernization projects are those which are based only on the (obvious) finding that *simple* modernization (i.e., industrial society up to the 1960s) failed environmentally. It is also common that critical voices assume that no thorough environmental change can ever take place within any program that employs the root word *modern* in an affirmative fashion. These opponents reject the ideas of reflexive modernity, and especially a radicalization of modernity, from the outset.

I hold that theoretical disputes between the proponents of ecological modernization, reflexive modernity, radical modernization, postmodernity, and so forth, tend to be vague and unclear in their practical applications and environmental consequences. And there is a danger of getting stuck in ideological, never-ending debates,

118 It is central here that whole theories can rarely be combined in a coherent fashion. Moreover, a theory can never be *verified* in the formal sense, since we only have access to ("O") and not (O). Yet, theories can be tested against each other in terms of validity and practical adequacy (see Djurfeldt, 1996:96).

such as over the question: *"Will modern institutions have to be changed beyond recognition?"* These debates run the risk of taking place quite far from the environmental actuality—from (O) and its mechanisms. In the case of the green business optimism inherent in eco-modernization theory, it does not make us sufficiently wise to solely perform theoretical dissection and thereby try to assess a priori its environment-saving potential. Weinberg clarifies this in a well-conducted study:

> This debate has largely eschewed more specific research into what actually constitutes a green business. Researchers have mainly developed strict outcome standards of "greenness." This path, however, has proved problematic for the following reasons. First, it polarizes the debate. Proponents tend to find any standard too strict, while skeptics seem to define anything short of "purity" as nonimportant. Second, these strict definitions of outcomes do not allow us to distinguish among green businesses. Certainly, nobody wants to equate Shaman Pharmacies' attempts to empower indigenous communities by developing natural pharmaceuticals with General Motors' effort to be green by planting a tree for every Geo 732 car sold. Yet, we can all agree that the outcomes of both companies are attempting to capitalize on knowledge about environmental problems and consumer interest in the environment (Weinberg, 1998:242).

As regards green business, he suggests one should distinguish between *forms* of such business, and study these empirically over time. Along a similar line, the approach of this book does not reject any visions at the a priori stage of the analysis. Instead, the theoretical scrutiny must be employed for more specific and situational *empirical* analysis of the program and projects within ecological modernization. Again, the middle range of investigation appears appropriate.

A similar call is made by Dobuzinskis (1993), although in a slightly different context:

> While Paehlke [an author proposing an alliance between conservative liberals, moderate progressivism and environmentalism] seems convinced that the complexity inherent in ecosystems defies any attempt to find technological fixes to environmental problems, he entertains no doubt about the benefits of far-reaching social reforms achieved through social-democratic processes, as if these, together with the institutional requirements for their implementation, could be evaluated a priori without posing the same epistemological and ethical problems that face technocratic environmentalism (Dobuzinskis, 1993:293).

How can one in practice analyze the social features of environmental strategies and visions? The second part of the book is mainly devoted to this question. One thing to be aware of is the relativity of environmental impacts. It is imperative to be suspicious of projects where marginal environmental improvement is blown out of proportion. The ideal means of analysis is to compare different strategies. While it is not easy to compare strategies with experimental precision, there are nevertheless efficient ways to study them. Ecological modernization, for instance, has developed during more than a decade. The policy changes and environmental changes that have followed this program can readily be examined empirically, by both comparing changes through the years and comparing different regions.[119] How much of public participation, local initiatives, and openness to reform has the project's approval,

119 The study by Hajer (1995) is one example.

leading to actual environmental progress? Are the bottom-up slogans leading to schemes where neighborhoods' initiatives about waste separation and composting are affirmed and supported? This should also give a hint as to what the embryo of a radicalized modernity could look like. The effect of more radical environmental programs can be studied in ecocommunities and biocommunities both in the Western world and outside of it. After a first glance at the electricity and waste sectors it becomes obvious how difficult it is to assess whether or not specific projects belong to the program of ecological modernization. What about households that compost by using ancient methods and low-tech? Well out in the field it proves to be more fruitful to focus on the actual results of environmental projects rather than trying to force them inside crude macro-sociological categories. Other ways of conceptualizing turn out to be more promising.

Environmental sociology should not only analyze and criticize. Such research will lead somewhere. As Norgaard (1994) says: "Critique is easy, reconstruction more difficult." Promising aspects of social and environmental strategies must be adopted and elaborated. Hopefully such research will include constructive suggestions that might lead policy makers and other actors to call for institutional change. As has been mentioned before, the most difficult task is to *predict* relations between the open systems of ecology and society. But when uncertainty is admitted it is very useful to humbly present ideas about reconstruction and sociological visions of change. Every research field has its favorite visions. One central concern and vision that seems to be shared among many social scientists and environmental pragmatists is well summarized below, where Bellah et al. refer to Dewey:

> In 1927 John Dewey, in *The Public and Its Problems*, posed the central problem of modernity as he saw it as follows: "our concern at this time is to state how it is that the machine age in developing the Great Society has invaded and partially disintegrated the small communities of former times without generating a Great Community." Dewey had no nostalgia for the old small communities, too enthralled by custom as they were to release the energies of individual and social growth. The Great Community (a term borrowed by Josiah Royce, 1916) was not to be a mere revival of the old small communities, what the Germans call Gemeinschaft, but something new that would infuse public spirit and public consciousness into those now largely invisible structures characterized by the Great Society. For Dewey, hope lay in the enlargement and enhancement of democracy throughout our institutional life (Bellah et al., 1991:7).[120]

The vision described above also appears to unite parts of various disciplines of the social sciences. The fact that the diverse field of sociology has to a certain extent a common vision indicates the partly shared background to (in our case) environmental problems and other social problems. This is a reason for opening up the disciplines and seeing what they can learn from one another.

120 Originally John Dewey, *The Public and Its Problems* (1927).

Nevertheless, one must be aware that sociological prescriptions of enhanced democracy and more far-reaching community may not unconditionally be an efficient cure for all environmental problems.[121] Poorly elaborated calls for democracy impose, for example, the obvious problem that fully democratic governments must respond to all wishes of a majority; and there is always a risk that the majority may not want green outcomes (Saward, 1997:93—94).[122] It is also of import that environmental sociology not interweave empirical and normative arguments in the way repeatedly demonstrated in ecological communitarianism: Here (a) historical Gemeinschaft-nostalgia has been mixed with (b) the sociological concern for problems to environmental sustainability that may be embedded in the prevailing economic system, and (c) the normative claim that community ethics should be used for restructuring the economic and social system. Moreover, we should keep in mind that community is not of necessity linked to either enhanced democracy or ecological sustainability (Kenny, 1997:20). There is thus the possibility of neighborhoods with little interest in anything else other than their own economy. Such a limited interest combined with authoritarian leaders who do not acknowledge any economic benefits in source reduction or alternative electricity sources may keep the whole community away from environmental adaptation.

Again, visions within environmentally focused social sciences must be constantly reevaluated. One question to ask is: "What forms of community and democracy have the actual potential of bringing about environmental and social improvements in practice?" Incessant reevaluation by the social sciences of its own visions yields continuous theoretical modifications along with empirical results which, altogether, may be useful for solving environmental problems. This is an essential process of social and political reflexivity.

121 See Press (1994) where he examines democratic dilemmas applied to ecological problems. He nevertheless summarizes that:

"Enlightened authoritarian regimes could merge ecological awareness with swift, forceful, and comprehensive action to restore ecosystems and restrain human appetites for unsustainable growth. But the alternatives to democracy did not look promising to writers committed to democratic participation. Why would an authoritarian state be a priori better able to cope with environmental problems? After all, centralized bureaucracies are not known for their flexibility, responsiveness, adaptability, or forward-thinking capabilities" (Press, 1994:12).

122 There are ways to overcome this problem, but some of these ways run the risk of remaining anthropocentric rather than ecocentric: for example to stress that citizens in a democratic society must have the right not to suffer damage to their health due to environmental risks that can be prevented—health care risks (ibid., pp. 93—94).

PART II

The Empirical Study of The Electricity and Waste Sectors

CHAPTER SIX

Methodology and Research Design

This chapter mainly presents the book's *methodological* considerations. By methodological I refer to what Elder (1976) holds to be the traditional definition of the term in the social sciences, namely as "techniques for coming to terms with social reality" (p. 210). Yet, merely to describe the techniques without relating them to epistemological reflections would yield a rather shallow outcome. Therefore, I try to make such reflections—albeit rather briefly, since the more extensive arguments are found in Part One.

6.1 Associational versus Counterfactual Thinking

Let us begin with one of the epistemological reflections related to the research design. A methodological tool of this chapter has its background in Sayer's (1999:3; cf. 1984/1992:85ff.) distinction between *associational* and *counterfactual* thinking. He defines associational thinking as simply the method of bringing forth associations between phenomena in society, and assuming that repeated associations of the same kind indicate that this is how the association has to be. Counterfactual thinking, on the other hand, is the method of asking whether the association in question is necessary, given the nature of the associated object. In other words, counterfactual thinking asks: Is the association between the object necessary or merely contingent (i.e., neither necessary nor impossible in its form)? In his earlier work, Sayer similarly separates external (or contingent) relations from *internal* (or necessary) relations. However he adds, as I read it, a puzzling qualification to these distinctions:

> although internally related phenomena are interdependent in a strong sense, this does not mean that they cannot change, just that change in one part is tied to change in the other. The changes that have occurred in the relations between husbands and wives are a good example (Sayer, 1992:89).

Necessity in the common use of language in society is considered an absolute, and falls within the domains of logic, deduction or natural law. Thus, a necessary relation ought to imply something stronger than Sayer proposes, namely that change in one part is tied to change in another part into something new, "beyond recognition" (to allude to Bauman in footnote, 5.2.2). An analysis of environment and society needs a complete toolbox for the whole relational range—from absolute necessity, through Sayer's milder, "internal" relations, to contingency. An example from Chapter 5 is the anti-modernist assumption of a necessary relation between any form of modernity and environmental destruction. By contrast, anti-simple modernity theorists suggest a "Sayerian," internal relation between modernity and environmental destruction, and call for a change to a different kind of modernity, but not into something other than modernity, to come to terms with environmental destruction. The separation presented in the figure below works as a background to the subsequent chapters.

Logically necessary
|
Internal, fundamental
|
External, contingent

Figure 6.1: *Necessary, fundamental, and contingent relations*

6.2 Comparing Utility Sectors

The distinction introduced above raised the issue of relations between research objects, something which is fundamental to methodological examination. Comparisons between several kinds of entities are embedded in this study. The first one which needs to be clarified is the comparison across utility sectors: electricity and waste. At first glance, it may appear odd to compare public involvement across such different sectors. Although I have presented several rationales for such comparison in the introduction to the book, a few further points should be made here. The aim has been to shed light on similarities and differences between the sectors concerning social and physical bases—possibilities and obstacles—to public involvement. The construction of conceptual tools in the subsequent chapters will help explain how such comparison can be made in (hopefully) productive ways.

The sectorial data have not been collected in a way signifying a systematic longitudinal study. Although my fellow-interviewer and I have followed up several interviews more than once, this is not sufficient to constitute an authoritative study of social processes. Nevertheless, the data have been collected during a period—1994—1999 (with the main part of the waste study carried out in 1994—96, followed up by further interviews). This gave me access to first-hand data on changes over time.

In addition, several interviews included reports on how certain things have changed over time. In some cases, the interviewees' perceptions of such changes (even if reported only once) have been of great interest to the study.
There are certain methodologically relevant differences between the sectors. The question is whether they have had an important role to play for the results. For instance, we know for a fact that certain households order green electricity from an energy company. We also know for a fact what specific households do this. As to recycling and composting, the information is hardly as precise. Although a number of interviewed households have their own compost, which the Local Streets Department makes sure functions appropriately, some self-reported information about the waste practices may not fully correspond to the truth. Still, since this study has the purpose of illuminating preconditions for public involvement, and the construction of green identities, the absolute quantities (although important) are not crucial to the sociological analysis.

6.3 Cross-National and Inter-Urban Comparisons[123]

Cross-national comparisons have been vital parts of sociology since its beginnings. Comte, De Tocqueville, Marx, Durkheim and Weber are only a few of the classical thinkers who compared communities and societies cross-nationally. There are several ways of defining comparative cross-national procedures, among which I choose a very broad one, found in Elder (1976), as

> an approach to knowing social reality through the examination for similarities and differences between data gathered from more that one nation (p. 210).

Contrary to the ambitions of the famous men mentioned above, strictly systematic comparisons across countries are beyond the scope of this book. Rather, the comparisons are illustrative examples, case studies, which do not always have to be attributed to the uniqueness of the nation in question. Nor does this study aspire to present examples perfectly representative of the respective countries from which the examples stem; case studies rarely do, not even if—like these cases—they are extended to illuminate the socio-political and physical context. The main purpose of using examples of data from different countries is to provide a broader, cross-national perspective than would be feasible if all the data came from Sweden only.

An obvious yet important query posed by Elder (1976) concerns the selection of countries to study. Should countries be selected to maximize diversity or similarity, in order to seek limited cross-national generalizations? This depends entirely on the field and the questions of research. In the EU project from which some of the data

123 For a more in-depth description of the cross-national policy study of the DOMUS project, see Klintman, 1998b.

are collected, the goal was to find three countries which were moderately similar in their environmental ambitions and public debate. Sweden, the Netherlands, and the UK turned out to display such moderate similarity—not as similar as if the Scandinavian countries were compared, still more similar than if Sweden were compared with countries in Southern Europe or Asia (see Chap. 7).[124]

The EU project gave all of us researchers unique access to first-hand data from the three countries. During the project period, between 1997 and 1999, we had close collaboration and meetings several times a year. Between these meetings we had active contact by mail. The project was truly cross-national in the sense that we exchanged first-hand data. Each researcher was responsible for certain chapters of the final report, and each chapter included data from all three countries. Therefore, we got to conduct interviews for each other and translate them into English. The analysis from which I have collected examples from the Netherlands and UK has been read thoroughly and approved by all the other researchers. The Dutch and British interviews were based on the same principles as the Swedish ones, in terms of structure, time length, and measures to avoid bias. The principles had been agreed upon through in-depth methodological discussions on our project meetings.

To move down to the Swedish national level, interviews have been conducted mainly in two municipalities: Ystad and Lund in Sweden. The geographical bias toward southern Sweden is obvious, since both municipalities are located there. Aside from the Town and Country Project in Ystad (see Chap. 8), the geographical bias probably is of little significance for the outcome. All Swedish municipalities have received similar environmental directives from higher political levels. More important are the social characteristics of Ystad and Lund. Since Ystad was the town where domestic waste management was to be studied in five neighborhoods with different organizational structures, it was crucial that its demography should correspond fairly well to the Swedish demography as a whole (see Klintman, 1996). In this respect, Ystad was a good choice. The town of Lund, where involvement in windpower was to be examined, has a demography which differs from the Swedish average. The main difference is the large proportion of highly educated people in Lund, much due to its old university. However, it is important to note that windpower cooperatives and windpower ordered by private households is far less common than waste recycling and composting. The electricity part of the study, conducted in Lund, is therefore not neighborhood-based, but based on lists of what specific households order these

124 In addition to the specificity of Scandinavian environmental policies, a unique characteristic of this part of Northern Europe is that there have long been interesting institutional tensions between the collective and the private. On the one hand, Scandinavia is often said to have a tradition of a "uniquely strong organizational life" (Castles, 1987:266) with solid ground for local cooperation. Eliassen (1981:609) claims that Scandinavia has the world's most organized countries. On the other hand, Scandinavian culture—not least Swedish—is well known for its individualism and its "private" people. This individualism may have its root in the free peasant culture. Swedes have therefore been called "cooperative individualists" (Castles, 1987:268). This tension and duality is important to keep in mind as we examine the utility sectors of electricity and waste. One can find several examples of how the sectors have moved between the private and the collective, sometimes in both directions. The picture is rather complex, as there is more than one level of the dichotomy in addition to a range within it.

products and services. As will be discussed below, the purpose was not to find fully representative households, especially not in terms of electricity use. Instead, the purpose was to find variation in order to map out different motives and green identities. The choice of municipalities appears to have worked well for this purpose. This is indicated by, for instance, the variety of arguments in favor of windpower, including scientific and extrascientific arguments of local economy of resources.

6.4 Methodological Pluralism

As all researchers know, choices of research methods—the empirical tools—should be based on research questions rather than on ideologically based favoring of a particular method. In this book, the research questions are in turn founded on one of the notions developed in Part One, namely to relate analyses of the macro or micro-levels to the middle range—where specific social phenomena may connect with the general.[125]

When the objective is to explore what the interaction and assumptions look like between societal realms it becomes vital to combine different methods. Practices and green identities in households cannot for instance be studied in the same manner as the national policy structures of utility sectors.

However, combinations of methods have been opposed for being "eclectic" in the same way as combinations of theories have. Concerning methodological pluralism I have the opportunity of echoing Danermark et al.'s (1997) call for a productive alternative to strict separation between quantitative and qualitative on the one hand, and uncritical combinations of methods on the other hand. They suggest combining intensive and extensive research design whereby the different approaches complement without fundamentally contradicting one another (p. 258).

A main method in this study has been semistructured interviews. This type of interviews has to follow the main principles of qualitative methodology (see below). Still, I fully agree with McCracken (1988) that it is especially important for those who use qualitative data to also make use of quantitative, more extensive, data:

> There is no question, however, that, especially in highly heterogeneous, complex societies, these [quantitative] methods are indispensable. Unfortunately, the literature that demonstrates how this most difficult of multimethod bridges can be constructed is not abundant (McCracken, 1988:28—9).

Therefore, this study uses quantitative data, particularly in the exploration of the Swedish national situation of environment and policy in Chapter 7. To combine

125 Still, as Mouzelis (1995:25) maintains, it would be fallacious to regard the macro-level as structure and the micro-level as actors. Structure and actorship exist at all levels. Household and family embed micro structures and institutions.

methods in order to illustrate, and compare, different social units is problematic to some writers. Although Elder (1976) mainly focuses on inter-unit comparisons across countries (something that this book has tried to avoid), his matters are well worth mentioning. Elder holds that unit comparisons involve partly similar issues which concern those who are opposed to cross-country comparisons at the same level. The basis of my study, however, is a "critical acceptance" of social unit comparisons, so that social levels may be compared. Yet, such results can rarely be presented separated from particular times and places. At the same time, systematic comparison often involves a fairly small number of cased, such as in this study. One cannot be sure, therefore, that all other factors are equal aside from those under scrutiny (see Barton & Lazarsfeld, 1961). Fruitful comparisons, both across countries and between social levels need awareness and knowledge of the socio-political and physical differences across the countries and units compared. In this vein, Lindén (1999:27) has suggested one way of reducing the "apples-and-oranges" problem of cross-national (unit) comparability, namely to learn (and write) about the cultural or social differences which lie behind specific data in different places. The use of qualitative methods can be one instrument to such in-depth understanding.

6.5 Sampling

Although only random sampling can guarantee the representativeness of a sample in relation to the population, Simon & Burstein (1985:119) argue that there may not be a need for a probability sample in every study. As in so many other methodological matters, this largely depends on the research question. Instead, nonrandom sampling may be the most productive way to proceed when the researcher seeks a wide variety of examples:

> The key to effective use of this strategy [nonrandom sampling] is to obtain as varied a collection of groups (or individuals) in your sample as possible (Simon & Burstein, 1985:120).

It deserves to be repeated that the case focus and semistructured interviews of this book look for relationships and patterns between a variety of categories rather than for a limited, highly precise set of relationships (cf. McCracken, 1988:16). Moreover, it is strictly speaking not crucial how many, or even what category of people, fall within the various categories. "It is the categories and assumptions, not those who hold them, that matter" (McCracken, 1988:17). Hence, the issue in the study is not what percentage of the population holds a strong environmental or ecological identity. The purpose is instead to develop concepts which subsequently can be studied more extensively (read: broadly), by the use of, for example, statistical methods.

The sampling of organizations, neighborhoods, and households has consequently been strategic.[126] The lion's share of the empirical material is the interviews with actors in the three urban realms (see Chap. 4.3). In the *local government* of Ystad, agents have been interviewed who are responsible for realizing the waste goals set—mainly at the Local Streets Department. At the *organizational level*, two heads of windpower provision at an energy company, as well as two persons, a woman and a man, in a wind coop board have been interviewed. Furthermore, the chairmen of the tenant-owners' associations in Ystad have been asked about the social, organizational, and physical structure of the neighborhoods. A crucial difference between the sectors can be noted here, a difference which is even more obvious at the household level—that of initiative versus acceptance. To generate or consume windpower in this study has required more active initiative on the part of the associations and households. At the household level, green electricity consumers or windpower coop members are thus involved in practices quite different from those of the households who separate or compost their waste. The former practices in this study have required more of initiative than the latter. In terms of demographic variation, the waste-separating households of the study are accordingly assumed to represent the population in Ystad as a whole more accurately than the windpower households represent the Lund population in general. Although I have tried to select as wide a variety of electricity consumers as possible—in terms of household structure, life-cycle stage, household size, and so on—the sampling has been restricted to the limited number of households involved in these practices. Twelve households were selected out of lists of names—six among green electricity consumers and six coop members, in addition to the chair

126 The strategic principles for the selection of residential areas and households were established when the one of the heads of the municipality of Ystad, the key person in the waste study, and the head of the Local Streets Department were asked to suggest areas which differ in these respects. We agreed upon five residential areas in Ystad which appeared appropriate. They were selected on the basis of their diversity concerning the following elements: organizational form, ownership versus renting, the degree of demographic homogeneity, and the extent to which the local authority or head of the association claimed that the areas had succeeded in terms of waste separation and composting. Two of the areas had a tenant owners' association (in this study called Fyren and Smedjan), two provided with rental apartments (Almlunden and Fredsängen) and one was a collective association (Sw: samfällighet: Ljunghöjden).

The goal of the strategic sampling of households and respondents in Ystad was that they would represent as great a variety and wealth of data as possible in terms of number of household members, gender, age, lifecycle stage, and ethnic background. The heads of the housing associations, whom I interviewed initially, provided me with a list of residents. Moreover, they described the households to me as regards the variables mentioned above. Based on this description I selected thirty households, six from each residential area. Within these households I managed to arrange so that half of the interviews were made with women and half with men. In certain cases, one in each neighborhood, two adults from the same households were interviewed together. In a couple of cases the heads of the associations mentioned that they were skeptical to whether or not the potential interviewee would be helpful and accomodating. In these cases I became even more interested, and made sure to make an appointment with the person. And, actually, it turned out that these households were more critical of the housing association than many of the others. I contacted all the households by telephone, and all of them accepted to be interviewed in their homes.

members in the coop.[127] I found that these samples contributed to the full representation of the restricted demographic multiplicity of households in Lund involved in windpower practices for domestic use. The level of education of these interviewees appeared to be at least as high as in Lund in general, that is, far higher than in Sweden as a whole.[128]

Concerning the Ystad households interviewed about their waste practices, five neighborhoods were chosen strategically. The neighborhoods had to be a part of some sort of organization or collective, so that I could study the meso-level. They needed to have different forms of organization, different degrees of social homogeneity—in terms of socio-economic status and ethnicity, and they needed to have succeeded environmentally to various degrees—in the eyes of the local government. They have also been asked about environmentally related goals, and strategies addressed to the respective neighborhoods. The six households within each neighborhood have also been chosen strategically, since they needed to differ in terms of the number of household members, generation and life-cycle phase.

Each interview lasted almost an hour in both sectors. The interview method is expanded upon below.

6.6 Semistructured Interviews

One of the first methodological issues that emerged was: Should I study (a) what people say their environmental orientation is (b) what they say that they do, or (c) what people actually do? If it were mainly c, the interview would probably *not* be the best methodological choice. Some kind of naturalistic observation or other registration of actual practices would then be better. But the objective of the field work was chiefly to learn about how people interpret their practices, what lies behind actions. This made the interview most appropriate.

In the methodological literature, thousands of pages have been written about the pros, but mainly cons, of interviewing in the social sciences. The less structured inter-

127 After an interview (Feb. 17, 2000) with a representative at the energy company in Lund: approximately 100 customers order green electricity. In addition, approximately 250 households are currently members of the windpower cooperation in Lund that is part of this study.

128 The role of educational level for environmental concern has been studied in relation to a number of everyday activities. In several large studies researchers have found that formal education is the independent variable that correlates most strongly with environmental concern (Howell & Laska, 1992). Such studies have put forward the interest in scientific facts and information as a prerequisite for environmental concern. They have also stressed the close relation between political activity and environmental concern, something that involves the highly educated more than others. In a couple of my previous studies (e.g., Klintman, 1996; 1998), I have tried to problematize the strict separation of the green, highly educated from the others. Regarding certain environmental practices, such problematizing soon revealed important intermediate variables that differ between categories of various educational levels: physical access, local authorities preassumptions about households' preparedness to change habits in "good" versus "bad" neighborhoods.

view type (such as the semistructured type that I have used) is held to demand a particularly complex relationship between interviewer and respondent (McCracken, 1988:25). The negative side of this relationship is brought out by Denzin (1989). He describes interviews as "talk," which however differs from talks between acquaintances, colleagues and friends. The talk in the interview (even the very unstructured one) is controlled by the interviewer, who also selects the main topics, and who usually benefits from the interview (p. 103). Having had this in mind during the interviewing, I found it essential to try to alleviate these problems. Conducting valuable interviews on environmental matters requires that the interviewer manages to develop trust. It is important that the respondent gets the opportunity to move beyond the stage where the person is afraid of mentioning environmentally incorrect opinions or practices. I got the impression that semistructured interviews over a fairly long amount of time helped to open up the discussion climate beyond this stage. Semistructured interviews involve the use of both narrow questions (which require precise answers directly comparable between respondents) and more open questions to which the interviewees are given the opportunity to develop their answer and associations in a free manner. The interviewer uses a checklist containing a mixture of themes and questions. Themes and questions are based on the theoretical framework of the study. The checklists used in the two sectors have been structured in very similar ways. Certain differences could be noted in terms of their main foci: Although both sectors had questions related to neighborhoods—physical and social form of life of the residential area— the waste sector had a larger share of such questions. The reason was that many waste projects are initiated on a neighborhood basis, whereas windpower activities among the public often take place at a household level, isolated from the rest of the neighborhood. Furthermore, "social green identity" (see Chap. 9) is more strongly associated with waste schemes than with public involvement in windpower.[129] Another difference between the interview questions relates to differences in sampling mentioned above. When interviewing households active in windpower, the issue was largely to find the social, economic, and moral bases for this (so far) rather unusual involvement. As to households separating and composting waste, questions referred to a large extent to the signals and incentives helping the households accept and shape habits out of the interest of the municipality and housing associations. Still, green identities, presented in Chapter 9, are highly relevant to interpretations of both the *initiative* for and the *acceptance* of green domestic schemes, although the combinations of green identities differ across the sectors. To

129 The themes from the waste interviews include: Physical form of life, social form of life (i.e., the character of the residential area), the housing association, waste management in the residential area, information about waste separation, contact and feedback from the local authorities and housing association to the households about waste issues, modifieras and waste separation, and the households' waste practices.

In the windpower interviews the themes related to social impact were extended to include the influence by or on friends and acquaintances *outside* of the neighborhood. Another difference between the themes was that motives were given more space in the electricity interviews, whereas the waste interviews studied more thoroughly the signals from housing associations and local authorities.

understand green identities is thus an important part of the goal of this study (see the Introduction to the book).

Well aware that the investigator's role is crucial to the processes of trust, I told them that I am far from an environmental fundamentalist, and that I drove to the interview in an old car without a catalytic converter. On the other hand, it was important not to exaggerate this eco-anarchist lifestyle in my presentation of myself. Therefore, when using "prompts" to give further structure to the interview, I made sure not to take certain environmentally sound practices or opinions for granted, but to be open and unshocked during the process. These ideas of how to minimize the interviewer's effect were discussed thoroughly with the person helping me with certain interviews. I believe that we managed to present our role in very similar ways. The main difference—that the other interviewer is a woman while I am man—has probably not caused much difference in the interviewer effect. The fact that she was able to display to the respondents a higher knowledge of windpower technology than I could might have helped to restrict the prejudice about gender and technology. Another issue is the location of the interviews. All interviews with households took place on their own turf: in their homes, and the interviews were openly recorded on tape. Although a few interviewees might have been a bit anxious that the interviews would include an ocular inspection of environmentally doubtful routines, the fairly generous amount of time for each interview together with our own environmental modesty hopefully reduced such uneasiness. The suggestion of conducting the interviews in their homes was not merely a matter of convenience. Our idea was also that people's homes would contribute to an informal atmosphere, and help interviewees (and perhaps us) avoid an excessive focus on narrow technical knowledge about the environment. The result appears to have turned out quite well, since the respondents shared a very wide range of opinions and practices in the electricity and waste sectors. One can hope that this is a sign that the ecological validity problem (Cicourel, 1982:16) has been minimized, so that the interviews have captured fairly well the environmental views and experiences by which the people live in their daily lives.

CHAPTER SEVEN

The (Inter)National Realm: The Co-Dependency of Nature, Culture, and Politics[130]

In Part One, I brought up the notion of coevolving social (including technological) and natural systems. The following chapter demonstrates fruitful ways of combining this idea with the methodology of distinguishing between necessary, fundamental, and contingent relations (see Chap. 6). When material aspects of electricity and waste are concerned, a material determinist position is commonly implied in environmental discussions: Physical principles put law-like restrictions to restructuring of the sectors. In light of this, an important issue is whether or not physical characteristics of electricity sources, as well as organic degrading processes of waste, actually pose necessary or severe limits to the possibilities of reorganizing the sectors in green ways. In the first section of this chapter, I hence put certain materialist (not to be confused with historical materialist) assumptions under scrutiny. I maintain that—behind an apparently strong respect for physical/natural limitations—there often lies technological, and by extension socio-political, stiffness and inflexibility. While the electricity and waste sectors hold certain material characteristics of significance for if and how restructuring in the name of greenness may take place, I seek to show how the material component is only one feature among several. Social and political elements of green restructuring appear to have higher explanatory value in a large share of instances. The part analyzing "the relativity of greenness" by comparing a few Swedish, Dutch, and British definitions of sustainable sources and management forms, aims at illustrating the coexistence of physical and socio-cultural components in defining greenness. Subsequently to that section, the exploration moves deeper

130 Certain sections of this chapter are collected from Klintman (1999), as part of the DOMUS-project on Utility sectors in Sweden, the Netherlands and the UK (see References).

into the macro social sphere, while still using the separation of necessary, fundamental, and contingent relations. A question is raised that will be elaborated on throughout the rest of the book: Are there necessary or fundamental hindrances to having the common good (in the "high" modern sense, of which electricity supply and waste management are part) and ecocyclic society coevolve?

7.1 Physical Contexts of Electricity and Waste

If we look broadly at different utility systems, we find that parts of their features and organizations are determined by their networks. Kaijser (1994) makes the distinction between

—*line-bound* systems (e.g., electricity, gas, remote heating) using separate networks for transportation to the users, and
—*nonline-bound* systems (e.g., oil, coal, wood) using existing transportation networks for transportation to the users.

Waste management can be added to the latter category. An advantage of the former kind of systems is their wide applicability, and it seems fair to say that electricity is one of the most flexible energy types in terms of wideness of applicability. On the other hand, the establishment of line-bound systems is a very costly process (The water and sewage systems, also line-bound, are currently one of the most comprehensive and expensive investments in Sweden.) Moreover, the physical structure of electricity—with separate lines to each user, and lines with no alternative applicability—tends to make the ties between producer and consumer rather firm (see Kaijser, 1994:47). What the nonline-bound energy systems lose in terms of flexible applicability is gained in the flexibility of transportation, and thus in establishment. This is reflected in the fact that these systems in general have included more free competition than the former systems. Two sectors that partly go against this pattern are electricity and waste in Sweden. Although the term "natural monopoly" is sometimes used to denote line-bound systems, we shall see that line-bound systems and monopoly do not present a necessary relationship, as revealed in the electricity sector.

Regardless of the monopoly issue, international comparisons of greening processes make clear that internal relations prevail in the *electricity sector* for the Western countries. In other words, there is no comprehensive, separate green grid, at least not for electricity provided by energy companies. Thus, the principle of green electricity is one of investment in green electricity rather than in a separate green grid. To make the conventional grid greener is hereby the aim of green proponents of product and tariff differentiation in the electricity sector. This is of course tied to the line-boundness of electricity; energy providers hold that it would be extremely complicated for each house or block of flat to have its own electricity generation and provision. The

fact that the line-bound system of electricity generation, transmission, and provision presents an internal relation means that fundamental restructuring would have to be implemented to change it. One must nevertheless be aware that the relation is not logically necessary; it is by no means impossible to change it into, for instance, a separate green grid or into more decentralized (not merely in the organizational but also in the physical sense) provision whereby households may become more active.

The nonline-boundness of *waste management* means that it can more easily be made flexible and open to rapid changes in organization. There are also interesting private-public dynamics involved here, especially in recycling. At the same time the large implications for health and environment have induced a rigid regulatory framework of waste management, regardless of its systemic characteristics.

7.1.1 Introductory History of Electricity and Waste

A few words will be said about the history of the sectors. I try to show here that materialist arguments in favor of various forms of inter-institutional solutions have been there all along throughout history. As the reader will note, certain materialist arguments about fundamental versus contingent relationships between the physical and the socio-political have been more convincing than others.

Electricity

In most Western countries, energy provision has not been regarded as a central responsibility for the authorities to the same extent as have infrasystems serving transportation and communications. Sweden is an exception. As early as in the seventeenth century the Swedish government started to take the comprehensive responsibility for energy provision to the early industries. Later on, the Swedish national government became the first central authority in the world directly engaged in establishing an electric power system (Kaijser, 1994:156). The motives were partly materialistic: A solid public organization was, according to national government, conceived as the most efficient basis for further expansion of technically complicated hydropower generation. The large-scale "nature" of the electricity sector, developing toward a national grid, "required" a state monopoly and control. Previously, the state had through the establishment of the railway system and telegraph system proved a decent level of organizational efficiency. Also, there were plans to electrify the railway system, which would be facilitated with the state as the major organization. The involvement of the Swedish government has moreover been a way of promoting Swedish large-scale industry. An argument for state dominance was thus that it would guarantee to provide inexpensive electric power—not least to the expanding industries. There was a fear that large private commercial power companies would

otherwise obtain a monopoly or oligopoly position with undue prices as a consequence (Kaijser, 1994:47).[131]

In the earliest history of hydropower however, the 1880s, the first plants were mainly constructed and operated by private companies. Several new private hydropower companies were established around the turn of the century, among them Sydkraft, which today is the second largest one. However, the national government became progressively involved in power supply. The exploitation of Trollhätte waterfalls led to the establishment of a board which in 1909 turned into the Swedish State Power Board (Vattenfall) (Hjalmarsson, 1997). Vattenfall was the world's first main power company owned by a national government. One reason for the high degree of involvement of the Swedish government in the development of the electricity sector was that the state was the owner of the largest waterfalls. And, as Thue maintains: "as the owner of such excellent hydropower resources, the state felt obligated to put them to work" (Thue, 1995:22). A distinction was developed in those early years that has remained until recently: The power companies and Vattenfall produced the electricity and the municipalities distributed it.

In the 1930s onward hydropower in southern Sweden was fully exploited. Now the exploitation of waterfalls had to move north, requiring new, high-voltage transmission lines. This generated conflicts between on the one hand private and municipal power companies, and on the other hand Vattenfall (Kaijser et al., 1988). Although the power companies had their claims heard, Vattenfall became increasingly powerful, among other things through the new rights for Vattenfall to construct, own, and run the whole national grid from the mid-1940s (Kaijser, 1994). The exploitation of northern water systems with long transportation of electric power to the large population in the south involved new technical challenges. High-voltage transmission systems had to be constructed in the 1940s and 1950s. The Swedish geography, with the big waterfalls in the north and the population in the south, together with a strong focus on industrial development and expansion generated a world leading global position for Sweden in the high-voltage technique. Vattenfall now saw an even stronger need for its central and powerful position, and began to cooperate with one of Sweden's largest companies, ASEA. In the 1950s and 1960s, Vattenfall and the private and municipal power companies started to cooperate more than before, as the agreement of the power market was established in 1964. Kaijser (1994) notes a clear power hierarchy during this time. The larger power producers, with Vattenfall dominating (with 50% of the ownership), were at the top, followed by large distributors, sometimes with their own production and nonmembers of the power market. The local distributors were at the bottom.

The rapid expansion of hydropower slowed down in the 1960s with increasing environmental protests. During the *period of awakening* (presented in the chapter on environmental policy), the river preservation movement grew stronger, trying to preserve the few large rivers left. The alternative energy source that the state found most interesting at the time was *nuclear power*. Even here a materialist argument was used.

131 In a subsequent section we shall see how this very argument was used in the 1990s to support the opposite policy: deregulation and liberalization.

The proponents of nuclear power stressed the advantage of nuclear power, similar to hydropower, of yielding hope for national self-sufficiency in energy; Sweden has its own uranium resources. Moreover, however (and perhaps not as easy for the population to appreciate), there were prospects of nuclear weaponry in Sweden. The nuclear power interest had actually begun right after the Second World War. Comprehensive R&D programs went before test plants in the 1950s and 1960s (Lindquist, 1997). Yet, it very soon became less expensive to import uranium, which made the authorities compromise on the idea of self-sufficiency. The materialistic argument of self-sufficiency was put aside as it was no longer for realizing the establishment of nuclear power and knowledge. In the 1960s, nuclear power policy became more commercial. At this time a "Swedish model" of cooperation between private power industry and the state on a large-scale emerged. The establishment of ASEA-Atom in 1968, partly state-owned, aimed at developing and producing the components needed for nuclear technology (Lindquist, 1997). The expansion of nuclear power programs was to be completed in 1985. At that time 12 reactors were running at four sites owned by both the public and the private realms (Hjalmarsson, 1997). Vattenfall became the largest customer of nuclear power.

The term "the Swedish Model" has been used to denote the development of the whole electricity sector, and its large-scale features. Its characteristics are that the state has developed and organized the national grid, while municipal and private actors have developed regional and local systems.[132] Informal cooperation between all these actors is also part of the model. The cooperation and mixture has, it is true, reduced the risk of a complete state monopoly, although Vattenfall has been quite close. The idea of the Swedish model has at least been that there should be some degree of competition between the state and other interests, competition aimed at stimulating innovations and price reductions (Kaijser, 1994:180—184). Perhaps the model has had the expense of a dominating large-scale orientation, while small-scale alternatives, often with green profiles, have been taken less seriously by energy authorities in Sweden than, for instance, in Denmark. If this is true, one might also question the notion that purely material characteristics of electricity can fully explain why electricity generation and provision is physically so disembedded from households in Sweden. The Swedish (modern) tradition of large-scale bureaucracy has most likely had a significant role to play.

Waste

As was indicated in 2.1 (*The Sociological Focus…*), factors commonly conceived as constituents of social welfare and ecological sustainability do not demonstrate a positive relationship at either a necessary or a fundamental level (see Chap. 6). The ques-

132 The Swedish national grid has lines of 220 and 400 kV, which are 15,000 km long. These in turn lead to distributing substations, in turn leading to regional and local grids of lower voltage. Distribution has always been publicly controlled. Currently distribution companies are owned by municipalities and by certain larger generators (*Deregulation of the Swedish Electricity Market*. Swedish Competition Authority, 1996:3). The distribution companies provide citizen consumers with 230 V electricity (Johansson, 1997:184—193).

tion is actually what forms of the social and the ecological would present even a contingent, positive relationship.

The waste sector is a good example of how social welfare and ecological sustainability do not necessarily or fundamentally correlate in the same direction. Waste was not considered very environmentally detrimental in Swedish towns and villages during pre- or early modern times (and the situation remained mainly the same until as late as sixty years ago outside of the three largest cities).[133] Towns and villages could long manage waste on a small-scale, ecocycle-like basis. They composted the organic waste and used it as fertilizers on the fields. Much of the waste from food was given to pigs, and metals and glass were frequently reused (Rosén, 1988). Meanwhile, those early days were characterized by a lower welfare level than today, and by greater inequality between men and women as well as between the rich and poor in Sweden.

In the early twentieth century, when more "artificial" materials and products were introduced, a waste fraction was created that the farmers would not take care of. In 1907 Stockholm began to separate waste into three fractions: waste from the kitchen, manure (also from food that pigs could not eat) and garbage. Garbage (glass, porcelain, metal, etc.) was incinerated or used for construction. This separation ended in the 1920s when synthetic fertilizers started to be used and waste became more difficult to reuse. Hygiene, order, and economy were the main factors considered in waste management. During World War II, people saved and reused materials due to scarce resources, a behavior that continued several years after the war. Most containers in households were still made of glass and other materials that could be reused. In the late 1950s and 1960s household consumption increased considerably with the better welfare and standard of living. Synthetic materials became more common and the landfills grew larger. The landfills were ideally placed far away from urban areas. In addition to the hygienic advantages of this, the greater distance increased the disembeddedness of consumers from the consequences of their consumption—a form of functional differentiation. The "high modern" cosmology of infinite resources and space can be tied to these waste practices. Interestingly, modern mass consumption of synthetic materials spread to rural life, so that the countryside became part of the physical disembeddedness, in turn created by modern urbanism.

133 However, in urban life waste became a problem very early—long before industrialization. The concentration of people in pre-industrial towns generated waste problems (Wärneryd et al., 1995). In the medieval towns the waste led to bad sanitary conditions, despite the fact that food leftovers were given to animals, which also lived in the towns and cities. Waste management and transportation of manure had the lowest status, and was often performed by the hangman's assistant (*Nationalencyklopedin*, under the term Avfallshantering: allmänt, p. 154). Yet most Swedish towns before 1850 were small and had a rural character, so that the waste could be recycled in ways similar to the countryside (Berg, 1993). One should not forget, however, the miserable sanitary conditions in the rapidly growing towns, leading to severe epidemics (Wärneryd et al., 1995).

7.1.2 Sources of Electricity and Waste Management in Sweden

Current national practices in both sectors are best illuminated when put in a longitudinal perspective. The electricity sector has faced comprehensive changes during the last three decades, not only in organization, but also in the sources that are used. This is true for waste as well. This section is devoted to material sources and management, leading to an analysis of inter-institutional aspects.

Electricity Sources from 1970 Onward

The oil crisis in the early 1970s generated a fear of being too dependent upon the oil-providing countries. At that time a large share of the population supported nuclear power as a promising alternative. Electricity started to gain an increasingly important role in households from that time onward—from approximately 6.2% of household energy in 1970 to 43% in 1996. The relative use of oil in households was reduced from 71.4% to 24% during the same period. From 1980 until today, the picture of energy sources used for district heating and for energy use as a whole has become much more diverse during the last 25 years. In district heating, the major differences are a decrease of oil and an increase of biofuels, heat pumps and energy coal (Energiläget, 1997:11,16).[134]

As noted above, environmental protests grew louder in the late 1960s and 1970s. There has been opinion against the use of nuclear power from the 1970s, and it is still quite vigorous today. Discussions of alternative energy sources—wind and solar power, as well as biofuels—have been intense from time to time in the political debates. Several projects, mostly small-scale, are currently promoting these alternatives and environmental innovations all around Sweden. We will look more closely at the institutional preconditions for these alternatives. Currently, hydropower and nuclear power completely dominate Swedish electricity production. Of the total approximately 136 TWh produced per year in 1996, nuclear power provided 52% (or 71 TWh) while hydropower generated 38% (or 51 TWh). These two sources together thus constituted 90% of the total electricity production. Power heating stations generated 7.3%, oil condense power stations gave 2.6%. The two alternative sources—wind and solar power—have so far been comparatively small. In 1996, windmills generated 0.1 TWh. Solar power is difficult to estimate, since the solar

134 In Sweden's total energy use in households, the major characteristics between 1970 and 1996 have been (see also appendix):

- Rather stable total energy use in households, in total approximately 168 TWh per year both in 1970 and 1996, however with increases between 1990 and 1996 by 20%.
- Increasing electricity use in households: from 13% (25 TWh) to 45% (75,6 TWh) of the total energy use among households.
- Decreasing oil use in households: from 72% (121 TWh) to 24% (41.4 TWh).

If we look at the Swedish energy use as a whole (not only households), we can note:

- Increasing use of nuclear power and hydropower: from 9% to 26% (where the main increase has been in nuclear power, 79 TWh).
- Increases in biofuels: from 10% to 18%.

panels often produce electricity for single households. The potential of today's solar panels amount to approx. 0.02 TWh per year (SOU 1995:139, p. 48).

A reason for the marginality of windmills in 1996 could be that deregulation was very new. As the possibility for consumers to choose green electricity or to own shares in a windmill or solar panel becomes more common, this might perhaps trigger a substantial increase. Windpower increased by 30% from 1994 and 1996,[135] an increase level that is accelerating (see Klintman, 1998b). Wind-generated electricity has augmented by 40% per year in the last two years. In 1998, the production rate was 300 GWh, that is, 0.2% of the total electricity production in Sweden (Miljö & Utveckling, 99(1):29).

Domestic Waste from 1970 Onward

With the expansion of mass consumption patterns, the quantities of domestic waste continued to increase in the 1970s. Discussions were initiated on how to make use of the waste. When the energy provision (chiefly oil) became uncertain, much of the waste was used in incineration plants providing large-scale district heating. The municipalities played the main role here, since the Waste Collection and Disposal Act of 1972 gave them a monopoly on waste collection and disposal. In the late 70s and early 80s Swedish society (even at governmental levels) became more concerned with the negative environmental impact of waste incineration. Municipalities collected glass and paper again after an interruption in the 60s. Glass and paper recycling schemes soon proved quite successful, especially the recycling of return bottles.

In the early 1990s the average person generated approximately 200—220 kg waste per year in his or her household (Bucht, 1991).[136] Based on waste weight, 50% of the domestic waste nowadays can be composted, 20 to 30% is recyclable paper, another 25% consists of packaging (Berg, 1993:235). Certain researchers argue that if all Swedes composted biological waste properly, one million cubic meters of compost soil would be generated, corresponding to the whole Swedish market for fertilizers (Sw: *jordförbättringsmedel*) (Bucht, 1991). Others have stressed the gap between the ideal case and real compost practices. Composted waste today contains too much heavy metals to be suitable for arable land (Nilsson & Lindberg, 1994:11). We find still another gap between the compost vision and the actual waste management. In 1994, 81.4% of the domestic waste was either put in a landfill (39%) or was incinerated (42.4%). During the same year, only 2.9% was composted and 15.8 % was recycled.[137]

Sweden is one of the countries in the world incinerating the largest portion of its waste. There are about 20 incineration plants in operation in Sweden. Between 1990 and 1994 the energy produced tripled to 360 000 MWh/year. In 1996 it had aug-

135 The figure from 1994 is found in SOU 1995:139

136 Garbage collection vehicles collect in total 360 kg per capita per year (Na 28 SM 9502, Statistics Sweden).

137 Na 28 SM 9502, Statistics Sweden: Management of domestic waste, 1,000,000 kg: landfill: 1229 (39%); incineration: 1338 (42,4%); large-scale composting: 90 (2,9%); recycling: 497 (15,8%).

mented to 4.5 TWh (SEPA, 1996). In 1991 the national goal was that all incineration and landfill of unsorted waste should have ceased by 1993, a goal that was not realized, partly because "unsorted waste" was not clearly defined (Nilsson & Lindberg, 1994:11, 13—14).

As to composting, there were nine large plants for composting and waste separation operating in 1994, mainly for biological waste from parks and gardens. In addition, composting of other biological waste has become more prevalent, chiefly on a small-scale basis but in some areas large-scale, managed by the municipality.

7.1.3 European Comparisons: The Relativity of Greenness

To define particular products or types of management as "green" or "ecologically sustainable" has become common in many countries, not least Sweden, the Netherlands, and the UK. As we shall see, however, there are conflicting ideas as to what ought to be labeled green. In chapter 4 (on *Environmentally Beneficial Action*…) I addressed the problem of marginal changes in an environmental direction. Here I expand on the reasoning of environmental relativity. Analyses of green categories occasionally take place on the verge of reducing greenness either to natural/material features (O) or to social and cultural elements (S). These reductions commonly rest on ontologies of either atomism or subjectivism (cf. Chap. 1 & 2). In addition to making a few European comparisons on definitions of greenness between Sweden, the Netherlands and the UK, this section has the purpose of overcoming the choice between the two evils of natural (material) versus social (cultural) reductionism when analyzing national differences. I do this by applying the metatheoretical approach of this book. Three levels are separated here. There is a point in mixing the energy and waste sectors in this demonstration, because the two have to an increasing extent become interdependent.

(i)	S	—	"O"	|	O(p)
	……				
(ii)	S	—	"O (o)	|	O(op)
	……				
(iii)	S(n)	—	"O"	|	O

Figure 7.1.3: *Three levels: (i) the physical situation in different places [O(p)]; (ii) physical options in different places [O(op)] related to their perceived options ["O (o)]; (iii) different—culturally dependent—notions among subjects [S(n)] of greenness of a certain perceived option, "O"*

(i) The physical situation in different places

An elucidating example of natural differences between countries triggering variations in green definitions is that of geographical size and distance. In Sweden, with its long distance between north and south, parts of waste transportation have been heavily debated. Swedish waste is transported more than 20,000,000 km per year (Johans-

son, 1997:206; no figures available for the Netherlands or UK). Waste transportation constitutes the largest expense of waste management in Sweden. In addition to acknowledging the virtues of composting for reduced waste transportation, the Swedish Environmental Protection Agency (SEPA) claims that it would be much more environmentally beneficial to use recycled packaging for incineration—even in central heaters for solid (and refined) fuels—when there are long distances to the closest waste incineration plant and to plants for recycling. Neither the Netherlands nor the UK faces this specific situation, since they have different geographies. Such differences due to natural differences between regions can possibly apply for instance to wind and solar power, where regional variations may constitute the main difference in energy demand and gain from a lifecycle perspective.

(ii) Physical options in different places related to their perceived options

More common than referring to physical differences between distinct places is that the environmental soundness is assessed in relation to its perceived alternatives. As one can see in the figure above, this is different from purely cultural relativity. Controlled incineration using high-tech purification is in all three countries regarded as a relatively harmless way of generating energy, in instances when landfilling is perceived as the only alternative. Similarly, when coal is seen as a main fuel, gas from waste sites is usually considered a relatively sound alternative. In the Netherlands, gas from landfills—based on such comparisons—is labeled "green energy generation," and constitutes 12% of the green generation in the country (Wolsink et al., 1998). Yet, such labels are far from uncontroversial. In the Netherlands, incinerated biomass is sold as green electricity, based on the argument that biomass when growing assimilates the same amounts of CO2 during its lifetime as is emitted when biomass is incinerated. This has raised much criticism among environmental and consumer organizations. They suggested that the name "green electricity" should be reserved for wind, solar or hydropower only and that including biomass as a resource for generating green electricity will make the product less green than its name suggests.[138] Again, it is the relative features, and not so much "absolute characteristics," that are in focus in the green controversy. Similar discussions are taking place in Sweden and the UK, where differences in the debate are largely based on perceived alternatives in each country.

(iii) Different—culturally dependent—notions among subjects of greenness of a certain perceived option

The third level concerns partly cultural differences between regions and nations: culturally based notions of greenness, where S is of more interest than "O." Hydropower is unreservedly regarded as green in both the Netherlands and the UK. The reason is simple: Hydropower is renewable, hence environmentally sustainable. Interestingly,

138 Based on discussions with Bas van Vliet at the University of Wageningen in the Netherlands, spring of 1999, during the DOMUS project.

Sweden differs in this context. One of the main controversies of green electricity refers to how hydropower ought to be labeled. River preservation, initially fought for by the conservation movement in the 1960s and 1970s, has partly become institutionalized and integrated in the legal framework (e.g., the Nature Conservancy Act, 1964:822). The outcome, whereby only rivers exploited before 1996 are defined as generators of green electricity, must still be regarded as a compromise. The NGO Nature Conservation Agency (Naturskyddsföreningen) accepted this definition for pragmatic reasons, assuming it to be better than no green label at all. Still, even the earlier exploited rivers are not accepted by everyone as sound or sustainable, particularly not small-scale hydropower in the south. There are actually those in the nature conservation movement who hold nuclear power to be cleaner, more environmentally and economically sustainable than hydropower.[139] Electricity companies are well aware of this divergence of attitudes. Stockholm Energi, for example, lets customers choose what electricity sources they want to support—nuclear energy, hydro energy or locally produced biofuel (Miljö & Utveckling, 1996 (1):29).

An analogous example of the cultural and subjective relativity of ecological soundness refers to the location of energy-generating windmills. A person who purchases windpower from the energy company in southern Sweden puts it like this:

> It's all about balance: You think environmentally in order to preserve nature, while at the same time you don't want the rather ugly windmills everywhere. Downtown or in densely populated areas they wouldn't disturb at all, but out in the beautiful Scanian soil … You sometimes wonder if it's the best use of the beautiful earth that we have here." (Woman around 40 years old, purchasing green electricity since 1998 from the energy company in southern Sweden. She lives with one adult.)

Implied in this quote are subjective claims of the natural, genuine, and beautiful (discussed in Chap. 1).[140]

After exploring the physical context, the European comparisons had the purpose of overbridging physical and social components of ecological sustainability assessments. The following section will consider the political and social aspects of adapting the two sectors to ecological principles. Aspects brought up are mainly political visions of the optimal means to reach an ecocyclic society, as well as how to make social and ecological ends meet.

139 In the 1997 SOM-survey, 64% of the Swedish population placed their "votes" on 1-5 on a 10-degree scale, when they were asked the following question: "If you think about Sweden of today, what do you think about nuclear power as a threat to the health and life of people in Sweden?" (0=no risk; 10=very high risk).

140 For in-depth analyses of ideas of "unnatural" versus "unaesthetic" regarding the location of windmills, see Statens Energimyndighet, 1998.

7.2 Visions of Utilities: Toward a Greening of the Common Good?

As we could see in the section on the European comparisons, the material histories of electricity and waste are largely histories of physical distancing between generation, management, and household practices. It is, accordingly, not unfair to suppose that many contemporary Swedish households do not know what ratio of their electricity is generated by what sources, or what ratio of their disposed waste is incinerated or deposited as landfill.

Here I move on from physical to institutional disembeddedness. Chapter 5 cast light on the environmental policy debate as one largely dealing with the question of how societal actors—not least households—can become more actively aware regarding the ecological consequences of their practices. Utilities should hence, in other words, become something more than top-down providers with the "mere" goal of public comfort and material welfare in the simple modern sense. What the sectors of electricity and waste have in common is that quite comprehensive regulatory changes have taken place lately with consequences for the number of product and tariff choices for households. Particular arguments in favor of re-regulating the respective sectors held that the changes would have actors come closer to decision making—and that re-regulation thus is a means to reduce the modern disembeddedness between generation, provision, and consumption. The policy changes are introduced in this chapter. To provide a complete examination of the legislation and regulation of the sectors is beyond the scope of this book.[141] Instead the presentation aims at pinpointing certain factors as bases for further analysis.

7.2.1 Re-regulated Electricity Provision

Sweden's organization of the electricity sector was founded on the Electricity Law from 1902 until major legislative changes started to take place in the early 1990s. The law from 1902 had promoted monopoly (or oligopoly) in the electricity sector (Summerton, 1995). Despite its amendments throughout the twentieth century, the law could not keep up with the great technical and structural changes of the electricity market.[142] Government reports published in 1993 suggested a plan for how to reform the sector, in terms of open grid access, stock market, power pools, etc.[143] Yet a crucial step had been taken one year earlier: Vattenfall (The Swedish State Power Board) had been transformed into a public power company.[144] The Government Bill (1991/92:133) included strategies for how to create a competitive Electricity Market.

141 For more comprehensive analyses of these matters, see e.g., Klintman, 1998b: *Utility sectors in Sweden* (from which much presented here has been collected), or other works referred to in this section.
142 SOU 1995:108, p. 23
143 See SOU 1993:68
144 SOU 1995:108, p. 21

A commission was appointed: the Electricity Legislation Commission, beginning its work in 1992.[145] In addition to the amendments to the Electricity Act, a new Electricity Trading Act (1994:618) was passed by the Government. In October 1995, the Parliament provided the electricity market with new legislation which would take effect in January 1996.[146] Network access and transmission were still to remain a state monopoly, whereas the distribution and supply of electricity were to become open to competition between public and private actors.[147] The stated reason for continuing to regulate transmission is:

> to create better opportunities for identifying and preventing economic surplus from arising as a result of excessive transmission prices, which might then be used to reduce electricity prices through cross-subsidisation. Such subsidies run the risk of distorting competition between enterprises selling electricity, and may lead to higher electricity costs for consumers.[148]

The Electricity Network Authority has become responsible for supervising the levels of transmission prices in relation to the use of the electricity grid and networks. This partial deregulation—or re-regulation, as it also has been called—is part of both a deregulation trend in other European countries,[149] and of a more extensive political reorientation in Sweden (Midttun, 1995). In the previous ten years, re-regulation had been carried out in various Swedish markets: the postal services, telecommunications, domestic air transport, and so forth (Midttun, 1995). In the political culture of Sweden there has been an agreement between the Social Democrats and the Conservatives that the electricity sector ought to move towards liberalization. This market orientation had long been part of the political program of the Conservatives and the Liberals. The pragmatic side of Social Democracy, in this case manifested in Rune Molin's bill on industrial policy, saw no alternative to liberalization of the electricity market in their endeavors toward economic growth (Midttun, 1995). More generally, two major reasons have been pointed out for allowing electricity consumers to choose their supplier freely: (a) increased competition forces producers and distributors to make the sector more efficient, which is held to reduce the prices for the consumers; (b) the consumers' demand rules, due to new forms of contracts, also ought to reduce the prices. The vision is that the price will be based on consumers' demand relative to supply, yielding efficient competition advantageous to consumers.[150] The re-regulation of the electricity market made the *Competition Act* (1993:20) the legal framework; on its basis the market was to be monitored.

145 See SOU 1993:68

146 A completely new Electricity Act took effect in Jan. 1998. The new act is said to have a more modern and comprehensible structure. The major changes that took place during the electricity reform between 1992 and 1996 have remained virtually unchanged in the new act. Some additions have been made that deal with protection of consumers. (http://www.riksdagen.se/debatt/9798/freg/lagar/n.html, from 980515).

147 Swedish Competition Authority (Konkurrensverket), 1996:3.

148 Swedish Competition Authority (Konkurrensverket), 1996:3, p. 6.

149 Norway deregulated its electricity market in 1991, and the United Kingdom in 1989.

150 Närings- och teknikutvecklingsverket. R 1995:37, p. 41.

Prior to the re-regulation, the National Power Board was part of Vattenfall, responsible for administering and running the transmission network. As we know, the Board had also produced and sold electricity. When Vattenfall was transformed into a public power company, and later in combination with the deregulation, it became important to separate its organizations producing/selling energy and the ones responsible for network operation. A new state-owned company, Swedish National Grid (Svenska Kraftnät) acquired the operative responsibility. Vattenfall became the largest electricity company on the market with at least 50% of the market shares. Later on, I will further discuss the competition within the electricity market. For now, it may be said that the Swedish Competition Authority is involved in scrutinizing competition on the electricity market in order to avoid restrictions to competition.[151] The Swedish National Board for Industrial and Technical Development has the legal responsibility for supervising the electricity market as a whole, including the technical situation.

In addition to the acts and regulations directly focusing on electricity, there is another set of laws and regulations of importance for electricity generation. Espe-

151 Deregulating the electricity sector, as in the area of telecommunication, has not been a one-time restructuring event. Instead it must be regarded as a dynamic process where different interests are in conflict. One reason for using the term *re-regulation* instead of deregulation is that the new liberalized market has to follow new principles and rules (e.g., the Competition Act, 1993:20) in order to function properly. Certain obstacles to this open climate are said to be the old tradition of close cooperation between different parts within the electricity provision process -- production, transmission, and sales: *vertical* relationships. Other obstacles include the lack of "competitive instinct" between different producers at the same production level: *horizontal* relationships. Throughout the years, the big actors have expanded their activities to such an extent that a free and equal market is unlikely to be developed without active rethinking and perhaps restructuring. The Swedish Competition Agency is elaborating on how to improve the competitive climate and to avoid an oligopolistic one.

Concrete practices on the Swedish electricity market that, according to critics, restrict competition include:

Alliances are established between several distributors (horizontal integration) aiming at becoming more powerful negotiators when drawing up contracts with producers.

Two forms of (vertical) cross-subsidization have become common after the deregulation: (a) certain mother companies transmit electricity while their subsidiaries of the same companies generate and distribute electricity to consumers; (b) production and sales companies start subsidiaries for transmission.

The large market shares of Vattenfall (50%) and Sydkraft (20%), as well as horizontal integration of production may restrict competition. Thus, there have been suggestions to privatize the public company Vattenfall, although it is not obvious how this alone would improve competition.

A more common suggestion has been to divide Vattenfall into smaller competitive companies, perhaps in connection with privatization. Another, more extensive, measure for protecting competition is to internationalize the Swedish electricity market. In a proposition it is stated that (author's translation): "free trade with electricity over the borders ought to be pursued." This would mean that Swedish consumers can get their electricity supply from foreign producers, and that Swedish producers can do business with foreign companies. Norway is the main country with market exchange with Sweden within the electricity sector as part of the Swedish-Nordic electricity exchange (Nord Pool ASA). The Eastern European countries are also discussed, especially Poland. Critics of the idea of splitting Vattenfall up maintain that a large Swedish company is needed on the electricity market, which is moving toward internationalization. On an international market, the dominating role of Vattenfall will be reduced (*Avreglering av elmarknaden*…).

cially when bringing up small-scale energy production—for example wind and solar power—this set of acts is important.[152]

Various taxes are part of the electricity tariffs in Sweden. Some of the taxes are legitimized using environmental arguments. Sweden has the highest number of environmentally related taxes in the world. In 1993, as much as 10% of the state incomes (50 billion Kronor) came from environmentally related taxes.[153] Taxes on hydropower production in 1997 amounted to 0—5.8 öre/kWh, with less taxes payable on plants constructed after 1972. Two other types of hydro taxes are hydropower, site value tax (3.42%), and building value tax (0.5%). Nuclear power production tax was the year 1997 2.6%.

Electricity prices for nuclear power and hydropower have been low compared to their alternatives, which has made it difficult for windpower to compete. Therefore, tax reductions and other subsidies have been introduced. Investment subsidies of 15—35% were introduced in July 1997, in addition to an environmental bonus of 9 öre/kWh (Hjalmarsson, 1997:26). For households taxes were considerably raised between September 1996 and July 1997. Taxes for regular retail consumers increased from 13.1 to 16.0 öre/kWh; electricity for heating and water increased from 10.6 to 13.4 öre/kWh.[154]

7.2.2 Organization of the Electricity Sector

Production/Generation

The approximately 136 TWh of electricity generated in Sweden (in 1996) is produced in a very concentrated electricity market. The five largest companies generate 90% of Swedish electricity. Vattenfall has 50% market share, followed by Sydkraft with 20%. In addition, there is a trend toward companies owning parts of each other. Vattenfall and Sydkraft, for instance, both hold shares in a third company: Graningeverken.

Vattenfall and Sydkraft produce electricity generated by hydro and nuclear power. We could observe above that both these energy sources have been highly controversial from environmental points of view. At the same time, Vattenfall and Sydkraft are trying to obtain an environmental profile by marketing green electricity, including wind-generated energy. As has been indicated, hydropower is included among other renewable sources, and is thus called "green" by its producers. Small-scale green pro-

152 It mainly includes five acts: The Natural Resources Act (Sw. abbrev.: NRL), 1987:12; The Nature Conservancy Act (1964:822) Naturvårdslagen; The Environmental Protection Act (1969:387) Miljöskyddslagen; The Water Act (1982:291) Vattenlagen; The Planning and Construction Act (1987:10).

153 SOU 1995:139, pp. 342-3.

154 Hjalmarsson, 1997. It should be added, however, that the taxes for electricity used for heating and water must be put in relation to taxes on "competing" power sources. Prices of fossil fuels (excluding biofuels) include taxes on oil, carbon dioxide emissions, nitrogene oxide emissions, etc which altogether may be a reason for the reduced use of fossil fuels for household heating.

duction is protected by the purchase duty of distributors, something that is promising for small-scale electricity in the future.[155]

Transmission

A clear pattern since the deregulation is that the municipal electricity distributors are reducing in number—from 290 in 1989 to 250 in 1996.[156] This is due to the fact that generating companies, such as Vattenfall and Sydkraft, acquire smaller companies. This is an example of vertical integration.[157] Critics of this integration have claimed, in addition to the competition problem, that integration reduces the ability of municipalities to protect the environment, local infrastructure, electricity supply and to have control of tax matters (Johansson, 1997:184—193). Moreover, there have been warnings against making profit from transmission services. The risk is that a surplus, generated if incomes from transmission services are higher than the costs, makes it possible for transmission actors with vertical integration to subsidize electricity costs for customers—thereby distorting the balance of free competition.[158]

Sale

Three parts constitute the final electricity tariff for consumers: the electricity price, the network fees, and taxes/various fees for safety and security. In 1997 the proportions of these were 30%, 32%, and 38% (Hjalmarsson, 1997:16). All buyers and sellers are able to compete within the regional and local grids. A significant aspect of Swedish electricity provision is the extensive use of electricity for heating in households. Prior to the deregulation the municipalities dominated as distributors of district heating to households. This was considered a natural monopoly. Now the district heating system has competition from new electricity supply systems. Yet it is technically a rather extensive enterprise to change system. Also, the environmental implications of changing to electric heating have been debated, especially the change from biofuel-based district heating to nuclear-based electricity.

7.2.3 The Waste Sector: Changes in Responsibility

Monopoly in Waste Management: Municipalities' Responsibility

The main act regulating waste issues is the Waste Collection and Disposal Act (1979:596). In Section 2a (1990:235) the basic principle of waste management (i.e., of collection, storage, removal and final disposal) is stated as follows:

155 Närings- och teknikutvecklingsverket. R 1995:37, p. 45.
156 Reduction in the number of distribution companies has a fairly long history. In the mid-1950s there were about 2,000 distribution companies. The major change generated by deregulation is that distributors have had to split their sales activities from their network services (Hjalmarsson, 1997).
157 Swedish Competition Authority (Konkurrensverket), 1996:3.
158 Swedish Competition Authority (Konkurrensverket), 1996:3.

> Waste management shall be undertaken in such a manner as to promote measures to facilitate reuse and recycling of waste, where necessary in order to conserve raw materials or energy, or with regard to protection of the environment.

Section 3 adds to this principle:

> Management of waste shall be undertaken in such a manner as to avoid causing detriment with regard to protection of public health and of the environment.

In Sections four and five it is made clear that municipalities are responsible for the collection, transportation and processing of domestic waste:

> each municipality shall be responsible for ensuring that domestic waste in the municipality is removed and transported to treatment installations, to the extent that this is necessary in order to satisfy the protection of public health, protection of the environment as well as private interests (§ 4).

> The municipality is, unless otherwise provided pursuant to section 6b, obliged to ensure that domestic waste within the municipality is finally disposed of (§ 5).

More concretely, the national government requires that each municipality issue a local waste management regulation and a waste management plan. In the latter, measures for "reducing the quantity and hazardous nature of the waste" should be included (§ 9).

Municipalities are thus in a monopolistic position as regards waste management, something that will be discussed more in the section on organization.

The commission for taxation of waste dumping has proposed that it should cost 250 Kronor for each ton of waste that is dumped in landfills. Critics maintain that the omission of taxes on incinerated waste will lead to increased incineration with negative environmental consequences. One possible solution would be to put taxes on waste per se. This would plausibly be an incentive for source reduction, recycling, and composting (Johansson, 1997:203).

Re-regulation of Recycling: Producers' Responsibility[159]

Whereas little organizational change has taken place within management of the "ordinary" waste, the innovations have been within the increasing sphere of recycling. In the Ecocycle Bill of 1993,[160] the principle of producers' responsibility is one of the central parts. The basis of the Bill is the idea of an ecological whole and of a responsibility for produced goods from the cradle to the grave. Producers' responsibility has been included in the Waste Collection and Disposal Act since 1993, and follows the producer pays principle (PPP). Previously, management of recyclable materials had been a responsibility for the municipalities.

159 This section is partly taken from Klintman, 1997b.

160 The Ecocycle Bill (1992/93:180). Already in a bill from 1975:32 (bet. 1975:JoU10, rskr. 1975:161) it was stated that the responsibility for waste management from an environmental and resource perspective mainly ought to lie with producers.

Producers' responsibility was to apply to several product categories. In the first step, the national government chose to apply the responsibility to packaging (colored and uncolored glass, as well as cardboard) and paper.[161] The cardboard used for containing milk and other dairy products is also recyclable. Gradually, more product groups were included: tires (1994:1236), cars (1997:788), electronic products, and construction and demolition waste.[162] The notion of producers' responsibility is briefly that it should be:

> a mandatory legal requirement on manufactures to take responsibility for all packages and packaging material used in the production and distribution of manufactured goods. This responsibility comprises the whole life-cycle of the package or material (Munk Christiansen, P. (ed. 1996, p 300). Governing the Environment: Politics, Policy, and Organization in the Nordic Countries. Nordic Council of Ministers, Copenhagen (1996:5).

The concept of producer is not obvious and needs to be defined. The Minister of the Environment has defined it as: "the provider of raw material as well as the producer of the good and those handling the product later on." Furthermore, "physical manufacturer liability" is defined as covering "those who commercially manufacture, import or sell a product, or who carry out activities which produce waste."[163]

Formally, the producers became responsible for newspaper, glass, and packaging in 1994. The targets provided by law that the producers had to implement were the following: 70% of all paper and glass and 30% of all cardboard had to be recycled before 1997.[164] Producers' responsibility for recycling of metals, plastic, and corrugated cardboard with well-defined targets has also been under development, with one responsible branch for each type of material.[165]

7.2.4 Organization of the Waste Sector

Since 1972 the municipalities have had a monopoly on managing ordinary waste. We have also seen how the municipalities are required to have a waste management regulation and a waste management plan. This is scrutinized by the County Administrations. Despite this monopoly, the flexibility has increased in the waste management sector, not least for property owners. Several local Agenda 21 projects have indicated the need for a more flexible system for waste management to meet the conditions of different residential areas.

161 Ordinance (1994:1205) on Producers' Responsibility for Waste Paper, and Ordinance (1994:1235/1997:185) on Producers' Responsibility for Packaging.
162 Summary of The Ecocycle Bill (1992/93:180).
163 Cabinet Bill 1992/1993:180, pp. 53ff.
164 SFS 1994:1205; 1994:1235.
165 From "Premiär på förpackningsinsamlingen." Pressrelease 1995-09-28, Näringslivets Förpackningsråd.

Collection

Organized waste collection is rather new, and is a result of the municipal monopoly provided through the health service regulation of 1959 (Rosén, 1988). The waste that goes to incineration plants and landfills is today collected under the supervision of the municipalities. It is quite common (in 75% of local areas) that the actual collection is done by a private firm of contractors. In this respect competition is involved, although it may not make much difference to the households. The collection practices have become more flexible and differentiated. In many places the property owners can decide the number and size of the garbage cans and the frequency of collection. In certain housing estates the residents have decided to manage the waste themselves, which the municipality also can approve. The fee for collecting the waste is related to the parameters mentioned above. Let us take a look at the regulations on fees for garbage collection:

> The fee shall be fixed at an amount not exceeding that required to cover the requisite planning, capital and operating costs of the waste collection and disposal.
>
> The fee may be levied in such a way as to encourage reuse, recycling or other environmentally sound waste management.[166]

The first sentence is the nonprofit requirement, which has been regarded as necessary given the monopoly situation of the municipalities. As with water provision, there have been actors involved in local waste management who maintain that this requirement puts limits on the economic incentive to reduce domestic waste.[167] Yet the second sentence approves at least of some price setting to meet environmental goals. It is, for example, rather usual today to have agreements whereby households pay half the waste fee if their waste is collected every other week instead of every week. This is not completely in proportion to the actual reduced expenses for waste management, administration, and so on, but the environmental benefits make it possible.

The implementation of producers' responsibility has led to several changes in terms of collection. The local governments have handed over the responsibility to materials companies, who can—but do not have to—be rooted in the local communities in which they work. In some areas within the local sphere a former system with recycling on a neighborhood basis has been changed into a system whereby several neighborhoods share one "recycling station." In other areas, producers' responsibility has resulted in a transition from nonexistent recycling in the neighborhoods into public recycling close to neighborhoods. While the national government's demands and targets are clearly formulated, the freedom of the materials companies is rather extensive when it comes to designing the collection in the municipalities. Within wide frames, the materials companies choose how many recycling stations to install, where to place the recycling stations (after being granted building permits by the

166 The Waste Collection and Disposal Act (1979:596) 16§, added in 1980:426.

167 For instance in an interview with the head of the waste management section in the municipality of Ystad. In Klintman, 1996, p. 37.

local government), and how the information process should be structured. This is one example of the extensive freedom of the producers:

> A producer shall take such measures as may be necessary in order to facilitate the deposit of waste paper by households for collection. The producer shall also inform households and other users about source separation, collection and removal of waste paper.[168]

Processing

– Landfilling and Incineration

These processes are within the domain of the municipalities. In some areas, for example the Stockholm area, private contractors own the landfills; ten large landfills are private. In other areas, municipal companies own and run the landfills (Johansson, 1997:203).

Almost 300 large landfills and 4000 smaller ones are spread across the country. About 100 of the larger ones are connected to local wastewater treatment plants, where the leachate is led. This is a hazardous activity, since the leachate may disturb the biological purification. "Ideally," all the leachate goes to the sludge in the plant, which is disposed on the landfill anew (Holm & Thunberg, 1995:89). In Sweden it has been easy to see several negative aspects of landfilling. In contrast to many other practices, the worst environmental impact tends to take place several years after the landfills have been closed down, which makes them difficult to control. Several municipalities struggle with reducing the waste generated at all levels, and one of the main goals is to not have to expand or open a new landfill.[169]

As mentioned above, incineration of waste in increasing, and the planned taxation on waste dumping is likely to lead to even more incineration. Fifteen percent of the district heating is produced using waste. Municipalities own most of the 20 incineration plants, either through municipal energy companies or waste companies. They use advanced methods to purify the gas and smoke. The culm cinder is put in the landfills. Sweden imports packaging for incineration. The city of Linköping, for example, imported 47 tons of packaging per day from Germany, and was paid for taking care of the waste. Waste here competes with biomass, since the incineration plants get economic compensation for using waste. Today the Swedish Environmental Protection Agency (SEPA) is discussing the use of recycled packaging for incineration also in boilers for solid fuels.

– Recycling

We have seen that about 16% of the household waste is recycled, and that producers are responsible for the recycling sector. A "moral" argument for producers' responsibility is that producers create what is to become waste and pollution, and therefore they should pay for and manage it. An ecocycle argument is that being responsible for packaging ought to motivate producers to improve (and reduce) the materials for—if anything—economic reasons. The connection between production and recy-

168 SFS 1994:1205: section 4.
169 The municipality of Ystad and the surrounding areas is one example.

cling becomes integrated and clearer, according to this idea. Of course the producers do not finance the recycling from their private piggy banks. Consumers pay up to 0.15 Kronor extra per package, which is included in the price of products and given to producers.[170]

The results have varied as regards how close to the national demands and targets the actual recycling has come. Several demands had been set up by the national government for 1997.[171] In the Ordinance (1997:185) on Producers' Responsibility for Packaging the demands for the period 1997-2001 are further raised.

– *Composting*

In the literature, composting is regarded as a relatively promising strategy in the struggle for an ecocyclic society (Nilsson & Lindberg, 1994:13). Composting is a very flexible system, which has made it possible to have a great variety of size and organization. Composting can be done on both a large-scale and a small-scale basis. The large-scale composting is often managed by the municipalities or a few private companies. Here it is common to use biological "waste" from parks and other green areas. In some local areas, such as Gothenburg, organic waste from households is composted in a large plant. Furthermore, the city of Uppsala is planning to treat the organic domestic waste with digestion. Small-scale composting is still the most common treatment of organic domestic waste. In residential areas the composts range from serving one household to 367 households in Norsborg. These small-scale systems are organized and managed by private households, tenant-owners' associations and the like—often in cooperation with municipalities, larger housing organizations or environmental organizations—SEPA, as well as NGOs.

7.2.5 Is Green Product and Tariff Differentiation (PTD) Dependent on Liberalization?

As we shall see in the next chapter, deregulation of the electricity market in Sweden (as in other European countries) has made energy companies compete to create green images. To acquire a green profile is supposed to be one of the most important ways to attract consumers from other companies, as well as to keep one's own customers.

170 Klintman, 1997b:46. The following companies manage the different materials:
Glass: Svensk GlasÅtervinning AB; Newspapers: Pressretur AB; Tires: Svensk Däckåtervinning AB; Corrugated cardboard; Returwell AB; Plastic: Platskretsen AB; Metals: Svenska Metallkretsen AB. An ordinance covering electronic items is on its way. The companies have the actual processing done by private firms of contractors. Svensk Glasåtervinning AB, for instance, had 130 contractors in 1996 who covered every municipality in Sweden. See Miljö & utveckling 1996 (1):13.

171 The demands were met for:
Glass bottles for return: 97% (demand: 90%); Aluminum cans for soda etc. 90% (demand: 90%); Packages of corrugated cardboard: 74% (demand: 65%); Packages of paper and cardboard: 45% (demand: 30%); Newspapers are close to the demand: 75%. The recycling of a few other materials did not meet the demands. Nineteen percent of aluminum cans not used for drinks were recycled, while the demand was 50%. Bottles for wine and other spirits did not meet the demands either.Miljö i Sverige, 1997(1):4; 1997(4):8. From SEPA (1997), Report 4646. Stockholm.

The question still remains of whether or not green product and tariff differentiation (e.g., new, seemingly ecocyclic choices for households) is related to liberalization in a necessary or fundamental sense, as proponents of ecological modernization or its theory suppose. Let us study a few examples to see if they will provide us with any hint:

Re-regulation, at least in Swedish energy companies, has meant that companies have developed their environmental work gradually. A reason might be—they believe at the southern Swedish energy company—the new competitive situation. Liberalization has changed the conditions for the energy companies so that the environmental profile has gained importance. For instance, the energy company in southern Sweden currently (in 1999) works actively with environmental certification according to ISO 14000.

However, it is interesting to note that the preparation for windpower generation was initiated at the energy company long before the deregulation of the electricity sector—in 1986-1987. The administrative preparations (I do not know how intensive) took 3—4 years. In 1990, the first two windmills were constructed which in are called Anita and Beatrice in this study. At the time, they were among the largest "smaller" ones. Also, it was the first project constructing more than one mill in the same area.[172] The local government took the initiative (when the company was still part of the municipality). The authority's demand was that five windmills should be established, generating in total 1.5 MW. The company realized that they would not be able to establish and run five windmills with the profit requirements that they had set. This is why they initiated a windpower cooperative in the area. They initiated and were active until the cooperative board was established. At this date, the energy company symbolically owns one of the 900 shares in the cooperative.[173] This is an example that windpower does not necessarily or fundamentally presuppose deregulation.

Moreover, a Swedish waste case illustrates how neither PTD in the *waste sector* presupposes a deregulated market. As of today, reductions of the waste collection fee for increased intervals between waste collection have become more prevalent in municipalities around the country. It remains to be examined how common it is that households ask for this alternative, or whether it is approaching "normalization." It is without a doubt part of the trend toward a more differentiated waste policy, despite its not being a direct effect of a deregulated waste collection market.

172 Subsequently, they fulfilled the agreement with the local authorities in Lund by building a third windmill. Moreover, the southern Swedish energy company was active in helping a windpower cooperative to build their windmill, which makes four windmills.

173 In addition to windpower, they say that they also produce other kinds of green electricity, since hydropower from plants constructed before 1996 is defined as green. (They have done this all along, probably regardless of the environmental aspects of hydropower.) Yet they believe in differentiating the products on the basis of what they actually are rather than place the production sources under definitions such as green electricity. It is better that the consumers interpret whether or not the different sources are green. From one of their competitors it is possible to buy obviously nuclear-produced power.

In sum, PTD does not in principle presuppose a liberalized market. However, competition appears to stimulate consumers and providers to introduce new choices on open utility markets, something that illustrates a contingent relationship between liberalization and PTD. Furthermore, it might be true that local authorities are inspired by new options emerging in liberalized utility sectors.

7.3 Conclusion: Toward Consequences of Changing Power and Responsibilities

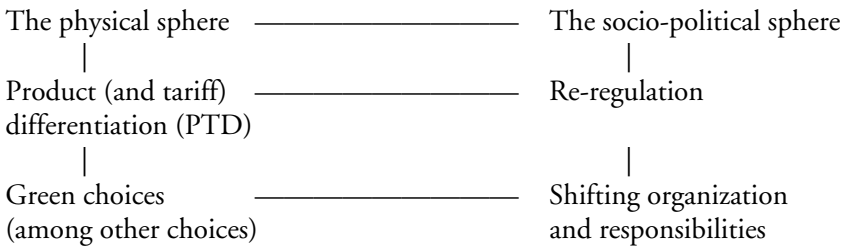

Figure 7.3: *Relations in the Electricity and Waste Sectors.*

I will use the figure as a basis for concluding this chapter. The intimate, yet analytically separable, relation between the physical and the social was illustrated. Part 7.1 mainly focused on physical and material aspects of developments in the sectors. We noted that both electricity and waste have faced significant changes during the last century. Diversity of choice (i.e., product and tariff differentiation) has been, and is, found in the sectors. However, broadly speaking, diversity of choice is nothing new—at least not regarding waste (or water qualities). (Electricity, being a fruit of modernity, has from its beginning been provided as one product by utilities, leaving out possibilities of choice.) As indicated, premodern and rural communities distinguished qualities of waste and treated them separately. Aside from particular projects of newspaper and glass recycling, convergence into one waste "fraction" was a general pattern for most of the twentieth century (see Klintman, 1997b). After the high modern convergence and standardization processes, differentiation of choices has, again, become a common pattern during the last decade or two. One question was whether re-regulation of parts of the sectors has been, or is, a necessary or fundamental precondition for PTD. Since PTD existed long before both electricity liberalization and denationalization of recyclables, the answer is logically no. Still, physical and social developments present a significant degree of contingent relationship. Yet, it is left open what results will happen to PTD if there are continuing trends toward restrictions of competition in the electricity sector, such as horizontal integration of production and vertical cross-subsidization (see *Competition*, above). This could pos-

sibly lead to convergence of choices, caused by convergence into fewer, increasingly powerful, energy companies.

As we shall study in greater depth in the next chapter, PTD—whether or not tied to re-regulation—leads to the introduction of choices, among which certain ones are perceived as green, or environmentally sound. Above, it was described that such green assessments should neither be uncritically regarded as absolute physical truths, nor as mere social constructions. There is a delicate interdependency of the physical and the social involved here, and I found three levels at which green assessments may take place, with various degrees of physical and social elements involved (see *European Comparisons*).

Moreover, the figure illustrates that the re-regulation mentioned led to shifting organization and responsibilities—for instance from the state to producers, and (as producers emphasize) to the public. This is, however, where the lines end in the figure. The next chapter will examine the relation between PTD and green choices. Are strong processes of green standardization and normalization going on in the sectors, or do green choices frequently remain at an experimental stage, perhaps merely for the sake of a green image for the providers? What identity-creating processes take place in provisions of green alternatives?

CHAPTER EIGHT

Providers on the (Inter)National Arena

8.1 Introduction

The last chapter pointed out that fundamental changes—both physical and inter-institutional—have taken place (and still are) in the provision of electricity and waste services. By mainly focusing on national macro processes of PTD and re-regulations, the chapter left open issues of how these changes have come out at the (intra)-institutional level: among municipal authorities, within energy companies, materials companies, and so on.[174] While the figure at the end of Chapter 7 indicated that PTD might, contingently, involve the creation of products and services marketed as green, it said nothing about the extent, degree of normalization, or actual environmental benefit of such choices. This chapter will elaborate on these matters, which relate to the reasoning in Part One about visions, as well as examining the validity of environmental and political assumptions. Examples are presented to elucidate manifestations of shifting organization and responsibilities, and the possibility of offering green choices to households. I also explore the validity of the assumption that shifting organizations may stimulate a broader range of providers. These are the underlying questions: What preconditions and obstacles can be noted of a PTD which includes provision of green choices that subsequently creates green normalization in the two utility sectors? What does the process of green image-building look like among providers? How could "green" PTD be conceived in light of environmental relativity and knowledge uncertainty?

174 Although Swedish housing organizations such as HSB, Riksbyggen, and Ystadbostäder (the latter as part of corresponding utility companies in other local areas) are actors on the national arena, I have chosen to concentrate on their practices in certain local neighborhoods. This is why their work will be explored in the next chapter and not this one.

8.1.1 Applying the Metatheoretical Approach

In the exploration of green provision processes, I seek to be open to the plurality of ways in which these processes themselves may be carried out. Still, merely to have this open outlook runs the risk of constructing provision stories with a positive bias, as though utility provision were mainly constituted by positive, environmental efforts which households may, or may not, follow up. It would be highly naïve to regard these challenges as something that providers by all means aim at overcoming, with the chief goal of providing green solutions to households. The critical component of the analysis will accordingly focus on how much substance there is behind the green images that providers create of themselves. Scrutiny of the conspicuous, such as providers' marginal measures intended to appear like fundamental changes, belong to the critical perspective. This is an application of the principles presented in Chapter 4 illuminating how "environmentally friendly action" is dependent on perception ("O"), making it partly social, involving uncertainty, different interests, and relativity. Along these lines, I try to explore what measures have not been taken. Why has not more been done? Furthermore, according to the approach of this book, one has to perceive the examples in a general context: Do the examples constitute typicalities? What are the obstacles to green normalization in the sectors?

8.1.2 Challenges and Instruments of Green Provision

In the following section I will explore challenges involved in the provision of green products and services. One purpose is to yield an understanding of the various degrees to which the provision of electricity and waste services faces these tasks. In the same vein as in the last chapter, I try to show the inter-dependency of material and social components Accordingly, the three challenges are partly founded on the physical character of electricity and waste. Social and political aspects are largely intertwined with the physical ones, relations which we need to understand in order to explain preconditions and obstacles to the adoption of green alternatives. The section first illuminates challenges of which the forms are closely tied to the materials of electricity and waste. Local examples from the Netherlands, the UK, and Sweden are used to demonstrate how they share certain formal features despite variations in social and political climate.

Two challenges I label *making visible* and *making doable*. My initial claim is that *making visible* is an issue particularly relevant for electricity provision, whereas making doable chiefly refers to the provision of waste services. Through the analysis, it is demonstrated that the two challenges partly overlap with the sectors. Moreover, a third challenge is introduced which to an extent connects to both electricity and waste: *making acceptable*. The section also deals with the process of green image construction of providers. It highlights how providers try to attract consumers based on a green provider image. It becomes clear that provider images and consumer identi-

ties are closely interrelated. Abercrombie (1994) states a part of this interrelation concisely:

> Producers try to commodify meaning, that is try to make images and symbols into things which can be sold or bought. Consumers, on the other hand, try to give their own, new, meanings to the commodities and services that they buy (Abercrombie, 1994:51).

Providers' efforts with their green images include attempts to affect the green identity processes of consumers. This can be regarded as one whole set of *activities* of identity and practice on the part of providers, often involving an implicit emphasis of being part of a particular expert system. The concept of green identity of households will be mentioned here as well, but its definition and analysis is saved for the subsequent chapter.

The second half of this chapter moves further into the socio-political aspects of provision, by separating mainly four instruments or "modifiers." They all have an impact on the extent to which the green choices are visible, acceptable, and doable. I explore the range of provision possibilities, and show how socio-political flexibility may stretch options which at first sight may appear materially fixed. Case studies from southern Sweden are used in order to examine a specific socio-political context.

8.2 Making Visible: Electricity

As we all know, one cannot distinguish between "green" and "gray" electrons in one and the same grid. Nevertheless, energy companies have the possibility of separating the energy sources through organizational and economic differentiation. A stated aim of the energy company in southern Sweden is to make the conventional grid greener, that is, to increase the share of alternative energy offered to consumers. The energy company A in the UK has the same view:

> The problem of giving people direct green [electricity] is that you are taking this out of the rest of the pool so the rest gets browner. It's important to get more green into the mix (Head of British energy company A).[175]

According to this company, it would be unfortunate to polarize green and gray customers in different grids. Mixing the electrons would make it easier to help people to gradually create green identities.

Still, the invisible nature of electricity may lead to socio-material obstacles to making consumer motivated to choose green electricity alternatives. Consumers are concerned with how their extra money for green electricity is invested. The electricity is mixed anyway in the grid, and "who knows where my extra money for electricity

175 Based on an interview conducted in the spring of 1999 by Heather Chappells at the University of Lancaster in the UK for our joint DOMUS project.

alternatives goes?"[176] Thus, the energy providers need to expose the green to make their green provision and identity visible to consumers. Part of this visualization involves environmentally trusted organizations controlling the green claims of utilities. The importance of conspicuousness among providers of green electricity is revealed in a number of cases. It is for instance reflected in the ethos of Ecopower in the UK, namely "to open up a whole new view of how energy is generated" by improving the amount of Ecopower in the UK in a very visible way, "so people can see it working." This is actually claimed to be the main basis on which projects are chosen. The informative part of showing consumers how green electricity works can be regarded as the manifest function, while a more latent function may be to develop the green image of the company, "hopefully" transferred to consumers so that they get closer connected to the company on an environmental basis—and not only founded on getting the cheapest electricity available on the market.[177] A broader, more reflexive, rationality is the key to such an outcome.

This way competition between providers has become more complex and is well acknowledged to involve much more than simply satisfying the demands of Economic Man. At the energy company in southern Sweden they are proud of having been the first Swedish energy provider constructing more than one wind turbine in the same area, jokingly calling it the first "windmill park." The British energy company A is aspiring to have one of the greenest images of all the electricity utilities in the UK. The company stresses the importance of providing products and services that are chosen by the customer: "First and best" is their motto. The major areas in which they are eager to be the first and best are health, safety and environment. The head of the company intriguingly holds that "Customers don't want to go with a company that pollutes."[178] The company hence emphasizes the green identity of consumers, perhaps even without such an identity being very comprehensive yet, at least not in action. Such claims may themselves generate green identity among customers, which they had not developed before they read the slogan from the company. Another tool for green identity construction is that every green customer gets a sticker indicating that the person chooses windpower. Although this appears to be especially important to private companies purchasing electricity (constituting the

176 At the British energy company A this is solved by the company sending out a newsletter every six months, so that "customers are aware of the consequence of their decision" (to fund green electricity). British green electricity consumers hold a number of motives: interest in climate change, green pricing, global equity, energy services (packages of heat, light, and power) and concerns over visual impact. It would be interesting to study whether one can see clear relative motives—that is, compared to coal, fossil fuels, etc., that perhaps differ between the three countries depending on their energy alternatives.

177 The British company A was the first one in the UK to offer customers a green tariff and was also the first one to get ISO 1401. In contrast to many energy companies—especially in Sweden—this British company has decided to target domestic customers, rather than companies, for green tariffs. They hold the reason to be that there is "too much competition in large companies." (The other British energy company that we have studied—energy company B—presented a diametrically opposite idea. A vast majority of their customers are instead commercial, something that they motivate by their limited size).

178 Based on an interview conducted in the spring of 1999 by Heather Chappells at the University of Lancaster in the UK for our joint DOMUS project.

vast majority of windpower clients) a sticker may affect households as well. One effect is simply information to others about the existence of green electricity. The other is a message, not only to others but also to the green consumer herself, of her green identity (cf. stickers about blood donation).

The conspicuous nature of windpower, with its highly visible windmills, makes it efficient in boosting the green image of energy providers. At the energy company in southern Sweden they believe that windpower has not been a great economic investment directly. Yet, they hold the windmills Anita and Beatrice to have given the company immense publicity merely by being visible—positive publicity. Moreover, the Swedish company's involvement in a windpower cooperative has strong symbolic value. Cooperatives have idealistic connotations, something that helps the company to maintain a trusted green image. In light of this, the challenge of certain other energy companies becomes apparent. The big Swedish energy companies Vattenfall and Sydkraft, for instance, despite their rather comprehensive involvement in windpower, are much more associated with their focus on nuclear and large-scale hydropower. Another example is the British company A. They do not currently have any renewable plant of their own. In fact, they have recently bought a 5,000 MW coal-fired plant from PowerGen. These are practices which, combined with green slogans, may be perceived by households as environmentally ambiguous.[179]

An environmentally decisive factor is how much of providers' green image is coupled with actual market shares. The actual percentage of green electricity provided by energy companies is likely to become an increasingly important basis on which consumers will select their providers. Not all energy companies are happy to reveal their green share. At the British energy company A they have conducted a survey indicating that 30% of the consumers said they would be happy to buy green energy. Still, at the moment only 25% are actually willing to pay, but "25% of 3 million is a lot of people."[180] When asked, the energy company in southern Sweden stressed that they order "hundreds of GWh" of hydropower from plants constructed before 1996 (see Chap. 8 on the Swedish controversies of defining green electricity). They also admitted that their share of windpower is merely 1/800 or 1/900 of the electricity they sell, and that it has only slightly increased through the years. Currently they sell 1.5 MWh of wind-generated electricity (plus the windpower that the company buys

179 Based on an interview conducted in the spring of 1999 by Heather Chappells at the University of Lancaster in the UK for our joint DOMUS project.

180 One must keep in mind the gap between these survey results and the green consumer practices. In 1997, the British company A said that they would generate 10% renewables by 2010.

from other companies[181]). However, the process is not simply that the energy companies try to make their green electricity provision as visible as possible in order to maximize the green share of consumers. In the Swedish case, one might ask why the energy company does not build further windmills, solar panels, or initiate other green schemes. The interviews reveal that the market price of windpower is so low that it does not cover the production costs. The "low" market price of windpower is in turn highly dependent on the generally low market price of electricity in Sweden. Wind-produced electricity is thus, from a narrow and short-term outlook, economically unsound.[182] Perhaps this is a reason why the Swedish company does not market windpower more actively. Going back to the issue of mixing all electricity sources in one grid, this mixing might make it less visible that windpower constitutes a very marginal portion of all electricity generated by the company. On the other hand, the fact that wind-produced electricity can be unprofitable for a company is also something that can strengthen its green image: "Despite the low economic gain from windpower they produce it!" While green electricity may be unprofitable in the short run, it is fair to believe that it will be advantageous to acquire a solid green company image in a longer perspective.

Faced with certain short-term economic disadvantages, supposedly turned to long-term advantages catalyzed by a green image, energy providers need to balance the consumers' economic disincentive with the acceptability of green electricity provided directly by energy companies. The formulations in the marketing of green electricity become crucial. In October 1997, the UK energy company A began to discuss

181 The energy company in southern Sweden claims that they have sold all their own windpower. Furthermore, they are engaged in other windpower companies, and have bought shares there to be able to offer customers wind- generated electricity also when all their own produced electricity is sold. The Swedish company in our case has started a subsidiary. The reason is that that they needed a company that only can buy and sell wind-generated electricity. Questions emerge as to what extent, and by what means the company tries to turn more households into green electricity clients. The economic statement made by one of the employees that the price for wind-generated electricity would need to be raised by 5 öre to break even may explain an apparently moderate marketing of green electricity at this point.

Green Electricity as a commodity has infinite flexibility in the sense that suppliers can order as much green electricity from other producers as is demanded by the clients. This immense *potential* is however not sufficient in order to augment in a sustainable way the ratio of green electricity compared to electricity using "grayer" sources. Green marketing by energy companies as well as information and greener fiscal policies created by the political authorities are a few of the critical factors.

182 During the first years of the windmills Anita and Beatrice there were no subsidies to be had. When the third one was built there was however a 35% investment subsidy. In addition, they received an environmental bonus, that is, windpower plants are subsidized by the sum that corresponds to the energy tax: 15.2% as of today (fall of 1998). Yet, the investment aid has been reduced today, so that if one builds new windmills now, it will be 15% more expensive. Meanwhile the costs for investing per kWh have been reduced.

The question is whether windpower can push out some other production source from the system, perhaps not mainly nuclear power, but hopefully fossil fuels, they say at the Swedish company. They are not planning to establish new windmills, since, as they hold, the wind conditions are not the best ones in their local area. Nor are they planning to initiate any new cooperatives in the near future. The policy they had was that they want to share their knowledge and experiences. This lack of initiative of the largest local energy company once they have established conspicuously green production perhaps ought to be analyzed in the context of the large number of limited environmental experiments and projects which are quite rarely expanded to constitute normality.

how they could satisfy people's rising aspirations and this "give people some of what they want." They came up with the Green Tariff, although one of the interviewees explains that this is now referred to as the Green Pricing Scheme, because calling it a tariff "gives the wrong impression." Later she says that she is sorry that it is called the green tariff now, because "it's not fixed." "We're trying to give the idea of flexibility so you can adapt how much you pay in." It is imperative to have the consumers sense that they belong to a special category of clients. This is done by their making green consumers belong to a certain scheme rather than merely pay a different tariff.[183] The classical sociological phenomenon of strengthening identity through distinction becomes very obvious here. The flexibility that is stressed in the UK case has interesting implications. Flexibility may for instance have the effect of making price differences less apparent to consumers. Moreover, flexibility, being the basis for charity of various kinds, has strong connotations of benevolence which might make consumers feel at ease when paying extra, at the same time as their green (moral) identity is reinforced.

The moral, charity aspect of green electricity is reflected in the British company A's regularly informing their clients where their extra money goes. At the moment, for every £1 put into the green tariff the company also contributes a £1 to spend on "independent projects."[184] There was skepticism among the green people lobby about what this would be used for. This resulted in the formation of a group of six trustees who talk to individual customers about what they want money spent on, such as windmills and PV panels. The trustees thus ensure the impartial and democratic character of the benevolent efforts by providers and consumers together. This is a way of acknowledging the social and relative nature of constructing a practice as environmentally sound. In addition to keeping the green identities of both providers and consumers alive, this continuous feedback probably makes the reflexive client draw parallels between this green charity and, for instance, charities to Third World countries, victims of earthquakes and war. A certain benevolent competition "within" reflexive, substantively rational actors may emerge as to where the extra money is best spent.

8.3 Making Doable: Waste

Differentiation in the waste sector takes place as fractionating of recyclables, new choices of collection frequency, and different tariffs. Having said this, it becomes obvious that successful recycling is dependent not only upon benevolent households, but also on active providers, local authorities, and materials companies. Among

183 Based on an interview conducted in the spring of 1999 by Heather Chappells at the University of Lancaster in the UK for our joint DOMUS project.

184 In relation to pricing when they set up the tariff, the British energy company A originally put the premium at 10%, but then reduced it to 5%. Still, most consumers tend to suggest 10%.

authorities in the public and private sectors, comprehensive efforts with recycling have become somewhat of an environmental image symbol. In Sweden, for instance, the official competition for the title "the environmental municipality of the year" takes recycling schemes as part of green identity into serious account.[185] As opposed to the electricity sector, the waste sector does not face service providers with competition. Nonetheless, the providers' economic advantages of successful recycling cannot be over-estimated.[186]

The waste sector is unique in its revealing how household action can help create green identity. In household practices of waste management, providers' recycling schemes have frequently been action-oriented rather than merely appeal to people's green values. Several Dutch municipalities, among them Barendrecht, have introduced highly priced refuse sacks as a means of tariff differentiation. To dispose of domestic waste, citizens are obliged to use this sack only. By raising the price for sacks and lowering the monthly levy at the same time, the charge for waste collection is related to the amount of waste disposed (Meegeren, 1997). Household consumers may save money on waste collection by producing less waste or separating their waste. The option of choosing bin size and number of waste bins in residential areas (e.g., in Sweden) can be regarded as creating a similar incentive to reduce waste amounts (or a disincentive to increase the waste) that the Dutch areas mentioned offer with their highly priced refuse sacks. Among the waste differentiation case, this is one of the more top-down ones. Since it is so specifically oriented toward the number of sacks and economic incentive, it is hard to see how it would help create a more solid green identity (unless the residents compare themselves with households who do not do these things as well). Another differentiated tariff project in the Netherlands indicates the risk of the pecuniary factor getting too much place in the providers' attempts at motivating households. The experiment covered the weighing of both organic waste (such as vegetables and fruit) and the remaining fraction. Wheelbins were equipped with a chip that identified the owner. The bins were weighed as the truck emptied them.[187]

A project with slightly more household initiatives is the Ljunghöjden project in southern Sweden. The project was connected to a comprehensive Town and Country Program in Ystad, in turn highly influenced by local Agenda 21 ideas. After making a request to the Local Streets Department, households in the separate houses may have their waste collected every other week instead of every week. This presupposes that the households in question produce low enough amounts of waste, something that the Local Streets Department occasionally checked visually.

185 For the legal requirements of recycling levels put on municipalities and materials companies, see the DOMUS national policy reports from 1998.

186 Reduced transportation costs, better quality of the recyclable fractions sold on the market, the avoidance of opening further waste sites, are only a few of the advantages of successful recycling and waste management.

187 Based on a case study in the town of Oostzaan conducted by Bas van Vliet at the University of Wageningen in the Netherlands for our joint DOMUS project, 1997—99.

> The pedagogical work is about persuading the customer that longer waste collection intervals are not as frightening as many people suppose. Nothing particular happens to the waste if it lies in the bin one more week. But it is crucial to give households the opportunity to separate their waste in a reasonable way. This is partly out responsibility (Head of the waste section, the Local Streets Department, Ystad).

The whole thing started when the municipal Street Office contacted the chair of the housing association. Representatives presented a concrete suggestion and asked the residents if they would be interested. The compost model was already chosen. A rotating compost bin was given to each household free of charge by the Street Office. This way the households got a clear and concrete idea of what their practices would involve. All three kinds of differentiation were involved: tariffs, fractions, and collection frequency.

8.4 A Socio-Material Model

Provision contains green identity-creating components. The reader has already seen that I have divided them into (a) making visible, (b) making acceptable, and (c) making doable. However, this needs to be described more in detail.

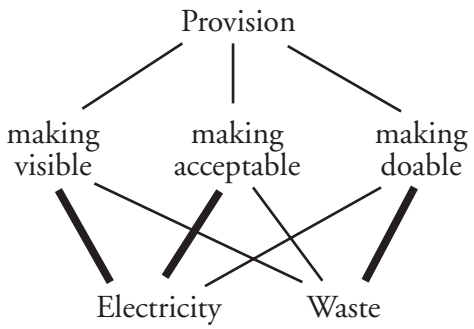

Figure 8.4: *A Socio-Material Model of Green Provision. Thick lines: stronger relationship; thin lines: weaker relationship.*

(a) *Making visible* is decisive for green electricity provision. Providers in the electricity cases put their main efforts into making their green electricity (by nature invisible) conspicuous. This serves the dual purpose of marketing the product, and establishing the green image of the company. Interestingly, conspicuous slogans about what today's consumers "really want" may help to construct a green environmental identity among consumers, who may not have thought much about environmental issues before. Moreover, making visible the fact that green electricity production is not always economically profitable in the short run also reinforces the idealist image of the company. Bottom line: The main aim of providers of green electricity is to make

it visible on the market, hence supplying green identity on sale and strengthening the green identity of certain consumers. Yet it appears that visibility generating a general consumer interest in green electricity would speak against the profit aims of providers. The reason for the thin line between waste and making visible is simply that waste is highly visible in the household; its materiality is visible, although modern society has tried to hide it. The next section will elucidate how the visibility may vary depending on policy measures and local circumstances.

(b) *Making acceptable* was initially assigned for differentiated water schemes. I have thus referred to the providers' efforts to make the aspects of health, hygiene, aesthetics, and technical feasibility acceptable to consumers in the water sector. The thick line from electricity to making acceptable refers to the economic component of green electricity which, when working as a disincentive, actually made even providers themselves refuse to accept this disincentive in their role as consumers. The thinner line to waste reflects the odor and hygiene aspects of waste differentiation, the need to keep several bins in the house, to compost and rinse organic waste. However, these concerns are usually turned into acceptance if only the feedback from providers and neighbors is sufficient. This touches upon the third component of provision.

(c) *Making doable*. This has to do with the physical and practical conditions that providers are largely responsible for, whether it be the consumers themselves or strictly providers. I want to bring forth an action-oriented approach. Providers have two main tasks here, which relate especially to waste differentiation, but also to water differentiation. One of the tasks is to develop policy and larger management systems in the sectors so that consumer practices become doable. In the waste sector the number of waste fractions that are recycled by providers is fundamental for what consumers will do. The second task is to improve the physical and practical conditions for waste and water differentiation at the lifestyle-level among consumers. The distance to bins for households, the level of physical preparedness in the households, information about how to decrease practical obstacles at an everyday level are here assumed to be essential factors.

8.5 Modifying Tools[188]

The socio-material challenges which providers face can be connected with the tools that providers are equipped with to influence households' choices. I shall subsequently demonstrate these connections. But firstly, the four most relevant tools will be presented.[189] They have partly been brought up above, yet with the focus on the socio-material characteristics of electricity and waste, rather than on modification of

188 See Klintman (1996, 24 pp.).

189 Laws and norms are highly relevant in other environmental contexts. However, since composting and households' green electricity are not yet forced upon households I have chosen to explore regulations in Chapter 7 but to leave it out here.

households' preconditions for change in a specific socio-political context. The role of shifting regulation will lie as a basis for the reasoning.

The terminology, if not one of the main perspectives of this section, will remind the reader of the analysis in Part One of behaviorism and cognitive psychology. The reason that I have chosen this perspective is that provisions, from the providers' point of view, partly refer to altering the preconditions for changes in households' daily routines. This top-down perspective stems from the traditional view of utility (e.g., electricity and waste sectors, not least in Sweden, see Introduction). With re-regulations, the private sector has been included in the operational definition of utility. After studying the top-down forces, I will examine tendencies in the other direction—of households partly providing themselves with services and creating changes. This is one of the purposes of Chapter 9.

There are four types of instruments relevant to this context:

Practical/Physical planning, firstly, how and when the recycling stations, composting facilities, or local windmills have been installed is for this purpose one of the central modifiers, especially those relating to the waste sector. Through physical planning, the environmental practices become more or less convenient. This can be done by improving the techniques, by choosing equipment which is "forgiving," and which does not require too much time and effort. These down-to-earth factors are often forgotten in studies of people's preconditions for environmental adaptation.

Environmental information directed to households can vary in at least three ways in terms of generality (cf. Chap. 4 about the public realm). It can:

(a) pertain to practices or categories of practices more or less specifically,
(b) more or less clearly describe what the citizens should do in practice,
(c) be addressed to a more or less specific target group, such as a neighborhood or a whole town.

Moving from more general to more specified and concrete environmentally related information involves important social and spatial implications. I will argue that this specification must go hand in hand with a thorough local awareness of the information agents. Specific information about how people can participate in environmental work requires knowledge about and sensitivity to local, social circumstances. This awareness presupposes a dialogue between the local public and the agents who provide the information (Klintman, 1997b:49).

Economic modifiers may be negative, as taxes and fines, or positive, as reinforcers of a certain behavior. The use of economic incentives or disincentives is usually directed at specific parts of people's daily life. An already mentioned problem is that certain municipalities offer free waste collection during a trial period with composting. The system with a deposit on bottles and cans is a form of economic modifier directly related to an old form of producer responsibility. This deposit system has been initiated by the branches involved, and is also managed by them. Earlier, this was a profitable business, but today the system is still running probably due to the environmental concern of the public (Loftsson et al., 1993). The size of the deposit has become less important than it was some years ago. Returning bottles and cans is today a long-accustomed habit for most people in Sweden (Bennulf & Johnsson,

1993). The reader could note above the problematic of the fact that green electricity, when ordered directly from an energy company, is usually more expensive than conventionally generated electricity. In the next chapter I will expand on this by demonstrating how consumers perceive this situation.

Economic modifiers are known as the most efficient ones in order to have people quickly change their behavior. Yet, to only use economic modifiers has a couple of disadvantages. Firstly, the specificity of the economic "signals" have commonly led to failure in getting people—especially during the dawn of environmental awakening—to transfer environmental adaptation from one part of their daily lives to another (Simmons & Widmar, 1990). Secondly, people tend to fall back into the old patterns of behavior once a provider has withdrawn with the economic modifier which has not been combined with other signals (Katzev & Johnsson, 1987).

Feedback, finally, should not be regarded as a separate modifier. Instead, it is a vital part of most other modifiers. It can be compared with Bhaskar's (1989:23—4) concept of adequating practice (see Part I). Feedback on environmentally related activity can take several forms. The local providers can continuously contact the households, and describe what is or is not working in the recycling, how much windpower has been locally produced lately, or how the consumers' "green money" has been invested. As we have seen in some waste reduction projects, household waste is weighed every week, and the households are informed of the results (Åberg et al., 1997). Moreover, feedback may be direct and ecological, by people recognizing that the composting works properly and that the compost can be used as a fertilizer in the garden. Studies of feedback have indicated that it is an important complement in order to inspire households to continue their environmental work. Several information campaigns calling for environmental adaptation have failed because the initial information has not been followed up by feedback (Goldenhar & Connell, 1993).

Something that generally can be said about modifiers addressed to the citizens is that these modifiers are related to several motives for, or against, people's performing the desired practices (cf. Mårtensson, M. et al., 1995). The motive of reduced negative environmental impact rarely stands alone. I will argue that the challenge of the energy companies, materials companies, the local governments and housing organizations is to adapt the strategies to those lifestyle varieties which coincide with the social, physical, and organizational properties of different local municipal areas. From this it follows that a static use of identical modifiers and of a combination of modifiers—information strategies, feedback, economic incentives, and physical planning—runs the risk of leading to varying results, depending on the types of local areas and neighborhoods addressed.

A crucial factor for the recycling results in a municipality would consequently be that the strategies, deriving from providers' motives, are of kinds which can correspond and cooperate with the motives of the households. And, again, it would be quite naive to take for granted that the providers' only goal is to improve the environmental situation. Therefore, I shall take one step back (or up) from providers' means and explore further their targets and changing structures.

8.6 Shifting Organization and Responsibilities at the Local Electricity Level

Two different types of windpower provision will be examined here. They constitute two local, closely intertwined cases: windpower provided by an energy company directly to households, and windpower provided by people who are members of a cooperative. The goal is to map out how two different types of organization can change the preconditions and instruments leading households to choose windpower.

8.6.1 Background to Windpower Provision at the energy company and Windpower Coop in Southern Sweden

Prior to the re-regulation of the Swedish electricity market, The energy company was the public utility with a monopoly on electricity provision in the local area. The preparation for windpower activity started long before the deregulation of the electricity sector—in 1986—1987, on the initiative of the municipality of Lund. The administrative preparations took 3—4 years. In 1990, the first two wind mills Anita and Beatrice were constructed. At the time of the construction of Anita and Beatrice, the energy company did research on what subsidies were available for constructing windmills. They found that there were no funds from which to get money for windpower, no government aid. They thus learned that windpower was quite expensive to generate.

The initial demands by the local government (when the energy company was still part of the municipality) was that five windmills be established generating in total 1.5 MW. The company realized that they would not be able to establish and run five windmills with the profit requirements that they had set. This is why they took part in initiating the windpower cooperative in southern Sweden which is subject of this study. After negotiations about placement, they fulfilled the agreement with the local authorities in Lund, by building a third windmill. Moreover, the energy company was active in helping the windpower cooperative to build their plant, in total four windmills. The energy company was active until the cooperative board was established. A person from the energy company was on the board for two years. At the time of writing the company symbolically owns one of the 900 shares in the cooperative.

8.6.2 Practical/Physical Instruments

In the section about socio-material characteristics one could note that windpower involves little in terms of doability, once it is provided to the household. Nevertheless, windpower provision has its clearly physical and practical elements common for providers, whether it be an energy company or members of a cooperative. There are

mainly two sides to such practicalities: (a) placement and (b) the continuous operation of a windmill. When the cooperative first applied to construct a wind turbine, the Local Environment Office did not approve. The reason was that a private residence was located less than 300 meters from where the cooperative had planned to place the windmill. Noise from the windmill was the environmental concern of the office. Therefore, the cooperative had to suggest another location which was eventually approved by the landowner. The cooperative members considered the process of getting approval from the Environment Office quite weary, not to say a practical disincentive, to initiate renewable energy generation.

> It has been strenuous, first with the approval process and then with the economic negotiation with the energy company on top of it. Sometimes it was a bit too much. We had problems with the agencies, local authorities, the county administration—you name it. It's been quite awful at times (Man aged 50, member on the windpower coop board in southern Sweden).

Once approved of, the windpower plant did not work properly in the initial stage. But since the first repairs were made it has run impeccably.

> We had quite a lot of problems, The first year was full of breakdowns, and so was the second year. To be sure, a service van would show up, but there was a lot from the warranty that didn't work. When there was a good wind the transmission would get too hot and stop working. That's so irritating. But after the most recent warranty inspection, everything was fixed. And in the last year it has worked perfectly (Woman, aged 50, head of the windpower coop in southern Sweden).

The windmill producer is responsible for the maintenance of all four windmills and is paid a yearly fee for it. Moreover, one of the cooperative members is out there once a week and looks after the coop mill, in addition to an agreement with the energy company to look after it. The head of the cooperative holds this combination of security to be imperative for taking the risk of becoming a member of a windpower cooperative. The persons responsible for windpower at the energy company are very impressed by the new windpower technology:

> They [the new windmills] are really technical miracles, computer-controlled, and so on. The maintenance works kind of like with cars. We do the daily maintenance ourselves. Then we buy service from the producer twice a year (Person A, managing windpower and selling green electricity at the energy company).

As to the physical consequences of re-regulation, it has led to both new possibilities and constraints for consumers. It is true that the energy company in southern Sweden has become an actor on the (inter)national energy market. Also, households from all over the country can order windpower-generated energy from the company. However, in order to be a member of the southern Swedish windpower coop, one must be an energy customer of this specific company. In other words, these members do not have the freedom of choosing any provider they like. This can be regarded as a detail contradicting the eco-modernist vision of a re-regulation and liberalization which transforms households from captive to authoritative consumers.

8.6.3 Information

After the energy company had decided that they wanted to take part in initiating a windpower cooperative, they put in an advertisement in the local newspaper welcoming anyone interested to an information meeting specifically on windpower cooperatives. Between 15 and 20 persons attended the meeting, and the company presented their ideas for a cooperative. There were many things that the company had not decided on at that point. They could not specify what type of turbine they wanted, or the placement of it. People who currently are part of the cooperative board found the initial process rather long-winded.

The person attending the proceeding meetings asked the energy company why they did not want to run another wind turbine themselves. Interestingly, they responded that it would not be profitable for the company. Such mixed messages confused the audience, who did not know what to hope for:

> "Oh, it wouldn't be profitable," the silly people said. They gave us such strange signals. For them it wasn't profitable, but they wanted to fob it off on us ordinary citizens. So there were four or five such challenging meetings (Man aged 50, member on the windpower coop board in southern Sweden).

Dubious information during a sensitive stage of a process is sometimes worse than no information at all. The problem of information in a stage of uncertainty was partly solved by having the people interested create a "real" board. The people who had attended the meetings were asked to be on the board. There, they were divided into working groups, responsible for different parts of the process: technology, economy, placement, and so on.

They used several ways of getting publicity in order to recruit more shareholders. The cooperative distributed information during the yearly Environment Day in Lund. Also, several members had their friends and relatives buy shares.

Have you persuaded friends to buy shares?

> IP: Well, persuaded, I have a colleague who bought a share, and my neighbors next door bought two shares. I was standing in the market place giving out information (Woman, aged 50, head of the windpower coop in southern Sweden).

Previously, the energy company had distributed fliers and ads to generate an interest in becoming a member. Moreover, they enclosed information with the energy bill to all their customers. The company held that their motive for these information activities was mainly to observe the extent of the public interest in becoming active in windpower generation. They found the interest quite high. Before the "release party" the cooperative had received rather good publicity so that most of the 900 shares could be sold. There were no worries about selling all of them, since the energy company had guaranteed to buy the shares which the public had not bought. But that never had to be done. The company only bought one share—symbolically.

To expand on the role of information today, it works as feedback to coop members in various ways. Regarding feedback on the physical operation of the wind turbine,

the coop receives information on this from the landowner and from three members who are directly connected to the turbine via modem and can see if it is running properly. Of course there are other forms of feedback on higher interest to the ordinary coop member. Information is provided during the meetings four times per year. (People on the board claim that the energy company actually owns one share to be able to participate in the meetings and get feedback.) Also, the members get a bulletin four times a year where the results are presented in terms of electricity generation. The bulletin provides the reader with statistics over ten other windpower plants in the region.

8.6.4 Economic Instruments

The windpower plant owned by the coop is supposed to produce 1.1 MWh, and then they sell 900 000 kWh to compensate for times when the wind is weak. There are therefore 900 shares of 1000 kWh, each at a cost of 3200 Kronor. Today the coop has 250 members. The southern Swedish windpower cooperative has an agreement with the energy company, since the power is transported via the grid that is maintained by that municipal windpower company. The members pay their electricity bills as usual, and then they are compensated for the power produced in the cooperative.

> We currently deduct from the members' ordinary electricity bill an amount corresponding to 80% of their shares. The other 20% we regulate directly against the cooperative. We do this just to avoid a discussion, about how we price electricity production in the windpower plant (Person A, managing windpower and selling green electricity at the energy company in southern Sweden).

A certain irritation can be traced in the coop about the economic relation to the energy company. In the coop the relation is presented as somewhat master-and-dog-like:

> Conventional electricity costs for them [The energy company in southern Sweden], I think something like 25 öre/kWh, but they happily charge something like 40 öre for windpower. We don't get 40 öre when they sell to consumers who want it; the energy company takes the entire surplus. So I think that they will focus more on coops later on, since the demand for windpower will probably grow (Man aged 50, member on the windpower coop board in southern Sweden).

The formal reason for this relationship stems from the line-boundness of electricity, in this case that the company is closer to the control of the grid. The re-regulation has also led to the possibility of energy companies changing the proportion of fixed and flexible costs. According to people on the coop board, the energy company has raised the fixed (mandatory) costs, hence making the price per kWh less important. The fixed cost goes to the grid controllers and less is left for the cooperative as com-

pensation for their produced power.[190] Still, the coop gets approximately 10% profit on the invested money. The members are fairly pleased with this, since the interest rate in the bank currently is much lower than that. Here, the economic disincentive of purchasing windpower directly from an energy company has been transformed into an economic incentive for households to produce their own.

Looking back, it is interesting to note the high level of tolerance in the initial stage, when people had invested ten or twenty thousands Kronor without seeing any result for a couple of years. People on the board were worried that the other members would leave because they did not see any profit from their investment. However, it turned out that the idealistic aspect of windpower was strong enough for people to stay in the coop and not to become upset.

> It turned out that the members' attitude was that they were not just economic actors. It was for the environment that they did something. That made them accept that the turbine did not spin for a long time (Man aged 50, member on the windpower coop board in southern Sweden).

The idea of feedback to the coop members is that the providers should simulate that the members actually get the electricity that they generate by investing in shares. Still, the grid managed by the energy company must be taken into account as well. So far, the coop members have paid their electricity bills like any customer, while profit from the coop is paid out separately. Their aim is to integrate the profit with the electricity bill, so that the profit is directly deducted from the bill (based on a standard assessment), resulting in a closer sense of feedback on electricity use and how efficient the cooperative electricity generation is.

Finally, it can be noted that a coop is a form of economic association with a limited number of shares. There are thus definite economic limits as to the number of people who can be engaged in a particular coop. A coop is only allowed to sell the number of shares that its members use. And it is not allowed to over-produce—not even an electricity source considered as sound as windpower. After the 900 shares had been sold and once the supply of green electricity had found its customers, there was silence about windpower in the Lund area. It remains to be seen what further developed competition between energy companies will lead to in terms of initiations of new windpower coops or marketing of windpower directly from energy companies. In such a development it appears crucial to simplify and further support the practical process of obtaining permits.

190 After an interview (Jan 18, 2000) with a person at the energy company it remained difficult to assess to what extent (if at all) the energy company has raised the fixed cost when they "purchase" electricity from the windpower coop. The company could not provide the study with the exact data during the interview.

8.7 Shifting Organization and Responsibilities at the Local Waste Level

Whereas re-regulation in the waste sector has not taken place in the same sense as in electricity provision, I have argued that comprehensive shifts in organization and responsibilities are happening in the waste sector as well. In Chapter 7, the shift was indicated to be twofold: (a) the fact that both municipalities and producers are given increased responsibility not only for local requirements of hygiene, but also for environmental consequences of their practices in a broader sense, and (b) producer responsibility for recyclables. It is important to emphasize that Ystad is one example among several. Nevertheless, I shall also discuss tendencies of a more general character.

8.7.1 Providers and Their Targets: The Case of Ystad[191]

Broadened Responsibility for Local Actors

At the beginning of my Ystad study (in 1994), the Local Streets Department and the waste company ASSY were responsible for the whole waste management in the municipality of Ystad. The work was divided so that the Local Streets Department took care of the waste collection, while ASSY managed domestic waste at a waste plant in Hedeskoga, a few kilometers north west of the town of Ystad.

In May 1990, the national parliament had decided that all municipalities in Sweden should be given further responsibility for local waste management. In § 9 of the Cleansing Act, every municipality is instructed to make a Waste Plan for the municipality. This should declare how the municipality is planning to reduce the quantity of the waste and the negative impact of it. The Waste Plan should include all waste in the region, even the waste which does not come under municipal waste management.[192] The second of the waste documents in Ystad, the Cleansing Regulation (Renhållningsordningen), includes provisions of household waste, and other waste

191 See appendixes for further information on the targets of providers.

192 Waste Plan suggestion for the ASSY region, 920811. The plan in Ystad was completed in 1994. It also included visions for waste management and reduction in the future. However, although the Waste Plan is relatively general in its character, it has to some extent become obsolete, after the Ecocycle Bill (1993), since the responsibility has been changed.

types in the municipality.[193] The Waste Plan and the Cleansing Regulation were prepared in relation to the comprehensive Town and Country Project in Ystad.[194] Through the local environmental research that was done for the Town and Country Project, some specifically local results were revealed. These results illuminate some of the social complexity of the environmental situation labeled as problematic in society (see Chap. 2).

A large local threat to the environment is that the waste plant in Hedeskoga, close to the main town Ystad, is going to be filled up in 2005, if the annual quantities of waste measured in 1993 are not reduced.[195] It would be very costly to open a new waste plant, both environmentally and economically. Opening a new waste plant would be a complicated project, and there would be many factors to take into account.

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193 The Cleansing Regulation can be regarded as a translation of the Waste Plan into uniquely local circumstances. The latest Cleansing Regulation has been in force since January 1994. Although it has been given some connections with the Waste Plan, the Cleansing Regulation is still up-to-date, even after the introduction of producer responsibility. This is true because the Cleansing Regulation does not specify *who* (the local government or the producers) should be responsible for the recycling, only *that* it should be done.

The targets have thus been formulated in four points in the Waste Plan:

1) The waste quantities must be reduced. The amount of biowaste that goes to landfills must be diminished. Instead, the town should pursue methods for biological treatment of all easily degradable biowaste. A short-term target for 1995 was that approximately 1000—1500 tons of biowaste from households and other practices (including park waste) yearly should be treated biologically through local composting (20—30% of the yearly biowaste potential)
2) The environmentally hazardous contents in the waste should be reduced.
3) Knowledge about the waste contents must be increased among the public and the waste managers.
4) The negative environmental impact of the waste must be reduced.

Furthermore, the Waste Plan includes a prognosis for the waste of Ystad during the rest of the millennium. Between 1990 and 2000 preventive measures should:

- reduce by 5 % per capita the amounts of waste, which for households would mean a reduction from 410 to 390 kg/capita per year,
- increase the recycling from households from 15 to 20% of the waste quantities, that is, from 63 to 78kg/capita,
- increase the recycling from companies from 35 to 45 % of the waste.
- Through increased recycling and composting the landfilling should be reduced by 12% during the ten-year period: from approx. 50,000 tons/year to 44 000 tons/year, despite the estimated population increase of 11%. The recycling should increase from 20,000 tons to 26,000 tons, and the composting ought to be increased from almost nothing to 5000 tons (from Proposal for Waste Plan for the ASSYregion, 9205, p. 2; Ystad - Delstudie om bioavfall (1993:4—7).

194 The planning and program phase of the project began in 1989. The project was running between 1991 and 1994. The initiative for this project in the local Agenda 21 spirit was taken by MOVIUM, a research and development secretariat within SLU, the Swedish University of Agricultural Sciences, together with the local government in Ystad. In other words, it was a cooperation between researchers, politicians, and local civil servants.

This is how the basic idea of the Town and country Project was formulated:

"In the Brundtland-report (Our Common Future) it is stated that global sustainable development presupposes that people in the rich world must change their way of living in order to create a more general welfare. This is only possible to accomplish by changes on the local levels, where individuals have real possibilities of seeing the connections between there lifestyles and environmental issues, and to see the consequences of their changes of everyday life. The keywords for such local changes are survey, influence and responsibility" (Bucht & Persson, 1994, my trans.).

195 Study Biowaste, 1993.

In addition to the problems with the waste plant, the waste management of 1993 involved too much and too long transportation (see Chap. 7 about the problem of excessive waste transportation at a national level).[196] The cost of this transportation amount to 80% of the total waste cost in Ystad, not including all costs for environmental consequences.

It should be mentioned that the majority of the waste-related environmental targets—in the Waste Plan as well as in the Town and Country Project—at the same time led to economic advantages. To postpone the filling of a landfill has, in addition to environmental benefits, significant economic advantages for the municipality. If the municipality manages to reduce the waste transportation this would lead to both reduced cost for fuel and reduced working hours. The recycled materials may be sold on the waste market (albeit mainly by the materials companies as of today). The arguments for local waste solutions are thus twofold: The local actors may save money and reduce environmental harm.

Producer Responsibility at the Local Level

By the turn of the year 1995—96, when the principle of producer responsibility came into effect, the materials companies Stena Returpapper AB (Stena Paper Recycling) and Svensk Glasåtervinning (Swedish Glass Recycling) became responsible for collecting and recycling glass, paper, and cardboard in the main town Ystad.

The person responsible for waste matters at the Local Streets Department claims that the new routines to some extent have made the Local Streets Department outdated in these issues. A certain concern for the number of jobs in the organization can also be traced in this interview. At the same time, he believes that a continuous transition into producer responsibility is important:

> The opinion here has been that they broke an organization that already worked. But on the other hand it is right that the producers of waste should follow it from the cradle to the grave, that there should be responsibility already in the production phase, that is—so the idea is not wrong. The problem is just to make it work. Because the municipal waste organization has had several years to develop our management, and I guess that the producers will not be able to develop theirs in a day.(Head of the waste section, the Local Streets Department, Ystad).

An important issue is that the materials companies may not share certain environmental interests and targets unique to the municipality in question. Each municipality has its special circumstances and interests. The producers may or may not have motives for having better results than the limits stipulated by the national government. Earlier in the text we have seen examples of the producers' possible economic motives, which, however, do not have to be pertinent to all cases.

196 The waste vehicles drove 35,000 kilometers per year to collect the waste in the main town Ystad, and about 50,000 kilometers per year to collect the waste in the rural areas. This corresponds to driving twice around the world. Every ton of city waste was transported 8 km, and every ton of rural waste was transported 26 kilometers every year.

Besides this matter, there have been discussions about how important it is to know the social climates within the different localities in order to succeed in ecocycle work in a municipality. The Local Streets Department believes that materials companies cannot acquire such local knowledge and intuition until they have spent a good while in the local area. The organization of the local recycling has in some ways moved up to the public level, which some agents in Ystad regard as a regression to the time before the neighborhood projects that the study of Ystad focused on. Persons involved in Stena Paper Recycling, however, emphasize that they have daily contacts with the municipality, in order to learn about the local conditions in Ystad.[197]

8.7.2 Modifiers in Practice

Two concrete parts of the local waste targets are that households reduce their amounts of waste, and that the intervals between waste collections are prolonged. This can be done by augmenting the proportion of waste that is separated, recycled or composted, while the share of the waste that goes to landfills is reduced.[198] The main means for reducing these problems are increased recycling, composting, and waste collection every other week instead of every week in some neighborhoods. During the time of the Town and Country Project, different agents and organizations started projects aiming at stimulating the public's recycling, waste reduction, and composting.

Physical/Practical Instruments

At the beginning of my Ystad study, the Local Streets Department installed recycling and composting stations, in both public places and neighborhoods. Moreover, housing organizations and tenant owners' associations functioned as providers, by initiating recycling in certain neighborhoods. However, in other housing areas (including the largest housing estate in Ystad), no measures had been taken to stimulate the recycling among the people by the time of the study.

When the principle of producer responsibility came into effect, the materials companies had estimated that one recycling station can serve 1,200 inhabitants, and that the distance from households to the recycling station should not exceed 500 meters. Thus, ten public recycling stations have been considered sufficient. The producers have chosen ten places spread out over the town, and then they have applied for building permits. Collecting glass and paper at the actual estates, is regarded by these companies as an extra service. That kind of paper collection costs approximately 800 Kronor per container per year in the producers' management. With this deal, the

197 After an interview with a person within Stena Paper Recycling, 23 February 1996.

198 In the study about biowaste within the Town and Country Project on biowaste (1993:5) the following targets were set up:

- to have 400—500 households in detached houses to initiate composting, 25% in densely populated areas and 75% in the countryside, and
- before 1995 to support initiatives for composting in apartment blocks.

paper is collected every other week. Each housing area and neighborhood has to order this service separately.[199]

This new cost constitutes a practical obstacle to the recycling motivation among the citizens, according to the Local Streets Department. The administrators within two different tenant owners' associations in Ystad are afraid that the households will throw glass and paper among the ordinary waste again, if the housing organizations do not let the recyclable material be collected in the neighborhoods. Negotiations will follow between the housing organizations and the materials companies about the size of the fee. This is probably the situation in most municipalities in Sweden at this stage. But if a housing area chooses not to have the recyclable materials collected in the neighborhoods, the costs run the risks of becoming still higher, since the price per kilo is higher for having waste collected than is the case for recyclable material.[200]

It is interesting to relate this to a larger study, indicating that seven out of ten municipalities, during producer responsibility, find the public recycling stations for waste, paper and packaging messy. In eight out of ten municipalities the problem has remained the same or increased. One hundred and sixty municipalities participated in the study, corresponding to 73% of the Swedish population.[201] The respondents claimed that small containers (20%), too few collections (52%), and too little information (45%) cause the littering. Moreover, negligence, ignorance, and laziness among the Swedish people were factors brought up as problematic. We should add that collection firms, real estate owners, tenant-owners' associations, and so forth, sometimes cooperate so that people in the households do not have to walk too far with the recyclables. In certain municipalities, such as Helsingborg, the local authorities have retained the old system of collection in the neighborhoods, since they believe that the quality of the recyclables gets better that way than in the public stations (Miljö och Utveckling, 1996 (2):12).

In the next chapter I will interpret issues of private and public spaces by using a perspective of urban realms.

Information

The Town and Country Project included an information project, aimed at initiating general education about ecocycles. The external information was directed toward schools at all levels, caretakers, residents, and so on. In addition, the municipality distributed specific information about local composting to the households. The municipality also claims to encourage study circles about environmental adaptation, chiefly composting. A problem concerning environmental information in Ystad, according to parts of the public, is that there are som many providers. There is no single person or authority whom citizens can contact with practical environmental questions.

199 After an interview with a person at Stena Paper Recycling, 23 February 1996.

200 After an interview (Jan 18, 2000) with a person at Ekdahls Åkeri (responsible for grass collection in Ystad), only 5-10% of the residential areas in Ystad have chosen to have glass collected in the neighborhood.

201 The study was conducted by Renhållningsverksföreningen (the Swedish Association of Waste Management). Miljö och Utveckling, 1996 (2):12).

Information about waste collection is managed by the Local Streets Department; information on recycling was previously dealt with by ASSY—today by the various materials companies. The public has criticized this complexity.

The Local Streets Department and ASSY have separately distributed information about their respective field of responsibility. As a result, citizens sometimes perceive the information as fragmented. At the local authority, there are plans to compile a conclusive environmental guide for the town of Ystad. [202]

> One could hope that we could get a guide like this once a year, with all the information, like the part in the phone book "If the war comes." There all phone numbers would be listed to those to turn to on various environmental matters. But we have currently not come up with anything like that, partly because there are so many interested parties, and also because so much is happening right now—everything from the little battery to the large waste (Head of the waste section, the Local Streets Department, Ystad, 23 February 1996).

After the introduction of producer responsibility Stena Paper Recycling, together with ASSY, has used the local newspapers to inform the public about the new routines. In addition, they have distributed information to each household in the city. The company is also planning to distribute information on a national basis.[203]

Economic Instruments

Prior to producer responsibility, an economic motive for recycling in neighborhoods was that the collection of recyclable materials was paid for by local taxes, making it possible for households to reduce costs by reducing the amounts of conventional waste. The local government regulated this, and the target was to minimize the waste.

Moreover, increased intervals between waste collections can be regarded as an economic incentive, which was introduced by the municipality separately from producer responsibility. After notification to the Local Streets Department, waste collection frequency can be reduced to every other week in residential areas or households with modest amounts of waste. This reduces the waste fee for the residents.[204]

Like all other reduction, the continuous transition to longer collection intervals has consequences for the employees. The efforts at the Local Streets Department of cut costs and reduce the environmental harm partly implies "rationalizing away with itself:"

202 In an interview (Jan 19, 2000) with the head of the waste sector he claims that the materials companies have promised to publish such a booklet during the year 2000, in which the waste section of the municipality may have their information printed as well.

203 After an interview with a person within Stena Paper recycling, 23 February 1996.

204 In an interview (Jan 19, 2000) with the head of the waste section, he holds that Ystad still uses a "political tax," meaning that collection every other week costs half as much for residents as having it collected every week, although this pecuniary proportion does not correspond to the actual difference in cost for the municipality. Among detached houses, 100% have their waste collected every other week. Among apartment blocks, however, weekly collection is still standard, although a few housing associations, HSB for instance, have chosen the longer interval.

> In educational terms this is the difficult thing for us to handle internally—that our efforts will reduce the amount of work in the future, since people must reduce their amounts of waste. This means that fewer people will be employed in this business than previously (Head of the waste section, the Local Streets Department, Ystad).

This is an illuminating application of the reasoning in Part One about possible gaps between social and environmental goods. An ironic outcome of the tension between environmental and economic/social ends is that households in Ystad, due to their extensive waste separation and reduction, had their fees raised (SDS, 4 March 1999, B3).

Currently, the waste actors and the municipality can only to a limited degree use economic instruments to affect citizens' separation of waste. For instance, when households reduce their waste collection frequency to every other week the fee per household is reduced by 400—500 Kronor per year (SDS, 4 March 1999, p. B3).[205] Such a reduction, according to the Local Streets Department, is hardly a sufficient incentive. But since management of nonrecyclable waste is the municipalities' monopoly, and has to be nonprofit, the Street Office may not charge an arbitrarily high fee which is drastically reduced for households choosing a longer interval. At the Local Streets Department they assume that economic instruments have by far the largest potential for changing behavior among people. They hold that the solidarity-based fees of today even out behavioral differences, so that individuals do not get any real credit if they reduce their waste:

> If it had been 1,000 Kronor a month, people would have started to think about seriously reducing their waste. The economic instruments are two small for us today. So the next thing to do is either to go in and better adapt the fee, or to raise it. You can weigh the waste, so that the individual who produces a lot of waste will sense this, by paying more. But today when we go out [and try to convince people about waste reduction], the households calculate—"well, it will maybe save us 1,000 Kronor a year, it's almost nothing'" (Head of the waste section, the Local Streets Department, Ystad).

At the same time as the interviewee at the Local Streets Department strongly believes in the superior power of economic instruments, he regards environmental adaptation as a matter of attitude. When environmental action becomes a habit, the role of money ought to become diminished.

> We use these [economic] modifiers to help us on the way. Later, when the practices have become more accepted, things will run by themselves. But you need the [economic] incentives at the beginning to get started (Head of the waste section, the Local Streets Department, Ystad).

An issue brought up in Part One, is whether it is reasonable to require that households in their waste reduction should be driven merely by environmental concern,

205 In Skurup, a town close to Ystad, weekly waste collection amount to 1,250 Kronor per year for an average household. Today (in 1999), there is a fixed cost of 500 Kronor. In addition, households pay 0.90 Kronor per kilo waste. Because an average household produces 400 kilos of waste per year, a household reaches a final cost of 860 Kronor per year—a saving of "only" 390 Kronor when the waste is collected every other week (SDS, 4 March 1999, p. B3).

while the environmental targets of the local authorities so often coincide with economic savings. From this viewpoint it becomes apparent how important it is that people get a visible economic feedback on their environmental work. At the same time, we have already seen that the economic factor is a more complex part of people's decision making than the Local Streets Department recognizes. The Economic Man assumption presents a distorted picture, revealed by social psychological findings presented in Chapter 4. The next chapter will empirically examine the role of economic incentives and disincentives, among other things.

8.8 Conclusion

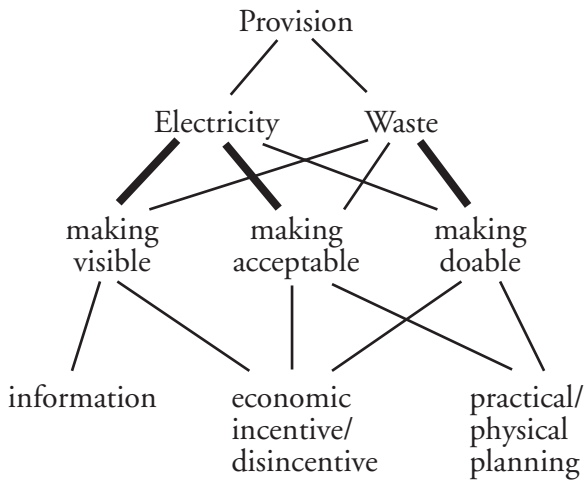

Figure 8.8: *An Extended Socio-Material Model of Green Provision. Thick lines: stronger relationship; thin lines: weaker relationship.*

The figure elucidates how the seemingly fixed socio-material components become more variable when put in a local, socio-political context.

Electricity, as a physical entity, is invisible to its users. Being one of the materialities of modernity, it was initially provided "automatically" by utilities (cf. Chap. 8). Since a climate of competition has emerged among energy providers—before, during, and after re-regulation—an important challenge has been to make differentiated windpower visible to the public. Information is an instrument that works toward such visibility, and also generates a green image for the providers. As an example, the specific information distributed to the public about the windpower cooperative in Sweden appeared to reach as many people as the company and cooperative desired. Feedback was provided through a bulletin, regular meetings, and so on. It is fair to assume that

the economic disincentive of green electricity has made it less visible than it would have been without this disincentive. As will be shown in the next chapter, the extra cost of green electricity has made its consumers concerned not to appear ethically pretentious. Thus they did not "visualize" it by word of mouth to friends or acquaintances. The acceptability issue of windpower turned out to be twofold: economic and practical/physical. Depending on type of ownership and organization, household involvement in windpower can be everything from an incentive to a disincentive. To what extent this is directly connected to public motivation is a subject for the next chapter. Regardless, the continuum of economic incentives is a matter of acceptability. Further, windpower is doable in the sense that all households connected to a grid can order it directly from an energy company. This is why the line is thin between electricity and making doable. However, when households aim at establishing or joining a windpower cooperative, they take the role of providers. This involves quite comprehensive doability issues, facilitated or complicated by the practical/regulatory/physical planning in the region. The main Swedish case sheds light on such matters. Much can be done by regional and local authorities and energy companies in order to facilitate especially the initiation process of windpower cooperatives.

Waste, on the other hand, is materially visible in two senses. Firstly, it is visible to households when they produce it, and secondly it has a long premodern and early modern history of households and small communities managing it themselves close to residences. In high modernity, goal-oriented efforts have been made to hide the waste, making it invisible in daily life. The acknowledgment of waste as a problem to the local and extralocal environment has somewhat reversed this trend. The "socio-cognitive" reason can be interpreted as attempts to diminish the sense of public alienation in society from nature, in consumption from ecocycles (see Chap. 1). The practical reason for renewed visibility is a need for a public awareness of where and how to separate the waste for recycling and further processing. Projects of recycling, composting, and bin-size reduction in neighborhoods and households have made the waste sector more visible. With the transition to producer responsibility, however, lack of visibility has become an issue again. Public recycling stations, often initiated by materials companies, are located further away from households. It is common that citizens do not know where their closest recycling station is situated. The next chapter will discuss how such problems might be overcome. Another aspect of the transition is revealed in the Ystad case. There, the local government is particularly interested in minimizing the waste quantities—to lower levels than the national government requires, that is. This may be the case in other municipalities as well. One solution would be to make the targets and goals addressed to the materials companies flexible in relation to the special needs of each municipality.[206] To make green waste practices acceptable partly refers to economic instruments, the consequences of which will be elaborated in the next chapter. There we shall also learn that practical and physical instruments mainly need to refer to doability (e.g., proximity to recycling station from residence, physical preparedness in kitchens for recycling,

206 However, a problem with this would be that the increased marginal cost of recycling makes recycling of the last percentages of material too expensive for the materials companies.

feedback on practices) than to acceptability (e.g., hygiene and odor). This presupposes action-oriented provision measures, through which households by trying the green waste practices learn that acceptability issues are less problematic than they had assumed prior to the practices.

A crucial aspect of provision in both sectors is the gap between green projects, experiments and normalization. Part One of this book has in many ways argued that green normalization (cf. "environmental friendliness") is not a state but instead an ongoing process involving several social factors of the nonabsolute. Nevertheless, a perspective which I tentatively label *critical pluralist* must acknowledge *the actual* (O) and *the real* (M) elements of environmental impact explored in Chapter 3. By studying the provision of conditions for households in windpower, it has become clear that several circumstances serve as impediments to anything near normalization. Visibility issues of marketing and informing about windpower have been quite modest once the company in the Swedish case had established a green image related to windpower. The economic situation of windpower generated by companies poses questions of household acceptability that will be studied in the next chapter. Further, the reader will have noted several practical hindrances to the doability of establishing windpower cooperatives. The waste sector presented a more positive picture, with its example of normalization of two-week intervals between waste collections in Ystad. Still, the removal of recycling stations from neighborhoods to public places further away posed questions of reduced doability. This is the subject of the next chapter, dealing with green identities and household motivation for environmental adaptation.

CHAPTER NINE

Challenges to Greening of Everyday Life

9.1 Introduction

One assumption of ecological modernization theory presented in Part One is that new product and tariff choices lead consumers to increased awareness and creative interest in environmental matters. In previously unreflected household routines, people have the possibility of becoming reflective and critical clients as well as creative providers themselves. My response to such a statement was that it is too general and premature. Consequently, this chapter will move down from the general eco-modernist assumption and investigate the preconditions for such a development at a level where people live and interact: at the neighborhood and household levels.

The basic question is what the possibilities and impediments are to active involvement in practical contexts. This regards both subtechnical involvement and new types of subpolitical interaction between citizen consumers and providers. By extension, the issue of PTD as consumer empowering raises the question of whether or not such new types of involvement have the potential of bringing about environmentally beneficial system change. Analytical distinction between public involvement (based on "O") and the environmental outcomes of innovations (O) is therefore needed. It is important to note that evaluations of innovations have many faces, founded on perceptions by various actors and interests. The whole system of evaluations is relevant to the study. Moreover, it is of vital importance to be perceptive to tendencies which in certain cases run parallel with differentiation, namely convergence and standardization of (several) choices.

It becomes interesting to explore what consumers' identification processes look like in the electricity sector, which is far less sensual than waste in terms of the differentiated generation and organization of electricity. Such differences and similarities between the sectors of electricity and waste—as well as a few comparisons across the UK, the Netherlands, and Sweden—will provide fuel for the conceptual understanding of green identification and practice. Two questions that this chapter expands

upon are: What different kinds of consumer identities related to PTD can be distinguished, and how are they tied to the sectors? And what does the creation and uptake of green identity mean in relation to what households/providers actually do in practice (i.e., how much of the resource is used)?

The chapter analyzes the main concept of green identity. This means that the focus is moved from provision (in Chap. 8) to the consumer role of households. The analysis is done by separating four kinds of green consumer identities, which to various extents can be associated with the two sectors of electricity and waste. The four green identities (analyzed further below) are labeled: (a) ecological, (b) environmental, (c), green economic identity, and (d) green social identity. I try to show how identity through consumption is much more than just a question of use-values in the narrow, utilitarian sense or merely a question of social prestige. All the forms of identity presented (except perhaps green economic identity) are closely tied to personal selection of self-image and lifestyle.[207]

9.1.1 Policy Background: Conflicting Views of Green Responsibility in the Utility Sectors

A general issue in society (elaborated in Chap. 4, "Environmentally Beneficial Action…") is illustrated by the following question: Should consumers or providers have the main responsibility for ecological sustainability in the three sectors? The strong-state ideal holds that legal restrictions and regulations on providers would do the job better. In contrast, the market-economy ideal maintains that consumers ought to have free consumption choices and thereby the ultimate environmental responsibility.

Green electricity, for instance, is a market-adjusted way of greening electricity generation. In the Netherlands, the transition to a more liberalized energy market means that whether energy companies will produce sustainably will depend more on the choice of consumers than before. At the same time, there will be less room for governments to force energy companies to do so.[208]

Related to public responsibility and freedom, a British energy company raised the issue of the level of independence and free choice at which green consumers are placed. In this case, the company is a trading organization. They invest, and make profit from, renewable generation. The households, while freely choosing what electricity source they want to support, lose money by choosing green electricity. [209]

When the interviewees were asked about who should have the main responsibility for the environmental consequences of household consumption, their answers revealed a hybrid position. Consumers maintain that both state and providers

207 For a much more in-depth discussion of consumer identity and image, see Warde, 1994a.

208 Based on discussions with Bas van Vliet at the University of Wageningen in the Netherlands, spring of 1999, during the DOMUS project.

209 Based on an interview conducted in the spring of 1999 by Heather Chappells at the University of Lancaster in the UK for our joint DOMUS project.

(including the consumers themselves) ought to have the main responsibility. At the same time, everyone is aware of the fact that a significant percentage of the public still chooses environmentally unsound products, such as electricity generated from nonrenewable sources. Would it be fair to say that such product choices are signs of consumers' favoring unrestricted, environmentally sound and unsound, supply? Or could it be interpreted as the very opposite—as consumers giving a hint of what happens in a system of amoral market differentiation? Whatever the answer, this chapter will present illustrations of the importance of combining provider and consumer responsibilities in providing green tariff and product choices.

9.2 Identities and Practices of Choosing Green Products And Tariffs

To discuss identities in relation to consumption choices has become commonplace in cultural studies and sociology. However, because a vast majority of such studies have focused on clearly cultural goods—leisure activities, clothing, music preferences—it would be too bold to infer similar identity processes for all consumption from spheres of consumption which are so obviously tied to identity building. Alan Warde stresses the importance of not underestimating the routine character of certain consumption:

> Although some people may attempt to create total life-styles as expressions of personal identity, most, despite the intention of advertising agencies, probably see choices between soaps or soups as not seriously prejudicial to their self-image (Warde, 1992:25).

Despite the truth of this, I still maintain that the main problem is not that identity is excessively assumed to lie behind all consumption, but rather that the concept of identity is often used carelessly. As Campbell (1995) notes, several confusions are involved when identities and consumption meanings are explored. Firstly, the intelligibility of consumption is often wrongly assumed by necessity to imply a consensus as to what this consumption means. Secondly, it is a mistake to juxtapose meanings of consumption and messages through consumption. Finally, the fact that a subject observes a *message* does not have to mean that the other subject, the consumer, has intended to sent a message (Campbell, 1995).

As big a mistake as it is to ascribe all consumption to social signs and messages, it is equally fallacious to reject the role of identity altogether within, in our case, the utility sectors, merely based on the intuition that many such consumer activities appear to be quite routine-based. New consumer research accordingly gives the identity concept new nuances to include more than status signs and symbolic utility. At present, consumption and ownership are increasingly dealt with in terms of personal development based on more complex identity processes (Madigan & Munro, 1990).

This broadened conception of identity turns out to be especially useful when examining green identities.

The separation of different green identities can be compared with the construction of typology. Barton and Lazarsfeld (1961) explore typologies in the social sciences. They find a wide range—from "a crude list of types" to "fully systematic typologies in which each type is a logical compound of a small number of basic attributes"(p. 321). In the middle of this range they find types which are partially systematized. In this light, the analysis of green identities in this study could be placed somewhere in the middle, with a limited number of attributes which signify each green identity type (see the subheadings beneath each identity type in this chapter). However, the relationship between the types is not fully systematic in the sense that they are mutually polarized, albeit that environmental and ecological identity partially are. This raises a similar point. Whereas most of Barton and Lazarsfeld's examples refer to types of personality, it is important to recognize that my conceptualization refers to green identities as constituting one basic "unity of meanings." In other words, for each person this unity holds combinations of green meanings, as reflected in the ecological, environmental, green economic, and green social components. The four components can be conceived as the most important ones. It ought to be possible to expand the analysis by including further components, yet at the expense of the clarity of analysis. In its orientation components, my use of the green identity concept resembles Merton's description of what he calls differences in orientation, when he analyses people on the basis of whether they are mainly interested in the world outside the local community ("cosmopolitans") or primarily interested in local affairs (Merton, 1949a:191; cf. Barton & Lazarsfeld, 1961:117).

Certain sociologists (e.g., Featherstone, 1991:142)[210] describe identities as dependent upon quite fundamental and deeply rooted processes and struggles of the personality. Hence, when I analyze different combinations of components based on, among other things, interviews this should not be interpreted as though I infer that each trivial action and comment on every activity would reflect profound reshaping of the respondent's personal identity in Featherstons's sense. Nevertheless, it is not too bold to draw conclusions of important meanings from the respondents' actions and points of view. In an unpublished paper, Peter Simmons (1994, cited by Lury, 1996:240—1) discusses green consumerism as a reflexive process, involving various actors and intermediaries, such as: consumer groups, environmental groups, government departments and product manufacturers. Each of these actors represents the nature of green consumer action in their own way. However, I think it is crucial to note that reflexivity of green consumers is not only what Giddens (1991:214) refers to as "life politics," where reflexivity connects body and self to "systems of global scope"(see also Lury, 1996:240). This is one of the reasons for my distinction of environmental green identity (with a global scope) and ecological green identity (with a more narrow and local scope).

210 Featherstone here discusses the oversimplifying cultural labels that nations in the West have attached to the Third World.

9.2.1 The Material Component of Green Identities

There is a material component of green identities and habits, corresponding to the material components of production and provision presented above. Electricity and waste have material characteristics of significance to the ways green identities are constructed. However, it should again be stressed that this book does not subscribe to material determinism; the material component is only one feature among many. The reader will see that the social and political components of green identification appear to have higher explanatory value. Nonetheless, when comparing the green identification processes in the sectors are compared, the material bases do have a role to play. In other words it is the coexistence and mutuality of the social and physical environments that need to be studied in order to understand the environmental problematic (cf. Norgaard, 1994:7).

The choice of green electricity is relatively speaking not lifestyle-dependent as a continuous activity. Once a household has chosen to purchase green electricity, the continuous routines do not have to differ from the time before the green choice. (However in terms of reduced use, electricity is highly lifestyle-dependent.) Electricity generated with alternative sources is instead highly policy-dependent, and partly relies on efforts made by providers (who can be consumers themselves, for instance in cooperatives). Yet, green electricity triggers complex issues of continuous consumer motivation. In contrast to the greening of the waste sector, green electricity normally requires an extra fee, which continuously needs to be motivated. Certain companies solve this by distributing information every quarter about how the extra money has been invested. This can be interpreted as a way of helping the consumer build and maintain her identity as a green electricity consumer.

The separation of waste fractions, on the other hand, deserves a certain bias on the lifestyle and on everyday efforts of households. It is possible to initiate one's own composting without much help from authorities and companies—to be one's own provider. Composting, in addition, is an ancient practice that gives the person direct ecological feedback; successful composting practices result in odorless soil, very useful as a fertilizer for plants. Here, the importance of social feedback from neighbors and providers nevertheless becomes clear. Moreover, questions of identity and policy are raised about the rest of the waste differentiation. What roles do the different incentives by local authority play for household motivation and green identities?

9.3 Ecological Identity

Ecological identity refers to awareness of local and small-scale ecocycling, as well as of regarding the saving of resources as meaningful also when leaving out economic factors. It often involves subtle perceptions of feedback from ecological processes. The critical realist concept of adequating practice, and the pragmatist notion of expe-

rience are useful for elaborating on this type of green identity. In order for ecological identity to be established, the main challenge is to come to terms with alienation in the broadest sense of the term—here the distance between society (at the micro and meso-levels) and nature. On the other hand, it is interesting to note that certain short-term individual goals of using household resources sparingly coincide not only with ecologically sound practices but also with a way of reasoning which can be associated with ecological identity. Experiences from everyday life and generated through tradition play important roles. Successful composting practices, for instance, are indicated by the quality of the soil, which in turn requires certain practical experience. Reduced waste going to landfills as a result of PTD can sometimes be seen in local figures of waste reduction.[211] The reader will also see that the small-scale orientation and closeness of ecological identity makes it quite closely connected to green social identity with direct influence between neighbors and acquaintances. From the analysis of the electricity cases, it turns out that types of green identity to a large extent vary with the organizational form of electricity provision. The two different types of ownership—green, company-based electricity, and windpower coops—deserve double attention, since the latter type is much more closely related to the processes of meaning in ecological identity while the former type presents stronger expressions of what I label environmental identity.

9.3.1 Local Knowledge, Learning by Experience

Waste recycling and composting schemes reveal the importance of locally acquired knowledge and experiences for ecological identity. Yet, such knowledge is by no means unproblematic to generate in today's society. To be sure, elderly interviewees mention how obvious and "natural" it was in their youth to separate food waste for pigs, metal for reuse, and so on.

> Composting is no big problem. Everyone did that on their farms when I was little. It was a matter of course (Woman, aged 83, single household in Fyren).

In those days (let us say between the two world wars) it was quite uncomplicated to translate an ecological understanding (read: an orientation to reusing and saving materials) into practice. Today it is much more intricate. The reason is that late modern recycling and composting have been preceded by modern disembeddedness of social awareness from physical resources. Composting and recycling today can be regarded as structural reembedding of taking into account the coexistence and mutuality between society and nature (cf. Norgaard, 1994:7). This involves several steps, illustrated in interviews from Fyren in Ystad, Sweden:

211 The ecological identity is also strong in the water sector, as the advantage of water differentiation can be easily comprehended as the need for to use local water resources sparingly. The material concreteness of differentiated water also makes the ecological identity closely tied to this sector.

> But apparently there are differences between paper and paper. I know that we are not allowed to throw milk cartons among the recyclable paper. But how about cornflakes cartons, or tooth paste cartons? I don't know if it is waxed, and that's not easy to tell. So where should you throw it? When I'm not sure I throw it among the conventional waste" (Woman, 75 years old, single household in Fyren).

This quote is taken from an interview with an elderly woman who expresses a great sense of meaning with recycling and composting for the sake of saving resources. Interestingly, one can note a certain tension between this concern and the top-down directives implied in the discussion about what is "allowed" to be thrown in what bin. In this case, the personal ecological motivation and the top-down directives appear to go together, although the instructions of how to separate the waste have not been provided in a way that makes the residents fully understand them. Despite what the residents regard as comprehensive information about the waste fractions from the caretakers, households maintain that they do not have the knowledge required to fully understand where to dispose of all their waste. The locally acquired knowledge makes them avoid certain mistakes, but there are still knowledge gaps. However, it is by no means only the elderly who lack the sufficient knowledge. For instance, a young man admits the same thing:

> Actually, I don't know how sensitive it is that plastic materials sometimes go with paper recyclables. I know about milk cartons, but what about all the paper with some plastic on it, which is constantly distributed to our mailboxes? I have no idea (Man, aged 37, lives with one adult and two children).

Nevertheless, the basis of both quotes is a sense of meaning and importance of separating the waste. As opposed to paper and glass recycling, which incorporates several complex steps of collection and large-scale recycling, the late modern reembeddedness is in a sense facilitated in the case of composting by the direct contact of households with small-scale ecological processes. A negative example of this is when the pungent smell from failing composting schemes in the Fyren neighborhood severely reduced the willingness to compost:

> But I disliked going into the composting room when there was this awful smell. At that time I put all my wet waste among the ordinary waste. Because the smell from the compost [which didn't work properly] almost made me puke. And often, if I had my working clothes on and was about to go to work I avoided going in there, since it would make me smell all day (Man, aged 51, lives with one adult and two children).

Most people in another Swedish neighborhood—Ljunghöjden in Ystad—have discovered that composting takes repeated attempts, trial and error, before it can become an unproblematic habit. The information from the municipality and the tips from neighbors are not sufficient. Every household must acquire their own experiences and routines. Moreover, the accepted smell level may vary between households.

> Q: So it takes some time to learn?
>
> A: Yes, I think so. Each person must find out what he wants to put in the compost. For instance, I never put chicken bones or such things there (Woman, aged 38, lives with one adult and one child in Ljunghöjden).
>
> Fish rinse I never put in the compost. I put it in the freezer and put it among the ordinary waste on Friday morning (the day when the waste is collected). Because I think it gives a certain odor (Woman, aged 65, lives with one adult in Ljunghöjden).

In Part One, *adequating practice* and feedback on everyday experiences were discussed. This constitutes what I crudely labeled *lay knowledge*, something which is important in its own right. Moreover, the position in this book stresses that experiences among the lay public should not a priori be regarded as inferior to scientific knowledge. This is an idea that is opposed to critical realism as presented by Bhaskar. Some unclear ecological matters concern how to adopt the composting routines to the different seasons. Each season provides the households with particular composting problems. During summers the risk of odor is higher, whereas the compost is likely to freeze during the winter season. However, after the information had become less intense from the municipality of Ystad, the neighbors began to help each other out and give advice. This has ultimately led even households with children in the "diaper age" to reduce the frequency of garbage collection to every other week, despite the small size of their waste bins.

Arguments illustrating ecological identity are not only found in interviews with households which practice composting or which are members of windpower coops. Even if green electricity consumers can be better associated with environmental identity statements (see below), these consumers also make certain statements with somewhat of an ecological identity character. One such statement refers to the importance of better local knowledge and of understanding the unique social and physical circumstances of the local community:

> The advantage of windpower is that it moves society toward sustainability, since it [the windmill] is located in connection with local society. In the same way each local community ought to have its own landfill. This would force citizens to take responsibility for their junk, so that they don't move it somewhere else (Man, approx. aged 50, purchasing green electricity, using an average amount of electricity for a separate house with electric heating).

Local self-sufficiency, an ideal reflected in ecological identity statements, has its radical variant in what can be labeled *private ecocycle*—the self-sufficient private home. In terms of electricity, this is a matter of going off-grid:

> Q: The house is heated by—do you have a heating pump?
>
> A: Yes, there is a heating pump in the lawn and sun collectors on the roof. The idea is that the house should be self-sufficient for energy, so we don't have any fossil fuels any longer. But if windpower is sufficient for this, I don't know yet (Woman, aged 50, head of the windpower coop in southern Sweden).

However, as opposed to the traditional ideals of ecological identity, establishing a private, closed ecocycle of electricity involves quite intricate technical solutions, something which is usually more of a characteristic in the environmental identity. Moreover, arguments in favor of such complex solutions may also approach green economic identity—in other words to economize through self-sufficiency using advanced technology.

> Now I don't know, but we had some kind of leakage, or something went wrong in this house last winter, so that the electricity use increased a lot, but when they put up the sun collectors we thought that we would reduce the consumption. On the other hand, this extra space that we have built uses some extra electricity. I don't know, I want better statistics on it (Woman, aged 50, head of the windpower coop in southern Sweden).

It is interesting to reflect on what self-sufficiency really means. I hold that it is not only a matter of being independent of external and finite physical resources (as discussed in Chap. 1) but also to an extent becoming independent of the social context, the social environment. As such, the off-grid ideal of using advanced technology is much more of a late modern phenomenon than a regression to the premodern; contemporary off-grid solutions move away from social inter-dependency for energy provision in a way that has not been seen before in urban societies.

9.3.2 Habits and Practice

The focus on experiences (as above) is highly relevant to Hans Joas' (1993) pragmatist-inspired interest in habits and practice. He maintains that

> solutions to action problems are not stored by the actors in their consciousness but employed for new actions, which, being routine in character, run their course outside the actions' consciousness. It is only the new action problem that renders the routines and "habits" ineffectual and requires new learning (Joas, 1993:22).

Joas criticizes the many factions of the social sciences which omit impulsive, habitual conduct. Similarly, we learn from interviews with people who have been confronted with composting schemes that ecological identity does not always have to be preceded by the sequence of attitude change followed by changed action.[212] For instance, a woman in Ljunghöjden in Ystad was initially very skeptical about running her own compost. She was afraid of the odor and of the challenge of getting the right moisture in the compost. But instead of merely getting all sorts of information, the municipality let her try the actual practices. After a few attempts and a few mistakes her attitude to composting has changed completely, not least since she and her husband can make direct use of the soil. The whole interview indicates that this practice

212 In his book *The Creativity of Action* (1993) Joas' focus on practice may make the reader draw parallels with discussions in Part One of attitude theory, cognitive dissonance, etc. All this, in turn, relates to the old pragmatist notion by James and Lange: "Smile and you will get happy."

has become meaningful in her eyes, and the reason goes beyond the modest economic savings.

> Q: "Do you think that your composting works properly today?
>
> A: Yes, the whole thing works really well. We must open the lid and let it air out once in a while. And then you can feel the heat hit you, and the soil is of really good quality. We use it in our allotment. We have a box there, where we let the soil sit a bit longer before we use it (Woman, aged 65, lives with one adult in Ljunghöjden).

Some of the younger ones hold that they acquired recycling routines in early childhood.

> I started to collect newspapers and deposit bottles as a little boy. It was probably 20 years ago. I collected them when I was in the boy scouts. We collected to get money for the club. Today, I see composting as only a continuation of this (Man, aged 29, lives with one adult and one child in Fyren).

Practices and habits tied to ecological identity mainly refer to economizing on resources rather than making more efficient use of them through high technology. This is revealed in certain interviews with wind coop members, who are skeptical of technology as the solution to energy problems:

> I think that we can feel a bit deceived when they start large-scale projects like nuclear power, with the hazardous waste that no one has real control over.
>
> Q: What do you think society should replace nuclear power with?
>
> A: Of course I don't believe that we can instantly replace all nuclear power with other electricity sources. But the most important change is probably to start using less (Man, aged about 40, living with one adult and two children. Member of the windpower coop in southern Sweden).

Another aspect of the private ecocycle self-sufficiency is illustrated in the principles of windpower coops in Sweden. Single members are only allowed to own shares that correspond to the private use in their households—corresponding to private habits and practices. As ecologically beneficial as it may, it is however difficult to obtain any comprehensive broadening of windpower supply on the electricity market. For a household to purchase windpower, its members must either sign a contract as wind coop members or pay more money than ordinary electricity consumers, by purchasing green electricity from a profit-oriented energy company. Yet, far from all energy companies offer their customers this option, partly because there are very limited resources of windpower for energy companies to purchase from coops. Moreover, as Chapter 8 indicated, it is hardly profitable for energy companies to produce their own windpower.

9.3.3 Difficulties of Thinking Big when Being Small

As to composting schemes, small-scale and directness significant for ecological identity does not always motivate household practices. In the neighborhood of Ljunghöjden, the head of the Local Streets Department maintains that the vast majority of the households are satisfied with the recycling routines and composting. The Chair of Ljunghöjden is very pleased with how the composting scheme turned out, both in his own household and in Ljunghöjden as a whole. He claims that 75% of the households have moved over to a two-week interval of waste collection. Yet, there are a few households where the composting does not work very well. The ecological feedback is sometimes more negative here. The one-person households have difficulties getting the compost to work properly. A certain amount of wet waste seems to be needed. It is difficult to generate the compost heat needed.

Also, the smallest households interviewed in Ljunghöjden revealed their sense of being such a marginal part of the total waste production that composting and recycling from them would be somewhat superfluous. The term *alienation*, in the sense of feeling socially separated and "atomized," is relevant to this state. Nevertheless, the increasing share of single households in Europe—in Sweden 32.4% (SCB, 1999)—makes the importance of their recycling obvious. A plausible solution would be to have a few single households share a compost. This might make both the ecological and social processes more productive.

In a similar vein, a respondent purchasing green electricity regards his lifestyle as quite minute in environmental impact, aside from his choice of green electricity. Or rather, he does not see much further environmental adaptation to be feasible, given the fact that he wants to maintain a certain material level.

> When living the way we do, there isn't terribly much we can change to be more environmentally friendly. I do the laundry once a week, and don't think either we or the environment would gain much from me washing by hand. I rarely use the dishwasher and try to save on hot water when I do my little dishes. Bottom line, there isn't so much we can change, other than reduce the heat, of course (Man, aged about 50, purchasing green electricity for a separate house with electric heating).

This is a good example of how arguments which reflect an ecological identity are still stated within a modern structure and a high standard of living. In the quotation above, the minimum requirement of a material standard is nevertheless very much higher than in many other societies, despite the modest tone of ecologically-aware requirements. In the next section we shall see how what I call *environmental identity*, with its larger scope, relates to humanitarian and environmental situations outside of limited geographical and social borders.

9.4 Environmental Identity

Environmental identity pertains to the more intellectual awareness of large-scale environmental problems debated in the media and studied in the advanced sciences. Two of these problems are global warming and ozone layer depletion. Environmental identity turns out to be most intimately connected to green electricity consumption, contributing to a somewhat larger share of investments by greening the—often national—grid. Waste differentiation is also related to environmental identity, as it has been a substantial part of the think-globally-act-locally campaigns. Reduced waste incineration has also been related to extralocal issues in the public debate. Concern about environmental risks diffused in time and space are relevant to this green identity type. Knowledge, experiences, and adequating practice (presupposing feedback from the natural world, O, see Sayer, 1984/1992:62ff.) here have to give space to broader societal issues of public risk acceptance and democracy of choice.

9.4.1 The Big Scope: Free-Floating Reflexivity

It has been mentioned already that product and tariff differentiation is about consumers creating and being offered new choices. Such processes set social reflexivity in motion. Of course, it does not make citizens welcome every new choice with open arms. It also leads to questioning of how the systems of PTD could be improved.

Questions often include how the green responsibility ought to be divided between authorities, providers, and consumers. In the Netherlands, the product of green electricity was initially received with skepticism, especially among the environmental and consumer coalitions. Were consumers actually asked to pay for the commitments that energy companies had to comply with anyhow through regulation? Other consumer reflections were that green electricity schemes represent just the opposite of the polluter-pays principle. The green, conscious consumer has to pay extra for sustainable energy while the fossil energy users pay less, despite the environmental costs of their pollution. In this way, green electricity was perceived as the servant of a liberalized market in which the government cannot determine the share of sustainable energy generation anymore. Whether or not energy companies will use sustainable resources, it is argued, will then be dependent on a small group of environmentally conscious and wealthy consumers. In the context of green identity, such a system is likely to strengthen the green identity of a smaller fraction of consumers, partly because they make an extra effort in terms of absolute green expenses, and partly because they simply distance themselves from the majority of consumers.[213]

213 Currently, after the Dutch abolition of eco-tax for green electricity, consumer prices vary between 2 and 5 cents per kWh, which makes up a total of 50 to 150 guilders per year for the greening of an average electricity consumption of 3000 kWh/year. It is expected that this will result in a further increase in green electricity consumption in the Netherlands

Aside from the political irritability that has emerged among consumers, the reflexive (impartial) character of money appears to play a decisive role in the green identity processes of PTD. Georg Simmel (1903/1978) pointed out the indifferent, objective form of money. The content that it serves can be everything from the noblest pursuits to the most primitive desires. If we dare to label green identity a foundation for the noblest pursuits, PTD helps people become more flexible in their reasoning about what is noble in the broadest sense. The following kind of reasoning is found among both green electricity consumers and wind coop members (the latter in large measure due to the economic uncertainty of coops).

> Q: Do you have any idea of how your shares in the wind coop are doing economically?
>
> A: No, I have no real idea. I haven't calculated it. We saw it more like giving money to the Children's Fund or the Red Cross or something like that. If we get any money back that would be more like a bonus (Woman, aged about 35, member of the windpower coop in southern Sweden).

A clear sign of this free-floating green identification is the fact that the very persons organizing green electricity at the southern Swedish energy company are skeptical about the scheme. In the interviews, these people reveal that they prefer, if anything, to buy shares in a windpower cooperative rather than to choose green electricity produced by their own company. Actually, the interviewees do not think that any employee at the company chooses the other way around:

> I can look at myself. Ingemar [the other person responsible for green electricity] says that one cannot separate electrons in the grid, at the same time as I can understand that an involvement in a certain production type perhaps would lead to more windpower plants being established, if one is very interested in this. But I'm not ready to do it. And I think many people share this point of view (Person B responsible for green electricity at the energy company in southern Sweden).

Moreover, both persons hold that they would rather spend their green money in a windpower company far away than to spend it on green electricity in their own company. This reflects both environmental and economic rationality. A windpower cooperative would perhaps produce an economic surplus which, if they wanted, could be reinvested in green projects. As we mentioned above, such free-floating green identity could even transgress the environmental sphere and lead to debates over whether one's money could not be used in more urgent projects than green electricity generation.

However, energy companies have found ways of immobilizing the free-floating green identities among certain consumers. At the southern Swedish energy company, for instance, there is the option of writing a contract for three years. Contractors can purchase windpower electricity at the price of 23 öre/kWh, which is actually 2 öre cheaper than conventional electricity and 6 öre cheaper than windpower without a contract. The three-year windpower contract is a green identity booster, despite the fact that the electricity actually is cheaper than conventional electricity. The green commitment has identity value. Moreover, the option of changing from one energy

company to another—created by liberalization—to purchase electricity from companies in other local areas than one's own, can also function as a way of strengthening identity construction through electricity consumption. The extra consumer effort of searching for the greenest company is closely tied to free-floating green identity.

Finally, there have been interesting examples of how the environmental identity can turn inward, and how it gives rise to reflections on the daily routine of one's own household. This is a process of moving toward a stronger ecological identity, and takes place in contrast to the political process reflecting on what societal levels ought to have the main environmental responsibility. The green identity directed inward might ask: "How can we in our household change to green electricity and still avoid the extra costs?" The answer is simple, but may require certain lifestyle changes: use less electricity. Customers of the British energy company A were asked why they choose to get Ecopower. One of them answered that she signed up to show her trust, but that the electricity bill is in her partner's name. His response was "why not?" Her partner also noted that their bills were going down, and they get 5% discount for paying by direct debit. This way the size of their electricity bill has not changed much, despite the extra 10% for green electricity.[214] The extra fee here works as an incentive to reduce electricity use, and stimulates ecological ideas of economizing. Is should still be noted that this mechanism is not always obvious in other interviews. One can also find more expansive ideas, implying that: "the more green electricity we use (in the absolute sense), the better for the environment."

9.4.2 Expert-Related Knowledge

Significant to environmental identity, is among other things, the fact that green knowledge is closely associated with scientific or other expert-related knowledge of the wider environment, rather than with detailed knowledge about one's own domestic practices. Green electricity consumers in the study shared a few quite scientifically complex associations with green electricity:

> Q: When you think about green electricity, what do you think about?
>
> A: I think about it being renewable and less burdensome for the environment. Of course I'm too lazy to calculate everything in detail, and you have to see it in a long-term perspective. For instance, I don't really know what the cost is materially to construct and put into operation a wind turbine in relation to how long it takes before the environmental loss is counter-weighed (due to material use) through the environmentally productive electricity generation, since electricity otherwise would be generated using less environmentally benign sources. They say that windpower is environmentally sound, but… (Man, approx. aged 50, purchasing green electricity for a separate house with electric heating).

214 Based on an interview conducted in the spring of 1999 by Heather Chappells at the University of Lancaster in the UK for our joint DOMUS project.

In this respect, environmental identity can be placed on the opposite side of ecological identity. It was thus interesting to note the clear difference between certain green electricity consumers and wind coop members, where the former represent more of an environmental identity and the latter more of an ecological identity. The green electricity consumers responding were typically not very aware of their own electricity consumption. This is for instance revealed by the same interviewee who above shared his intricate reasoning about environmental efficiency of windpower:

> Q: You use quite a lot of electricity?
>
> A: We have electric heating, not direct electricity, but water central heating.
>
> Q: How much approximately do you use?
>
> A: I haven't got the slightest idea! We have lived here for only a year, so I'm not sure (Man, approx. aged 50, purchasing green electricity for a separate house with electric heating).

Another interviewee gave the following answer to the question of how much electricity his household uses each year: "Well in kWh I don't have a clue. I have never checked it. My electricity bill is quite small" (Man, aged about 35, purchasing green electricity). In still another case, the wife in the family had no idea that her household especially chooses green electricity, an awareness that emerged only after the energy company had contacted her to ask if she would like to participate in this study.

To be sure, waste recycling and composting do not reflect environmental identity to the same extent as does green electricity consumption. Still, in addition to the small-scale reasoning in the section about ecological identity, domestic waste practices are associated among certain interviewees with their knowledge of the global environment. A few families with children (and fairly young parents) commonly referred to "the global threat to the environment."

> Q: If your tenant owners' association would initiate composting in the neighborhood, do you think that people are motivated here?
>
> A: We can only speak for ourselves. But I would absolutely back up such an initiative, especially since our children talk a lot about these things in Kindergarten. You can't put your head in the sand. Soon we can't choose any longer whether we want to or not (Woman, aged 29, southern European background, lives with one adult and two children in Smedjan).

In several interviews one can note an awareness of large environmental risk and daily micro practices. Since the residential area of Fredsängen still did not have any waste separation schemes at the time of the interviews, some households eased their bad environmental consciousness in other, more or less permitted ways:

> I think that it is important, when you think about the future and the children especially, that they should have a clean and safe environment to live in on this globe. When we throw paper and glass among the rest of the waste we feel bad every time. But we try to collect our glass and paper and toss it in bins with recyclables in another neighborhood (Woman with immigrant background, aged 29, lives with one adult and two children).

9.4.3 Intellectual Consciousness

Environmental, as compared to ecological, identity encompasses a larger consciousness of the image consistency in environmental impact in one's different lifestyle spheres. To refer to professional life (rather than, for instance, upbringing) as a basis for green practices is hence characteristic of environmental identity.

> Q: Why do you choose green electricity?
>
> A: Well, I'm active in the Green Party and am also a lawyer working a lot with environmental law. So the choice of green electricity was pretty natural for me (Man, approx. aged 50, purchasing green electricity for a detached house with electric heating).

Another respondent answered almost the same thing, although he referred to his active membership of a nonprofit environmental organization. In addition, scientifically-based reasons for ordering green electricity were also expressed, reflecting an environmental identity:

> I mean, you always get some kind of waste when you convert energy to something else. That's how simple it is, whether it's waste heat, or what I call "molecule waste," or something like that. You always have to face that (Man, approx. aged 50, purchasing green electricity for a detached house with electric heating).

Although respondents try to emphasize the consistency between their different lifestyle spheres, such as between a leisure routine and professional life, they nevertheless admit "inconsistencies" between different domestic practices. A woman who is very active at composting and recycling is hesitant toward changing other practices, in this case purchasing biologically degradable detergents.

> I don't change detergents, because the new, so called "environmentally friendly ones" are probably not as good. And you have the idea that you want clean laundry. I want to be honest with you and say that you want to use the things you are used to. The same goes for the dishwasher liquid (Woman, aged 65, lives with one adult in Ljunghöjden).

This is an example of how old habits may be stronger than the intellectual consciousness about environmental harm. There is commonly an image of the conventional, nongreen, household chemicals as being more efficient. "There must be some advantage with them—if they are neither bio-degradable nor less expensive, there must be something else about them." Information would probably not be sufficient to change her view; a practical demonstration of the efficiency of green products (if they are efficient) is probably the only way to impact her view in this respect.

9.5 Green Economic Identity

Through the interviews for this book with professionals working in both the electricity and waste sectors, a general idea has kept coming up of households and consumers as being mainly economically oriented: "Only comprehensive economic benefits can make people green their lifestyles in a significant way." Not only examples of idealistic green work speak against this assumption; we all know that a small fraction of people in society are devoted idealists. What I find more interesting are all the examples of how very small economic incentives, together with environmental and social motives, may lead ordinary people to devote quite extensive efforts to environmental matters. Relevant to this is what I call *green economic identity.* In this study, green economic identity is best illuminated by the phrase: "We save money on it, and it is good for the environment, too" (or the reverse order). Windpower purchased directly from energy companies is the least connected to such statement, since it is often an economic disadvantage to households to purchase green electricity. On the other hand, this economic disincentive can sometimes serve to strengthen the environmental identity. In waste differentiation schemes, the green economic identity has been reflected in several interviews. However, a symbolic economic advantage appears through the cases to be more crucial than the actual size of the economic gain. I tentatively call this *a green economic principle of domestic practices.*

9.5.1 A Green Economic Principle?

Interviewees express this principle in many different contexts. For instance, one respondent who is a wind coop member holds that the liberalization of the electricity market might only make him change electricity provider if the energy company starts to practice usury (Man, aged 55, member of the windpower coop in southern Sweden). Yet, the indirect environmental involvement in the energy company makes him appear relatively tolerant economically.

Naturally, green economic aspects emerge when discussing with green electricity consumers and wind coop members about changing to the other organizational form of windpower.

> Q: Would you consider buying a share or two in a windpower coop instead, and then paying your electricity bill to the energy company as usual?
>
> A: I don't think so, I'm not opposed to the idea, but I still wouldn't do it (Man, approx. aged 40, living with one adult and two children. Member of the windpower coop in southern Sweden).

It is mainly the economic and organizational commitment that makes this respondent not want to become a wind coop member, even if it would be more economically rational to do so. Instead, he would rather pay extra for green electricity. The

contrary notion is found in an interview with one of the windpower coop members. There, the green economic principle appears very clearly:

> Q: But the energy company has a subsidiary company from which you can order green electricity.
>
> A: Yet, but that is so ridiculous. Because you cannot separate the electrons.
>
> Q: Would you have been interested in the windpower coop if it didn't give you any profit?
>
> A: No, I wouldn't. One of the main reasons that I joined was that there was a reasonable chance that it would be profitable. So if I had seen it as an idealistic project that loses money I would never have joined (Man, aged 55, member of the windpower coop in southern Sweden).

Although there is an economic argument here, it is interesting to note that the amount of money gained by being a wind coop member is of secondary importance. Rather, it is the principle of not losing money when making environmental efforts that is vital.

Further, when discussing motivation and morale, the role of economic recycling incentives in the waste sector should be brought up. How do economic incentives of tariff differentiation in the waste sector combine with green identity construction? We have earlier noted that economic incentives should not be overemphasized when trying to stimulate people to adopt green practices. Then the risk is high of having the economic part overshadow the ecological benefits. The residential area of Ljunghöjden sheds light on the positive, yet symbolic, value of economic incentives. Money has its importance, but in accordance with the electricity example above it does not appear that the saved *amount* of money is crucial:

> I don't think that the 500 Kronor were very important. It was more that "yes, it was good to be able to save a little money at the same time." That's probably how most people see it. In that sense money matters, but not in Kronor and ören (Man, aged 45, living with one adult and two children in Ljunghöjden).

The economic incentive hence may impact the recycling morale. Yet, thinking about the time and efforts that people spend on recycling and on learning about composting, this is more an illustration—not of Economic Man, but rather of Ecological Man—creating and developing a green identity. The concept of use-value could in this context be complemented by sign value, identity value (Warde, 1994b), and my own tentative one: *consequence value*.

The actual amount of money saved by using compost soil instead of purchased fertilizer is never mentioned in the interviews, and it appears to be of secondary importance (cf. ecological identity). Still money triggers a certain tension. For instance, if the waste collection fee were not reduced when the collection frequency was reduced, households claim that they would protest and even demand to have their weekly collection back.

Also, green economic reasoning can be found in interviews about ecological investments which do not work properly in the technical sense. Not only the ecolog-

ical loss is discussed, but also the economic one. To direct certain interview questions toward such technical problems of environmental innovations turned out to be a productive way of reaching green economic rationales underneath purely ecological and environmental arguments:

> In this tenant owners' association we have of course some initial costs. Now the compost facility has been out of order since a year or so. So now we have another waste system. It is insane that we have invested in something that hasn't met our expectations—and that we get extra costs (Man, aged 62, lives with one adult in Fyren).

As has been discussed earlier, economic incentives can function as positive or negative feedback. In the area of Ljunghöjden, the fee reduction is tied to composting and to the reduction of domestic waste quantities. As a comparison, another residential area—Almlunden—has fee reductions based on composting. However, the reduction has "disappeared" by being a static and diffuse rent reduction:

> Q: Would you save any money through recycling and composting?
>
> A: Yes, but I don't know how much. Because the reduction was introduced from the very beginning when I didn't live here, and I never got to see it (Woman, aged 30, single household, Almlunden).

The organizational form of housing is of great significance for determining which economic incentives of importance to environmental practices exist. Generally, detached houses and tenant owners' coops provide their tenants with more of a direct economic feedback than rented apartments. In Almlunden, an area with rented apartments, the central housing association has calculated an average for water and electricity use, so that the tenants do not experience economic differences if they start to save on electricity and water:

> It is odd that there are so many blocks of flats where you can't see any difference in cost regardless of how little or much you increase the heat in the radiators. The technique must exist. So now the tenants often think: "since I've paid already I might as well use the heat to a maximum" (Man, aged 52, single household in Almlunden).

9.5.2 Seeing Different Shades of "Green People"

To go back to the electricity sector, it is appropriate to ask: What kind of people are green electricity consumers and windpower coop members? Naturally, the limited number of interviews cannot provide a generalizable picture. Still, a few self-reflections made by the interviewees deserve to be brought up here. The image of "one's own group" as particularly environmentally conscious and active came up in interviews with both green electricity consumers and wind coop members.

> Right from the beginning [of the windpower coop] there was an immensely solid environmental interest, I think. Active people, and they have a very competent board (Person B responsible for green electricity, the energy company in southern Sweden).

However, people at the Swedish energy company also note that the members' motives have moved a bit toward economic profit during the course of membership. Interviewees from the windpower coop confirm the perception that these groups are no ideological saints in any pure sense. Instead, the green economic identity is quite common. One coop member's motivation was partly that she thought the electricity price would rise, and that she would make money from the electricity generated in the windpower plant. However, before entering the cooperative she thought that the *others* were active environmentalists. So she had asked the members to declare their motives. Soon a person answered that he believed in raised electricity prices. This statement made her feel relieved that at least one more member had the same eco-economic orientation that she had. Later, another man said that he saw the membership as a pension, and when they had asked everyone in the room there was only one (on the board) whose motives were only environmental. After that she did not feel embarrassed anymore.

> I'm not ready to be the only idealist who runs around and is environmentally friendly when others drive their car. Imagine yourself sitting on a bus day after day to Malmö and losing a couple or three hours and be passed by car drivers. I'm not a hero. But there are very many who believe that a windpower cooperative is made up of heroes—"green people"—it is a stereotype. That's not how it is, not in this cooperative at least (Woman, aged 50, head of the windpower coop in Southern Sweden).

Other members of the coop who have been interviewed in this study also stressed that their motivation was mixed: environmental and economic. Several moral arguments came up, about responsibility for future generations and so forth. Interestingly, the interviews indicated quite different opinions on issues of society's *general* energy provision. Here the economic aspect was raised:

> I'm in favor of nuclear energy and think that it is the cleanest large-scale energy that we produce. I think that it is a real shame and capital destruction to phase out the nuclear power plants at this early point (Man, aged 55, member of the windpower coop in southern Sweden).

In sum, the people interviewed, who are active in greening of the electricity and waste sectors must be acknowledged in their many sides and unique situations. Therefore, when operationalizing the concepts of different green identity forms, this chapter has so far hopefully made clear that each person commonly holds more than one type of green identity, combined in various ways.

9.6 Green Social Identity

Green social identity, finally, emerges in cases where informal and formal, subpolitical efforts have an essential role to play in developing and implementing PTD. The waste sector presents several examples of this, which makes it important to study the social and physical impact of neighborhoods on waste practices. Continuous feedback between providers and consumers has been a key to success here.[215] Green electricity is something that still is largely based on communication between provider (an energy company) and consumer. It remains to be seen in this section whether or not social networks of neighbors and residents can be more developed here.

9.6.1 Green Electricity Consumers: Moral Privacy

A general tendency is that there are considerable differences between the electricity and waste sectors in terms of social supporting structures between providers and consumers: for example, at the neighborhood level. The electricity sector has very weak supporting structures to stimulate neighborhoods to change to green electricity in the households. Even in neighborhoods which are socially very active in other respects, green electricity is rarely discussed, as indicated in the interviews:

> Q: So this area with chain houses has a collective association (Sw: samfällighet)?
>
> A: Yes, even if it is the simplest form of collective association. And also, we have a lot of informal contact in this neighborhood.
>
> Q: Have you discussed with your neighbors about ordering green electricity for your house?
>
> A: No, I don't know. You see, you don't want to foist your green ideas on the others. It's a delicate matter, not least since I'm active in the Green Party. It feels better to leave them alone and not start preaching (Man, aged about 50, purchasing green electricity for a separate house with electric heating).

In fact, none of the green electricity interviewees say that they have discussed the matter particularly with neighbors or even other friends. The respondents appear to be very cautious not to appear as ethically pretentious to their acquaintances:

> Q: Do you have any friends who have green electricity?
>
> A: That's not really anything we talk about, the whole thing with environmental protection and stuff does not come up in discussions in any way. Perhaps on odd occasions we talk a bit about the environment when we drink coffee, but we are not rabid about environmental protection (Woman, aged about 40, purchasing green electricity from the energy company in southern Sweden. She lives with one adult).

215 The same is true in cases with water differentiation, although feedback in the former sector proved to have the potential of continuing between neighbors once the providers started to be less available. The technical intricacy of graywater schemes still makes it quite difficult for lay people to help each other out.

From the point of view of the social preconditions for the broader public choosing green electricity, this clear sense of moral privacy is a major social impediment. Private green electricity consumption is already in its material form inconspicuous, something that informal social networks involving the interviewees do not seem to change much.

9.6.2 Wind Coop Members: Social Influence

The social elements are clearly different among windpower coop members, mainly for two reasons. Firstly, cooperatives are themselves more or less active social forums, where a certain level of collaboration is necessary. Coop members are not alone in the same way as green electricity consumers are. Secondly, the possibility of saving money or even making some profit makes windpower coops appear less ethically pretentious and thus less sensitive to discuss:

> Q: Have you convinced others to buy shares in the coop, any one in your neighborhood or friends?
>
> A: Well, I have really tried, but I have probably met the wrong people, because I don't think I've been able to convince anyone. They have all found it really nice, and everyone has been very positive. But some have said that it's too expensive and that they can't afford it (Man, aged about 50, accountant in the windpower coop in southern Sweden).

And from the other end, examples are found of coop members whose friends had been members from the beginning, and by whom they had been influenced to become members themselves. Moreover, even though not every interviewee is active an participant at the coop meetings, there always seems to be someone more active with whom each member has contact and discusses the coop (e.g., Man, aged 55, member of the windpower coop in southern Sweden).

9.6.3 Waste: The Individual Identity as Part of the Collective Green Identity[216]

In Chapter 8 on waste I explored the importance of provider initiatives for successful domestic waste management. Here, the focus is on the households' integration of the green waste and tariff differentiation in the individual lifestyles. The individual versus the collective can in this sector be interpreted in parallel with anonymity and feedback toward a green social identity. Let us take Ljunghöjden in southern Sweden as an initial example. A few households hold that the trial period ended too abruptly. From having provided continuous feedback it has subsequently become more difficult to get help from the Street Department. Some unclear matters concern how to

216 For a much more extensive analysis of social climates and domestic waste practices, see Klintman, 1996.

adopt the composting routines to the different seasons. Each season provides the households with certain composting problems. During summers the risk of odor is higher, whereas the compost is likely to freeze during the winter season. However, after the information from the municipality had become less intense from the municipality, the neighbors began to help each other out and give advice. This has ultimately led a majority of households to reduce the frequency of garbage collection to every other week. The Ljunghöjden waste case illustrates the two-sidedness common in schemes for waste differentiation. The limited size of the residential area of Ljunghöjden makes the neighbors get a rough sense of which households are less than successful in their composting and waste reduction. Problems, errors, and "laziness" are in focus when the waste project is discussed formally (in the housing association) or informally in the neighborhood. Ungreen practices are more visible than green ones.

In terms of actual recycling results, this social pressure of a green collective identity is partly productive. Several other cases have noticed the same tendency. Similar results are found in Bath and Northeast Somerset in Britain. This project has developed as a partnership between the local authority and Avon Friends of the Earth. There it became clear that mini-recycling centers were more successful than larger-scale solutions of recycling. [217] Large-scale solutions frequently make the individual consumer feel anonymous, which reduces the green collective identity (cf. Klintman, 1996).

Going back to discuss providers, they have vital roles to play in terms of understanding the broader lifestyle picture. This is an area which can be very much improved. In all three countries—Sweden, the Netherlands, and the UK—a number of cases are found of providers testing citizens' willingness to separate waste and recyclables in various ways. Small wheeled bins and twin bins have been tested in Sussex and in other local areas. The conclusion is usually that between two and four fractions collected at the curbside appear to be the maximum number. Still, such statements need to be problematized. The number of fractions that the most efficient one is not given by laws of human nature. Such projects should take into account, and suggest, how to practically separate the waste in households with limited space. Where should the household bins be—under the sink, in the garage? Waste separation involves a number of steps and measures in the households. Where can people clean all their bins with recyclables and organic waste? What could they do to reduce the odor? In Het Groene Dak in the Netherlands the residents emphasized the importance of such practical conditions. One resident says that the distance from kitchen door to collection point is crucial for successful separated waste collection.

217 Based on a local case study conducted by Heather Chappells at the University of Lancaster in the UK for our joint DOMUS project between 1997 and 1999.

The difference between 50 and 500 meters makes a huge difference for households' motivation to separate their waste.[218] These factors are in turn closely tied to social influence between neighbors regarding waste separation, as well as the public confidence in providers.

A provider strategy specifically analyzed in the municipality of Ystad in Sweden is when local authorities direct their efforts to particular neighborhoods with different social climates. It is clear that neighborhood types with different social climates constitute quite varying preconditions for collective waste separation and composting schemes. The social neighborhood type with what can be called *community of limited liability* (see section 4.3.3) is primarily found in housing areas where the organizational forms have admitted joint decision making for the households. Joint decision making—practical and economic—led to both formal and informal contact between the residents, something which is essential to certain green waste schemes. The residential area of Ljunghöjden has already been used as an example, where social contact, influence, size, and so on triggered successful waste separation and composting results. On the other hand, it is a bit unfair to compare neighborhoods with hundreds of households with areas of Ljunghöjden's size (with 28 households). Larger areas ought instead to be both treated and studied as consisting of several social islands, perhaps stair wells.

Something that is rather inflexible from households' point of view is the recycling stations in Sweden. Since 1996, the materials companies have provided every municipality with recycling stations, which are regulated in amendments to the Waste Collection and Disposal Act. Yet the recycling stations vary between local areas, in terms of number of fractions and how many households the stations are supposed to serve. In Älvdalen, one station serves 150 citizens, while the stations in Stockholm serve on average 5,600 people (Miljö i Sverige, 1997(4):8). Moreover, the distance from the homes to the station varies considerably between local areas. In certain neighborhoods the recycled materials are still collected within the neighborhoods, which the households have to pay extra for. A tendency that works against successful recycling is that many citizen consumers are not sure whether their extra efforts are followed up in all the other steps of the process. Rumors emerge—sometimes true, sometimes false—that much of the recycled materials are put on the landfill or incinerated, rumors that tend to shake the social system of recycling (see Klintman, 1996).

Summing up, this section had the purpose of stressing the importance of recognizing the micro structures (lifestyles and forms of life) and the vital role for authorities and providers to help improve these. In connection, it is essential to unveil micro actor reductionist assumptions among policy makers and planners. According to such assumptions, hindrances to domestic greening practices are chiefly constituted by problems of attitudes among single actors. This section has attempted to show

218 However, not everything turned out perfect in this consumer-active example. In the residential area, the kitchens did not have special storage places or bins. The association were thinking about installing "ecological kitchens" but that was too expensive. The Housing Association just installed the cheapest kitchen available.

how closely tied daily household activities are to various forms of structures, among which most structures can be reformed in environmentally beneficial ways.

9.7 Conclusion: A Model of Green Identities

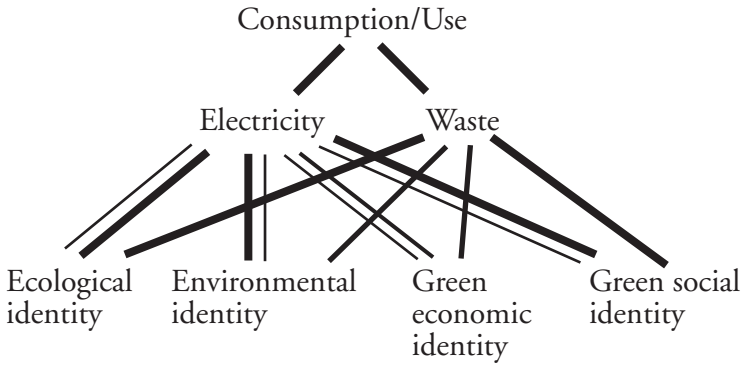

Figure 9.7: *Forms of Green Identity in PTD. Left lines: windpower purchased directly from energy company; right lines: electricity use compensated by membership of windpower coop. Thick lines: stronger relationship; thin lines: weaker relationship.*

This chapter has found that green identities among consumers can be divided into (a) ecological identity, (b) environmental identity, (c) green economic identity, and (d) green social identity.

A purpose of the figure is to apply the methodological perspective presented in 6.1, namely the distinction between types of relations: logically necessary, internal/fundamental, and external/contingent. A material deterministic stance would hold that the material characteristics of electricity and waste set the principles of organization and provision so that society cannot have much additional impact. The Economic Man approach, on the other hand, maintains that the economic utility of the individuals fully determines the processes in which people motivate themselves to green their daily routines. If either of these stances explained the full picture of green consumption and use, the figure above would look entirely different. If the Economic Man assumption were fully accurate, the green economic identity would be the identity type of superior influence. Green practices despite economic disincentives would be virtually nonexistent. Instead, the figure indicates how consumers in each sector may hold more than one kind of green identity. The thickness of the lines reflects the approximate strength of each identity. Accordingly, waste separation and composting are for instance largely related to ecological identity, the orientation toward local ecocycling and saving of resources. However, although this appears to present a fundamental relationship between waste and household perceptions under

these circumstances, it would be too daring to label it a necessary relationship. Completely different organization of waste management would perhaps alter the green identity processes. Large-scale organization and information exclusively on the global environmental level would probably change the identity processes from an ecological to more of an environmental identity.

Also, if the space in this book had permitted, the different waste schemes of this study would plausibly have been given more than one different line to the identity types in the figure above, depending on social and physical organization. In the electricity part of the figure I have made such a differentiation, which is indicated by the two lines from electricity to the identities. The reader can note that the variation in line thickness is quite extensive between green electricity consumption and windpower coop membership. The variation is not only founded on the obvious fact that green economic identity is stronger among coop members, as money can be saved through their shareholding while the other group pays more for their green electricity. It is more interesting that the interviews display dissimilarities across the groups in the sense that windpower coop members largely base their practices on ecological identity reasoning, while the green electricity consumers base theirs on environmental identity rationales. Moreover, the former group is more involved in green social identity processes than the latter—not merely through their coop membership but also by their propensity to discuss windpower with friends and acquaintances at large. This divergence is a sign that material/natural deterministic notions such as of "natural monopoly" in the electricity sector (e.g., section 7.1), or of necessary relationships between material and people do not provide us with a valid picture. By extension, the divergence illuminates the pluralism of contingent relationships, from which no relationship should be preferred on the basis of being more "natural" than any other (cf. section 1.1). It is up to society to base possible preferences on other criteria, for instance (through empirical studies) to indicate the advantages of one organizational form in terms of environmental motives and green identity processes.

CHAPTER TEN

Conclusion and Discussion: Applying the Approach of the Book

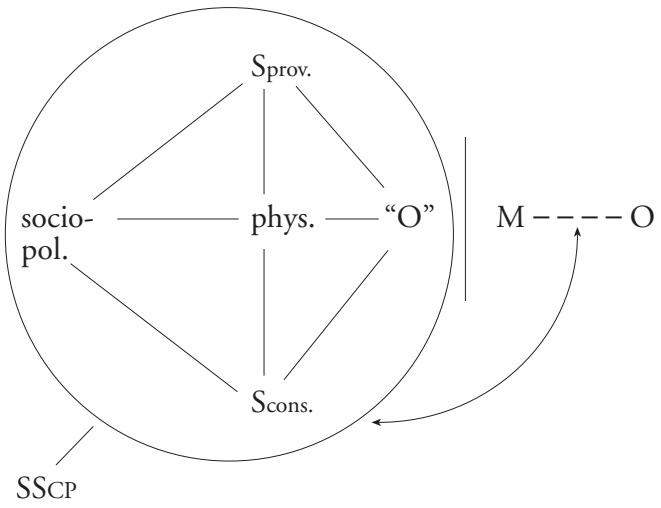

Figure 10: *A "critical pluralist" approach in the social sciences (SSCP) of studying providers (Sprov.) and consumers (Scons.) in greening processes. "O" represents perceptions of environmental problems in the empirical domain related to the physical and socio-political spheres, with a certain correspondence to O, the actual domain, and M, the real domain involving mechanisms behind O.*

In the preceding pages, I have tried to apply the metatheoretical approach of the book to the two utility sectors of electricity and waste. To anchor an empirical study to ontological and epistemological principles has—I hope—helped clarify certain complex relationships between the environmental situation, problems, and societal practices.

10.1 Metatheory and Empirical Research

The empirical material has elucidated different subjects (S, mainly providers and consumers/households), their practices and green identity processes. The study has examined how all this relates to perceptions of local versus global problems ("O") of the environment (O). Different types of knowledge about mechanisms behind the environmental situation were reflected in various kinds of green identities of the actors. The international comparisons were illuminating in their revealing how the physical and environmental situation in different places is tied to a variation in options of solving the problems, due to the mechanisms (M) behind the problems. In addition to the physical situation, Sweden, the Netherlands, and the UK display certain dissimilar—culture-dependent—notions as to what constitutes a problem in the electricity or waste sector (see section 7.1.3). This holistic research interest in O, M, "O," and S would hardly be possible without the ontological and epistemological tenets presented in Part One. In other words, the study necessitated ontological realism, the idea that there is an actual domain of the environmental situation with (social and natural) mechanisms behind it. Moreover, the problem subjectivist stance was vital for understanding how interests and, not least, a palette of knowledge types and experiences impact upon what actors perceive as problematic or environmentally sound. This in turn constitutes a basis for actions, image- and identity-processes, by affecting values of what people can observe, consider acceptable and doable. Still, I must admit that the study has included a certain conflict of environmental versus sociological importance: comparing "O" with O, versus concentrating on S. While my approach stresses how the interrelation between the two "domains" is the object of study, I have found it reasonable to pay more attention to the social domain, identity and image, and so on. Ideally, natural scientists will use their specific skills to conduct qualified studies of the physical realm, although I have argued that there ought not to be strict, a priori separation between the two domains (Chap. 3).

10.2 Socio-Political and Physical Spheres

There are physical constituents of the sectors which are manifested in tendencies of crucial importance to this study. Product and tariff differentiation (PTD) has several physical characteristics, albeit that organizational differentiation is part of PTD as well. PTD has its purely socio-political basis in various kinds of re-regulations—such as liberalization of the electricity sector, and denationalization of recyclables labeled *producers' responsibility* (see the Introduction). Furthermore, the exploration of PTD yielded results that can be useful when commenting on a priori normative accounts of greening processes in society (e.g., ecological modernization theory). For instance, while PTD with new green choices presents a contingent relationship with liberal-

ization, the relationship is by no means fundamental or necessary. Windpower coops, for example, are not fundamentally dependent on liberalization; the windpower coop in southern Sweden existed long before the liberalization of the electricity market. Furthermore, the interviews with providers and wind coop members indicate no signs that actors would be dependent on any new liberties of re-regulation in their windpower-related practices. Also, the Netherlands, where the electricity sector had not yet been re-regulated by the time of the data collection, presents a broad variety of environmental innovations related to alternative energy sources.[219] The Swedish waste sector involved both product and tariff differentiation before the denationalization (i.e., producers' responsibility). Still, it remains to be seen what liberalization in the sector will have a powerful role to play in further greening processes.

Further intriguing issues of the physical versus socio-political spheres emerged in the study. The waste sector has historically been close to physical household practices and to the senses of household members. The modern urban changes (physically and socially) have disembedded people from the sensual closeness to the different stages of their domestic waste. Service provision generating small-scale composting is an illustrative example of a process of re-embedding of domestic practices closer to eco-cycles. In the household interviews this became apparent through the quotes reflecting an ecological identity. Environmental identity, with its global awareness, is also reflected in the waste interviews, and ought to be a vital part of information about greening of domestic practices. Windpower coops can also be conceived as a form of re-embedding, developing household awareness of the local windmill. Unlike waste, electricity has never been embedded in household practices in any direct and sensuous way, being an integrated part of modernity itself (cf. Chap. 7).

Still, it would be dangerous to regard ecological identity and everyday experiences as the only factor which needs to be strengthened in order to raise societal motivation towards environmental responsibility. Modern society will not regress to a traditionally local society. There have to be dynamics and mutual development of the local and the global realms, something which requires much more than merely thinking globally and acting merely locally. This is intimately tied to knowledge pluralism, where not only the sciences need to learn from lay people's experiences, but also vice versa. Moreover, all the green identity types—and a variety of combinations between them—ought to be acknowledged and taken seriously by providers and authorities.

219 According to the revised Electricity Act of 1998, competition in generation was scheduled to be introduced in 1999. Competition for electricity supply to households will not be introduced before 2006 (Wolsink et al., 1998).

10.3 Socio-Economic Bias in the Environmental Social Sciences

Several conclusions have emerged in this book. Regarding green provision, an important point is that providers ought to be stimulated to establish further collaboration with consumer groups, grassroot organizations and other consumer forums. By studying PTD, it has become obvious how providers often base their level of differentiation on over-simplistic assumptions about people's preparedness or willingness to act. However, a certain degree of self-criticism is appropriate among the part of social sciences focusing on environmental problems. In an earlier work (Klintman, 1998a) I problematized the "scientific claim" (spread to policy makers) that members of the new, well-educated middle class are more environmentally concerned than other social categories (see footnote to *Sampling* in this book, Chap. 6). A problem with such a result is that, belonging to the educated middle class, the researchers' own choices of environmental practices in their research do not rarely embed a bias towards their own private practices. Despite my criticism in the earlier study, the analysis of green electricity consumers and cooperative members in Chapter Nine in this book cannot fully escape such an objection. The choice of conducting the electricity interviews in Lund implied exclusion of demography corresponding to the Swedish average from which interviewees could be selected. And, more fundamentally, it can be argued that the choice of greening practice in the electricity sector—windpower consumption and cooperative membership—was itself class-biased. Other environmentally beneficial practices—such as to reducing car use, avoiding long trips, and reducing electricity use—are likely to be at least as common among people of lower socio-economic status.[220] Importantly, these examples can be regarded as ecological factors of saving resources, something which might be more urgent than changing into high-tech innovations. However, I have made vital choices in the study to restrict the problem of socio-economic bias. Firstly, the comparison of windpower-related practices in Lund with waste practices among the average population in Ystad contributed to an socio-economic broadening of the outlook. Furthermore, my distinction between environmental and ecological identity is partly related to a broadening of environmental concern beyond concern with strong scientific ties that usually is claimed to be a characteristic of the new middle class (see Chap. 9). In fact, a prerequisite for developing the concepts of ecological versus environmental identities was that I compared organizational differences in the electricity sectors. And I could only find such variation, with other factors fairly equal, in Lund. Still, as I mentioned in Chapter Six, the qualitative approach of this study meant that

220 Often forgotten are less conspicuous environmental actions, such as reusing plastic bags, using small amounts of hot water, using vinegar instead of artificial products for cleaning, as well as washing one's clothes less frequently than is usual in the industrial world. These actions are much more often found within the oldest generation, and quite separately from the often assumed positive relationship between socio-economic status and environmental concern. These habits have been learned during times with greater material scarcity (see Lindén, 1994:63).

the green identity processes were more relevant than the socio-economic background of the respondents.

10.4 Policy Relevance and Final Reflection

A couple of policy-related issues should be mentioned. The first one refers to provision and PTD. There is the tendency of utilities becoming increasingly bigger, whereas PTD (hence also households) might better benefit from several emerging, small, flexible companies providing specialized green choices. Secondly, the European Union, based on its subsidiarity principle, can play an important role in emphasizing the diversity of conditions at the regional, local, and neighborhood levels. Previously too stiff regulations at the national level can thus become more flexible. This is a call for making more nuanced assessments of local differences—forms of life, various green identities, and motives—not least by communicating with citizens. At the same time, the EU has a role to play in improving the distribution of environmental standards and assessments of utility companies to consumers. There is still much that can be done in turning these standards into useful criteria for increasingly diversified consumer groups in their new product choices.

A final, critical remark on differentiation, liberalization, and new choices in households may be made: Is there no limit to our desire to choose actively and freely? Would it be absurd to want "society" to choose for us a few of the most trivial household practices in a "green" way? It might be fruitful to play with a concept here: individual consensus. The concept refers to the fact that many individuals share a lack of motivation to green their lives. This is something that most individuals acknowledge when they think about environmental problems. People situated in this position (and most of us do in certain respects) ought to be able to agree upon having "society" make certain green choices for all of us, despite the fact that it would restrict our freedom in particular (trivial) areas of our lives.[221]

The best response to a call for an extended environmental responsibility of authorities and reduced environmental responsibility for citizens is of course that greening is not something which society knows the absolute truth about—environmental knowledge uncertainty requires knowledge democracy and public involvement. Nevertheless, it ought to be a democratic right to question product and tariff differentiation when it is treated as a goal in itself in several sectors. It could be provocatively argued that PTD in its extreme form might lead to a trivialization of social life. The

221 Where, by the way, does the broad reform towards new trivial choices in an increasing number of sectors come from? Aside from politics, it is easy to see a parallel in the social sciences calling for a separation of behavior and action. Behavior is considered primitive and unhuman, whereas action is regarded civilized and human. (It is up to the reader to reflect on further parallels with separation between humans, animals and nature, which I brought up in Chap. 1.). "Even" I have to admit a preference for acknowledging human action rather than behavior.

majority of social interactions and discussions would in such case pertain to suggestions of whatever electricity company, waste collector, telecom provider, railway company, hospital, and so on, provides us with the cheapest, greenest, most socially responsible, and most aesthetically appealing services. Moreover, such suggestions would have to be constantly modified since the markets constantly change. This, in turn, might fortify a reserved market relationship between nature and people, thus keeping us away from a sensuous understanding of our unity with nature. In such a situation it might be more "environmentally sound" to liberate oneself from incessant wordage about how to lead a more rational life:

Tired of all who come with words, words but no
language
I went to the snow-covered island.
The wild does not have words.
The unwritten pages spread themselves out in all directions!
I come across the marks of roe-deer's hooves in the snow.
Language but no words. [222]

Trött på alla som kommer med ord, ord men inget
språk
for jag till den snötäckta ön.
Det vilda har inga ord.
De oskrivna sidorna breder ut sig åt alla håll!
Jag stöter på spåren av rådjursklövar i snön.
Språk men inga ord.[223]

222 (Tomas Tranströmer, 1987). The poem is called "From March '79," and has been translated from Swedish by John F. Deane.
223 (Swedish original. Tomas Tranströmer, 1983, "Från mars –79.")

References

Abercrombie, N. (1994). Authority and consumer society. In R. Keat, N. Whiteley & N. Abercrombie (Eds.), *The authority of the consumer* (pp. 43—57). London: Routledge.

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior.* Englewood Cliffs, N.J: Prentice Hall.

Aspelin, G. (1969). *Karl Marx: Samhällsforskare och samhällskritiker*. Lund: Gleerups förlag.

Asplund, J. (1991). *Essä om Gemeinschaft och Gesellschaft.* Göteborg: Bokförlaget Korpen.

Avreglering av elmarknaden – facit från de fyra pionjärländerna Chile, England, Norge och Argentina. (1995). Stockholm: Närings- och teknikutvecklingsverket.

Baldassare, M., & Katz. C. (1992). The personal threat of environmental problems as predictor of environmental practices. *Environment and Behavior, 24* (5).

Bandura, A. (1969). *Principles of behavior modification*. New York: Holt, Rinehart & Winston.

Barton, A. H., & Lazarsfeld, P. F. (1961). Some functions of qualitative analysis in social research. In S. M. Lipset, & N. J. Smelser (Eds.), *Sociology: The progress of a decade* (pp. 95-122). Englewood Cliffs, N.J: Prentice-Hall.

Bauman, Z. (1993). *Postmodern ethics*. Oxford; Cambridge, MA: Basil Blackwell.

Beck, U. (1986/1992). *Risk society.* London: Sage.

Becker, H. S. (1986). *Writing for social scientists.* Chicago: the University of Chicago Press.

Bellah, R. N. et. al. (1991). *The good society*. New York: Vintage Books.

Bennulf, M., & Johnsson, L. (1993). *Miljöpolitik*. Lund: Studentlitteratur.

Bennulf, M. (1994). *Miljöopinionen i Sverige*. Lund: Dialogos AB.

Benton, T. (1994). Biology and social theory in the environmental debate. In M. Redclift & T. Benton (Eds.), *Social theory & the global environment.* London: Routledge Chapman & Hall.

Berg, P. EO. (1993). Avfall som samhällets följeslagare. In P. G. Berg (Ed.), *Biologi och bosättning: Naturanpassning i samhällsbyggandet.* Stockholm: Natur och kultur.

Bhaskar, R. (1978). *A realist theory of science.* Brighton: Harvester Press.

Bhaskar, R. (1986). *Scientific realism and human emancipation*. London: Verso.

Bhaskar, R. (1989). *Reclaiming reality: A critical introduction to contemporary philosophy.* London: Verso.

Biel, A., & Dahlstrand, U. (1994). Environmental studies in Sweden with a psychological perspective. In *Environmental change: A challange for social science and the humanities.*

Bookchin, M. (1991). The Concept of Social Ecology. In C. Merchant (Ed.), *Key concepts in critical theory* (152—162). New Jersey: Humanities Press.

Brante, T. (1997). Kausal realism och sociologi. *Sociologisk Forskning, 1—2,* 311—335.

Brodbeck, M. (1968). Models and measurement. In M. Brudbeck (Ed.), *Readings in the philosophy of the social sciences* (pp. 573—578). New York: Macmillan.

Bryant, C. G. A. (1995). *Practical sociology: Post-empiricism and the reconstruction of theory and application.* Cambridge, UK: Polity Press.

Bryson, R. A. (1990). Will there be a global "greenhouse warming"? *Environmental Conservation 17,* 97—99.

Bucht, E. (1991). *Biologiskt avfall på drift?: En studie om biologiskt avfall på land och i stad och hur det kan recirkuleras.* Alnarp: Movium.

Bucht, E., & Persson, B. (1994). *Stad och land i samverkan—exemplet Ystads kommun.* Uppsala: Aktuellt från lantbruksuniversitetet 424.

Buckley, W. (1967). *Sociology and modern systems theory.* Englewood Cliffs, N.J: Prentice-Hall.

Burkert, W. (1987). *Greek religion.* Boston: Harvard University Press.

Buttel, F., & Taylor, P. (1994). Environmental sociology and global environmental change: A critical assessment. In M. Redclift & T. Benton (Eds.), *Social theory and the global environment* (pp. 228—255). London: Routledge.
Campbell, C. (1995). The sociology of consumption. In D. Miller (Ed.), *Acknowledging consumption* (pp. 96—126). London: Routledge.
Castles, F. G. (1987). *Scandinavia: The politics of stability.* Prentice-Hall International Editors.
Catton, W., & Dunlap, R. (1978). Environmental sociology: A new paradigm. *The American Sociologist, 13,* 41—49.
Chambers Dictionary (1988). Cambridge: Chambers Ltd.
Cicourel, A.V. (1982). Interviews, surveys, and the problem of ecological validity. *American Sociologist, 17,* 11—20.
Cohen, M. (21997). Risk society and ecological modernisation: Alternative visions for post-industrial nations. *Futures, 29,* 105—119.
Collier, A. (1994). *Critical realism: An introduction to Roy Bhaskar's philosophy.* London: Verso.
Comte, A. (1848). Introductory remarks & selected additional passages. In *General view of positivism.*
Comte, A. (1877). *Cous de philosophie positive.* 4th ed., Paris: Baillière & Fils.
Danermark, B. et al. (1997). *Att förklara samhället.* Lund: Studentlitteratur.
De Young, R. (1993). Changing behavior and making it stick the conceptualization and management of conservation behavior. *Environment and Behavior, 25* (4), 485—505.
Delstudie Ystads bioavfall (A biowaste study in Ystad), (1993). Report written within the Town and Country Program. Ystad: The municipality of Ystad.
Denzin, N. (1989). *The Research Act.* New York: Prentice-Hall. 3rd Ed.
Deregulation of the Swedish electricity market. (1996), (Vol.3). Stockholm: Swedish Competition Authority (Konkurrensverket).
Dewey, J. (1925/1965). *Experience and nature.* La Salle, Illinois: Open Court, 2nd ed.
Dewey, J. (1927/1984). The public and its problems. In J. A. Boydston (Ed.), *John Dewey: The latter works* (Vol. 2, 1825—27). Carbonale and Edwardsville: Southers Illinois University Press.
Dewey, J. (1931). *The development of American pragmatism.* In *John Dewey, philosophy and civilization* (pp. 13—35). New York: Minton, Balch.
Devitt, M. (1984/1997). *Realism and truth.* Princeton, N.J: Princeton University Press.
Dickens, P. (1992). *Society and nature: Toward a green social theory.* Philadelphia: Temple University Press.
Dickens, P. (1996). *Reconstructing nature*. London: Routledge.
Djurfeldt, G. (1996). *Boström och kaminen.* Lund: Arkiv förlag.
Dobson and Nicolaidis (1974). Preferences for transit service by homogeneous groups of individuals. *Proceedings of the Transportation research Forum, 15*, 201—209.
Dobson and Tischer (1976). Beliefs about buses, carpools, and single occupant autos: A market segmentation approach. *Proceedings of the Transportation Research Forum, 17*, 201—209.
Dobuzinskis, L. (1993). Is progressive environmentalism an oximoron? *Critical Review, 6* (2—3), 283—303.
Dryzek, J. D. (1987). *Rational ecology: Environment and political economy.* Oxford: Basil Blackwell.
Dunlap, R. E., Lutzenhiser, L. A., & Rosa, E. A. (1991). *Understanding environmental problems: An environmental sociology perspective.* Revision of a paper presented at the Society for the Advancement of Socio-Economics' Conference, University of Geneva, October, 1991.
Durkheim, E. (1897/1951). *Suicide.* New York: Free Press.
Dwyer, W. O., & Leeming, F. C. (1993). Critical review of behavioral interventions to preserve the environment research since 1980. *Environment and Behavior*, *25* (3), 275—321.
Eckersley, R. (1992/1994). The failed promise of critical theory. In C. Merchant (Ed.), *Ecology: Key concepts in critical theory.* New Jersey: Humanities Press.
Eder, K. (1996). *The social construction of nature.* London: Sage Publications.
Elder, J. W. (1976). Comparative cross-national methodology. *Annual Reviews Inc.,* 209—229.
Eliassen, K. A. (1981). *Organizations and pressure groups.* Copenhagen.
Elliot, R. (Ed.), (1995). *Environmental ethics.* Oxford: Oxford University Press.
Energiläget 1997. (1997). Stockholm: NUTEK.
Featherstone, M. (1991). *Consumer culture & postmodernism.* London: Sage.
Festinger, L. (1957). *A theory of cognitive dissonance.* New York: Harper and Row.
Feyerabend, P. (1978). *Science in a free society.* London: New Left Books.

Feynman, R. (1965). *The character of physical law.* London: Cox and Wyman Ltd.
Fischer, C. F. (1984). *The urban experience.* New York: Harcourt Brace Jovanovich, Inc.
Flannert, K. V. (1973). The origins of agriculture. *Annal review of Anthropology, 2,* 271—310.
Fox, N. (1991). *Green sociology network*. Newsletter of the British Sociological Association, 50, 24—25.
Freidson, E. (1986). *Professional powers: A study in the institutionalization of formal knowledge.* Chicago: University of Chicago Press.
Fuller, S. (1988). *Social epistemology.* Bloomington: Indiana University Press.
Geller, E. S., Winett, R. A., & Everett, P. B. (1982). *Preserving the environment: New strategies for behavioral change.* New York: Pergamon.
Giddens, A. (1990). *The consequences of modernity*. Cambridge: Polity Press.
Goldenhar, L. M., & Connell, C. M. (1993). Effects of educational and feedback interventions on recycling knowledge, attitudes, beliefs and behaviors. *Journal of Environmental Systems, 21*, 321—333.
Goldsmith, E. (1990). Evolution, neo-Darwinism and the paradigm of science. *The Ecologist, 20,* (2), 67.
Goodman, N. (1990). On starmaking. *Synthese, 45,* 211—14.
Gould, K. A., Schnaiberg, A., Weiberg, A. S. (1996). *Local environmental struggles: Citizen activism in the treadmill of production.* Cambridge: Cambridge University Press.
Gundelach, P. (1993). New Social Movements in the Nordic Countries. In T. P. Boje, & S. E. Olsson Hort (Eds.), *Scandinavia in a New Europe*. Oslo: Scandinavian University Press.
Hackett, P. (1995). *Conservation and the consumer: Understanding environmental concern.* London: Routledge.
Hajer, M. A. (1995). *The politics of environmental discourse: Ecological modernization and the policy process*. Oxford: Clarendon Press.
Hannigan, J. H. (1995). *Environmental sociology: A social constructionist perspective*. London: Routledge.
Hare, R. M. (1981). *Moral thinking: Its levels, method and point.* Oxford: Oxford University Press.
Harré, R. (1986). *Varieties of realism.* Oxford: Basil Blackwell.
Hichman, L. A. (1996). John Dewey's pragmatic naturalism. In A. Light & E. Katz (Eds.), *Environmental pragmatism*. London: Routledge.
Hjalmarsson, L. (1997). *Organization and regulation of the ESI in Sweden 1996.* Göteborg: To be published.
Holm, F. & Thunberg, B. (1995). *Klartext: Utmaningar och mål i det lokala miljöarbetet.* Stockholm: Naturvårdsverkets förlag.
Holmberg, S. & Weibull, L. (1997). *SOM (Society, Opinion, and Media).* Gothenburg: Dept. of Political Science, Gothenburg University.
Horkheimer, M., & Adorno, T. (1944/1979). *Dialectic of enlightenment.* London: Verso.
Howell, S. E., & Laska, S. B. (1992). The changing face of the environmental coalition: A research note. *Environment and Behavior, 24* (1).
Huber, J. (1991). *Unternehmen Unwelt: Weichenstellungen fur eine ökologische Markwirtschaft.* Frankfurt am Main: Fisher.
Hume, (1739:III/1986). *A treatise of human nature.* UK: Penguin.
Hunt, S. B. (1991). Positivism and paradigm dominance in consumer research: Toward critical pluralism and rapprochement. *Journal of Consumer Research, 18,* 32—44.
Hunter, A. (1985). Private, parochial and public social orders: the problem of crime and incivility in urban communities. In G. D. Suttles, & M. N. Zald (Eds.), *The challenge of social control: citizenship and institution building in modern society.* Norwood, New Jersey: Ablex Publishing Corp.
Hydén, H., & Lindén, A-L. (Eds.), (1998). *Lagen, rätten och den sociala tryggheten: Tunnelbygget genom Hallandsåsen.* Lund: Research Report 1998:14, Dept. of Sociology, Lund University.
Isaacs, R. (1948). The neighborhood theory. *Journal of American Institute of Planners, 14,* 15—23.
Israel, J. (1971). *Alienation: Från Marx till modern sociologi.* Stockholm: Rabén & Sjögren.
James, W. (1906/1948). In A. Castell (Ed.), *Essays in pragmatism*. New York: Hafner.
James, W. (1907/1995). *Pragmatism.* New York: Dover Publications.
Jamison, A. et al. (1990). *The making of the new environmental consciousness—A comparative study of the environmental movements in Sweden, Denmark and the Netherlands.* Edinburgh: Edinburgh University Press.
Janowitz, M. (1952). *The community press in an urban setting.* Chicago: University of Chicago Press.
Joas, H. (1993). *Pragmatism and social theory*. Chicago: University of Chicago Press.

Joas, H. (1996). *The creativity of action.* Chicago: Chicago University Press.
Johansson, B. (1997). *Stadens tekniska system: Naturresurser i kretslopp.* Stockholm: Byggforskningsrådet.
Jokinen, P., & Koskinen, K. (1998). Unity in the environmental discourse? *Policy & Politics, 26* (1), 55—70.
Juma, C. (1989). *The gene hunters: Biotechnology and the scramble for seeds.* Princeton: Princeton University Press.
Jänicke, M. (1991). *The political system's capacity for environmental policy.* Berlin: Frei Universitat.
Kaijser, A., Mogren, A., & Steen, P. (1988). *Att ändra riktning: Villkor för ny energiteknik.* Stockholm: Allmänna Förlaget.
Kaijser, A. (1994). I fädrens spår: Den svenska infrastrukturens historiska utveckling och framtida utmaningar. Stockholm: Carlssons.
Katzev, R. D., & Johnson, T. R. (1987). *Promoting Energy Conservation: An analysis of Behavioral Research*. Boulder, CO: Westview.
Kenny, M. (1997). Paradoxes of community. In B. Doherty & M. De Geus (Eds.), *Democracy and green political thought* (pp. 19—35). London: Routledge.
Klintman, M. (1995). The social-psychological conditions and obstacles to environmentally responsible agency: A theoretical perspective. *Sociologisk Forskning* (*Sociological Research),* (2)*,* 82—100 (Swedish; abstract in English).
Klintman, M. (1996). *Från trivialt till globalt* (*From the "Trivial" to the Global—Deriving Environmental Influence From Motives and Practices in Urban Realms.*). Lund: The research group Boende och bebyggelse. Dept. of Sociology, Lund University (In Swedish, abstract in English).
Klintman, M. (1997a). Household routines—Free choices or structurally conditioned behaviors? An article published in 1998 in a report sponsored by NUTEK (Swedish National Board for Industrial and Technical Development), about household routines and energy saving: pp. 15 (Swedish; abstract in English).
Klintman, M. (1997b). Some aspects of the transition into producer responsibility. In A-L. Lindén (Ed.), *Thinking, Saying, Doing.* (pp. 43-60), Lund: Dep. of Sociology Research Report (No. 2), Lund University.
Klintman, M. (1998a). *Between the private and the public: Formal carsharing as part of a sustainable traffic system.* Stockholm: KFB-Meddelande 1998:2, KFB (The Swedish Transport and Communications Research Board. Also published in Lund: Research report 1998:3, Dept. of Sociology, Lund University. Online: http://www.soc.lu.se/gem/info/rrs1998-3.html
Klintman, M. (1998b). *Utility Sectors in Sweden—Swedish National Policy Report.* Report written within the DOMUS-project, funded and supported by the European Union (EU) Directorate-General for Science, Research and Development (DGXII). Oct., 1998 (pp. 55).
Klintman, M., Jörgensen, E., Rinkevicius, L., & Gineitiene, D. (1999). Public risk perceptions of nuclear power—The case of Sweden and Lithuania. In A-L. Lindén & L. Rinkevicius (Eds.), *Social Processes and the Environment—Lithuania and Sweden* (pp. 121—166). Lund: Dept. of Sociology, Research Report 1999:2 Lund university.
Klintman, M. (2000). "Product and Tariff Differentiation." Chapter published in a final report of the DOMUS-project, funded and supported by the European Union (EU) Directorate-General for Science, Research and Development (DGXII), the spring of 2000.
Kloppenburg, J. R. (1988). *First the seed.* Cambridge: Cambridge University Press.
Kolin, P. C. (1993).(Ed.), *Confronting Tennessee William's "A Streetcar named Desire." Essays in Critical Pluralism*. Greenwood Press.
Kuhn, T. (1970). Reflections on my critics. In I. Lakatos, & A. Musgrave (Eds.), *Criticism and the growth of knowledge.* Cambridge: Cambridge University Press.
Kuhn, T. S. (1962/1970). *The structure of scientific revolutions.* Chicago: Chocago University Press.
Kyburg, H. E. (1968). *Philosophy of science: A formal approach.* New York: Macmillan.
Lash, S., Szerszynski, B., & Wynne, B. (Eds.), (1996). *Risk, environment & modernity:* Toward *a new ecology.* London: Sage.
Layder, D. (1993). *New strategies in social research.* Oxford: Polity Press.
Leontief, W. (1948). Notes on the pluralistic interpretation of history and the problem of interdisciplinary cooperation. *The Journal of Philosophy, 45,* 617—624.
Leplin, J. (1984).(Ed.), *Scientific realism.* Berkeley: University of California Press.

Lidskog, R. (1994). *Radioactive and hazardous waste management in Sweden.* Uppsala: Acta Universitatis Upsaliensis.
Lidskog, R., Sandstedt, E., Sundqvist, G. (1997). *Samhälle, risk och miljö: Sociologiska perspektiv på det modärna samhällets miljöproblem.* Lund: Studentlitteratur.
Lidskog, R. (1998). Society, space and environment: Towards a sociological re-conceptualisation of nature. *Scandinavian Housing & Planning Research, 15*, 19-35.
Lindén, A-L. (1994). *Människa och miljö.* Stockholm: Carlssons Bokförlag.
Lindén, A-L. (1996). Från ord till handling. Individuella möjligheter och samhälleliga restriktioner. In L. J. Lundgren (Ed.), *Livsstil och miljö: Fråga, forska, förändra.* Stockholm: Naturvårdsverkets förlag.
Lindén, A-L. (1997). Perspectives on man, value orientation, behaviour and sustainable development. In A-L. Lindén (Ed.), *Thinking, Saying, Doing*. Lund: Dept. of Sociology, Lund University.
Lindén, A-L. (1999). Comparing nations—Perceptions of global risk and environmental concern. In A-L. Lindén & L. Rinkevicius (Eds.), *Social Processes and the Environment—Lithuania and Sweden* (pp. 11—28). Lund: Dept. of Sociology, Research Report 1999:2 Lund university.
Lindquist, P. (1997). *The cleavable matter: Discursive orders in Swedish nuclear power policies 1972—1980.* Lund: Dissertations in Sociology 18. (Swedish, summary in English),
Little, D. (1991). *Varieties of social explanation.* Boulder: Westview Press.
Lofland, L. H. (1989). Private lifestyles, changing neighborhoods and public life. *Journal of Economic and Social Geography, 2.*
Loftsson, E. et al. (1993) *Svensk miljöpolitik.* Lund: Studentlitteratur.
Lovelock, J. F. (1979). *Gaia. A New Look at Earth.* Oxford.
Lundgren, L. J. (1989). *Miljöpolitik på längden och tvären.* Stockholm: Statens naturvårdsverk, Report 3635.
Lundquist, L. J. (1978). The comparative study of environmental politics: From garbage to gold? *International Journal of Environmental Studies,12*, 89—97.
Lundqvist, L. J. (1995). Sweden. In P. Munk Christiansen (Ed.), *Governing the environment: politics, policy, and organization. The Nordic countries*. Copenhagen: Nordic Council of Ministers.
Lury, C. (1996). *Consumer culture.* New Brunswick, N.J: Rutgers University Press.
Löfgren, O. (1992). Varför är det så lätt att älska naturen? Om glappet mellan ideal och vardag. In L. J. Lundgren (Ed.), *Livsstil och miljö: På väg mot ett miljövänligt beteende?* Stockholm: FRN, BFR, AFR, etc.
Macnaghten, P., & Urry, J. (1998). *Contested natures.* London: Sage.
Madigan, R., & Munro, M. (1990). Ideal homes: Gender and domestic architecture. In T. Putnam & C.
Marchall, T. H. (1946/1963). *Sociology at the crossroads.* London: Heinemann.
Marx, K., & Engels, F. (1848—9/1977). *Collected works, 8.* Trans. G. Benton et al., New York: International.
Marx, K. (1844/1975). Early economic and philosophical manuscripts. In L. Colletti (Ed.), *Karl Marx. Early writings* (pp. 279—400). Harmondsworth: Pelican.
Marx, K. (1844/1978). Economic an Philosophic manuscripts of 1844. In R. C. Tucker (Ed.), *The Marx-Engels reader*. New York: W. W. Norton & Company.
Marx, K. (1953). *Grundrisse der Kritik der politischen Ökonomie.* Berlin.
Marx, K. (1965). *Das Kapital.* Berlin.
Marx: Early writings. Harmondsworth: Pelican, pp. 279—400.
McCarthy, T. (1978). *The critical theory of Jurgen Habermas.* London: Hutchinson.
McCracken, G. (1988). *The Long Interview.* Newbury Park: Sage.
McGuire, W. J. (1985). Attitudes and attitude change. In G. Lindzey & E. Aronson (Eds.), *Handbook of social psychology* (3:d ed.). New York: Random House.
McMullin, E. (1985). A case for scientific realism. In J. Leplin (Ed.), *Scientific realism*. Berkeley: University of California Press.
Meegeren, P. van (1997). *Comminicatie en maatschappelijke acceptatie van Milieubeleid.* Wageningen: Agricultural University. Partly translated into English by Bas van Vliet.
Merchant, C. (Ed.), (1994). *Ecology: Key concepts in critical theory.* New Jersey: Humanities Press.
Merton, R. K. (1949a). Patterns of influence. In P. F. Lazarsfeld, & F. Stanton (Eds.), *Communications research 1948—1949.* New York.
Merton, R. K. (1949b/1968). On sociological theories of the middle range. In *Social theory and social structure.* New York: The Free Press.

Merton, R. K. (1964). Anomie, anomia, and social interaction: Contexts of deviant behavior. In M. Clinard (Ed.), *Anomie and deviant behavior: Discussion and Critique* (pp. 213—242). Glencoe, Ill: Free Press.
Merton, R. K. (1981). *Theoretical pluralism.* In P. M. Blau & R. K. Merton (Eds.), *Continuities in structural inquiry.* London: Sage.
Midttun, A. (1995). (Mis)Understanding change – Electricity liberalization policies in Norway and Sweden. In Kaijser, A. & Hedin, M. (Eds.), *Nordic energy systems – Historical perspectives and current issues.* Massachusetts: Watson Publishing International.
Miljö i Sverige (1997), (vol.1:4; 4:8).
Miljö och Utveckling (1996), (vol. 2).
Mol, A. P. J., & Spaargaren, G. (1993). Environment, modernity and the risk-society: The apocalyptic horizon of environmental reform. *International Sociology, 8* (4), 431—559).
Mol, A. P. J., & Spaargaren, G. (1998). *Ecological modernization theory in debate: a review.* Paper presented at the 14th World Congress of Sociology, Montréal, July 1998.
Mol, A. P. J. (1996). Ecological modernisation and institutional reflexivity: Environmental reform in the late modern age. *Environmental Politics, 5,* 302-323.
Moore, G. E. (1959). *Principia ethica.* New York: Cambridge University Press.
Moscovici, S. (1985). Social influence and conformity. In Lindzey & E. Aronson (Eds.), *Handbook of social psychology* (3:d ed.). New York: Random House.
Mouzelis, N. (1995). *Sociological theory: What went wrong?* London: Routledge.
Mårtensson, M. et al. (1995). *Taking Environmental Problems Seriously: Everyday Life, Livelihood and Environmental Practice.* Paper presented at the Nordic seminar for environment and society, Gothenburg, June 13—15, 1995.
Na 28 SM (9502). Stockholm: Statistics Sweden (SCB).
Naess, A. (1973). The shallow and the deep, long-range ecology movements: A summary. *Inquiry, 16*, 95—100.
New, C. (1995). Sociology and the case for realism. *The Sociological Review.* November, pp. 808—227.
Nilsson, G., & Lindberg, A. (1994). *Biologiskt avfall i kretslopp: En studie i fyra kommuner.* Uppsala: Movium & FRN.
Norgaard, R. B. (1994). *Development betrayed.* London: Routledge.
Norgaard, R. B. (1998). A coevolutionary environmental sociology. In M. Redclift and G. Woodgate (Eds.), *International handbook of environmental sociology.* USA: Edward Elgar.
Närings- och teknikutvecklingsverket. (R 1995:37). Stockholm: Närings- och teknikutvecklingsverket.
Offe, C. (1985). New social movements: Challenging the boundaries of institutional politics. *Social Research, 52*, 817—68.
Ordinance (1994:1205) on Producers' Responsibility for Waste Paper. Stockholm
Ordinance (1994:1235/1997:185) on Producers' Responsibility for Packaging. Stockholm
Palm, G. (1964). *Världen ser dig: Själens furir och andra dikter.* Stockholm: Nordstedt.
Parker, K. A. (1996). Pragmatism and environmental thought. In A. Light & E. Katz (Eds.), *Environmental pragmatism.* New York: Routledge.
Passmore, J. (1991). Attitudes to nature. In R. Elliot (Ed.), *Environmental ethics* (pp. 129—141). New York: Oxford University Press.
Pawson, R. (1989). *A measure for measures—A manifesto for empirical sociology.* London: Routledge.
Phillips, D. C. (1987). *Philosophy, science, and social inquiry.* Oxford: Pergamon.
Popenoe, D. (1985). *Private pleasure, public plight: American metropolitan community life in comparative perspective*. New Brunswick, N.J: Transaction Books.
Premiär på förpackningsinsamlingen (1995-09-28). Stockholm: Pressrelease, Näringslivets Förpackningsråd.
Press, D. (1994). *Democratic dilemmas in the age of ecology: Trees and toxics in the Americal West.* Durham, NC: Duke University Press.
Putman, H. (1981). *Reason, truth and history.* Cambridge: Cambridge University Press.
Reed, C. A. (Ed.), (1977). *Origins of agriculture.* The Hague: Mouton.
Renn, O. (1992). Conceptions of risk: A classification. In S. Krimsky, D. Golding (Eds.), *Social theories of risk.* (pp. 53—79). Westpoint, Conn.: Praeger.
Rhea, B. (Ed.), (1981). *The future of the sociological classics.* New York: Allen & Urwin Inc.

Rinkevicius, L. (1998). The ideology of ecological modernization in "double-risk" societies: A case study of Lithuanian environmental policy. In G. Spaargaren, A. P. J. Mol & F. Buttel (Eds.), *Environment, sociology and global modernity.* London: Sage (forthcoming).
Rolén, M., & Heurling, B. (Eds.), (1994). *Environmental change: A challenge for social science and the humanities.* Stockholm: Forskningsrådsnämnden.
Rorty, R. (1983). Method and Morality. In N. Haan et al. (Eds.), *Social science as moral inquiry.* New York, N.Y: Colombia University Press.
Rosén, B. (1988). *LortSverige: 50 år efter Lubbe Nordström.* Stockholm: Svenska Kommunförbundet.
Ryan, A. (1996). Pragmatism, social identity, patriotism, and self-criticism. *Social Research, 63* (4), 1041—1064.
Saunders, P., & Harris, C. (1990). Privatisation and the consumer. *Sociology, 24* (1), 57—75.
Saward, M. (1997). Must democrats be environmentalists? In B. Doherty & M. De Geus (Eds.), *Democracy and green political thought*. London: Routledge.
Sayer, A. (1979). Epistemology and conceptions of people and nature in geography. *Geoforum, 10,* 19—43.
Sayer, A. (1992). *Method in social science: A realist approach.* London: Routledge.
Sayer, A. (1994). Alternatives and counterfactuals in critical social science. Paper presented at *XIII World Congress of Sociology*—Biedefeld, July 1994.
Sayer, A. (1999). System, lifeworld and gender: Associational versus counterfactual thinking. Paper presented at *The Third International Conference: Critical Realism: Implications for Practice* — Örebro University, August 20 — 22 1999.
SCB (1999). *Bostads- och byggnadsstatistisk årsbok.* Stockholm: Statistics Sweden (SCB).
Scheffler, I. (1980). The wonderful worlds of Goodman. *Synthese* (45), 201—209.
Schlosberg, D. (1997). Challenging pluralism: Environmental justice and the evolution of pluralist practice. In R. S. Gottlieb (Ed.), *The ecological community: Environmental challenges for philosophy, politics, and morality* (pp. 270—291). New York: Routledge.
Schneider, S. (1991). Three reports of the intergovernment panel on climate change. *Environment* (33), 25—30.
Schumacher, E. F. (1973). *Small is beautiful.* London: Blond and Briggs.
Schumaker, P. (1991). *Critical Pluralism, Democratic Performance, and Community Power.* University Press of Kansas.
Schwartz, H. (1997). On the origin of the phrase "social problems." *Social Problems, 44* (2), 276—296.
Secord P. F., & Backman C. W. (1964). *Social psychology*. New York: McGraw-Hill Book Company, Inc.
Sifo (1989). *Det naturliga steget - eftermätning*. Stockholm: Sifo.
Simmel, G. (1903/1971). *On individuality and social forms.* Levine (Trans.). Chicago: The University of Chicago.
Simmel, G. (1903/1978). *The Philosophy of Money.* Routledge & Kegan Paul Ltd.
Simmons, D., & Widmar, R. (1990). Participation in household solid waste reduction activities. *Journal of Environmental Systems* (19), 323—330.
Simon, J. L., & Burstein, P. (1985). *Basic Research Methods in Social Science, 3rd Ed.* New York: Random House.
Skinner, B. F. (1971/1990). *Beyond freedom and dignity*. New York: Bantam/Vintage.
Sommer, R. (1992). Social faciliation effects in shopping behavior. *Environment and Behavior, 24* (3).
SOU (1987:32). (Governmental Commission Report). Stockholm: Statens Offentliga Utredningar (SOU).
SOU (1993:68). (Governmental Commission Report). Stockholm: Statens Offentliga Utredningar (SOU).
SOU (1995:108). (Governmental Commission Report). Stockholm: Statens Offentliga Utredningar (SOU).
SOU (1995:139). (Governmental Commission Report). Stockholm: Statens Offentliga Utredningar (SOU).
Spaargaren, G. (1997). *The ecological modernization of production and consumption: Essays in environmental sociology.* Wageningen: Landbouw Universiteit Wageningen.
Statens Energimyndighet (1998). *Vindkraft i harmoni.* Stockholm: Statens Energimyndighet.

Summerton, J. (1995). Coalitions and conflicts – Swedish municipal energy companies on the eve of deregulation. In A. Kaijser & M. Hedin (Eds.), *Nordic energy systems: Historical perspectives and current issues.* Massachusetts: Watson Publishing International.
Swedish Competition Authority (Konkurrensverket), (1996). *Deregulation of the Swedish electricity market*. (Vol.3), Stockholm: Swedish Competition Authority (Konkurrensverket),
The Swedish Environmental Protection Agency (SEPA) (1996). Stockholm: SNV.
The Swedish Environmental Protection Agency (SEPA) (1997). Report 4646, Stockholm: SNV.
Swedish Waste Collection and Disposal Act, 1979:596; Section 2a, 1990:235
Taylor, C. (1985). Philosophy and the human sciences. *Philosophical Papers*, 2. Cambridge: Cambridge University Press.
Thompson, K. (1975).(Ed.), *Auguste Comte: The foundation of sociology.* London: Nelson.
Thue, L. (1995) Electric rules – The formation and development of the nordic electricity regimes In A. Kaijser & M. Hedin (Eds.), *Nordic energy systems: Historical perspectives and current issues.* Massachusetts: Watson Publishing International.
Tichenor, P. J., Donohue, G. A., & Olien, C. N. (1970). Mass media flow and differential growth in knowledge. *Public Opinion* (34), 159—170.
Tranströmer, T. (1983). *Det vilda torget.* Stockholm: Bonniers.
Tranströmer, T. (1987). *Tomas Transtromer: Selected poems 1954—1986.* R. Hass (Ed.): New Jersey: Ecco Press.
Tönnies, F. (1887/1963). *Community and Society* (Gemeinschaft und Gesellschaft) English trans. by C. P. Loomis. New York: New York.
Van Vliet, B. (1998). *Analysing environmental change in the relations between utility sectors and domestic consumers.* Report written within the DOMUS-project, funded and supported by the European Union (EU) Directorate-General for Science, Research and Development (DGXII).
Wachs, M. (1991). Policy Implications of Recent Behavioral Research in Transportation Demand Management. *Journal of Planning Literature 5* (4), May 1991.
Warde, A. (1992). Notes on the relationship between production and consumption. In R. Burrows & C. Matsh (Eds.), *Consumption and class: Divisions and change* (pp. 15—31). London: Macmillan.
Warde, A. (1994a). Consumption, identity-formation and uncertainty. *Sociology, 28* (4), 877—898.
Warde, A. (1994b). Consumers, identity and belonging: reflections on some theses of Zygmunt Bauman. In R. Keat, N. Whiteley & N. Abercrombie (Eds.), *The authority of the consumer* (pp. 43—57). London: Routledge.
Warren, K. (1990). The power and promise of ecological feminism. *Environmental Ethics, 12*, 121—146.
WCED (World Commission on Environment and Development). (1987). *Our Common Future.*
Weale, A. (1992). *The new politics of pollution.* Manchester: Manchester University Press.
Weber, M. (1905/1958). *The protestant ethics and the spirit of capitalism.* New York: Charles Scribner's Sons.
Weber, M. (1909/1946). Bureaucracy In H. H. Gerth & C. W. Mills (Eds., 1946). *From Max Weber, Essays in sociology.* Oxford: Oxford University Press.
Weber, M. (1919). Sciene as a vocation. In H. H. Gerth & C. W. Mills (Eds., 1946). *From Max Weber, Essays in sociology.* Oxford: Oxford University Press.
Weber, M. (Reworked 1983). *Ekonomi och samhälle 1.* Lund: Grahns boktryckeri.
Webster's II New Riverside University Dictionary (1984). Boston: Houghton Mifflin Company.
Weinberg, A. S. (1998). Distinguishing among green businesses: growth, green and anomie. *Society and Natural Resources, 11,* 241—250.
Williams, B. (1985). *Ethics and the limits of philosophy*. London: Fontana Press.
Williams, R. (1976). *A vocabulary of culture and society.* London: Fontana Press.
Williams, R. (1980). *Problems in materialism and culture.* London: Verso.
Winner, L. (1993). Upon opening the black box and finding it empty: Social constructivism and the philosophy of technology. *Science, Technology and Human Values, 18* (3), 362—378.
Wirth, L. (1938). Urbanism as a way of life. *The American Journal of Sociology.* Vol. XVIV.
Wolsink, M. et al. (1998). *Utility sectors in the Netherlands—Dutch National Policy Report.* Report written within the DOMUS-project, funded and supported by the European Union (EU) Directorate-General for Science, Research and Development (DGXII). Oct., 1998.

Wondelleck, J. M. (1998). Book review of Press, Daniel. "Democratic dilemmas in the age of ecology: Trees and toxics in the Americal West." Durham, NC: Duke University Press, 1994. *Society & Natural Resources, 11,* 91—102.
Wright Mills, C. (1959). *The sociological imagination.* Oxford: Oxford University Press.
Wynne, B. (1996). May the sheep safely graze? A reflexive view of the expert-lay knowledge divide. In S. Lash et al. (Eds.), *Risk, environment and modernity* (pp. 44—83). London: Sage.
Wärneryd et al. (1995). *Den krypande deponeringskrisen—Om kris och omställning staden och rörligheten*. Lund: Studentlitteratur.
Yearley, S. (1996). *Sociology, environmentalism, globalization.* London: Sage Publications Ltd.
Zajonc R. B. (1968). Cognitive theories in social psychology. In G. Lindzey & E. Aronsson E. (Eds), *The handbook of social psychology* (Vol. 1). Reading, Mass: Addison-Wesley, Mass.
Åberg, H. et al. (1997). *The Household and the Environment*. Stockholm: AFR-report 179.