International Policy-Making as a Learning Process?

The European Union and the Greenhouse Effect

MARKUS JACHTENFUCHS
Mannheim Centre for European Social Research

ACEA	Association of European Automobile Manufacturers
AP	Action Programme
B	Belgium
CAP	Common Agricultural Policy
CdP	Cellule de Prospective (Forward Studies Unit)
CEFIC	Conseil européen des fédérations de l'industrie chimique
CEMBUREAU	European Cement Association
CFCs	Chlorofluorocarbons
ch.	Chapter
CIAB	Coal Industry Advisory Board
CIS	Commonwealth of Independent States
CO$_2$	Carbon dioxide
COREPER	Comité des representants permanents
CSCE	Conference on Security and Cooperation in Europe
D	Germany
DG	Directorate-general
DG I	DG for External Relations
DG II	DG for Economic and Financial Affairs
DG III	DG for Internal Market and Industrial Affairs
DG VI	DG for Agriculture
DG VII	DG for Transport

DG XI	DG for Environment, Nuclear Safety and Civil Protection
DG XII	DG for Science, Research and Development
DG XVII	DG for Energy
DG XXI	DG for Customs Union and Indirect Taxation
DK	Denmark
Doc.	Document
E	Spain (España)
EAP	Environmental Action Programme
EC	European Community
ECE	Economic Commission for Europe
ECU	European Currency Unit
EEB	European Environmental Bureau
EEC	European Economic Community
EFTA	European Free Trade Association
EP	European Parliament
EPOCH	European Programme on Climatology and Natural Hazards
EPP	European Peoples' Party
ERP	Environmental Research Programme
EURELECTRIC	European Committee of Electricity Supply Industries
EUROFER	European Steel Association
EUROMETAUX	European Association of Metals
EUROPIA	European Petroleum Industry Association
F	France
GATT	General Agreement on Tarifs and Trade
GDP	Gross domestic product
GHGs	Greenhouse gases
GR	Greece
I	Italy
IEA	International Energy Agency
IFIEC-EUROPE	European Federation of Industrial Energy Consumers

IPCC	Intergovernmental Panel on Climate Change
IRL	Ireland
L	Luxembourg
MECU	Million ECU
MEP	Member of the European Parliament
NGO	Non-Governmental Organization
NL	Netherlands
OECD	Organization for Economic Cooperation and Development
OJ	Official Journal (of the European Community)
ORGALIME	Association of the Mechanical, Electrical, Electronic and Metalworks Industries of the EC and EFTA Countries
P	Portugal
para.	Paragraph
R & D	Research and Development
Rainbow	Green Group in the European Parliament
SAVE	Specific Actions for Vigorous Energy Efficiency
SEA	Single European Act
Soc.	Socialist Group in the European Parliament
STEP	Science and Technology for Environmental Protection
THERMIE	'European Technologies for Energy Management'
UK	United Kingdom
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNICE	Umbrella Organization of European Industry
VAT	Value-Added Tax
WCED	World Commission on Environment and Development
WWF	World-Wide Fund for Nature Protection

The central idea of this study is a simple one. It is to develop the argument that action must be explained by the way actors reflect about a problem. The study argues that those reflections and their consequences for action can be described in systematic ways. Behind this basic statement lies a fundamental assumption: Besides analysing the interests, preferences and strategies of actors and the resulting interaction, it is at least equally important to study the emergence of these interests, preferences and strategies. In other words, it is important to examine not only how actors get what they want but also why they want what they want. Systematic patterns of reflection, this is the thesis, are at the basis of interests, preferences and strategies.

The primary category for the subsequent analysis is the definition of the problem adopted by actors. It describes how actors construct a specific situation. This construction allows a specification of the initial guiding question. It is now possible to ask how preferences can be explained in relation to problem definitions. The thesis in this respect is neither that interests and preferences of actors have to be taken as given nor that actors are completely free to define them. Instead, interests and preferences depend on problem definitions. The second specification of the initial question is to ask how the emergence of problem definitions can be explained. Problem definitions, I will argue, depend on basic patterns of perceiving and interpreting the world which will be called 'frames'.

The way how actors frame an issue (or define a problem) is thus not a function of their interests. It is not an active process of decision. Instead, it is argued that actors can develop their interests and preferences only on the basis of a problem definition within specific frame. If these frames change, i.e. if actors fundamentally change their way of perceiving and interpreting the world, it is possible to speak of a learning process. 'Learning', in this sense, is deliberately confined to relatively rare cases in order to maintain it as a meaningful concept which does not include every change of behavior or every change of behavior on the basis of new information. The term 'learning' is instead reserved for those cases where actors change their interpretation of the world and of their relationship to it.

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Frames can be considered as a form of the organization of knowledge. Knowledge has recently become an important concept in international relations theory, in particular with regard to international environmental policy-making. The new debate on the role of knowledge in international environmental relations and on 'epistemic communities' as promoters of co-operation risks, however, becoming a revival of the old functionalist hope of by-passing and finally superseding political conflicts by allegedly unpolitical technical problem-solving. This is not the purpose of the approach developed here. On the contrary, it is claimed that any definition of a problem contains ideas about a legitimate order of things and of the identity of the actor in relation to it. In other words, problem definitions and frames are political.

These last remarks are also destined to reject the reproach that talking about problem definitions, knowledge and learning was 'idealistic' and neglected power and interests as central categories of political science. The present study indeed tries to take up a rather scattered debate which has been going on in several sub-fields of the social sciences and which is concerned with paradigms, research programs, belief systems, world views, basic political cultures, or, to use the simplest expression, with the role of ideas in politics. If frames are the basis of problem definitions and thus of actors' preferences and interests, there is no need to oppose power and ideas as they concern different levels of action. An actor using power to pursue his interests acts on the basis of his world view. A change of his world view would also lead to a recalculation of his interests and redirect the use of his power.

If a change of frame can lead to a change of preferences, frames can become targets of action. The analysis thus moves from looking at frames *of* action to the analysis of frames *for* action. Whereas the former are abstractions of the patterns according to which actors construct their preferences on the basis of their perception and interpretation of reality, the latter are used by actors to pursue their goals by achieving a redefinition of the world view and hence of the preferences of other actors. Frames thus become a means for action. In this sense, knowledge is power.

There is no need in this concept to distinguish between the ideal types of the horizontally organized 'anarchical' international system and the vertically organized hierarchical state. To change problem definitions of another actor by promoting a different interpretation of the world is a process of arguing and convincing which is not fundamentally different in the international system, within a state or in an intermediary organization such as the European Community. In *this* process, power does not play a role. Behavior can be constrained by power, problem definitions cannot.

In any case, the present study endeavors to propose a method, not a theory. It argues that looking at the way problem definitions emerge on the basis of certain frames can help to explain why actors want what they want and what they can want. In doing so, it tries to give a theoretical foundation to the concept of 'frames' which allows the pitfalls mentioned above to be avoided. Only in the second place, does it

propose theoretically founded hypotheses for the empirical analysis. The main aim of proceeding this way is to present a different way of looking at policy-making, a look which sheds light on interrelationships neglected by other approaches. I do not claim to invalidate, to modify or to encompass other theories and to propose a better one. I only argue that the theoretical premises and fundamental concept the analyst adopts have implications for the results of the empirical work. This is as such a trivial statement but it can be formulated in a stronger way: Looking at the politics of interest is an important and legitimate way of political analysis. This should, however, not lead to the conclusion that it is the only way of finding out big and important things. Looking at the way interests are constructed might be equally interesting and, in some particular fields, even more promising than taking these interests as given. The purpose of the present study is to illustrate this claim.

The first two chapters are devoted to a theoretical clarification of the concept. Starting from a very basic discussion of notions of action and of rationality, they propose the concept of 'frames' as an analytical tool to grasp the cognitive structures of problem definitions which are the basis for action. A change of frames, it is argued subsequently, can be conceptualized as 'learning'. Chapter Three discusses the methodological issues of analysing frames and proposes three sets of ideal-typical frames for the ensuing empirical analysis. Frame selection and frame change do not take place in a vacuum but in a specific institutional context which considerably influences the way frames are taken up by actors and used by them. In addition, the issue-specific context and content of frames has to be taken into account. This is the task of Chapter Four. In Chapters Five to Eight, the theoretical argument of the study is applied to a case study of the European Community and the greenhouse effect. The latter seems particularly well-suited for the present purpose. Intensive research and the increasing attention of policy-makers have not yielded substantial insights into the consequences of the greenhouse effect on the environment, or on political and economic systems. In particular, the effects on particular regions of the world, let alone on single states, remain largely unknown. Hence, the policies of states and of international organizations with respect to the greenhouse effect have to deal with uncertainty. When the nature of the problem to be dealt with is unknown or controversial, actors cannot rely on safe knowledge to develop interests and strategies. Instead, problem definitions become crucial for action.

The empirical study extends from the early 1980s, when the EC launched a first climatological research programme, to the Rio summit in June 1992 for which the EC Commission had presented a comprehensive strategy as well as operational proposals to deal with the greenhouse effect. Later developments have been considered only occasionally. For this reason, I consistently use the term 'European Community' for the institution which only later has been renamed 'European Union'. As I had a privileged access to EC documentation and profited from the open-mindedness of my interview partners, I hope that the study is not only of theoretical and methodological value but also of interest for students of EC environmental policy. Its aim will be reached if it is read as a theoretically informed

study of practical relevance which avoids the extremes of pure theory and mere data colle ction.

Rational choice theory and the emergence of preference structures

In contemporary social science, rational choice theory occupies a prominent place. It rests on an ideal model of man and on a corresponding conception of rationality. *Homo oeconomicus*, which almost exclusively dominates microeconomics and has gained increasing predominance in sociology and political science, is generally seen as an all-informed goal maximizer pursuing his interests according to a well-ordered scale of preferences. He can be portrayed as an egoistic self-contained unity, constantly seeking to adapt himself to changing circumstances in his environment, pulled forward by the prospect of future rewards. The assumption of homo oeconomicus as the explanatory model frequently goes hand in hand with the adoption of methodological individualism, i.e. the view that social phenomena have to (and can only) be explained by looking at individual action. The rationality of homo oeconomicus is instrumental; simply stated, it says: if you want A, you must do B. Homo oeconomicus is rational by definition; if he does not act according to the basic requirements of rational choice theory anymore, he ceases being homo oeconomicus. In this case, the theory becomes useless as it cannot explain what is irrational in its own conceptual framework.

The purpose of this section is not to make a substantive contribution to the theoretical debate on rational action. Given the predominance of rational choice theory, however, it seems appropriate to justify why the present study does not choose the rationalistic approach. The reason lies in the topic of the study. In the language of rational choice theory, it would deal with the emergence and change of preference structures and the emergence, change and use of norms, values and symbols. The purpose of this section is to show that this task cannot be accomplished within a rationalistic framework as these concepts themselves remain largely outside the scope of the theory.

A major theoretical problem for rational choice theory is the construction and change of actors' preferences. Whereas some writers argue that an endogenous explanation of preference change is possible, the view adopted here is that these

attempts still miss a considerable part of reality due to their rather narrow conception of rationality. The claim made here is that *if* preference changes, norms and values are at the center of analysis (as they are in the present study), rational choice theory is an inappropriate tool.

In this chapter, I justify my refusal to adopt a rational choice framework by the inability of this theory to explain how actors come to their preferences and how and why these preferences change. In the case study, I present the story of the European Community and the greenhouse effect as a process during which different actors *develop* their preferences. Such an attempt must choose an approach other than rational choice. Therefore, I do not claim to 'invalidate' rational choice theory. On the contrary, the story of the European Community and the greenhouse effect could well be told on the basis of rational choice theory. However, it would be a different story, one about interests and interaction results instead of one about the emergence and change of problem definitions.

Rational choice theory and international interaction

Although a prominent proponent of rational choice theory holds that 'the theory of rational action is first and foremost normative ... and only derivatively, explanatory' (Elster, 1991, p. 2), it seems that at least in international relations theory, the explanatory version of the theory is far more widespread (e.g. Zürn, 1992). The normative theory tells actors what they should do to achieve their goals optimally under the prevailing circumstances. In this theory, actors face a certain set of actions they can take. These actions have consequences which materialize with a certain probability and which can be assessed by the utility attached to them which is based on his preferences. The theory can be further refined in order to tell the actor how to assess the probability of the consequences of his action (which is basically a problem of information processing) and probably even how to assess the utilities attached to the consequences of action. Frequently, however, preferences and utilities are simply taken as given, as beliefs, values and tastes seem inappropriate for rational scrutiny. This pure version of rational choice theory is an abstract exercise like mathematics and can be detached from empirical reality.

The explanatory version of rational choice theory assumes that actors behave as the normative version of the theory would tell them to do. A weaker argument holds that the 'real' motives and processes behind human (or corporate) decisions may be different but that analysing them *as if* they followed the prescriptions of the normative theory (Schlicht, 1990, pp. 704 seq.) yields substantive results. An argument frequently used to justify the 'as if' assumption is parsimony: rational choice theory allows the explanation of relatively many things with relatively few theoretical assumptions.

In the field of international relations, the conceptualization of the state and of the international system by most theorists corresponds closely to the homo oeconomicus and the market although there are important differences. The first and foremost property of the international system is the lack of any central government

which would be able to enforce sanctions, i.e. the condition commonly labeled as 'anarchy'. In this system, states act strategically, i.e. by assessing the consequences of their behavior and by conceiving behavior in terms of these consequences.

This view of the state has important consequences for rational choice approaches to international relations theory. Not only is the international system, within limits, comparable to a market but also states do not change. There is only a small step from this statement to the assumption that preferences of states do not change either. This assumption finds its justification in the focus of international relations theory in the fifties and sixties when it dealt mainly with military and balance of power problems in the cold war context of a confrontation of hostile blocs. Under these conditions, survival could realistically be assumed to be a first preference. This (often implicit) empirical assumption fits well with the general theoretical image of the state in international relations theory, where the state has to secure its survival in a hostile environment. In this view, preferences can change but are unlikely to do so *as a matter of fact* because of the structure of the international system.

The invariance of preferences can also be stipulated as a theoretical requirement: According to this view, preferences *must* be held constant during an interaction for methodological reasons in order not to fall into the trap of 'explaining' a change of behavior simply by a change of preferences (Weede, 1989, p. 255). Only then can the result of the interaction of states be analysed. Although this methodological requirement is, strictly seen, limited to a single interaction and does not preclude a change of preferences between several interactions, it entails the risk of altogether neglecting changes of preferences as sources of behavioral change. In this case, behavioral change as a result of preference change would be excluded *by definition.*

Game theory

For writers who consider states as rational utility maximizers, rational choice and especially game theory appears to be a particularly useful tool for the analysis of the strategic interactions of the constituent elements of the international system, the states. Game theory, the theory of interdependent decisions, has acquired a high degree of sophistication and formalization since the second world war (Luce and Raiffa, 1957, Rapoport, 1960, Schelling, 1960, Riker, 1962). It assumes that preferences remain stable during the game. This methodological necessity has led game theorists to neglect the area of preference formation and preference change, although there have been arguments that even the emergence of preference can be explained endogenously, i.e. by means of game theory. The games themselves are in any case stripped of any empirical information (Axelrod and Keohane, 1985, p. 227, Snidal, 1985, pp. 27-28). This sometimes makes game theorists deduce actors' preferences from the structure of the decision situation instead of looking for them empirically (Snidal, 1985, pp. 40-44). This leads to a tendency to infer preferences

from 'objective' properties of actors, such as resources (monetary, military, emission data, etc.) or their position in the international system (bloc adherence, upstream or downstream location in environmental disputes). In this case, preference structures are the premises of game theoretical analysis. This cannot be criticized as such but removes the findings of game theory from real-world situations. Taking preferences as premises might lead to serious misinterpretations of concrete historical situations when the results of the abstract analysis are applied to concrete situations.[1] A more serious danger is the deduction of preferences from the outcome of the decision situation. This would amount to mere tautology (Snidal, 1985, p. 40).

The emergence and change of preference structures is a blind spot of game theory. Therefore, Berger and Offe (1982, p. 525) argue:

> Logically, the game starts only after the actors have been constituted, and their order of preferences has been considered as part of the game. Instead, such limits as the resources available to the actors, their learning capacity, their priorities, and the payoffs of alternative modes of strategic behavior must be accounted for in a conceptual framework other than that of 'rational choice'. In this sense, relying exclusively on game theory amounts to eliminating important constituents and preconditions of the game not only from the methodological, but also from the sociological agenda; and that certainly is a high price to pay for methodological purity ... Apart from the possibility of viewing actors and structures as mutually determinative, we would ... argue that there are even cases in which adequate explanations can be conducted without any reference to 'individualistic' categories of actors and actions (c.f. Kohler-Koch, 1989, p. 60, Jervis, 1988, p. 319).

Rational choice theory and its game theoretical branch cannot explain how the basis of the game or the rational decision, namely actors' preferences, come into being. 'How preferences are formulated and how learning occurs may be more important than the actual choice, yet both rational choice and neorealism are weak in this dimension' (Nye, 1988, p. 248).

Limitations of rationality

Apart from the problems with an endogenous explanation of preference change, rational choice theory has been criticized for making unrealistic assumptions about actors (Scharpf, 1990). A recent criticism, which has its origin in sociology, is concerned with the very conception of rationality itself, which restricts rationality to instrumental action out of self-interest while neglecting the role of norms and values. The second modification to rational choice theory is older and has its roots in cognitive psychology. It relaxes some of the assumption about the properties of homo oeconomicus without leaving the field of rational-choice rationality. Both approaches thus try to set limits to actors' rationality in order to make it more realistic. However, this effort is insufficient for the present purpose.

The older line of argumentation has been introduced into the debate by Herbert Simon and figures under the heading of 'substantive' instead of 'instrumental' rationality. In classic economic theory, actors have complete information about their environment, unlimited information processing capacities and perform a continuous recalculation of their options of action on the basis of their preferences according to this information. It has become a commonplace to state that these assumptions are unrealistic. One attempt to solve this problem was to point to the (internal) limitation of actors' information processing capacities. In this model, actors are no more completely informed about their options and fully aware of their preferences at any moment. They do not try any more to maximize their utility in view of some optimal goal but only look for satisfactory strategies when faced with an overwhelming environmental complexity. Cognitive constraints thus prevent actors reaching an optimal goal but induce them to stop searching at an acceptable goal when they have reached the limits of their cognitive capacities. This conception of 'satisficing' (Simon, 1976) instead of 'optimising' was strongly influenced by results of cognitive (individual) psychology. According to it, the rationality of actors is 'bounded' and can only lead to results below 'objective' optimum outcomes. The conception of bounded rationality shifts the attention from the pursuit of strategies for optimal solutions to the search of procedures for good solutions (Simon, 1976, c.f. March, 1988a, 1988b).

In this way, some of the obviously unrealistic assumptions (the 'hyper-rationality assumption', Zürn, 1992, pp. 82 seq.) of traditional rational choice theory can be corrected. When information processing and its constraints become problematic, the recommendation that one should focus on ways and means to improve information processing is not far away. Institutions, either in the form of classic international organizations or of international regimes are a possibility to reduce information deficits and transaction costs. In a functional interpretation, this is why institutions exist in the international system although states even in this model still follow the logic of anarchy.

Yet, the concept of bounded rationality does not depart from standard rational choice theory in its conceptualization of preferences. It simply says that, put quite simply, actors try to make the best out of a given situation instead of trying to pursue unattainable goals. The objection against introducing cognitive factors (e.g. Rubinstein, 1991) into the economic model of man is that it leads to an ever-increasing complexity of this model without yielding substantially new insights. Opponents prefer strictly deductive reasoning despite its known mismatch with reality because it is able to provide clear and testable hypotheses instead of losing ground in a huge number of studies in inductive analysis (Lindenberg, 1990, p. 734). Other critics have objected that the concept of 'bounded rationality' is a half-way solution as it gives up the rationality concept by introducing factors such as aesthetic judgment, emotions, etc. On the one hand, 'bounded rationality' is not radical enough as it still adheres to the concepts of traditional rational choice theory, though in a softened form, on the other hand it is too radical by de facto giving up the notion of rationality itself (Schlicht, 1990, pp. 711, 716).

In recent years, important modifications of the analytical framework of rational choice theory seem to have come not from cognitive psychology but from sociology. The central argument of this debate is that one can integrate central features of homo sociologicus[2] in a broadened rational-choice framework. A central feature of attempts to make rational-choice theory more 'realistic' is the acknowledgment that actors are not completely free to choose their options but are constrained in some way or another. Whereas the notion of bounded rationality places the constraints of rational action within the actor in the form of cognitive limitations and finite information processing capacities, the concept of 'framing' takes up the notion of norms existing outside the actors. Whereas homo sociologicus is entirely guided by norms, their role in an enlarged rational choice framework is merely to define the decision situations and restrict the options from which an actor can choose. Due to the premises of methodological individualism, norms must be internalized by the actors in order to be effective.

Norms then prescribe goals for certain *situations*. Actors do not try to maximize their utility in an abstract universe but under specific circumstances. What may be rational in one situation may not be rational in another.

> Briefly stated, a situation is framed by a goal (and the relevant goal criterion) in the sense that that goal will select the relevant alternatives and thereby 'define' the situation. Other utility arguments play at that time only an indirect role by influencing the firmness of the grip (the 'salience') the frame has on the definition of the situation. When utility arguments in the background become stronger, they will reduce the salience of the present frame and may cause a 'frame switch' (Lindenberg, 1990, p. 743, c.f. Kahnemann and Tversky, 1984, Lindenberg, 1989).

Still, the idea of some kind of universal utility function is not given up. The universal norm (e.g. 'maximize your profit', 'increase your social status') is only pushed into the background by the situational goal but can supersede the situational goal. The move from universal to situational decision situations makes rational-choice analysis much more attractive for the political scientist, who cannot rely on universal goals because there is no analogy to the market with a huge number of actors and a strong selection mechanism in the form of competition.

In the notion of 'framing' outlined above, however, norms are assumed to influence the definition of the situation because they have been internalized by the actor. How social norms emerge and how they are maintained, which factors influence the salience of a norm, and how norms are internalized is not explained from a rational choice perspective (Ziegler, 1991, p. 8, a contrary position is defended by Coleman, 1990, ch. 10 and 11). Norms and values still remain exogenous to rational choice theory. Whereas traditional rational choice theory neglects the question altogether, more recent approaches acknowledge their existence as a constraint operating within actors. The challenge for rational choice theory is therefore to make the emergence and internalization of norms and values endogenous to rational choice theory (Gehring, 1994, ch. 9, Sen, 1977).

One way to tackle the problem is to reduce the explanatory scope of the theory. What cannot be explained by the theory is declared as a secondary question by the analyst. As a consequence, preference change as a consequence of a change of values and norms remains inaccessible to rational choice theory.

Values and preferences

Making values[3] a part of actors' preference structures cannot explain why certain values are part of the individual preference structure. Rational choice theory answers this question in principle by saying that it is in the self-interest of actors to be motivated by a specific value. This is certainly true for universally shared, self-evident, or 'generic' values but debatable for those values that are not universal or self-evident ('immanent values') (Hechter, 1991).

Generic values (maximizing wealth, status, or power, surviving) can easily be regarded as part of the individual's preference structure. There is no need to justify their presence because they are obviously in the self-interest of actors (on the other hand, behavior not following these preferences has to be explained). Generic values are universal by definition and as such not very interesting for the analysis. Not much is lost when they are simply accepted as part of the individual's preference structure as they are also not subject to change. Their vagueness makes them a weak tool for understanding specific situations.

Immanent values (e.g. the absolute right of nature to remain intact as opposed to the right of human beings to a healthy environment) are more interesting but more difficult, and indeed, impossible to deal with in rational choice analysis. As they are not universal, their presence has to be explained. One possibility is to define that every part of the preference structure of an individual is in the self-interest of that individual. Obviously, a definition is not an explanation. Another possibility is to call these preferences irrational. Again, this is not an explanation but regretful neglect. Rational choice theory cannot identify a process whereby non-universal values become part of the individual preference structures as this process must be prior to preference formation (Eder, 1991, p. 5). They cannot be chosen rationally, or at least not within the rationality concept of rational choice theory (Kratochwil, 1986). Immanent values have to be communicated in order to become an often unconscious part of individual preference structures.

These later remarks argue that rational choice theory cannot fully deal with preference change because of its conception of rationality. Rational choice theory seems to have monopolized the use of the term but in reality has restricted it to one specific type, namely what it calls 'instrumental rationality'.[4] The rationality of rational choice theory is the type of action that corresponds to the ideal homo oeconomicus portrayed above. This conception of rationality seems too narrow. Whether all types of action beyond rational-choice rationality are simply called 'irrational' is in the first place only a terminological question. As it carries, however, normative implications making rational-choice rationality the 'better' type of

behavior, such a labeling should preferably be avoided. Secondly, this labeling means that what is 'irrational' in rational-choice theory cannot be explained by it.

It thus turns out that rational choice theory cannot deal with preference formation and in particular not with the question why non-universal values become part of the preference structure. Even attempts to modify rational choice theory by introducing the concept of 'framing' or of 'bounded rationality' do not tackle this question. They cannot do so because they also rest on the premise of methodological individualism and on an individualist notion of rationality. By doing so, the analyst not only makes important metatheoretical assumptions[5] but also directs empirical research in directions the theory can deal with and deflects it from phenomena where the theory is of little use, for instance because they are simply called 'irrational'. Indeed, culture, ideas and religion are often neglected in studies dealing with the interaction of states. This is hardly surprising given the conceptual basis of the dominant rationalistic approach. As the theme of the present study is precisely the emergence of preference structures, the emergence, change and use of norms, values and symbols, it has to leave the framework of rational choice.

Cultural theory and plural rationalities

The notion of rationality adopted by rational choice theory and its conception of preferences leads to the exclusion of some parts of social reality in a systematic way from the analysis. This chapter argues that these problems can be fruitfully tackled by adopting a constructivist perspective which allows for plural realities that are socially constructed. The constructivist perspective also sheds light on the emergence of preferences. A most interesting perspective is the conflict of different rationalities based on different constructions of reality, a situation not foreseen in rational choice theory.

Only one type of rationality?

As its name already indicates, rational choice theory has virtually monopolized the concept of 'rationality'. This has important consequences for empirical analysis in so far as it excludes all types of behavior which are not rational in the sense of rational choice theory from the analysis. The rationality concept of rational choice theory is based on the specific concept of strategic action as a means-ends relation. This does not have to be the case. On the contrary, four basic concepts of action can be identified which have different characteristics and which lead to other rationalities than rational choice theory does. The implication of this view is that rational choice theory and methodological individualism are only one of several possible ways of seeing and analysing the social world. In the following section, I will briefly discuss these four concepts of action[6] in order to make clear my own approach chosen in this study, its rationality implications and the consequences this has for empirical analysis.

Rational choice theory uses the concept of *strategic action*. This implies special attention to the relationship between means and ends. According to this concept, an actor tries to reach certain ends or goals. He does so by choosing and applying means that are appropriate in a given situation. Strategic action implies that the actor takes the calculus of at least one more strategic actor into account while assessing the appropriate means to achieve his ends. A central category of this concept of action is the *decision*. Decisions are aimed at achieving goals by choosing between different alternative patterns of action. Decisions are dependent on the assessment of the situation by the actor. This concept of action assumes that actors try to choose goals and means under the criterion of a real or expected utility which is to be maximized. Frequently, this view assumes a 'general' or 'objective' utility not only in the field of economics, but also in the social or political reality. This utility is a premise, not an object of empirical inquiry.

The model of strategic action does not preclude dealing with cognitions. On the contrary, more recent theories all agree that the objective world is not fully intelligible to the actor but only within the limits of his cognitive capacities. These capacities constrain, bind, or frame the actor's calculation of his utility. The cognitive capacities of strategic actors must allow for the existence not only of things but of other actors (decision-making systems). The strategic actor thus refers to one world outside himself, which he analyses by means of his cognitive capabilities (Axelrod, 1976).

The concept of *norm-regulated* action does not apply to an atomic actor which encounters other, similarly structured actors in his environment but instead to an actor as a member of a social group which orients its behavior towards shared values. These values find their expression in norms, i.e. in prescriptions. An actor complies with a norm (or violates it) as soon as he is in a situation to which the norm applies. Action is thus not guided by a future reward but by a present prescription. Norms express the agreement existing in a social group. They create generalized expectations within the group in the sense that the other members of the group, as soon as they are in the situation to which the norm applies, behave according to this very norm. The central category of norm-regulated action is thus norm-compliance. Non-compliance may lead to sanctions by other members of the group. The generalized expectations of behavior created by norms are not only cognitive in the sense that they allow predictions about a certain behavior which can reasonably be expected but also normative in the sense that the members of the group are *entitled* to expect a specific behavior. Normative expectations can continue their existence despite a different cognitive reality whereas cognitive expectations, on the contrary, can be falsified and then have to be corrected (Galtung, 1959, Luhmann, 1987, p. 42).

Norm-regulated action presupposes the existence of a world of norms beside the objective world as the two worlds to which the actor refers. The world of norms is the social world in which the actor exists together with other actors referring to the same normative context. These norms do not exist as such but only because the group of actors acknowledges their existence. The *validity* of a norm means that

actors agree to it in principle because it regulates their action and interaction problems. The *effectiveness* of a norm, however, means that its validity claim is factually accepted by those concerned by the norm. This *intersubjective* agreement is the basis of the social (and not only private) validity of the norm.

In this model, there is again a confrontation of the actor with the world(s). As in the model of strategic action, the actor faces a world which he can recognize cognitively and in which he can intervene, either in order to pursue his goals or to sustain legitimate relations with other actors. These models reflect the common distinction between *homo oeconomicus* and *homo sociologicus*. There might even be areas of overlap between the two models, which may at least partly be captured by the concept of 'framing' (in the meaning of rational-choice theory).

The model of *dramaturgic* action, less developed theoretically as the previous ones, goes one step further: It conceptualizes the actor itself as a world to which he can have a reflective relationship (c.f. Goffman, 1961, 1969, 1974, Gusfield, 1981, Garfinkel, 1967). Dramaturgic action sees social interaction as an encounter where the actors are engaged in a performance and constitute their mutual public. For the actor, the aim of the performance is to present himself in a specific way in the eyes of his public. Dramaturgic action is often in some way a supplement to strategic action. It refers to the style of the activity, to its presentation, which is given a life of its own. When acting according to this model, people act *as* policeman, diplomat or politician.[7] Action thus frequently acquires a double face: people are not just doing something in order to achieve their goals, but do it in a specific style. In this field of research, the *forms* of action consequently require particular attention. The model of dramaturgic action does not have to remain restricted to the action of people but can equally be extended to organizations or states.

As actors act as if they were playing before an audience, the manipulative aspect of this play is of central importance. This manipulation is, however, not identical with strategic action. The actor may be entirely convinced of the truth of what he is playing. He does not play only in order to hide his 'real' intentions. By playing, he creates an image of himself not only for the public but also for himself. Only if the public were to judge the play solely under the criterion of goal achievement, could it be reduced to strategic action. The worlds in which dramaturgic action takes place are the inner and the outer world.

The model of *communicative* action, finally, shifts its attention to the role of language as a medium of exchange which reflects the references of the actor to the world. All three preceding concepts of action refer to language or can at least be constructed as if they did so. The strategic model can be reformulated in a way as if the egoistic, utility-maximizing acts of actors were mediated via speech acts. Norm-regulated action has to assume a consensus between the participants of interaction which exists – at least in principle – in the form of language. The dramaturgic model of action has to rely on speech in order to communicate the play of the actor to the public. Thus, in the model of communicative action, the actor in principle refers to three worlds (the objective, the subjective, and the social world).

The communication, according to which all three preceding types of action can be modelled, does not take place in a vacuum but against the background of a culturally transmitted pre-understanding (Habermas, 1981, Vol. I, p. 150). In each interaction, actors use part of their stock of knowledge (Schütz, 1991) which is relevant to the interaction. In this concept, actors are not restricted to one decision situation but can *negotiate* the definition of the situation. By doing so, they modify their stock of knowledge relevant to the situation. Definitions of situations create orders by which actors relate elements of the situation to the structure of their stock of knowledge. There may be encounters between actors with fundamentally different definitions of the situation. If none of them has a monopoly of interpretation, they face the difficult task of finding areas of agreement. Communication in this case, it can be assumed, is difficult to achieve and precarious.

The purpose of this short overview of concepts of action was to demonstrate that the concept of action chosen by rational-choice theory is by no means exclusive but on the contrary a rather limited one. It relates the actor to an objective world and focuses on means-ends relationships without further inquiring about the conditions for these relationships. All four models of action have their own type of rationality. Rational-choice rationality is only a particular type. The first three concepts of action stress certain actor-world relations and discourage others. This has implications not only for theorizing but also for empirical analysis.[8]

There is no need to oppose those rationalities or, for instance, norm-guided to strategic action. Norms or the public drama in which actors are engaged might decisively influence what the interest of strategic actors is. Whether Habermas' synthesis of strategic, norm-guided and dramaturgic action in the concept of communicative action is the only possible one is not at issue here. I merely wanted to show that different concepts of action lead to different rationalities and that, at least in principle, communication among these rationalities is possible.

Cultural theory and the construction of reality

There are two criticisms of rational choice theory that are important for the present study: First, rational choice theory can only explain preferences that remain within its own limits; others have to be accepted without further inquiry. Second, the emergence of preferences remains obscure. How do actors know what they know, for instance, what their interests are? All three other concepts of action allow for preferences of all kinds to be the *result* of social interaction and not only the starting point. The emergence and change of preferences can thus be in the center of attention.

This latter point is the endeavor of a theoretical branch which figures under the heading of 'cultural theory' (c.f. Douglas and Wildavsky, 1983, Douglas, 1989, Thompson, Ellis and Wildavsky, 1990, Schwarz and Thompson, 1990) in the Anglo-Saxon area. Cultural theory has strong roots in anthropology. Its central theoretical assumption is that 'social relations are sustained by generating preferences that in

turn reproduce those social relations' (Thompson, Ellis and Wildavsky, 1990, p. 66). In this case, the question is not how actors operate on the basis of their preferences and within a given set of institutional, legal, technical, etc. constraints, but how preferences are constructed by an *interaction* of the actor and its environment. Even needs and resources, cultural theory claims, are socially constructed (Thompson, Ellis and Wildavsky, 1990, p. 39, c.f. Katzenstein, 1990, p. 20). It thus attempts to do away with all objectivist temptations of rational choice theory.

Cultural theory sees the actor not as an atomistic egoist but as embedded in a social order which he cannot escape. Social institutions in this view create preferences of individuals; individuals can also dispose of cognitive maps through which they perceive and interpret reality. This interpretation can, however, never be an 'objective' one. On the contrary, 'all is bias' (Schwarz and Thompson, 1990, p. 61).

The second central element of cultural theory consists in the claim that there is no infinite number of 'biases', of world views or ways of life, as they are sometimes called, but that instead the ways actors perceive and interpret the world can be reduced to some general models. At least, actors refer to these few basic world views in different ways. These world views correspond to basic ways of organizing a society or to fundamental 'steering principles'. They are no individual categories. 'Cultural theory does not ask about people's private beliefs. It asks what theories about the world emerge as guiding principles in a particular form of society' (Douglas and Wildavsky, 1983, p. 89).

The notion of 'rationality' as it is used in cultural theory is thus different from the one used by Habermas in his 'Theory of Communicative Action'. In Habermas' terminology, different rationalities correspond to different properties of human action. The category of 'communicative action' tries to enclose all those properties in one comprehensive concept. Habermas discusses his categories of action (and of rationality) on an abstract basis: Conceptualizations of action are analytical devices for the analysis of society. Cultural theory, on the other hand, constructs its concepts of rationality inductively from social reality. They are not analytical devices for looking at social reality but *products* of each type of organizing principle.[9]

The conclusion drawn from Habermas' theoretical elaboration is that different rationalities exist on the basis of different types of action which determine the definition of a situation and which are thus logically prior to preferences. Communication about these different rationalities is possible. Cultural theory comes to similar results from inductive analysis. Different 'ways of life' carry their own rationalities. Ways of life are the basis of preferences. They are the product of societal organization. Different actors may follow different ways of life, and hence, these ways of life (or combinations of them) can encounter each other in an interaction. Both lines of reasoning open the possibility of an analysis of what happens *before* actors have constructed their preferences.

Towards a constructivist perspective

The argumentation until now has led to the result that the actor does not optimize his behavior in relation to the opportunities and constraints of an objective world but on the basis of his subjective view of the world. This does not imply that there is no 'objective' world or that it remains forever unknown to the actor. It only means that action is based on an actor's perception of reality. Whether this perception is 'correct' or not, or whether there is a possibility or not to establish standards to assess the correctness of this perception is irrelevant in this context. Actors thus *construct* the reality upon which they act. Such an orientation could still be shared by a strongly cognitive version of rational-choice theory. The different types of modified rational-choice theory, namely the concepts of 'bounded rationality' and of 'framing' go in this direction by introducing a subjective element in the conditions for utility maximizing. However, they remain tied to the premises of methodological individualism: everything that counts for determining action has to be a property of the individual. Cognitive capabilities and limitations, or the way decision situations are framed are relevant only to the degree they are found in the individual. Even this type of modified rational choice theory is concerned only with *substance* of the construction of the world, in other words not with the process of construction but with its final result. Mechanisms for influencing the individual's cognitions can be singled out but remain within the individual.

The approach developed here goes further. Instead of the perspective of the (individual) construction of social reality, it adopts the premise of the *social* construction of reality. Instead of asking what actors know (and how this influences their action), the constructivist approach asks how actors know what they know (or what they think they know) (c.f. Watzlawick, 1981). Knowledge and the process of its social creation become the centre of analysis.[10] The social-construction-of-reality perspective (Berger and Luckmann, 1966, Schütz, 1962, 1964, 1966, 1991, Mead, 1967, Husserl, 1950) thus makes two important claims. First, actors' knowledge about the world is not arbitrary but pre-structured in a historical process. Language is an essential medium of this structuration. These structures are independent of experience; they acquire an existence of their own which cannot be reduced to individual properties (Berger and Luckmann, 1966, p. 21). Second, knowledge is intersubjective, i.e. socially shared (Berger and Luckmann, 1966, p. 22).

In this perspective, knowledge intervenes between the individual and society, between personal identity and the structure of society. Society is a permanent process of the externalization of knowledge, its objectivation and its internalization by the individual. Knowledge, this argument says, is first a product of individuals but then becomes part of the structure of society (and thus 'leaves' the individual). This individually produced societal knowledge in turn regulates individual behavior (Berger and Luckmann, 1966, pp. 127 seq.).

A constructivist analysis thus consists of two steps. In the first, it has to show how individuals produce societal knowledge. The notion of societal knowledge

does not imply that society as a whole possesses the entire stock of knowledge of humanity. On the contrary, knowledge is unevenly distributed in society. It is therefore necessary to explain which type or set of knowledge is distributed in which parts of society and whether regularities can be observed in this respect. The link between the organization of society and the organization of knowledge in society is the subject of cultural theory. Four basic forms of societal organization, it argues, lead to four basic types of knowledge. This part of the explanation will be neglected in the present study.

The second part of an explanatory strategy on the basis of a constructivist perspective is to show how this knowledge regulates individual or group be-havior.[11] This is the focus of the present study. The theoretical approach has important consequences for the empirical study. If actors internalize a specific type of knowledge about society or parts of it, there exists the possibility of different actors internalizing different sets of knowledge. As a consequence, the possibility of multiple realities arises which are, however, not mere individual properties but social phenomena.

A caveat about this constructivist perspective seems appropriate here. Constructivism does not deny the existence of a reality outside the observing actor. It is also neither anti-empirical nor merely concerned with mental processes but merely argues that the world is only accessible to actors via cognition (Luhmann, 1990, p. 41). Münch (1992, pp. 24-25), distinguishes 'constructivism' in this sense from 'radical constructivism', which has given up any relationship with empirical reality and focuses only on the internal consistency of reality constructions. The approach defended here does not dissuade from empirical studies but simply gives them another guiding question. It asks how actors (or systems, in Luhmann's terminology) perceive reality and what consequences this has for their action in this reality.

For the purpose of the present study, a constructivist perspective allows a supplement to the initial decision model of rational choice theory. Whereas rational-choice theory focuses on goal achievement, the approach used here insists on goal setting, in other words on why actors want what they want instead of how they get what they want (Wildavsky, 1987). The consequences go, however, beyond a mere division of labor between the two theoretical concepts. What seems to be a conflict between different interests might also or even exclusively involve a conflict between different interpretations of facts and different world views. This does not have to lead to a total relativism of decision-making (c.f. Cohen, March and Olsen, 1972). On the contrary, preferences can be systematically analysed without either deducing them from 'objective' facts or simply giving up any theoretical explanation and looking for them empirically.

Preferences can be seen as stemming from different conceptions of reality. Conflicts may thus involve not merely different interests but different ways of creating these interests. If a completely relativistic view of the decision-making process is to be avoided, the organization of knowledge in society becomes an important issue. If it can be shown that knowledge does not consist of an unlimited

number of information units linked by an unlimited number of rules but can on the contrary be organized in specific ways (although not necessarily in four), the notion of knowledge becomes more operational for empirical analysis. Conflicts might then involve different sets of knowledge.

Notes

[1]. A well-known example is the interpretations of trench warfare during World War I as prisoners' dilemma situations in the influential book by Axelrod (1984). Critics argue that these situations have instead been assurance games (Gowa, 1986, p. 180) or challenge the usefulness of the standard prisoners' dilemma and stag hunt games in general (Wagner, 1983). Be that as it may, the situation of trench warfare is *modeled* by the analyst and references to reality are only occasional. The conclusions of these analyses lose much of their explanatory, let alone predictive, value.

[2]. Homo sociologicus is seen as norm-guided and conforming. He is insensitive to changing circumstances and a helpless object of social forces. His behavior is determined by the past in the form of internalized social norms. From the rational choice point of view, his behavior is not rational as his socialization prevents him from optimizing his goals. Proponents of the sociological approach claim, however, that norm-guided behavior cannot simply be called irrational because it follows a rationality other than the one prescribed by rational choice theory, which claims to have the monopoly definition of rationality. Sociological approaches also deny the possibility to explain behavior only by referring to the individual. Norms, they claim, are not reducible to the part the individual has internalized. Norms do not only constrain but also enable behavior. Reality is intersubjectively defined and thus again not reducible to individual views of reality.

[3]. Values are good reasons which people ascribe to their action. They can also motivate action (e.g. 'believing in God'). Norms are prescriptions for action (such as 'do A' or conditionally: 'if A, do B, else C', etc.), e.g. 'go to church'.

[4]. Or what Simon has called 'substantive rationality'. In a review article on different concepts of rationality, Jon Elster (1982) gave more than a dozen different versions of this type of rationality. These were, however, all variations on one theme, namely utility maximizing.

[5]. Habermas (1981, Vol. I, p. 126) claims 'daß wir uns allgemein mit der Wahl bestimmter soziologischer Handlungsbegriffe auf bestimmte ontologische Voraussetzungen einlassen. Von den Weltbezügen, die wir dem Aktor damit unterstellen, hängen wiederum die Aspekte der möglichen Rationalität seines Handelns ab'.

[6]. The discussion is based on Habermas (1981, Vol. I, pp. 126 seq.). The aim of this section is not a comprehensive analysis of different types of rationality but only a demonstration that different types of action and of rationality, often chosen implicitly by the analyst, have different implications for the design and the results

of any empirical analysis. The same argument is used in the context of international relations theory by Wendt and Duvall (1992, p. 55).

[7].	See for instance Gusfield (1981, pp. 80-81): '… I want to describe that confrontation as a confrontation between good and evil. The drinking-driver is the leading protagonist in the moral drama of automobile accidents. He supplies a major explanation for a source of death and destruction. To convert him from sin to virtue is a salient element in the public drama of the auto and American society' and later (p. 175): 'Conceptualizing public actions as drama means that we think about them *as if* they were performances artistically designed to create and maintain the attention and interest of an audience' (emphasis in the original).

[8].	Strategic action, for instance, might lead to a model in which political actors choose the scientific interpretation of the greenhouse effect which serves their goals. Norm-regulated action as an analytical concept might focus on the impact of the effective norms guiding the relations among states in the emerging response to the greenhouse effect. Finally, dramaturgic action might stress the production process of science and the reference to science in public policy-making as a drama which serves to create and stabilize the identities of the participants in the interaction. In this model, politicians are not free anymore to choose the interpretation they prefer. The more interesting question, in any case, is how they know what they prefer.

[9].	It is understood that these concepts are ideal types. In addition, there can be combinations of organizing principles.

[10].	The use of the term 'knowledge' is rather confusing in the different sections of literature. Chapter Four contains a discussion of the role of knowledge with regard to environmental policy-making.

[11].	I deliberately refrain from using the term 'knowledge application' (Holzner and Marx, 1979) because it easily creates the association of knowledge as a set of data linked by some rules that have to be mechanically applied to a certain social situation and in particular that this application is a process that can be intentionally controlled.

Knowledge, it has been argued until this point, is in some way important for actors' calculation of their interest and their choice of strategies. Along these lines, a growing but rather disparate body of literature has tried in recent years to shed light on the role of ideas in politics. In this literature, the central theme has been that interests do not alone determine political decisions or the development of a policy but that ideas, concepts, ideologies, belief systems and the like play a sometimes decisive role (for an overview, c.f. Jachtenfuchs, 1995). This is particularly true for the predominantly American literature on the 'political power of (economic) ideas' (c.f. Hall, 1989, Kingdon, 1984, Stein, 1988, Boskin, 1989, Gardner, 1980, Maier, 1978, Majone, 1989). However, the underlying theoretical assumptions and conclusions of this field of research remained somewhat unconnected. This chapter proposes the concept of 'frames' as an analytical tool for the analysis of the role of cognitive structures as the basis for action. The aim of this chapter is to clarify the concept of frames and to prepare its use in the subsequent analysis. It may be necessary to distinguish this approach from the branch of research dealing with the 'belief systems' or 'cognitive maps' of political elites (c.f. Putnam, 1973, Axelrod, 1976, Bonham and Shapiro, 1977). In the first place, frames are collective instead of individual constructs. Second, the research on political elites does not foresee the possibility of 'action frames' (see below), i.e. of the explicit promotion of a specific world view but focuses on the interpretation of reality and its impact on decisions.

A constructivist conception of frames

At the end of the preceding chapter, it was said that preferences and interests are social constructions. They are constructed through the intermediary of knowledge (in a very broad sense) of the world. This knowledge, the present argument says, is itself organized and structured and thus subject to more than a mere empirical study. If there are structures and regularities in actors' construction of the world,

there is the possibility of drawing systematic conclusions about the behavior of actors from these patterns.

It is claimed here that such regularities indeed exist. They will be called 'frames' in the ensuing text. The idea that knowledge about the world is organized in some form goes back to the German research branch which figured under the heading of 'sociology of knowledge' in the twenties and thirties of this century (Mannheim, 1952, 1964, 1984, Schütz, 1991, c.f. Dant, 1991). In recent years, attention shifted from looking at the way knowledge is organized in the mind of the individual to the consequences of this knowledge organization for action (Sabatier, 1987, Majone, 1980).

Erving Goffman has developed an entire 'frame analysis' which centers on the structures that shape and form social interaction and communication (Goffman, 1974). His concept of framing refers, however, more to the structure of the social situation than to structures of knowledge. Eder defines frames as 'stable patterns of experiencing and perceiving the world' (Eder, 1992, p. 4). Martin Rein and Donald Schon (1991, p. 263) conceive them as

> … a way of selecting, organizing, interpreting, and making sense of a complex reality so as to provide guideposts for knowing, analyzing, persuading and acting. A frame is a perspective from which an amorphous, ill-defined problematic situation can be made sense of and acted upon.

In my understanding, frames serve the purpose of making sense of any kind of social situation. They are the cognitive tool used by the actor to select, group and interpret events, facts, symbols, etc. In the language of systems theory, one could say that they constitute the cognitive filter used by the system to reduce environmental complexity. As systems by definition have a lower internal complexity than their environment, there must be some mechanism to perform this reduction of environmental complexity. This mechanism is a pre-condition that systems can react to events in their environment. Frames allow the selection of some significant events out of the stream of events in the environment of a system. Frames as systemic filters to reduce environmental complexity are closely related to constructivism. It is the frames which determine how we know what we know. Insisting on the importance of frames does not mean analysing in detail what is perceived by the system (or by the actor). It only means analysing systematic features of this perception. The (re-)construction of reality works in specific ways which can be systematically described. In Goffman's formulation, the attention of the analyst is directed towards the camera and not to what the camera records (Goffman, 1974, p. 2).

Framing directly leads to the assumption that there are different possible views of the world which are equally possible and that these views create multiple realities (Schütz, 1962, pp. 207-259). There have been several attempts to bring some regularity into the number of possible realities and reduce them to some fundamental categories. Goffman, for instance, lists some basic frames without claiming to be exhaustive and Schütz has tried to give some constitutive rules for

his concept of 'life-world'. Cultural theory claims to have identified four basic 'ways of life' (Jann, 1986). In all these attempts, 'frames', 'ways of life', etc. have different meanings and different theoretical implications. The approach chosen here is different. Instead of attempting to identify a small number of basic frames (and the corresponding constructions of reality), I will argue that it is more fruitful to stipulate basic elements of a frame which can be found in each frame but to differing degrees.

The concept of frames does not necessarily lead to discourse analysis as a research method although it seems to be particularly useful in this field (c.f. Gamson and Modigliani, 1989, Eder, 1992). Frames do not have to be made explicit by actors; it is, on the contrary, more likely that most actors are at best partially aware of them. Frames are referents for action; action is developed in this framework and justified by reference to it. Frames are thus the basis of the interests which rational actors pursue. This is not an argument against the use of frames in discourse analysis but one that diminishes the role of communication, which usually plays a central role in discourse analysis.[1] Frames, as the term is used here, are important for the understanding of the behavior of all types of actors, not only of media actors or of public communication. The concept might equally well apply to the analysis of the policy-process (Rein and Schon, 1991). Different frames in this view lead to the adoption of different policy measures.

Frames can be looked at from two angles and regarded as interpretative and as action frames.[2] *Interpretative frames* are concerned with different ways of seeing and interpreting the world. This perspective looks at the world which actors construct. *Action frames* are devices for orienting and organizing action. This latter view looks at the consequences of the actors' construction of the world for their action. This distinction will be further explained in the next two sections. This does not mean that there are different frames, one for interpreting the world and another one for acting. Frames are the link between the system and its environment. The different aspects of framing relate to different directions of information flows: interpretative frames shape the incoming information, action frames the outcome. It is claimed, however, that interpretation is logically prior to action.

Interpretative frames

In order to get a notion of how and by which structures actors perceive reality, it is useful to relate these perceptions to three basic aspects of action. As argued already in the previous chapter, all action has a cognitive, a normative and a symbolic aspect. All information from the environment of a system is filtered by making a reference, at least in principle, to these three components. These components are not frames in themselves but only components or elements of interpretative frames. They constitute the cognitive structure[3] which shapes the actor's image of the world.

The idea that perceptions, but also expectations, have two sides, namely a normative and a cognitive one, is not new (Galtung, 1959, Luhmann, 1987, p. 42). In this context, following the preceding discussion of the different aspects of human action, a third component is added, namely the symbolic one.[4] The underlying concept can also be expressed differently: in assessing an event, actors use cognitive, normative and symbolic criteria. By referring to these criteria, they attach meaning to the event.

The *cognitive* aspect of interpretative frames relates to the facticity of the world. The criterion of assessing information is its truth. In other words, this aspect tells the actor how the world is. It thus refers to the real or objective world in the Habermasian sense. New incoming information can contradict old information. In this case, it must be decided which of the two pieces of information about reality is true (or more exact). In modern societies, this function is fulfilled by science. The information that is considered to be wrong in this case has to be replaced by the information considered to be true. Thus, the cognitive part of an interpretative frame can be falsified. A simple form of cognitive statement is a claim of the sort that A exists. A more elaborate form are cause-effect relationships: A exists because of B. This should not be misunderstood in the sense that cognitive interpretations had to be measured against some kind of 'objective' truth. It merely states that *for the actor*, something is the case. A central problem, the discussion of which will be taken up in the fourth chapter of the present study, is the problem of *conflicting* cognitive evidence and the role of science.

The *normative* aspect of interpretative frames links the actor with the social world. It addresses the question of how things ought to be and assesses the incoming information along the criteria of the good or the bad. An important feature of normative interpretations is the possibility of *counterfactual stabilization*, which means that they can exist despite the cognitive insight that things are not as they should be. This is an important difference to cognitive interpretations.

It appears, however, that a limitation of the elements of interpretative frames to merely two, namely cognitive and normative, is too narrow as such a concept could, for instance, not deal with the dramaturgic aspects of action. If actors perceive *how* an action has been carried out, they neither assess it on a cognitive basis (whether it was true or false) nor on a normative basis (whether it was good or bad). This problem can be dealt with by the introduction of the *symbolic* aspect of framing, which establishes the actor's relationship with the subjective world. Symbolic interpretations concern the actor's relationship with himself. The symbolic aspects of framing thus contain a reflexive element referring to personal identity.

Interpretative frames, according to the argumentation of this section, serve to perceive reality by assessing events according to three criteria, namely their normative, cognitive and symbolic dimension. These elements are not considered frames in themselves but are merely parts of frames that rarely gain exclusive importance, not even in specialized sub-systems of society.

Action frames

Interpretative frames can explain how actors perceive and construct reality by referring to three basic elements, namely to the objective, the social and the subjective world. However, actors do not only perceive reality and construct their own meaning of it but also act on the basis of these perceptions. Frames thus also serve the purpose of choosing, justifying and presenting action strategies. They influence action because all action is related to the world view of an actor. This aspect of frames is called 'action frames'. One could also say that whereas interpretative frames cover the input dimension of system perceiving reality, action frames concern the output dimension, i.e. how a system acts upon its environment.

Action frames consist of 'packages' containing the three basic elements of a frame as described in the previous section. These packages must be able not only to interpret new events and attach meaning to them according to the prevailing frame but also allow for the selection of strategies and the co-ordination of action towards these events within this frame. The frame of 'socialism', for instance, contains as its cognitive part certain analyses and expectations about economic behavior (e.g. the increasing 'monopolization' of capital), a normative reference to the exploitation of workers by capitalists and a symbolic component in the form of the identity of its workers whose material needs are fulfilled and who are free from alienation at work. A similar example is Islam. It does not only consist of a religious movement trying to restore a good but lost past (Kepel, 1991, Garaudy, 1990). A major component is the role of Islam in solving the problem of personal identity in modern society (Ayubi, 1991).

A systematic inability of a frame to provide for appropriate reactions to new events may lead to an erosion of this frame, i.e. either to its change or to its replacement by a new one which is better able to deal with these events. The same is true for the interpretative frame. Such a change of frame must not be misunderstood in a rationalistic manner: Actors do not consciously choose the frame which fits their interests better like a man changes his suit. Actors' interests are constructed on the basis of the frame. Hence, if the frame changes, interests change, too.

Action frames do not only exist in the minds of actors but are also *communicated*. In the field of public policy in particular, actions have to be justified. This is always done in the form of communication, i.e. in verbal or written statements. This does not imply that for a complete explanation of action, it is sufficient to analyse texts while neglecting what is actually done. It only means that the frames underlying this action can be detected in texts (c.f. Chapter Three, pp. 39 seq.). Frames thus communicated can remain largely implicit or even unknown to the actor. It is also possible, however, that they are made more explicit and even become subject of actively promoted change.

Frames can be distinguished at different levels of society, from the individual, the group, a party to the state, international organizations, and groups of nations or cultures. Insofar as the different levels of society interact, frames also interact with

each other. Some frames used on a micro level or in a particular debate fit better to some broader background frames of society than to others. Usually, frames become more abstract and more general with increasing capacity for stimulating adherence. 'Self help' as a principle of social policy, for instance, fits better to a general frame of 'market economy' favoring individualistic values than to a frame of 'socialism' with a strong insistence on solidarity and state intervention. This phenomenon of 'cultural resonance' (Gamson and Modigliani, 1989, p. 5) explains the chances of a frame to reach a wider public. It also links frame developments in one policy field to broader phenomena in society. 'Internalization of environmental costs' as a frame of environmental policy, for instance, has much better chances of becoming accepted in a general framework of 'economic liberalism' than an environmental frame of 'nature first'.

This leads to the concept of *frame competition*. When different collective actors have different frames concerning an issue, these frames conflict with each other. Conflicting frames transport conflicting ideas, interests and problem definitions (Gusfield, 1981). Frame competition occurs within an institutional and legal context. These institutional/legal structures are on the one hand the result of general frames on societal organization. As such, they transport and reproduce a specific, 'embedded' social order. They also regulate the ways in which competition between different frames can take place. Thus, institutional structures also influence the outcome of the process of frame competition. Frame competition is a social or political process which has to do with power, resources and constraints, not an intellectual debate on ideas, at least not in the first place. It occurs in different arenas. Important arenas are the public arena,[5] the media, political arenas, such as Parliament, government, international negotiations, and private or semi-private ones such as autonomous regulatory bodies, business or interest group fora. This study mainly deals with frame competition in institutional arenas and only occasionally with the public or the media.

Frame competition is partly unintentional, meaning that actors pursue their strategies without reflecting about the underlying frame and without being aware that by pursuing their strategy, they are also promoting their frame. However, a certain way of seeing and interpreting reality can also be actively promoted by an actor in order to achieve a profound change of other actors' behavior by changing its underlying interpretative basis. Frames are thus not exclusively hidden behind the visible action but are also part of the interaction process.

Frame competition is the struggle between differing problem definitions, the latter being the basis for the emergence of interests and preferences. In a political system, the struggle among competing frames is a struggle for power, the power to define a situation authoritatively for all participants in the system and thus pre-structure the way interests can be articulated, claims be made and policy decisions be taken.

Frame competition may lead to the victory of one frame over competing ones. This can either happen in an argumentative process in which in the end all participants agree to the new frame or, for instance in an institutional arena, by a

simple vote. In this case, however, the frames that have lost the battle do not cease to exist. Actors sharing this frame are likely to continue to revise decisions on the basis of their cognitive, normative and symbolic interpretations of the world. They might try to change later votes by changing the underlying basis for the calculation of interests. In consensual decision-making processes, argumentative processes are more important because here, agreement has to be reached by definition. One of the reasons why consensual decisions tend to be more stable than majority decisions is that not only everybody agreed but also that everybody thought it right to agree (provided the agreement was not the result of mere pressure).

While frame competition is structured and influenced by the institutional/legal framework, the latter can also be influenced by the evolution of frames. Institutions, it has been said, reflect frames which were prevailing at the time of their installation. They are, to paraphrase Gusfield, 'frames frozen in time'. Institutions are not, however, static entities which can be regarded as constants in the analysis. Their internal structure or their functioning changes over time, and this change can often be explained by a change of frame of those working with or within the respective institutions. Institutions do not have a 'logic' which stems from their structure and which is independent of the context. On this point, Berger and Luckmann (1966, p. 60) comment:

> It follows that great care is required in any statements one makes about the 'logic' of institutions. The logic does not reside in the institutions and their external functionalities, but in the way these are treated in reflection about them. Put differently, reflective consciousness superimposes the quality of logic on the institutional order.

On the other hand, their influence on behavior is in turn dependent on the actors that constitute them. If this is the case, actors can even deliberately choose a strategy of changing the way people reflect about institutions (to use Berger's and Luckmann's words) or (in my own terminology) to change the frame of actors relating to these institutions. Such a change, as it affects the way institutions are constructed, in a very basic way affects institutions themselves. It is more difficult to achieve than mere procedural changes but it is more profound and, probably, more difficult to direct (Majone, 1989, pp. 95 seq.).

Actors can thus also try to change frames about institutions as a part of their strategy to pursue their goals. They can also actively promote a change of frames relating to the issue area they are concerned with. Simply by acting, actors contribute to the process of frame competition as they communicate the frame with their action. In addition, they frequently try to explicitly promote a certain frame which fits their interests well.[6] Promoting a frame and promoting a specific policy measure on the basis of that frame are often closely connected. This is the case because a particular policy measure often does not make sense in another universe of thinking which leads to another definition of the problem at stake. A debate on a policy measure is thus frequently a debate on the definition of the problem, i.e. on the frame applicable to the situation. If only the part of the debate which deals with

the policy measure is regarded, this is sometimes reminscent of a dialogue between the deaf. People seem to propose incompatible solutions for different people and address themselves to a different audience. This phenomenon can be better understood if the action frame shared by each actor is analysed in its normative, cognitive and symbolic component.

People or organizations advocating a frame refer to *collective* values rather than individual ones. Promoting exclusively individual values would diminish their chances of being shared by others while the purpose of promoting a frame is precisely this. The probability of a successful promotion of a frame increases with its ability to resonate with more general societal frames. Frame promotion therefore relies heavily on symbols or simple ideas. It thus appears that frames can be a tool for pursuing a constructivist analysis of action. They allow inquiry into the causes for different problem definitions and enable this inquiry to be shifted into the center of the analysis.

Frame change as learning

If interests, preferences or utilities are constructed on the basis of world views or frames which are not merely individualistic categories but at the same time social (or collective) constructs, a change of these world views is likely to have important consequences for actors' behavior. A change of a frame amounts to a reinterpretation of the world and can (but does not have to) lead to a recalculation of interests and strategies. The process of change can be captured by using the notion of 'learning'. Learning, in this perspective, is not merely one mode of a change of preferences as compared to others. Learning is not equal to a change of preferences. Whether the world view of an actor changes is one question; whether this entails new preferences is another which has to be answered by empirical analysis. In particular, learning is not the same as a different outcome in a decision making process or a game. If actors behave differently, they have not necessarily learned something.

The introduction of the concept of learning in this context poses two important questions which will be dealt with subsequently. The first is the question about the substance of learning, in other words about what is learned. This question can be captured in the analysis of two basic approaches to learning, which are labeled 'simple' and 'complex' learning in this context. The second question is about who learns. In the literature, this is reflected in concepts of individual learning and of collective learning, the latter being an attempt to think of a type of learning which is more than the sum of individual learning.

Simple and complex learning

When asking about the substance of learning, two broad categories are distin-guished in the literature. These categories are not mere classifications but have

conceptual implications for the process of learning and the consequences of learning processes. Most authors in this regard distinguish between 'simple' and 'complex' learning (Nye, 1987), 'single-loop' and 'double-loop' learning (Argyris and Schon, 1978), 'normal' and 'meta-level' learning (Hedberg, 1981) or simply oppose 'adaptation' to 'learning' (E. Haas, 1990). Within certain margins, these different distinctions all relate to the same phenomenon. They will be discussed below using the terminology of simple and complex learning.

Simple Learning   The concept of simple learning has frequently been used in organization research and in policy analysis, often without distinguishing it from complex learning. This idea of learning is most frequently based on a stimulus-response concept or a trial-and-error model. In addition, organizations can also learn by imitating the behavior of others. In this case, a stimulus-response mechanism is not necessarily involved.

The stimulus-response model is frequently linked to an equilibrium concept where the organization has to maintain its stability in a changing environment. Argyris and Schon (1978) argue that 'members of the organization respond to changes in the internal and external environments of the organization by detecting errors which they then correct so as to maintain the central features of [the organization]' (p. 18, c.f. March and Olsen, 1984, p. 745).

Organizational learning portrayed in this fashion is primarily concerned with detecting and repairing errors.

> Organizational learning involves the detection and correction of error. When the error detected and corrected permits the organization to carry its present policies or achieve its present objectives, then that error-detection-and-correction process is single-loop learning. Single-loop learning is like a thermostat that learns when it is too hot or too cold and turns the heat on or off. The thermostat can perform this task because it can receive information (the temperature of the room) and take corrective action (Argyris and Schon, 1978, pp. 2-3, emphasis omitted).

The continuous process or error detection and correction is sometimes portrayed as a cycle (see Figure 1) (c.f. March, 1988a, p. 13). Errors are not detected by pure hazard but in an intentional process of inquiry. Thus not every change of behavior is called 'learning'. Instead, members of the organization have to carry out an *inquiry* through which they discover sources of error, invent new strategies and evaluate and generalize the results. Conflicts between divergent views must be solved by inquiry, not by compromise or by imposing one solution upon the others (Argyris and Schon, 1978, pp. 22-23). Learning through coercion or power is thus impossible.

Figure 1   The learning cycle
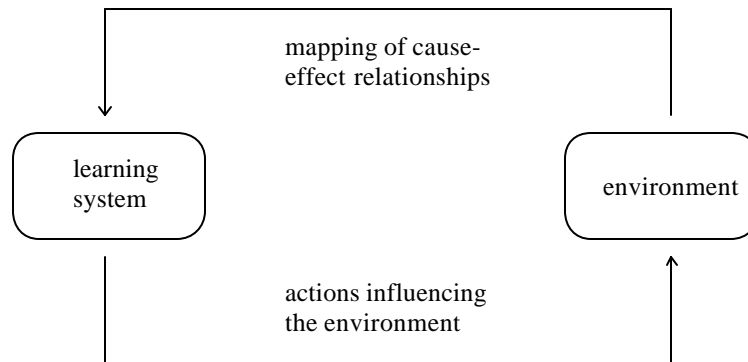
Source: Hedberg, 1981, p. 5

A similar concept has been adopted in policy-analysis. The idea of the policy-cycle itself, which has frequently a monitoring and evaluation phase at its end, easily lends itself to the introduction of a feedback element. The evaluation of a previous policy, it is stipulated, should have consequences for the implementation of that policy or for the design of a new policy. These consequences can be called learning. The aim of this literature is a normative one: policy-makers shall draw lessons from past experience and these lessons shall improve the policy (c.f. Morone and Woodhouse, 1986, ch. 8). A lesson is an 'action-oriented conclusion about a program or programs in operation elsewhere' and 'focuses upon specific programs that governments have or may adopt.' (Rose, 1991, p. 7). In most cases, the motivation for lesson-drawing (or learning) is dissatisfaction with the results of a policy.

This notion of lesson-drawing used in policy-analysis is similar to the learning concept frequently used in organizational research. It addresses the means of action, which can be altered as a consequence of new information. It does not deal with the goals of the organization. In other words, learning consists in using different instruments to attain a given goal. Learning as a cause of changed behavior is attributed to an active process of inquiry, sometimes to an imitation of the behavior of others in order to distinguish it from power as a source of behavioral change (c.f. Nye, 1987, p. 380).

The notion of 'simple learning', as it was briefly characterized here, is often efficiency-oriented. In this case, learning has not taken place when organizations or policy-makers behave differently compared to an earlier point in time but only if their performance is in one way or another *better* compared to the previous state of affairs. Actors learn to correct earlier behavior which is not appropriate or not efficient enough to cope with changed circumstances. Learning in this perspective

is needed for optimizing the adaptation of a system (e.g. an organization) to changes in its environment or for policies designed to achieve certain ends. Behind these constructions is a problem-solving perspective. The main problem for organizations is survival in a changing environment. For policies, it is given by the circumstances. In both cases, however, the problem itself is not called into question. Frequently, this is associated with the idea that a given problem has an optimal solution which can be discovered by inquiry. The better the organization or the policy-maker approach this solution, the more they have learned.

This notion of learning also implies certain strategies. As inquiry is the distinctive quality for a type of learning which is mainly concerned with the means to achieve a given end, improved possibilities for inquiry are assumed to lead to improved learning capacities and learning results, i.e. to the selection of better means to achieve the organizational or policy goals. The result of an inquiry is more or better information. Increasing the cognitive abilities of the organization, spending more on research, improving procedures for disseminating results of research and, in general, making more knowledge available for the decision-makers are standard recommendations of the literature focusing on this type of learning.

Learning understood in this way is a rather simple concept with clear relationships between causes, effects and means. Within the terms of rational-choice theory, talking about learning in this perspective does not make much sense. What is at stake here is in reality normal optimizing behavior of a rational actor. At best, this actor is characterized by information processing constraints, limited cognitive capabilities, limited resources for information gathering, and so on.

From the characterization that simple learning focuses on the means to achieve given goals, it follows that a change of goals could also be possible through learning. This is the distinctive feature of the concept of 'complex learning'.

Complex learning   The idea that learning may occur on different levels and that behavioral learning which affects the means actors choose to achieve their ends is only one layer of learning, and indeed the most superficial one, is found rather frequently in the literature. Another type of learning, which will be called 'complex learning' in this study, is related to the 'belief systems' (Sabatier, 1987) of actors, their myths, theories (Majone, 1980, 1991b), paradigms, goals, etc. This type of learning can occur when conflicts exist among goals; it leads to new priorities and trade-offs (Nye, 1987, p. 380). In a study on learning by international organizations, Ernst Haas defines it as follows:

> By 'learning' I mean the process by which consensual knowledge is used to specify causal relationships in new ways so that the result affects the content of public policy. Learning in and by an international organization implies that the organization's members are induced to question earlier beliefs about the appropriateness of ends of action and to think about the selection of new ones ... (E. Haas, 1990, pp. 23-24).

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Similarly, Argyris and Schön identify what they call 'double-loop learning' when 'error is detected and corrected in ways that involve the modification of an organization's underlying norms, policies and objectives' (Argyris and Schon, 1978, pp. 3, 24). In the same way, Deutsch defines learning as

> the ability of any political decision system to invent and carry out fundamentally new policies to meet new conditions ... related to its ability to combine items of information into new patterns (Deutsch, 1963, p. 163).

These norms, policies and objectives are bound together in 'theories of action', which are the cognitive basis of all deliberate action on the part of the organization. These theories of action may be divided into those that can be inferred from their observable behavior ('theories-in-use') and those which the organizations announce to the world ('espoused theories') (Argyris and Schon, 1978, pp. 10-11). These theories may be valid or invalid, but they guide behavior. Some authors have preferred the label 'myths' for these 'theories' in order to stress their multiple origin not only from observation of reality but from a variety of sources including sheer fantasy (Hedberg, 1981, p. 12).

In the terminology of this study, the myths, cause-effect relationships, theories of action, etc. that have been identified as the subject to change in the case of complex learning have been called frames. *Complex learning, in this conceptual framework, corresponds to a change of frames.* It is important, however, in particular with respect to the problem-solving background of some organization theories, to retain a wide concept of frames if learning processes are to be analysed in a comprehensive way and not from the outset be restricted by the use of a narrow definition of frame. A frame should encompass all three dimensions enumerated in the preceding chapter, i.e. the cognitive, the normative and the symbolic one. In their mainstream versions, both organization theory and policy analysis are strongly rooted in rational choice theory and have a certain tendency to neglect 'irrational' aspects of frames. The problem-solving tendency of this section of research often concentrates on references to the objective world (i.e. to the cognitive aspects). As a consequence, theories of action, world views or cause-effect relationships are subsumed under the category of 'knowledge'. Knowledge thus becomes a very broad notion, encompassing not only knowledge about means to achieve given ends, but also knowledge about goals. Still, this view of knowledge is characterized by reductionism as it almost exclusively focuses on factual knowledge. While it is certainly legitimate to concentrate on learning processes with respect to factual knowledge, this must not create the impression that there is no learning beside the change of factual knowledge.[7]

Also in the perspective of complex learning, learning is triggered by dissatisfaction and the resulting inquiry. Again, a learning cycle can be stipulated (c.f. Figure 1, p. 30). The cycle is in principle the same as in the case of simple learning but merely has another object (namely the underlying beliefs, norms and values instead of the means). The perspective is still one of a homeostatic system-

environment equilibrium. Dissatisfaction and sources of change emerge in the environment and have to be processed by the system.

New frames as a result of a learning process change the way actors think and calculate their strategies. Two points are important in this respect. New frames do not directly follow from institutional structures and they do not automatically lead to behavioral changes. Learning seen as a frame change becomes thus an intervening variable. Empirically, this opens two paths of study, that is, the inquiry into the reasons and modalities of learning (i.e. why and how actors learn) and the analysis of the effects of learning in terms of outcomes.

Complex learning (which will be referred to as 'learning' in the following text) allows the introduction of another dimension of learning. *Reflexivity* is the ability of the system to think about itself, about its own rules and its functioning. Reflexive learning, then, is the ability to learn how to learn. The notion appears in the literature under different labels, such as deutero-learning (Argyris and Schon, 1978, p. 86), second-order learning or, in a somewhat different context, as 'frame-reflective policy-discourse' (Rein and Schon, 1991). It is the central category of Eder's conceptualization of societal learning (Eder, 1985, pp. 28, 38). Reflexive learning leaves the concept of a system's adaptation to its environment. In the case of reflexive learning, the adaptation process itself is subject to intentional change.

Individual and collective learning

The second important question in a conceptualization of learning processes is the inquiry about those who learn. On a basic level, the answer to this problem is very easy: only individuals can learn. The fact that individuals are able to learn is undisputed and a considerable part of research on learning is research on individual learning. Individual learning is unproblematic as a concept. What is interesting in this context are ways and patterns of the learning process. The question becomes more troublesome if it is put in a different way: Can collective actors learn, and under what conditions is such collective learning possible? If an affirmative answer is given, it must be shown in what collective learning consists and its mechanisms must be singled out.

Methodological individualism simply denies the possibility of collective learning. In this view, capabilities and properties can only be attributed to the individual; hence, only the individual is able to learn. It must be noted, however, that this view is not the result of an empirical inquiry or even of deductive reasoning but corresponds to the *definition* of methodological individualism. A second claim is more demanding. As only individuals can learn, it says, the processes and mechanisms of learning can only be attributed to the individual. Learning is not only the learning of an individual but also an individual process.

Despite its name, organization theory argues on these grounds. Organizational learning might suggest that the members of the organization have to learn something if the organization as such is to learn. In fact, organization theory has mostly avoided tackling the question of collective learning explicitly and only

tacitly resorted to a model of the carriers of learning. There are basically two solutions, both of which remain within the realms of methodological individualism. The first is to do as if the organization was an entity. As such, it could act and learn (Cyert and March, 1963, p. 99). The notion of the 'corporate actor', introduced by Coleman (1974) follows the same line of reasoning. A consequence of this procedure is, however, that processes inside the organization remain outside the scope of the analysis if the analogy with the individual is not to become too far-fetched.

A more frequently found solution is to declare that within organizations, only individuals learn. On the basis of their learning (or lack of learning), they act as agents of the organization but this organizational action is entirely motivated by individual action and can be explained in terms of individualistic categories. Figure 2 illustrates this process.

Figure 2   An individualistic explanation of organizational action
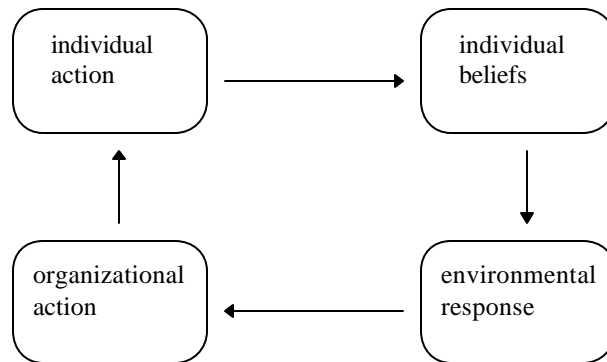
Source: Hedberg, 1981, p. 3

The same strategy of explanation has been applied to the learning of governments. Again, it is only individuals who learn. Those who learn are either the heads of the organization or their advisors (e.g. Etheredge, 1985, p. 66), who are supposed to shape the thinking and action of their superiors. In short, organizational learning is seen as the learning of the leaders of the organization. Such an approach is easily combined with results of psychological research stipulating that certain *personal* characteristics enhance or prevent learning.[8]

If the learning of the organization is equated with the learning of its leaders, a continuity of behavior despite a change of leadership is difficult to explain. Equating organizations with their leaders seems to contradict an insight of administrative research since Max Weber, namely the relative stability and inalterability of formal bureaucratic organizations. A solution to this problem is the

assumption of a kind of institutional *memory*, which makes the knowledge of an organization available to all its members, present or future. This institutional memory is usually portrayed as the accumulation of procedures, legal rules, informal norms, archives, habits, etc. on which the organization draws for acting.

In this perspective, an organization can know more but also less than its members. In an extreme case, an organization may be unable to learn (i.e. to add to its organizational memory) what every member knows. Thus, 'organizational learning is not merely individual learning, yet organizations learn only through the experience and actions of individuals' (Argyris and Schon, 1978, p. 9). How to embed the discoveries of the learning agents into institutional memory thus becomes the central problem of organizational theory.

Still, reducing learning processes to individuals remains unsatisfactory. At least there should be a mechanism explaining learning in a collective context. Such a mechanism could conform to the premise of methodological individualism that learning can only be the learning of individuals. It would contradict the assumption that learning is an individual *process*. If organizational learning happens through the learning of individuals, the question arises why and how agents acting from their *individual* images and maps (frames) should contribute to the *organization's* theories-in-use (frames). There must at least be a mechanism which socializes individuals in the organization.

A theory of learning of individuals in a collective (group, organization, administration, or society) can explain how individuals learn things that have to do with their societal or organizational affiliation (Miller, 1986, pp. 207-443). It also does not have to rely on an implicit model of a teacher, according to which first some distinguished individuals learn (because of their particular intelligence, their privileged access to information, their prominent role in the organization, etc.) while the others follow later in a sort of 'trickle down' process. No kind of 'leadership' by privileged individuals is needed for learning as is the case in models equating collective learning with the learning of the leaders of the collective. This perspective already assumes an interplay not only among several individuals but between the individual and society (or another group *as group*).

In the case of an administration, some special problems emerge which do not appear even if no intermediary level between the individual and society is assumed. In public administrations (or other organizations, e.g. firms) resorting to individualistic categories of learning is unsatisfactory for still another reason. In administrations, it is not unreasonable to assume that individuals act only as agents of the administration and not at all in an exercise of their own individuality. They follow bureaucratic procedures and prescriptions and contribute to the administration's stock of knowledge only within the framework of these procedures. In this case, administrative learning is possible without individual learning. Individuals may in private even oppose the lessons learned by the administration. On the other hand, individuals or groups within the administration might also try to change the administration's frames and thus contribute to its learning.

There may be, however, unintended consequences of individual learning which create a societal stock of knowledge not reducible to individual processes and knowledge. If *interaction* becomes the unit of analysis instead of the single individual, this interaction can have individual as well as collective effects. Looking at interactions means looking at situations; it does not automatically mean looking at the interactions of individuals. It also applies to situations in which the individual refers to the world, e.g. in the case of a judge facing the law. This construction allows one to speak of true collective learning.

If collective learning is possible, it must be pointed out where precisely it occurs. The present study does not attempt to theorize about learning at different levels of society. It is restricted to learning within and by institutions. The institutional level, which in the context of this study encompasses political institutions, is the place where collective actors are guided in their action by different frames and where learning processes can be identified in the form of frame shifts. On this level, institutional rules influence the selection and change of frames. There may either be a competition of different frames in the form of different actors pursuing their interests and concepts in a stable institutional setting which determines the rules of the game, i.e. which restricts the conditions for frame competition and selection and that is, for learning processes. These institutional rules themselves may change. To give a simple example, unanimity decision-making can be replaced by majority voting, parliamentarism may be supplemented by neocorporatist modes of decision-making. Such a change of institutional rules has obviously implications for the encounter of different frames. Concepts of institutional settings can, however, be themselves regarded as frames. Thus, new institutional rules must be legitimated in the light of existing procedures.

Except in times of profound crisis, however, frames dealing with institutions take at least decades to change. As the present study is only concerned with a period of little more than ten years, it takes institutional structures as constant and considers them as selection devices for particular policy-specific frames. Within this institutional framework, frames relating to institutional change are only discussed insofar as they interfere with the choice of policy-specific frames.

Notes

[1]. The word 'discourse' has been used in an inflationary manner in many very different disciplines in the last decade or so. Frequently, it simply means that the attention of the analyst is directed towards text, be it written or oral, and not towards actions, numerical data, etc. The implicit (and often explicit) assumption is that this text has something to do with 'reality' and that looking at texts is more fruitful than looking at that 'reality' directly. This general attitude again goes back to the Wittgensteinian tradition that we can only relate to reality via language and that thus, the analysis of linguistic structures and strategies is the only way to have meaningful information about this reality.

In a more narrow sense, the term is used by van Dijk (1985, 1988a, 1988b). He argues that the semantic structures of texts are related to the strategies of actors producing these texts. This technique is mostly applied to news in an attempt to replace 'classic' content analysis by a more qualitative approach. It convincingly shows that implicit meanings are communicated under the surface structure and meaning of a news text. It can probably even show how an event is transformed into text, in other words how social reality is transformed into textual reality. It is much less successful in demonstrating how 'text' influences 'context', i.e. it does not show how what is communicated influences reality.

[2].   This distinction is taken from Eder (1992). It reflects the broader differentiation between 'maps of behaviour', applicable to earlier works of cultural and cognitive studies, and 'maps for behaviour', reflecting a more recent trend in this domain (Eisenstadt, 1989, pp. 6-7).

[3].   It should again be said that the use of the word 'cognitive' here refers to different things: first to the overall structure which is responsible for the actor's cognition (and which will be called 'interpretative' in order to avoid misunderstandings, although this probably suggests a more active process than intended), and second the cognitive aspect in the narrow sense, i.e. in the meaning of reference to facts which either exist or do not exist.

[4].   In this regard, I depart from an earlier attempt to conceptualise frames (Jachtenfuchs and Huber, 1993, Jachtenfuchs, Hey and Strübel, 1993).

[5].   The public is not the same as the media. For the idea of a debating public as a source of societal change see the pioneering work of Habermas (1962) and a continuation along these lines by Eder (1985).

[6].   This does not contradict the statement that frames are the basis of the construction of interests. On the contrary, sponsors of a frame want their *adversaries* to change their positions, in other words, they want to convince them that their own way of perceiving a problem is preferable. If the sponsors of a frame succeeded in doing so, they would also change their adversaries' interests.

[7].   Despite considerable theoretical effort, some writers have never given up the enlightenment attitude that the education of mankind will lead to peace, that rationality and knowledge are closely related and that rationality is brought by modern science, which is often seen as incarnated by natural science. From earlier proponents of this view, for instance David Mitrany (1943), a line can be drawn to present discussions of knowledge and international regimes. This line of thinking in international relations theory is frequently labelled 'functionalism', an approach which has little in common with the sociological functionalism of Merton, Parsons or Luhmann. A particularly striking case is Ernst Haas, who has never in his work given up the idea of opposing non-political, technical experts with political decision-makers. In his model, only the former bring peace and progress, whereas the latter are responsible for power, struggle and war. The notion of learning, which occupies a prominent place in his work from the early 'Uniting of Europe' (1958), and 'Beyond the Nation State' (1964) to his work on cognitive factors and international regimes (1980, 1983), to his late 'When Knowledge is Power' (1990) is

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always linked to non-political experts. Haas never assumes idealistic motivations of his actors but instead constructs processes by which expert knowledge leads to ('incremental') progress behind the back of political actors. His actors cannot avoid learning in the long run. Haas, in the fifties as in the nineties, is convinced that '... as scientific knowledge becomes common knowledge and as technological innovation is linked to institutional tinkering, the very mode of scientific inquiry infects the way political actors think. Science, in short, influences the way politics is done' (E. Haas, 1990, p. 11). International co-operation is possible and can be furthered by international organisations because '... the language of modern science is creating a transideological and transcultural signification system' (p. 46, c.f. E. Haas et al., 1977). Technical knowledge can transcend 'prevailing lines of ideological cleavage' (E. Haas, 1980, pp. 367-368).

8.   Etheredge (1985), for instance, has as a central explanatory category the 'hardball politics practitioner', whose specific psychic structure determines the perception of reality and its actions and reactions (pp. 147-157). In this perspective, the technical rationality of the political process is only a facade and indeed, President Kennedy, the subject of Etheredge's study, 'did not live in a world of decision but … in a world of compelling upward ambition and ideals' (pp. 161-162).

The aim of the empirical study is the analysis of the political process leading to the adoption of the European Community's strategy to fight the greenhouse effect. 'Political process', however, is not equated with 'decision-making process' and does not focus on actors trying to pursue their interes ts. Instead, while actors remain the center of attention, the political process at stake is analysed in terms of frames, their emergence, encounter and change. The development of the EC's greenhouse policy is thus a process in which actors develop their views on the issue and act in accordance with these views. This process resembles more closely a process of arguing than one of bargaining.

The following part analyses how the greenhouse effect was framed by the central actors of the EC system and attemp ts to understand the behavior of these actors in terms of their framing of the greenhouse effect. Despite some resemblance with concepts used in discourse-analysis, the present study is *not* a study about the EC 'discourse' on the greenhouse effect. It is not solely about texts but also about reality. Frames are not mere rhetorical representations of reality but have two aspects: they serve as filters for actors using them to make sense of the world (interpretative frames) and as frameworks of rationality guiding their action, even to the extent that they are actively promoted (action frames). The process of the framing of the greenhouse effect can be regarded as a debate about what the problem at stake is. The definition of the problem and the agreement on this definition precedes the conception of options for action. Only when options for action are clearly available, does it make sense to talk about the interests of the parties concerned. Although the present study does not go that far, one might wonder, in accordance with Charles Lindblom (1990, p. 18), whether 'fixed or variable, preferences, wants, needs, and interests are discoverable to a degree that warrants searching for them'.

The definition of the problem is not a mere academic exercise. On the c ontrary: a shift in the problem-definition may lead not only to a different assessment of interests and preferences but also to shifts in actor constellations. If the problem is one of limiting the emissions of a specific air pollutant, for instance, nat ural

scientific research on the causes and the effects of that pollutant is an appropriate instrument. In this situation, some actors might fear the costs of a policy of emission control and insist that further research be pursued with the argument that the natural scientific basis was not solid enough to justify large-scale expenditure. If the problem becomes one of energy policy, traditions, actor groups and concepts from *this* field may lead to very different assessments of what is in the interest of a country, an enterprise or of the EC Commission.

Problem definitions are thus the basis of a policy. They determine which actors are involved in the policy development or concerned by it and they determine, once agreed upon, what the preferences of the diverse actors are in the policy process. If a problem definition changes, preferences also change. Hence, approaches relying on fixed and clear preferences are applicable in the case of a well-established policy or when the problem at stake is seen by participants in similar terms.

Problem definitions are structured by frames. These frames are not dependent on allegedly 'objective' patterns but instead on the institutional context of the process of framing and their resonance with broader frames. The way issues are framed (i.e. how a problem is defined) is already important for present issues. It is even more important for issues which are likely to become problematic only in the future, if at all. In other words, framing is particularly important in the case of *risk*. Risk entails the question of how actors conceptualize their future (Luhmann, 1991a, p. 6). The very nature of the future creates a necessity for a debate on the nature of this future and on ways to deal with it. There can be no 'objective' knowledge of the future, even in natural scientific models. Models, in the natural as well as in the social sciences, always incorporate parts of social reality in the form of assumptions (Segerstråle, 1989). Thus, decision-making under 'uncertainty', a common term in environmental policy-making, always implies an increased importance of views about the future at stake. Although the discussion of this argument is beyond the scope of the present study, it seems to me that environmental policy is by no means so unique concerning this feature as students of environmental policy-making often claim. The 'risk-society' is not restricted to environmental policy but is a general phenomenon.

The greenhouse effect is a particularly striking example of a risk with potentially enormous consequences for the environment, the economy and a wide range of other fields including the possibility of the disappearance of some states (the small island states). Despite an increasing consensus that the earth's average temperature is going to rise, immense uncertainties prevail with regard to the possible effects of the greenhouse effect (IPCC, 1992, Bundestag, 1988, 1990, 1992). These uncertainties are not directly dealt with in this study. They are considered only insofar as actors refer to them and use them in the framing process.

The empirical analysis deals with the emergence of the European Commu nity's policy towards the greenhouse effect between 1986, when the European Parliament presented the first major report on the issue, and mid-1992, when a convention on climatic change was signed at the Rio Summit. Before 1986, the greenhouse effect had not been on the EC agenda despite some minor research programs on

atmospheric research. During these six years, the policy developed rapidly and led to the adoption of a comprehensive package of policy measures. Although this policy package remained highly controversial in the future, the political quarrels about the adoption of concrete policy measures are beyond the scope of the present study, which is interested only in the changing problem definitions of key actors and the implications of this change for actor strategies. It is not concerned, however, with political bargaining on the basis of rather stable problem definitions.

Methodological remarks

In the previous chapters, I have argued that the preferences of individual and of corporate actors both depend on perceptions and interpretations of reality. These take the form of complex cognitive constructions which can be analysed systematically. Preferences thus do not have to be regarded as exogenously given but can be traced back to what I have called 'frames'. This is not just a further layer of analysis: I argue that inferring preferences and interests exclusively from material and institutional capabilities and constraints is questionable from a theoretical point of view and may lead to false predictions and interpretations of actors' actual behaviour. Analysing the specific framing of reality by different actors or groups of actors can help to better understand interests and strategies at least in cases where preferences are not yet fixed and the state of institutional and material environments is unclear.

Frame analysis can proceed in two directions. First, it is possible to ask how reality enters into the ways actors perceive and interpret the world. This perspective is used in discourse analysis. Discourse analysis is interested in the patterns of reality construction, in other words, why certain frames emerge with respect to a given reality. The frame is the *explanandum*. Differences in framing one and the same reality can be explained by actor properties or by environmental factors. Second, one can ask how frames shape preferences and possibly action. In this case, the frame is part of the *explanans*. If material and institutional conditions are held constant, different preferences can be explained by different frames. The ensuing empirical analysis of the European Community's policy towards the greenhouse effect shall serve as an illustration of the second path. It argues that the preferences and strategies of different actors in the European Community towards the greenhouse effect are shaped by the ways these actors frame reality.

The analysis proceeds on three levels. First, it asks how frames structure problem definitions and thus open up or prevent possibilities for action. 'Action' in the context of this study comprises formal, legally binding decisions or programmatic statements. It does not include the material implementation of these decisions. In other words, the possibility of 'cheating' is not excluded: actors may vote in favor of a decision without intending to implement it in part or as a whole. In this case, publicly revealed preferences would be different from secret ones and the deduction from frames to preferences (see below) would be false. Although

systematic comparative studies on the implementation of Community policies are still lacking, however, the available material at least does not contradict the hypothesis that non-implementation is primarily a function of implementation capacities and is not used strategically in most cases. It seems thus fair to assume that it is possible to find out the 'true' frames of actors.

Problem definitions are not shaped by a single frame but may be influenced by competing frames relating to different issue areas. The second level of analysis is therefore concerned with the competition and mutual influence of different frames for the shaping of problem definitions. It demonstrates that problems do not have a quasi objective existence but depend on the way actors perceive and interpret reality, i.e. on their framing of reality.

The third level, finally, is concerned with the influence of the institutional context of the European Community on the selection of frames. Here it is argued that institutional rules at least encourage certain frames and discourage others. However, there is no fixed relationship between institutions and frames. It is merely argued that some frames are better able to deal with a particular institutional reality than others and that this ability is largely responsible for their persistence.

For the purpose of this inquiry, I resort to three sets of policy-relevant frames. These frames are 'images' in the terminology of Ragin (1994, pp. 68-72) or ideal types in Weber's words (Weber 1904: 190). They are constructions of the analyst for the purpose of highlighting certain aspects of social life which are important for the argument at the price of neglecting others. At first sight, this might appear as an arbitrary decision of the analyst. It is, however, an expression of the inevitably constructivist aspect of any social science. Analytical concepts are not to be confused with empirical phenomena. They never exist in reality but are tools of the researcher to direct his attention in specific directions. These constructions can be criticized as more or less useful or as seriously biased but they cannot be falsified. The frames which will be described in more detail below are constructed with reference to empirical facts and ongoing discussions in the respective fields. However, they are not to be confused with 'real types', i.e. with generalizations or averages drawn from comparative empirical inquiry. Real types are the result of research whereas ideal types are tools for acquiring knowledge.

It would be misplaced to regard ideal types as deductively derived and real types as gained from inductive analysis. In the practice of research, the construction of analytic images (or ideal types) always involves both ways. Ideal types cannot be constructed solely on the basis of abstract concepts without any reference to empirical evidence because they always contain elements of empirical evidence coupled with explanatory elements. In order to be useful analytical tools, they have to refer to the larger body of social theory on which the explanation draws and attempts to contribute to on the one hand, and to the specific combination of empirical evidence which is relevant for the concrete cases to be analysed on the other hand. As a result, the three sets of frames used in this study do not even attempt to represent the complexity of the respective debates on the basis of which they are constructed. Their construction involved a deliberate choice. This choice

is legitimate because their purpose is not to contribute to a history of ideas in three different policy fields. Such a study would indeed have to go into detail much more and give more weight to the shifting combinations of the elements of the frames and to their transformation over time.

As the purpose of this study is to look at the interplay between ideas and the formation of interests and action strategies, a detailed discussion of the development of a set of policy ideas is unnecessary as the subtleties of the debate among experts are usually not reflected in the preferences and strategic choices of policy-makers, which are the object of the present study. The ideal-typical frames used for the empirical analysis are elaborated in detail only to the extent that these features are to a discoverable degree relevant for political decisions. This criterion of 'relevance' has guided the interplay between the clarification of theoretical concepts and analytical images throughout the elaboration of this study as in any kind of qualitative social research (Ragin, 1994, p. 88). The three sets of policy-specific frames are specified to a degree that allows the variation in political decisions which constitutes the empirical puzzle of this study to be explained.

Where it seemed justified on the basis of the respective policy-discussions, I have chosen only two frames, representing fundamentally different and in practice opposing ways of dealing with the problems at stake. This is the case with regard to environmental policy and integration. These clear distinctions should help to clarify alternative ways of seeing the world and the change of action strategies from one extreme to the other. In the field of energy policy, the respective literature preferred to work with three types of frames (Thompson, 1984, Orr, 1979). Instead of fusing these three types into a pair of opposing alternatives, I have decided to keep them as they are. By doing so, a comparison of my findings and usage of the respective concepts with the analyses of others remains possible. In addition, a three-fold typology seems particularly convincing because it is the result of a more deductive (Thompson) and a more inductive (Orr) approach.

Other scholars working with similar concepts have made different choices. Eder (1992) distinguishes between three frames of environmental policy, which he derives from very abstract theoretical principles. As a result of a comprehensive empirical study, Gamson and Modigliani (1989) identify seven basic 'packages' of framing nuclear power. Rayner (1991) singles out three basic political cultures and corresponding views of nature derived from the grid-group-scheme of cultural theory. In other words, Eder and Rayner use ideal-types whereas Gamson and Modigliani use real types.

As the types of frames used in this study are stylized ideal-types, frame shifts are never complete and unequivocal. In their concrete strategies, actors can refer to perceptions and interpretations of reality stemming from different frames. This does not invalidate the choice of analytic images because their elements are not logically contradictory. In political practice, the elements of each of the different frames are usually (but not always) found in combination. This is an indication of the usefulness of the frame as an analytic image. Only if the reference of actor

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strategies to two different frames were the rule rather than the exception, would the validity of the analytical tool be in question.

Frames are looked for basically in programmatic documents of the respective actors. In these documents, action is justified with reference to specified problem definitions and normative ideas. The Official Journal of the EC, proposals and studies published by the Commission, articles and speeches by representatives of the respective organizations, as well as parliamentary reports and debates are important sources. In this respect, the Community tradition to preface every major legislative proposal with an explanatory memorandum setting out the professed reasons for its submission and its content is of great help. As the guiding question is to analyse the emergence as well as the impact of frames, the analysis cannot be restricted to the interpretation of texts but has to be related to events, in concrete terms to the negotiation process and the legislative activity of the EC in the field of the greenhouse effect. Apart from relying on these sources, the reconstruction of the policy history of the greenhouse effect in the EC will be done mainly by resorting to *Agence Europe*, a daily news agency specializing in EC affairs and to *Europe Environment*, a fortnightly news service specializing in EC environmental policy. As the negotiations of the Council are not public and press reports about Council meetings are often erratic and not detailed enough (if they exist at all), *Agence Europe* in particular is an invaluable tool for reconstructing a specific policy history.

This also applies to internal decision-making processes in the Commission. Although fervently pro-European and pro-Commission, *Agence Europe*, if read critically, is a reliable and valuable source of debates within the Commission. This information has as far as possible been cross-checked by national press reports. Internal documents of the Commission are also used but no central piece of argumentation is based solely upon them. They merely serve as further pieces in the puzzle. The only section where information that is not generally available plays a large role is the analysis of the frame-shift within the Commission's different directorate-generals. This part unavoidably relies heavily on internal documents, interviews and my general experience during a five-months traineeship at the Commission's Forward Studies Unit.

In a first step, the study looks at how actors explain and justify their action. In a second step, these arguments are linked to their action during the negotiation and choice of specific policy instruments. An underlying assumption is that actors in general do not deliberately lie. Explanatory texts are not mere propaganda under which 'real' motives have to be discovered. In this study, texts serve as indicators for the presence of certain elements of interpretative or action frames in addition to the action itself. Not every single policy measure can 'as such' be related to one frame or another but has to be understood in the light of the text justifying it.

Hence, the following analysis of a frame shift in the EC greenhouse policy should not be regarded as reflecting a necessary course of events. Everything could have happened differently. In particular, the new frame is not 'better' than the old one, nor is it more rational or more complex.

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Ideal-types of frames

The discussion of features of the ideal-typical frames used in the empirical chapters will be restricted to their main aspects. These features are also presented in tables in order to allow an easy overview of all frames. As the 'environmental' frames are the most important ones, they will be discussed in more detail than the others. In the ensuing text, frames are designated by italics.

Environmental policy frames

Classic Environmental Policy Using the term 'classic environmental policy' might seem to imply a crude simplification of existing concepts of environmental policy-making. For instance, the first four environmental action programs of the EC, covering a period of twenty years during which a considerable programmatic change has occurred, all fall under this heading (EC 1973, 1977, 1983, 1987). Still, this simplification seems justified as the purpose of this study is not to analyse subtle programmatic changes in environmental policy-making but a shift of a framework of rationality. This shift can be captured by the shift from classic environmental policy to sustainability.

The major distinctive feature of *classic environmental policy* is the separation of the environment and the economy. For the political system, environmental problems only rather lately became a matter of concern as a by-product of economic activity. This corresponds to the development of economic theory. During its development, environmental goods have been progressively banned from theory as factors of production (Immler, 1985, 1990). Increasingly, environmental damage was treated by the prevailing neo-classical school as 'externality' and hence as irrelevant for the theory (Binswanger, 1989). Environmental policy developed only slowly as an exercise in reparation. The major actor in this respect was the state which either had to clean-up environmental damage itself (e.g. waste, sewage) or to adopt regulations shifting this burden onto others. Reparation was later replaced by prevention as a major orientation of *classic environmental policy* but this programmatic change did not entail a different role of the state and of economic agents (enterprises, households, consumers).

In this view, economic agents either use free goods (such as air) or procure them at market prices which are regarded as 'true' prices insofar as they reflect the relative scarcity of the goods in question. Pollution and waste are by-products of economic activity for which the enterprise has to pay a fee to the state for his share in the clean-up costs. Environmental clean-up or pollution prevention is thus a task for the state like any other public infrastructure (roads, telecommunications, etc.). 'Environmental costs' are only those arising from the installation and maintenance of cleaning or treatment facilities. The polluter-pays-principle, adopted by the OECD over twenty years ago (reprinted in OECD, 1986, pp. 24-27), has always been interpreted in this way. Any other effects of economic activity, e.g. the disappearance of species, impairment to human health, the remaining pollution of

water, air or soil after treatment, etc. cannot (and shall not) be measured economically and enter neither the cost-benefit calculations of enterprises nor the macroeconomic accounts of the state.

In this view, environmental problems are connected to damage. Two basic requirements exist for the occurrence of damage: It has to be attributed to a concrete physical or legal person, and it has to be established on the basis of clear cause-effect relationships. These two requirements lead to a strong reliance on natural scientific knowledge. Natural sciences have to produce evidence for damage which alone can justify action by the state. The contrary is also true: if no clear link between an activity and damage can be proven, action is not justified or justified only on a small scale. This is a widely accepted framing of the greenhouse effect. As the greenhouse effect is still surrounded with high natural-scientific uncertainties, the policy process – in this view – is not likely to yield policies with substantial political or economic costs. Unless these uncertainties are considerably reduced – or even only if there is evidence of the effects of global warming –, a substantial political reaction is unlikely, nationally as well as internationally (Skolnicoff, 1990, p. 78).

The requirement of scientific evidence has been alleviated by the emergence of the precautionary principle according to which action is due on the basis of possible damage. The precautionary principle is thus an attempt to deal with environmental risk.

Environmental policy proceeded (and still proceeds) largely by standard-setting. In order to avoid individual impairments, tolerable levels of pollution had to be found with the aid of natural scientific research (Majone, 1982). Standards prohibit pollution beyond a certain level and create legal or financial consequences for transgressing but they also allow pollution below this level. With the increasing development of environmental legislation, standards require a well-developed administrative apparatus for their continuous elaboration, implementation and updating. Implementation problems became more pronounced (Commission, 1992k, pp. 64 seq., Krämer, 1988, Audretsch, 1986) and a general criticism of 'over-regulation' was also directed at the increasingly dense field of environmental legislation. It is important to stress that the attacks on EC environmental legislation because of its implementation problems do not reflect a 'natural' proneness of command-and-control approaches to implementation deficits. Liberatore (1991, pp. 298 seq.) even stresses that the increasing use of economic instruments in EC environmental policy would amount to 're-regulation' instead of the intended deregulation. This relationship exists only from the point of view of a different frame (*sustainability*).

Classic environmental policy with its separation of the economy and the environment thus has consequences for the actors which are important in the policy-process. Standard-setting enhances the role of lawyers but also of natural scientists. Environmental policy, in this frame, is the task of the administration. In the EC, the liberalization of economic transactions has led to an increase of the role in central administrations, i.e. of EC-wide regulation. In this respect, *classic*

environmental policy fits well with *supranational integration* as a frame of integration. Administrators set limitations for economic agents but do not fundamentally interfere in their sphere. Environmental protection policy is restricted to correcting manifest negative effects of the functioning of the market.

Sustainability   The frame of *sustainability*,[1] on the other hand, regards the environment and the economy as an inseparable entity (MacNeill et al., 1990, EEB, 1991). More exactly, it stipulates the inclusion of the environment into economic thinking. It has thus a different cognitive basis than *classic environmental policy*. Environmental damage is not considered as an externality to economic activity and hence to economic theory but is part of a comprehensive theoretical framework. Environmental economists (Siebert, 1978, Hampicke, 1992, Baumol and Oates, 1988) have tried to reintroduce environmental factors into economic theory.

In this view, pollution is not an unavoidable malfunction of the market mechanism, which can only be corrected by state intervention. Instead, pollution and environmental degradation are the result of a distortion of market mechanisms, which in the last resort is caused by distortions of economic theory and of the political and economic framework built on it. In a *sustainability* perspective, market forces can in principle deal with environmental problems, provided that they are not prevented from doing so. The solution to environmental problems is not less market and more state intervention, as in the case of *classic environmental policy*, but more market. The state has a role in this context because it has to provide the regulatory framework for the proper working of market forces.

The key to environmental economics, like to any other economics, is pricing. In the prevailing economic framework, according to *sustainability*, prices do not reflect environmental scarcity and environmental effects. Hence, pricing has to be corrected and the environment must be 'properly' valued. On the other hand, environmental degradation and over-consumption of resources can be explained by pricing distortions, such as subsidies or administratively regulated (low) prices (Pearce, Markandya and Barbier, 1990). The invisible hand of the market mechanism is thus judged capable of assuring a balance between the exploitation and use of resources necessary for any kind of economic activity, and the protection of nature. In a market economy, the price mechanism regulates the equilibrium between supply and demand of goods. In principle, this is not a matter for norms, laws or societal intervention. The same is true for the relationship between society and nature: it becomes a matter of the price mechanism which by definition finds the right balance between the use of nature and economic activity (Schneider and Sprenger, 1984).

As a consequence of this change of the theoretical framework, the cost-benefit calculations of enterprises as well as of the state change. In the *sustainability* framework, an activity should becomes less profitable if it uses large quantities of depletable resources or if it discharges huge amounts of pollutants. The same is true for the macro-economic level. If a state uses up its 'environmental capital stock' (which is not accounted for in the normal economic accounts), it reduces its wealth instead of increasing it. Studies in this framework have been produced to

demonstrate that countries destroying their rain forests do not have high growth rates calculated in the traditional economic framework but on the contrary suffer heavy economic losses. The intention of these studies is an appeal to the self-interest of these countries to save their rain forests instead of demanding protection measures, which can be ethically justified but remain vain in the face of underdevelopment and poverty (Pearce, Markandya and Barbier, 1990).

The required change of the economic framework has to take place not only in economic theory but also in economic practice. This is the task of the state. When prices do not tell the ecological truth, they have to be corrected with the aid of the state. The central instrument for this correction are taxes. In fact, as the traditional economic framework does not reflect ecological costs by treating them as externalities, prices in the traditional framework are systematically too low. To change this situation, a tax has to be added to 'normal' prices in order to reflect ecological costs.

Economic instruments are thus a central tool in the sustainability framework. Sophisticated proposals exist in economic theory as well as in the political arena (OECD, 1989). For *sustainability*, the use of the term 'environmental policy' makes much less sense than in the framework of *classic environmental policy*, because the economy and the environment are seen as a unity. Environmental policy has only a place as a residual category in order to prevent effects which society does not desire.

In the sustainability framework, many previously normative or environmental problems are transformed into economic ones. One example is the principle of 'intergenerational equity' (Sikora and Barry, 1978, Brown Weiss, 1989, AJIL, 1990, Höhn, 1991), which is primarily a normative requirement according to which present human activity must not unduly restrict the options available for future generations (for instance, by completely destroying all rain forests including their genetic potential). Intergenerational equity must be achieved by the price mechanism.

These last remarks indicate also a shift with regard to the central actors of *sustainability* as compared to *classic environmental policy*. Whereas in the latter framework, lawyers and natural scientists are the most important actors, economists become central for *sustainability*. Natural scientists remain important but their knowledge has to be transformed by economists. Clear cause-effect relationships are thus less important because uncertainty can be reflected in a higher or lower price, discount rate, etc. It should be noted, however, that this is true for the ideal-typical *sustainability* frame and ignores the enormous practical and theoretical problems of a valuation of the environment. *Sustainability* thus puts a certain emphasis on market-based decentralization and by virtue of this fits well to *member state dominance* as the frame of integration.

Sustainability is a frame which is actively promoted by certain actors. Its market-orientation makes it resonate with conservative thinking[2] but it is not restricted to conservative parties, organizations or governments. Among the promoters of similar views are the OECD, which has a long tradition of favoring economic approaches to environmental problems, some economists and environmentalists

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(Pearce, Markandya and Barbier, 1990, Pearce and Turner, 1990, Baumol and Oates 1988, Wicke, 1986, 1991, von Weizsäcker, 1989a, 1991), but also non-governmental organizations (e.g. the World Resources Institute) and, to a limited degree, the *Financial Times* newspaper. The following table illustrates the basic elements of the two frames.

Table 1
Environmental policy frames

	Classic environmental policy	Sustainability
Definition of problem	harmful externalities	depletion of environmental capital stock
Assumptions about the economy and the environment	separation	integration
Primary actors	state	state, enterprises, public
Goals/values	healthy environment	intergenerational equity
Type of knowledge	natural scientific	economic
Means	command-and-control	economic instruments (pricing)
Attitude towards economic growth	moderate: use surplus to pay reparation; radical: growth destroys environment	sustainable growth possible

Energy frames

The ideal-types for analysing the energy-policy component of the framing of the greenhouse effect are constructed on the basis of the existing literature on the subject (Orr, 1979, Thompson, 1984). The three basic frames which have been identified in this literature involve different 'primary actors' which are crucial for the policy field, different goals and values, different risks to be avoided and different rankings of these risks and different ideas about the 'optimal' energy source. Thus, they are likely to lead to clearly distinguishable political strategies.

The frame of *supply* is historically the oldest. It is also the most widely shared among actors in the policy-field and particularly among policy-makers and producers of energy. *Supply* considers that the energy demand of economic actors must be met. Energy, in this view, is vital for the economy, and a secure supply of sufficient quantities of cheap energy is essential for economic growth. Energy policy, in this frame, is a non-term as the supply of energy is the apolitical business

of energy corporations and has to respond only to market demands. The clearest manifestation of *supply* could be observed during the oil crises of the 1970s. Lack of cheap oil was considered to be an extremely serious danger for Western economies. The political strategy chosen on the basis of this frame was to work towards the availability of cheap energy, and less in the direction of adapting industry to higher energy prices. In order to be independent from outside supplies of energy ('energy security'), massive efforts were and still are undertaken to develop such an ultimate source of energy, either in the form of fast breeder reactors or of nuclear fusion.

Table 2
Energy policy frames

	Supply	Conservation	Energetics
Definition of problem	inadequate supply	energy waste	energy as cultural-social problem
Assumptions	energy growth continued (energy-economic growth linked)	energy growth slowed (energy-economic growth can be decoupled)	energy determin-ism, entropic limits to energy conservation, end of cheap energy
Primary actors	energy corporations	government	public
Goals/values	inexhaustible cheap energy no value change	short term: efficiency long term: inex-haustible supply small value change	decentralized solar based society radical value change
Risks to be avoided	economic disruption	balance of payments dependence, energy wars	technological ac-cidents, resource exhaustion, climate change
Ultimate energy source	breeder/fusion	conservation tech-nology, fusion	decentralized: solar, wind, bio-mass, conservation

Source: *adapted from Orr (1979, p. 1038)*

As a political consequence of the oil crises and in connection with the emergence of the ecological movement in the 1980s, the *conservation* frame became more prominent. Here, energy is seen as a limited resource because of the depletion of natural resources (oil, coal, etc.) and/or regarded as dangerous because of the pollution stemming from power generation. Therefore, energy use by the economy has to be restricted by government. Still, the belief in progress persists: energy waste can be reduced by technological and regulatory means. Science and government can thus help to improve a country's balance of payments without reducing the domestic standard of living.

The most radical view is *energetics*. It regards energy generation, distribution and consumption as a cultural and social phenomenon. Energy policy is not a matter for scientists finding the right 'energy mix' or a classic task of the state setting limits to energy consumption but a matter of the entire society depending on and involving political and economic organizations, values and beliefs. Technical or administrative solutions, in this view, are effective only to a limited and insufficient degree and at the same time create new problems (e.g. technological accidents). Energy *policy* is not enough; only a radical change of society's approach to energy use offers a solution to the problems linked to energy

Integration frames

The third set of frames which is relevant for the analysis of the EC's greenhouse policy does not address the environment or energy as a policy field but the functioning of the EC system as such. It is, however, important to consider that policy instruments are not only chosen with reference to the policy field in which they are applied but also with reference to the institutional framework in which they operate. This relationship gains weight if the institutional framework itself is still changing and policy decisions are likely to have consequences for the polity (for the field of regulatory policy-making, c.f. Joerges, 1990).

Frames on integration encompass different views on the EC system. In a simplification, which is sufficiently exact for the present purpose, one could distinguish between *supranational integration* and *member state dominance* as two opposing ways of framing integration. In the context of integration theory, this view is certainly under-complex but it suffices for the analysis of a particular policy field without the need to resort to the more complex measurement schemes proposed by Lindberg and Scheingold (1970, pp. 64-100) and Lindberg (1971, pp. 68 seq.). In addition, the distinction appears under different labels (e.g. integration vs. co-operation, 'Europe supranationale' vs. l'Europe des patries') in the entire history of the EC (Lutton, 1985). Only those features of these frames which are relevant for the case study will be discussed here.

The frames of integration thus concern the functioning of the EC system. Integration as such is a generally shared goal among the participants in the EC system which are considered here, i.e. among Commission, Council/member states, and the European Parliament: nobody favors disintegration. Whereas the

Commission and the European Parliament are generally adopting a view of *supranational integration*, in which they are often supported by the Benelux countries, the other member states, and in particular the large ones, tend more towards *member states dominance*.

Supranational integration is first and foremost a normative frame with strong symbolic elements. The European Community, according to this frame, has the aim of developing an 'ever closer union' among the peoples of its member states. This aim has to be achieved by economic co-operation and an increasing political component. The political component in particular is controversial. The fierce debate between the advocates of the United States of Europe and the proponents of 'l'Europe des patries' in the 1960s has vanished but has re-emerged in the debate about the concrete meaning of 'European Union', which is now the generally agreed goal. These grand debates find their echo in many institutional questions, small or large. The right of legal standing of the European Parliament before the European Court of Justice, for instance, is judged differently according to the respective integration frame. In *supranational integration*, such a right makes sense as it would make the EC resemble more a fully-fledged state possessing a parliament with full rights, whereas in *member states dominance*, democratic control is exerted via the democratically elected governments of the member states and does not have to be circumvented by the European Parliament. This is also true for policy instruments: means and institutions of state authority such as police, taxation, or criminal jurisdiction are also a matter for EC competence in the interpre-tation of *supranational integration* but should be left out of EC competence according to *member state dominance*.

A particularly important field in this respect is external relations. External relations are also of high symbolic importance. External relations reproduce images of the state. According to common diplomatic practice, only states can act internationally. Transferring competencies to a supranational organization like the EC means changing the image of the state in the view of the outside world. The decision of whether a particular measure in the field of external relations is a matter for Community or for member state competence is thus a matter of identity for the Community as well as for the member states. This question is not settled once and for all but continuously repeated in numerous single policy decisions. The response is shaped by the different integration frames.

In the debate on the greenhouse effect, the idea of 'environmental leadership' was launched. Environmental leadership is a strongly integrationist principle as it includes not only a uniform external policy of the EC in this field but implicitly challenges the United States, the ideal and competitor for many proponents of the *supranational integration* view. 'Leadership' is a symbolic concept which is at least as important for the identity of the EC as for the development of its environmental policy.

The unity of the legal system and the uniformity of rules are an important symbolic element of *supranational integration*. Differentiation, i.e. applying different rules for different countries, is seen as a threat to integration and as such

rejected. Within *member state dominance*, it is accepted much more easily as it reflects the legitimate rights and interests of states which are not to be subordinated to uniform government. Different frames of integration are also reflected in the recent debate about 'subsidiarity' (Wilke and Wallace, 1990, Dehousse, 1993). On the surface, the subsidiarity principle refers to the optimal institutional level for problem-solving. On a deeper level, however, different conceptions of subsidiarity reflect different frames of integration (Jachtenfuchs, 1992a).

The frame of *supranational integration* also includes an element of distributive justice. According to this principle, which is basically uncontroversial, decisions valid for all member states have to balance the costs and benefits for different member states either in the decision itself or in other decisions. In practice, a very important manifestation of this principle is the requirement that a North-South balance be achieved. Southern (i.e. poorer) member states, according to this principle, agree to measures which put burdens upon them that they would normally not accept, provided that they obtain compensation elsewhere. As this redistributive element is to a large degree performed through the supranational structural funds, it is much less acceptable within the frame of *member state dominance*.

Table 3
Integration frames

	Supranational integration	Member state dominance
Definition of problem	European identity	functional problems
Institutional level of problem-solving	high	low
Goal	multinational polity	special type of international organization
Values	solidarity, common identity	national sovereignty
Policy instruments	uniform, hierarchical law	framework rules, recommendations

For the purpose of this study, it seemed useful to distinguish between frames which cover a rather narrow scope, insofar as they merely refer to policy-making. Take the environment as an example: In a broader perspective addressing the relationship of society to nature, both frames presented here as two extremes might be considered as sub-categories of a more general frame describing this relationship. In the literature, this phenomenon has been called 'frame resonance' (Gamson/Modigliani, 1989). Indeed, despite the fact that the emphasis is laid here on their differences, both have in common a perspective of nature as open to human intervention. In Eder's (1992, pp. 18 seq.) terminology, both are part of the *ecological* package, to be distinguished from the *conservationist* and the *fundamentalist* package which play, however, only a minor role in the action of environmental movements and none in environmental policy-making. Such a perspective is already implied by the concept of policy-making which presupposes the readiness to intervene in its field of application. As radical views, such as the one denying man the right to intervene in nature, are irrelevant in policy-making, they will be neglected here.

Another caveat is more important. The two frames of environmental policy should not easily be associated with a dichotomy like 'conservative' vs. 'progressive' or even with a political left-right scheme. Elements of each of the environmental policy frames have a specific relationship with the three basic lines of Western political thought – conservatism, liberalism, socialism – but they cannot be fully and exclusively associated with any of them. There are conservative, liberal and socialist (or social democratic) versions of *classic environmental policy* as there are emerging conservative, liberal and socialist versions of *sustainability*. What is true for the frame as such is also true for single elements of it. A case in point are economic instruments in environmental policy as opposed to command-and-control measures. A tax on the consumption of resources or on energy is a policy instrument that fits better with the *sustainability* frame than with *classic environmental policy*. It is, however, compatible with all three basic political orientations. For conservatism, a tax is a means to correct market failure which leads to an over-consumption of environmental resources for which the entrepreneur normally does not pay. It thus obliges the entrepreneur to fulfill his responsibility towards nature with instruments which conform to a market economy. This argument is also valid for the liberal: to the extent that environmental protection and clean-up is not considered to be a task of the state, a tax is the least disturbing means of guaranteeing some environmental protection. For the socialist, finally, an environmental tax is a means of redistribution, although not vertically from the rich to the poor but horizontally from labor-intensive to environment-intensive forms of production.

Policy-specific frames do not only resonate 'vertically' with frames of a higher or lower level of abstraction but also 'horizontally' with frames of different policy-fields. This effect is particularly important for the present study. Frame resonance with more abstract frames is largely neglected although the interaction of *sustainability* with a spread of the neoliberal conception of the economy and its relation to politics is probably a promising field of inquiry. Here, I will concentrate

on the relationship between environmental policy frames on the one hand and integration frames on the other. Their interaction explains much of the dynamics in the way EC institutions framed the greenhouse effect.

Notes

[1]. In this study, 'sustainability' refers to my concept of one ideal type of environmental policy-making, not to the meaning of the term in the discussion initiated by the Brundtland-report (WCED, 1987) and preceding and following the Rio-Summit.

[2]. This is probably the explanation for the influence of one particular environmental economist, David Pearce, in the programmatic orientation of British environmental policy (c.f. UK, 1990).

As the subject of the empirical study is the framing of the greenhouse effect in the European Community, it is appropriate to single out some distinctive features of the European Community and of the greenhouse effect which are important for the process of frame selection and frame change. The following pages do not, therefore, make an attempt to deal with these questions in a comprehensive manner nor to say something fundamentally new about these issues. Their only purpose is to draw the boundaries for the empirical analysis. Research on the European Community in a specific policy field sometimes suffers from one of the two following shortfalls: Either the analyst is a specialist in a policy field (or another field of inquiry, such as interest groups or political parties) and does not reflect on the specific conditions and qualities of the European Community in this field. In this case, the EC is some - times portrayed as an international organization, sometimes as a state, depending on whether the analyst has an international relations or a domestic politics background. Both views, if applied uncritically, can be quite misleading. Or, in the case of the second shortfall, the analyst adopts a perspective of integration theory without considering the particular features of the policy-field at stake (Kohler-Koch, 1992, p. 82). The purpose of the following pages is to avoid both extremes as far as possible while acknowledging the difficulties of acquiring a profound knowledge on both the research on European integration as well as on environmental policy - making.

Institutional framework

Without entering the fruitless debate about the nature of the EC as an international or a domestic system, it is claimed here that the development of the EC cannot be adequately understood by resorting only to international relations theory. This is even more true for the analysis of a single policy field (Schumann, 1991). The European Community possesses a number of features which are usually found in domestic and not in international contexts. In any case, it is doubtful whether the

strict separation of domestic and international politics as two arenas characterized respectively as vertically and horizontally organized is still a useful distinction, if it has ever been one at all (Scharpf, 1991, Czempiel, 1986, p. 254, Walker, 1987, p. 82, Luhmann, 1991c, pp. 51-71). The features with a particular interest for the present study are its comprehensive scope, the existence of a highly complex hierarchical legal system, an enormous density of interaction and the existence of a directly elected parliament. These particular features create the context for the international element of the European Community, namely the negotiations of states in the EC Council.[1] They transform these negotiations to an extent unknown in 'normal' international organizations. Negotiation analysis, whic h is essentially a derivative of game theory (Sebenius, 1992, p. 350, fn. 89), is only applicable with important caveats to this situation. Regarding Council negotiations as a drama and an exchange of arguments is instead the path which will be pursued here.

The properties analysed in the following section are distinctive features of the EC system as compared to standard international regimes or international organizations. They are presented in this context in order to show that international relations theory, which is mainly concerned with the relationships of states either at the level of the international system as a whole or in specific issue areas, has at least to be supplemented in order to be useful for the analysis of political processes in the European Community. The second purpose of briefly listing these characteristics is to show their relevance for framing processes in the EC. The process of framing and shifting frames in the EC, it is argued, cannot adequately be understood when the inquiry is limited to a single policy field while leaving this context out of view.

Comprehensive scope

The European Community does not only deal with one single issue – for instance, refugees – nor is it competent for one policy field – e.g. international finance – but it deals or could deal in principle with all policy fields. In other words, the EC is not a functional or sector-specific organization but a regional integration organization whose aim is not merely to contribute to the management of clearly defined problems (which are dealt with by interna tional regimes or international organizations) but explicitly to contribute to the progressive intermingling of the political systems of its member states and, in the last resort, of its societies (Haas, 1968, Lindberg and Scheingold, 1970, 1971). This finality of a progressive integration must not be forgotten even when the subject of analysis is only a specific policy-field, seemingly unrelated to the grand issues of national identities versus supranational state. This element becomes particularly influential with regard to the discussion of the subsidiarity principle and its impact on environmental policy.

The European Community can in principle deal with virtually all subjects but it has to justify its action with reference to an explicit permission to deal with the task at stake. In legal terms, it has to give a 'legal basis' to every formal act[2] it adopts. If

new actions enter a field not yet covered by primary or secondary Community legislation,[3] this scope enlargement corresponds to the progress of integration. The covering of new policy fields by Community legislation is not only in itself a scope enlargement of the EC but can serve as the basis of further transfers of competencies because such a measure, once adopted, can become the legal basis for other measures in this field. Therefore, any measure, big or small, has in principle to do with the question of integration as such and should not a priori be separated from this issue.

A second important consequence of the comprehensive scope of the EC is the great potential for linkages among different policy fields. Linkages can have opposing effects on problem-solving. On the one hand, they open up the possibility for package deals, i.e. the nesting together of several problematic issues. This technique is often used in international negotiations (Haas, 1980), and a very common one in the EC (H. Wallace, 1983, 1985, 1990). Package deals are generally believed to help in coming to a decision despite a blockade in one (or several) of the issues at stake. A participant opposing one particular decision might give in when this appears to be the only way to achieve a decision on another field which he is particularly interested in. On the other hand, linking too many issues together entails the risk of an overly complex mixture which impedes even partial solution by its very complexity. Another possibility is that one participant in the negotiations tries to link progress in a remote area to progress in the area of his interest. A well-known example is the British veto on agricultural prices at the beginning of the 1980s. At that time, Britain was not at all opposed to these prices as such but wanted to exert pressure on his partners with respect to its claims to get a refund of its contributions to the Community budget. These linkages are all deliberate ones. Their purpose is to enhance the chances of agreement, although the success of such an enterprise is by no means secured.

Issue linkage can also occur as the unintended result of the comprehensive scope of the EC coupled with its dense legal system (see below). Whereas an issue-specific international organization can only deal with matters falling into its rather narrowly defined competencies, the EC is able to tackle most kinds of subjects as they emerge. In most cases, the internal division of competencies among different Councils of Ministers[4] is merely a matter of the administrative division of labor and not one of institutional change. Therefore, it is easier to link different policy fields and more likely that complex linkages emerge. The adoption of policies in one field may have consequences in another policy field either politically (for instance, when strong environmental standards are only adopted on the condition that compensation in the form of infrastructure subsidies is paid) or legally (e.g. the standard conflict between environmental protection norms and the free circulation of goods).

Risks and opportunities of issue linkage and package deals are the subject of an intense discussion in international relations theory, integration research and in the literature on negotiation. This discussion shall not be continued here. What is important for the present study is to keep in mind that due to its comprehensive

scope, issue linkage is very frequent in the EC. This has important consequences for the framing of an issue.[5] If several policy fields are linked, the frames shared by actors in these policy fields are also related in one way or another. The relationship of these frames can be analysed. The greenhouse effect, for instance, should not be treated exclusively as an environmental problem and an occurrence of environmental policy frames only. At least, the policy towards the greenhouse effect includes elements of energy and of fiscal policy besides environmental policy. These frames may exist side by side. They can, however, also mutually influence each other.

Besides this horizontal linkage of frames in different policy fields, a vertical linkage can also exist. When a policy has institutional consequences, the policy-specific frames come into contact with general institutional frames. This effect is a general phenomenon but due to the comprehensive scope of the EC and its explicit political finality it is much more likely to occur in this context than in the context of an international regime.

A hierarchical legal system

A second distinctive feature of the EC system as compared to an international regime or other instances of international co-operation is the existence of a hierarchical legal system. Again, this theme will be discussed only insofar as it relates to the topic of the present study. EC law has acquired the status of a distinctive legal system as compared to general international law. It is characterized by several peculiarities which make it resemble a domestic legal system and which influence the emergence and selection of frames. For this reason, it is possible to compare the EC with a developed federation like the US (c.f. Rehbinder and Stewart, 1985). EC law as it exists today has to a considerable extent been developed by the jurisprudence of the European Court of Justice (Joerges, 1996, Rasmussen, 1986).

The two most important doctrines are those relating to supremacy and on direct effects. They are the essence of what Joseph Weiler (1981, 1982, 1985) has called 'legal supranationalism' as compared to the 'decisional intergouvernementalism' of the EC. The *supremacy* doctrine, developed in the 1960s and extended and restated since then despite considerable criticism (Ludet and Stotz, 1990), states that Community law is superior to national law in the same area. This applies not only to Treaty provisions but also to secondary legislation. Practically speaking, this means that the adoption of a Community legal measure in a specific field invalidates existing national measures to the extent that they relate to the same subject. Indirectly, it also prevents member states from adopting legislation in a field once covered by Community legislation ('pre-emption'). In this case, a policy is developed form the outset at Community level.

The doctrine of *direct effects*, also developed by the ECJ in the 1960s, states that Community law which is not immediately applicable by its very nature (such as regulations and, in some cases, decisions) can nevertheless be enforced under certain conditions. This implies legal rights for citizens or legal persons. In practice,

such a doctrine creates strong pressure towards the legal implementation of Community measures. One form of Community legislation is the 'regulation' which is directly binding in its entirety. A regulation is thus equivalent to a national law with all the rights and obligations this entails. Another common form of Community legislation is the 'directive', a text which is binding in its substance but not in its form. This means that it has to be transposed into national law by the EC member states. Usually, a deadline for implementation is attached to each directive. Whereas in international law a state can still choose not to ratify a treaty after it has signed it and thus prevent its application on its territory, this possibility is much smaller under the direct effects doctrine. Should a state not implement such a directive for whatever reasons, a citizen or an enterprise has the possibility of starting legal procedures in order to obtain their right, despite the fact that the directive has not yet been transposed.

A further characteristic which limits the international relations character of the EC is the strong involvement of the individual citizen, as well as of other legal persons. One of the indicators for this is the emergence of EC administrative law (Schwarze, 1988). Through the development of an informal complaint procedure, interested private parties can give information to the Commission about the non-implementation of EC law or the violation of existing rules. The Commission, charged by the EEC Treaty with the supervision of Community law (Art. 155) (c.f. Audretsch, 1986) is then free to start formal or informal procedures to ensure the implementation of the respective provision.

These features, which were presented only very briefly, result in a fundamental change of the bargaining process in the Council. Bargaining in the EC takes place in the shadow of a highly differentiated legal system with implementation mechanisms that are very strong compared to standards of international law. When agreeing to a proposal on the negotiating table, states are aware of these mechanisms.

The legal order of the EC gives particular weight to the EC Commission. It is the only party which can formally make proposals for a Council decision. Thus, the states meeting in the Council are unable to decide without a text submitted by the Commission. In practice, the Commission frequently submits proposals which are requested by one or several members of the Council but it does so because of long-term considerations on the fate of its own proposals and not because it would be legally obliged to do so. At the same time, the Commission occupies the role of a mediator, which it can carry out with a large margin of manoeuvre because of its right to modify or withdraw its proposals at any time. As a consequence, the Commission has a much stronger position in all stages of the policy process than a normal secretariat of an international organization. In fact, the Commission is an additional and important member of the Council together with the member states. Therefore, the frames put forward by the Commission during the policy-making process are or particular importance.

On a more general level, law is an indicator of integration as well as its instrument (Capelletti, Seccombe and Weiler, 1985, Cerhexe, 1989, Kapteyn and Verloren van Themaat, 1989). The strong legalization of EC politics, the existence of a full-fledged

judicial system on which actors frequently rely fundamentally distinguishes the EC's internal relations from those of international affairs in general. Whereas the International Court of Justice has delivered some fifty judgments in its entire existence, the jurisprudence of the European Court of Justice occupies several metres of bookshelves. The SEA has therefore established a 'Court of First Instance' in order to relieve the ECJ of some of its workload. Conflicts on substance frequently turn into legal conflicts, and many substantive issues have a constitutional element which is again subject to judicial proceedings. This is particularly so because the progress of integration in the last resort is embedded in legal rules. When it was said in the previous section that due to the political finality of the EC substantive issues frequently have an institutional component, this fact becomes even more important in the light of the nature of the legal system of the EC: In this context, any progress towards integration is conserved in a legal system and protected by strong procedural rules. The resistance to such steps is thus even bigger than it would be in a legal system with weaker implementation mechanisms and with a less pronounced hierarchical structure (Siedentopf and Ziller, 1988).

High interaction density

Another characteristic of the European Community which makes it distinct from classic forms of international co-operation and which is important in this context is the intensity of interactions taking place not only among the EC member states but also among the national bureaucracies and the Commission. In the tradition of Karl Deutsch, some authors claim that a strong and intense interaction among the bureaucracies of the EC governments and the Commission was an indicator for their strong mutual influence and probably for the existence of distinct styles and traditions of policy-making which are characteristic of the EC (Wessels, 1990, W. Wallace, 1990b, p. 9, Puchala, 1971, Lindberg, 1971, Pag, 1987). For the analysis of frame selection and frame change in the EC, this tradition is important for several reasons.

The political process of the EC is characterized by a continuous swap of proposals from the national to the European level and backwards. This process entails a transformation of the original proposal, whatever its origin was. Despite a loss in decision-making efficiency, it is a main reason for the acceptance of decisions once agreed (Puchala, 1984, p. 10).

The argument that the intense and continuous flow of proposals between the national and the European level changes the nature of these proposals can be extended to frames. A strong and continuous interaction among the EC bureaucracies eases the diffusion of ideas among the bureaucratic units concerned (Rose, 1991, p. 17). Arguing that the density of interaction makes a difference, also implies that a socialization of the involved actors is likely to happen. Slowly but steadily, administrators and administrations accommodate to new ways of thinking, develop an understanding for positions other than the national ones and in the last resort change their own ways of thinking. This effect is the reason why diplomats

are usually only allowed to stay for a few years in one and the same country. In the EC, it exists on a considerably larger scale. Interaction exists not only among a small group of diplomats working in the respective embassies but on a much broader level.

A considerable number of 'national experts' are sent from domestic administrations to the EC Commission for a few years. By agreeing to this procedure, both the EC and the national administrations hope to exert a certain conceptual influence, the national administrations on the Commission and the Commission on the national administrations. Whose views finally prevail or whether it makes sense at all to think in winner-loser terms in this regard instead of a mutual socialization is unclear in the scarce literature on the subject (Chiavarini Azzi, 1985, Jamar and Wessels, 1985, pp. 39-123, Bach 1992, 1993a, 1993b).

Another mechanism for the diffusion of ideas and the mutual socialization of administrators is the existence of highly developed administrative procedures in all phases of the policy cycle bringing together civil servants from the Commission and from national administrations in a huge number of committees. These committees exist in the preparatory phase (advisory committees), in the decision-making phase (Council working groups) and in the implementation phase ('comitology').[6] Frequently, the same persons appear in more than one type of committee in a specific field.

The strong and continuous interaction of civil servants and politicians in the EC system leads to the slow emergence of a distinctive tradition of policy-making which includes specific instruments and regulatory techniques. On the whole, the EC has developed a specific style of environmental policy-making which cannot be explained merely in terms of the combination of different national styles, interests and policies (Mazey and Richardson, 1993). In the making of this policy, there are frequent conflicts stemming not so much from different concrete interests in the problem at stake but more from different ways of conceptualizing a problem. A famous example in the field of environmental policy is the yearlong quarrel between the United Kingdom and the other member states on the choice of effluent standards or water quality standards in the attempt to control pollution. This debate cannot be reduced to a British desire to get permission for more pollution (Haigh, 1984, pp. 27-34). Concepts once adopted in EC policy may in turn influence national policy concepts.

The purpose of this section was to support the argument that the EC is a particularly important case of an international institution promoting the diffusion of ideas (or frames). The main reason for this is the strong and institutionalized interaction between national and EC administrations. This interaction allows to see the policy-making process in the EC as a permanent process or argument and counter-argument. Contrary to standard intergovernmental organization, the EC has over time developed a distinctive policy style of its own which is different from the twelve national ones. This style has a strong impact on national policy styles. For the same reason, the introduction of new concepts in EC policy-making is likely to

meet strong resistance, at least from govern ments with strongly developed administrative cultures.

The existence of a parliament

In many analyses of EC policy-making, the European Parliament is bluntly neglected (e.g. Schneider and Werle, 1989). The European Parliament does not possess any competencies in the respective field, it is said, hence, it is unimportant. This seemingly legalistic attitude, which often neglects the complex web of formal or informal legal procedures by which the EP is integrated into the EC decision-making process (Grabitz et al., 1988) is often defended by authors with a broadly realist view of international relations. What matters in this perspective is the interplay of power and interests of states negotiating in the Council (Moravcsik, 1991, 1993, Garrett, 1992, Keohane and Hoffmann, 1991). At the margins, the Commission has a small role and some transnational corporations may appear on the scene.

The fact, however, that the European Parliament has few rights in the field of environmental, energy and fiscal policy, which are the main policy fields relevant for the present study, must not lead the analyst to neglect them altogether.[7] The obligation to consult the EP before a decision is taken is a far cry from a final parliamentary approval of a law following the example of domestic systems, but it is far more than exists in other international organizations (Isaac, 1986).

The EP (Grabitz et al., 1988, Bardi, 1989, Kirchner, 1984, Louis and Waelbroeck, 1988), it is argued here, has a potential for influencing the greenhouse policy of the EC which has to be found beyond formal criteria. This potential should not a priori be excluded from the analysis. Apart from the budgetary process (Strasser, 1990), which is irrelevant in the present context, package deals are an important source of influence for the EP. In principle, the EP can link a positive decision in areas in which it has a strong influence (via the so-called 'co-operation procedure', Art. 149, 2 of the old EEC Treaty) to a consideration of its views in areas in which it is formally only consulted. This potential influence creates a climate of diffuse reciprocity among the Council and in particular among the Commission. The parliament has 'chaos power', which it can use only in a relatively undirected way. Still, this power suffices to make the Commission accept a number of amendments put forward by the EP during the legislative procedure which it would formally not be obliged to accept.

In the institutional triangle Commission – Parliament – Council, the Commission usually tries to keep a loose alliance with the parliament against the Council. One reason for this is that both institutions consider themselves as defenders of the 'European' interest against the proponents of national interests, often portrayed as 'national egoism' united in the Council. For the Commission, the Council is an adversary which constantly tries to modify its proposals and has the final say about them. In this situation, the EP is a welcome ally (Noël, 1988). The EP, on the other hand, tries to exploit this interest of the Commission in order to influence the Commission's proposals. The constellation applies particularly to the relationship

between the EP's environment committee and the Commission's directorate general XI, which is responsible for the environment but has a weak position within the Commission administration.

The most important but also the most diffuse source of influence of the European Parliament appears, however, to be the fact that it is a place of public discussion. In the debates of the plenary, as well as in hearings on specific subjects which it has the right to organize, policy-makers have to defend their choices and to justify them. In committee meetings of the EP, Commission officials are usually present when their proposals are discussed. The EP has obtained the right to have a Commissioner reply to its questions. The Commission in general justifies and defends its policy in the committee meetings, during question time and on the occasion of general debates, such as the one on the yearly work program of the Commission. On the working level in particular, debates between parliamentarians and officials are frequent. This constitutes an opportunity for an exchange of arguments about a policy. Here, Commission and Parliament are on equal footing when it is assumed that in this stage, good arguments can convince the other. Parliamentary debates are also a topic of press coverage, which differs however widely in different member states. Arguments put forward by the EP are often used by third parties to support their own views. Here, the EP profits from its legitimacy as a directly elected body.

If the EP does not have a formal last word in the EC decision-making process, it has a considerable potential for influencing it. Some of these channels remain in the realm of classic bargaining (e.g. during the budgetary procedure). An important source of influence is the production and diffusion of arguments. If arguments are important, the way the EP frames an issue may also be important. The relationship between the Commission, the Council and the Parliament is, however, not one of equal partners discussing an issue. The debate takes place in a legal and institutional context which embodies power relationships. The preceding pages have tried to show that despite the formal power of Commission and Council, the European Parliament has means available to make its arguments heard. How and whether it uses them is an empirical question.

Interstate bargaining in the Council

During Council negotiations, the European Community most closely resembles the type of international organization usually analysed by international relations scholars. Several recent accounts of EC development almost exclusively concentrate on interstate bargains. Such an emphasis seems, however, to be mainly a function of the initial premises of the analyst, which from the outset privileges state actors and their negotiation. In the previous four sections it has been argued that such a view of the EC system is too narrow. Leaning towards the other extreme and neglecting the Council negotiations is not a solution either. Negotiation styles and negotiation rules have important consequences for the process of issue framing in the EC. In order to analyse them properly, it is, however, necessary to

take into account the background conditions under which Council negotiations take place.

In particular, it is important to avoid the trap of treating the EC Council like a prototype arena for game theory, with the member states and probably the Commission as the players. The institutional setting seems to suggest it self for such an approach which would, however, suffer from the shortcomings of a rationalistic theory outlined in Chapter One. Negotiation theory is often nothing more than applied game theory. Even if the restrictive assumptions of game theory are relaxed (e.g. hyper-rationality, common knowledge of the rules of the game), this statement remains true (Sebenius, 1992, p. 348 seq.). Even if important studies in this tradition exist (e.g. Scharpf, 1988b), this path will not be pursued here. For the analysis of negotiation processes in the Council, two other aspects are important which are often neglected by game theorists, namely negotiation as a drama and negotiation as an exchange of arguments. The symbolic or dramatic element of Council negotiations or of the adoption of legal instruments has been taken into account by writers with a good familiarity with the EC system (H. Wallace, 1985, 1990, Dehousse and Weiler, 1990, pp. 244 seq.).

Negotiations of the EC Council are highly ritualized and largely governed by informal rules of behavior which have little in common with the idealized type of negotiations according to which people meet who are merely interested in the substantive outcome. On the contrary, the dramaturgic aspects of these negotiations occupy an important place. EC Council meetings are often criticized in the press as 'mere talk', 'symbolic politics', etc. This is in particular true for meetings of the European Council (Wessels, 1980, Wessels and Bulmer, 1987, von Donat, 1987) (which are mostly irrelevant for the present study) but also for meetings of specialized Councils. The performance of individual ministers (i.e. member states representatives) in a Council meeting may thus also be understood as an attempt to manifest and defend a specific identity of the policy-makers in the issue at stake, both on the Community as on the domestic level. Such a view could help to understand the persistence of different – and often largely incompatible – views on specific policy instruments (Hajer, 1990). In the play performed during the Council meetings, there must be no losers but only winners. Everybody has to get something out of the negotiating room, and this 'something' does not have to be some thing material. The 'conclusions' published at the end of a negotiation are not mere artifacts for the press, only produced in order to hide the 'real' course of the negotiations. They are also intermediary results of the negotiation process and the basis for future negotiations. The many informal rules of this play (showing solidarity with the poorer member countries, showing some progress accomplished during the meeting, offering everybody something to present at home, etc.) have to be taken into account when analysing the results of negotiations (c.f. also Scharpf, 1988a).

Despite a general tendency towards the introduction of majority voting at least as a possibility (Dewost, 1987), unanimity prevails as a formal or factual decision rule. This is also the case in the policy fields relevant for the greenhouse effect. No

hegemonic power exists. In this situation, bargaining, i.e. the exchange of gains and losses in search of an agreement is one way to come to a decision. Although bargaining and decision-making (Wessels, 1991) will not be neglected in the empirical analysis of the next chapters, *exchanging arguments* is another source of change in the other's position. In this situation, the way in which different frames held by actors fit together becomes very important. Frames or elements of frames cannot simply be traded in an exchange process. To use a crude example, liberals (in the European sense) cannot simply give up 'free enterprise' in exchange for, say, more civil rights. Particular frames can, however, be combined and changed much easier if they are part (or can be made a part) of a larger universe of compatible meaning. This phenomenon of 'cultural resonance' (Gamson and Modigliani, 1989, p. 5) is of decisive importance for the development of the EC's greenhouse policy.

The previous pages have argued that the EC cannot simply be understood in terms of the concepts of international relations theory. Instead, it possesses several features of domestic systems which create the institutional framework for the emergence and change of frames. This is even true with the part of the EC system that resembles other international organizations most closely, the negotiating process in the Council. The domestic elements of the EC system as well as the specific features of the Council negotiations (no exit option, dramaturgic elements) make the exchange of arguments an important – though not the only – part of the Council negotiations. Frames are thus not only frameworks for the rationalities of the individual Council members, they are also arguments which encounter other arguments. The analysis of frames can thus be extended to intergovernmental negotiations.

Problem structure

The following section deals with particular aspects of environmental policy that, as it is sometimes claimed, distinguish environmental policy from other types of policy-making. Although I do not share this broad view but believe on the contrary that the characteristics outlined below are found in many fields of policy-making, though obviously to varying degrees, the relevance of these typical aspects of environmental policy for the present study will briefly be discussed in order to locate the concept of 'framing' in relation to these standard themes of environmental policy-making.

Environment as a public good

The greenhouse effect is a global environmental problem. Global environmental problems have frequently been looked at in terms of collective goods (Hardin, 1968, Wijkman, 1982, Prittwitz and Wolf, 1993). Analysing global environmental problems in this way means adopting the basic result of collective goods theory, namely that individually rational behavior under specific conditions leads to a collectively

undesirable (or sub-optimal) result (Olson, 1965). For the case of global climatic change this fundamental dilemma means that although everybody would profit from a stable climate instead of suffering from the negative effects of the increase in temperature, individual actors (states) have strong incentives to choose a behaviour which even increases the greenhouse effect. Collective goods theory offers hypotheses under which conditions a collective good is likely to be provided either by a single (hegemonic) actor or by some actors out of a larger group (Hardin, 1982).

Conceptualizing the greenhouse effect as a problem of collective action can give important insights into difficulties of co-operation and into the likelihood of certain strategies chosen by actors. Yet, posing the problem in terms of collective action implies an important choice: It assumes that the actors refer to the same problem, i.e. that they are in the same game. In the period analysed, the debate was not only about how to solve the problem of the greenhouse effect but at least to the same extent about what the problem was. Adopting a collective choice perspective risks adopting one particular problem definition, implicitly defining it as the 'objective' or 'true' one and assessing other actors' responses in these terms. In fact, other actors may have other frameworks of rationality. Their version of the collective goods problem, if there is any in their world, may be entirely different.

The theory of collective action is not able to explain why actors who cannot make any substantive contribution to the provision of a collective good still adopt a policy in this respect. Hall (1989, pp. 361-362) argues that 'structural accounts can tell us a great deal about the constraints facing policy makers, but policy making is based on creation as well as constraint'.

From a collective action perspective, it makes no sense for Denmark to adopt far-reaching and costly measures in reducing its carbon dioxide emissions. This also applies for Germany in the same context and even for the entire European Community, which has only a thirteen per cent share in global carbon dioxide emissions (Commission, 1991b, p. 15). Despite these incentives for non-co-operation, leading roles of small countries are a rather frequent phenomenon in international environmental negotiations.

In the last resort, the theory of collective action, even if applied to environmental problems of the kind dealt with here, deals with different things than the present study. Collective action theory is often good in predicting outcomes but unable to explain why actors have contributed to these outcomes. Whereas collective action theory, because of its strong roots in game theory assumes fixed preferences and options for rational actions within the limits of its definition, the present study deals with the emergence of these preferences and their change over time. Empirically, however, it is claimed that it does not make sense to regard the greenhouse effect as one world-wide problem of collective action. At present, players are in different games. In the analysis of the greenhouse policy of the European Community, collective action theory will thus not be used. The only form in which it will appear is that of one argument among others put forward by actors in the process of framing the issue.

The role of knowledge

'Knowledge' is a term frequently used in the analysis and the making of environmental policy. It uncritical use can, however, lead to biases in the analysis and to the adoption of implicit cause-effect models. In the analysis of environmental policy, 'knowledge' is often used synonymously with 'natural scientific knowledge'. In the Anglo-Saxon world in particular, this notion is abbreviated to 'scientific knowledge'. The constant use of 'science' in the meaning of 'natural science' may reflect the view that natural science is the only 'real' science, in particular when it is used by natural scientists (e.g. Dürr, 1992). It may also reflect the conception of a unitary science (of natural and social science) widely shared in the Anglo-Saxon world (Giddens, 1979, p. 238). The German tradition, on the other hand, tends to consider natural science and social science as two separate entities with fundamentally different inherent logics (c.f. Habermas, 1985, pp. 89 seq., 1981, Vol. I, pp. 160 seq.).

In the former usage, a frequent thesis is that environmental policy heavily depends on knowledge and that this fact is a distinctive feature of environmental policy. In most cases, the type of knowledge which is considered important is knowledge about the natural-scientific aspects of an environmental problem, e.g. whether a certain concentration of cadmium in drinking water causes health problems or whether and by which mechanisms rising concentrations of certain gases in the earth's atmosphere lead to an increase in the average temperature. Problems of environmental policy are then often problems of incomplete or uncertain knowledge, and a strategy to solve these problems is to increase research until clear cause-effect relationships are established on the basis of which administrators can design policies and politicians can decide. Natural scientists and the increase in natural scientific knowledge are thus the centre of attention. Often, the emergence of natural scientific knowledge is described as fundamentally different from the political process. Whereas the building-up of scientific knowledge is technical, unpolitical, characterized by rational argument and oriented towards the criterion of truth, the political process is dominated by the struggle for power.

If environmental policy is heavily dependent upon natural scientific knowledge, natural scientists and the logic of natural scientific discovery will play a major role in it. Natural scientists, connected in 'epistemic communities', change the character of policy-making. Even among states, knowledge in the above-mentioned sense becomes a source of power (E. Haas, 1990, Simonis, 1992, pp. 32-33). Frequently associated with this view is the old functionalist hope that problem-solving by unpolitical technicians may lead to peaceful co-operation among states.

Without denying the importance of natural scientific data for environmental policy-making, some caveats shall be made here. Even from a constructivist perspective it is clear that differences in natural scientific data matter. There is, however, no pre-defined relationship between natural scientific knowledge and political action. Environmental policy action is not necessarily more likely if the

natural scientific evidence on the problem to be solved becomes stronger. This view implicitly assumes that policies exist to solve the problems they are said to tackle (i.e. environmental problems) and neglects other reasons for their existence and persistence (e.g. to solve *political* problems or to manifest the identity of the policy-makers).

The epistemic community hypothesis reduces the interplay between natural scientific knowledge and society (or political decisions) to the influence of scientific lobbying groups on government administrations. If an epistemic community has convinced the relevant policy-makers, it has an influence on them. In order to convince policy-makers, epistemic communities have to share consensual knowledge. If knowledge is debated, it is less susceptible to have political influence. At least, it cannot serve as the constituent basis of an epistemic community. An analysis which needs persons as the carriers of knowledge limits, however, its own scope. It risks remaining restricted to the relationship between scientists and technicians on the one hand and administrators on the other (e.g. Liberatore, 1989). In this perspective, problems of knowledge are problems of the lack of knowledge or an incomplete or false understanding of natural scientific facts by politicians and the public. Obviously, access to national scientific knowledge can be a resource of power for political actors (Wolf, 1991, pp. 290 seq.) but it should not be privileged too much.

A perspective stressing the dependence of policy-makers on knowledge from the natural sciences in the way described above runs the risk of implicitly or explicitly following simple cause-effect assumptions. Scientific expertise in this perspective is more or less directly transformed into political action. A hidden assumption in this argument is that people or politicians *want* to solve the problems defined by natural scientists. If environmental problems are not solved or even tackled, one reason for this is a lack of natural scientific knowledge. Hence, the solution is to accumulate more such knowledge. The more knowledge is accumulated, the more likely it is to result in political action. There are thus two explanatory strategies available for non-action in the field of environmental policy. Either, the available stock of knowledge is declared as insufficient in retrospect: nothing has happened politically, *hence* knowledge was insufficient. Or, political or economic interests have prevented the application of the knowledge.

Such a model reflects a consensual view of scientific progress. Politics has to be based on solid scientific knowledge, and solid scientific knowledge is consensual knowledge which is achieved by the universally shared truth tests of the scientific community. Discussion and debate about natural scientific facts do not have much place in this concept.[8]

Another perspective is to analyse the social production of scientific knowledge. In this case, not only the selection of knowledge and its communication are political processes but even its production. In such a sociology of science, natural scientific knowledge is thus not anymore a form of unpersonal objective knowledge but a social product which has lost its privileged status in the political process (Fleck, 1935, Ravetz, 1973, Funtowicz and Ravetz, 1990). Although the present study is not

much concerned with this aspect, I share the view that natural scientists are dependent on conceptions and cognitive processes that they bring to their discipline from the social world (Segerstråle, 1989, pp. 246-248). In this respect, the scientific system is a social system like any other.

A more interesting perspective might be to inquire into the criteria for the selection of specific knowledge and to consider this process itself as a political process instead of a technical or mechanical one. This process cannot be captured in a simple interest-oriented model according to which politicians who pursue certain interests choose the (natural) scientific information which fits that interest in order to justify it. The same is true for the reverse image, namely that scientists actively promote specific results in order to obtain more funding, although both mechanisms may play a role in extreme cases. Instead, it can be analysed in terms of the fit or misfit of different frameworks of rationality. This is the perspective chosen here. It avoids taking natural scientific data as 'objective' knowledge outside the political process but at the same time does not resort to ideas about politicians selecting parts of the available knowledge as a function of their already well-defined interests.

For the sake of terminological clarity, it is necessary to add some qualifications to the use of 'knowledge' besides the more fundamental remarks made on the previous pages. Natural scientific knowledge, it has already been said, is an important aspect of environmental policy-making. Yet, if the causes and effects of pollution are known, this is not sufficient for political action. *Technical knowledge* has to provide the physical means of coping with the problem. If the alternative of prohibiting the polluting activity does not exist, the desired effect of pollution reduction has to be achieved by technological means. It is one thing to say that rising concentrations of carbon dioxide in the atmosphere cause a rise in average temperatures and several other undesired effects but another thing to have technologies for energy saving, miniaturization, insulation, etc. available. Technical knowledge is different from natural scientific knowledge because contrary to the latter it is linked to economic cost-benefit calculations. Technical knowledge 'as such' is meaningless in the political process, except for the case that for a given problem no solution at all is known. Existing technologies all gain or lose relevance in an economic framework which is again not objectively given but consists of assumptions reflecting specific ways of seeing and interpreting the world.

This leads to the last category of knowledge which is important for the present study, namely *economic knowledge*. Economics, as a social science, is frequently neglected by authors who consider natural scientific knowledge the only scientific knowledge. In this view, economic factors are introduced in the analysis not under the label of 'knowledge' but under that of 'interests'. A typical argument would be that a part of industry, for instance, has the 'interest' of avoiding as much as possible the introduction of substances that are less damaging for the earth's ozone layer because they are more costly than the old ones. If industry uses the cost argument for the defence of its cause, this must not be confused with an objective cost, however that may be defined. It is merely an argument put forward

by one actor reflecting its specific interpretation of the world insofar it relates to the problem at stake. This interpretation may be entirely different in the case of other actors, such as environmentalists or government administrations.

As long as economic interpretations can be neatly associated with those actors in whose interest they are (to remain in this conceptual framework), economics can be dealt with under the heading of 'interests' instead of 'knowledge'. The problem becomes more tricky when different economic assessments are put forward by actors without an immediate 'interest' in the problem. This is frequently the case with government bureaucracies, governmental expert bodies, economic institutes or single economists writing in scientific journals. In this case, it does not make much sense to find out the 'interests' which lead a particular professor to adopt a particular economic framework. Economics is then more usefully treated as a form of knowledge. Economic knowledge is particularly important for analysing the greenhouse effect as measures against the greenhouse effect have to be taken at a global or at least regional level. For the state considering these measures, different response strategies entail different costs which are highly controversial. In this sense, it is meaningless to speak of the interest of a state to opt for a specific interpretation of the economics of the greenhouse effect. This is merely an ex-post rationalization and corresponds to the attempt to explain the selection of natural scientific data by the alleged interests of actors.

Considering economics as knowledge sheds light on the controversial nature of knowledge which is obscured by an exclusive reliance on natural scientific knowledge. Without opening a debate on the philosophy of science, it is submitted that the Kuhnian notion of 'paradigms', which is the basis for generally accepted truth tests and validity claims in the natural sciences, is not easily transferable to the social sciences. In the social sciences, 'old paradigms never die; indeed, they rarely ever wither away … At best a paradigm may, as Giddens puts it, become "comatose", awaiting reanimation at a future point in sociology's development' (Smart, 1982, p. 123). The notion of frames would thus correspond more to Lakatos' concept of 'research programs'.

Economic knowledge, thus, can be considered as part of competing inter-pretations of the world leading even to different cost-benefit assessments. The latter cannot simply be reduced to the interests of the parties producing the studies. Accumulating economic knowledge or making it more accurate is thus not a solution to the problem of how to decide about policy options to deal with the greenhouse effect. Again, this should not be misunderstood in the sense that economic studies were useless for policy development. If means, however, that accumulating huge numbers of economic studies does not solve the problem of deciding about the appropriate interpretative economic framework. Different and competing knowledge systems, irrespectively of the type of knowledge to which they refer, can be analysed in terms of frames. In the empirical study, the notion of 'knowledge' will be used in this sense instead of restricting it from the outset to natural scientific knowledge and its specific problems.

Risk and uncertainty

Environmental problems in general and the greenhouse effect in particular are typically considered as *risks*. Talking about risks implies talking about the future: A risk is something which has not yet happened but is expected to do so. Whereas natural scientific knowledge about environmental damage is already subject to controversy when it is related to present damage, this controversy becomes even more pronounced – and its results more important – when the subject of inquiry is *future* damage. There are not only different ways to deal with risk but also different perspectives of analysing it. Although the present study is not mainly concerned with risk as such or with its political and societal implications (Beck, 1986, Evers and Nowottny, 1987, Luhmann, 1986, 1991a), the greenhouse effect is constantly referred to as an 'environmental risk' which can be managed, avoided, perceived, or neglected. Managerial perspectives are frequent in the literature on environmental policy-making (e.g. Clark, 1989). Different concepts of risk, however, imply different analytical orientations and often different outcomes. It seems thus necessary to briefly explain the concept of risk used here and its analytical implications.

Despite the lack of a generally accepted definition of 'risk' (Luhmann, 1991a, pp. 15-16, 1990, p. 132), one can broadly distinguish between a more technical and a more sociological orientation of research on risk. The former is not of interest here as such. On the basis of the preceding section about 'knowledge', it is possible to argue that even the technical branch of risk analysis produces social constructions of the risk it deals with (Lau, 1989, pp. 418-419). An example of a technical approach to risk analysis are the recommendations of the conference on 'Carbon Dioxide and Other Greenhouse Gases', which was organized by the EC Commission in 1986 (Fantechi and Ghazi, 1989, Laurmann, 1989). According to the sociological perspective, concentrating on the traditional technical branch of risk analysis implicitly or explicitly assumes a contrast between experts and the public or politicians in relation to risk: Whereas experts perceive risks correctly, the public, the politicians and the press are emotional and misinformed. From this assessment, it is easily concluded that 'incomplete science' and 'wrong' public perceptions are at the source of public resistance to the installation of large and risky technologies, such as nuclear power stations or waste incinerators (Wynne, 1987, p. 6). As a consequence, more natural scientific research and information campaigns are the right means of bridging the information gap between technicians and the politicians asking for their expertise on the one hand, and the public and the media on the other (Wynne, 1989, p. 33). The situation becomes more complicated in the case of conflicting expert evidence.

One possibility to deal with this situation is to declare that expertise A serves the interests of actor X whereas expertise B is in the interest of actor Y. Yet, this perspective supposes that actors already know what is in their interest. In the seemingly paradoxical situation in which on the one hand, decision-makers as well as the normal public are increasingly dependent on natural scientific assessment but where on the other hand, these assessments themselves become so

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controversial that it is not possible to rely on them anymore (Eder, 1992, p. 13), one can also leave aside the analysis of what a risk is and look at the different ways risks are perceived and conceptualized by different actors in society. In this perspective, 'public perception of risks and its acceptable levels are collective constructs' (Douglas and Wildavsky, 1983, p. 186). The focus of the analysis is thus moved from the risk itself to the observers of risk. In other words, risk analysis moves from first-order observation to second-order observation.[9]

In the perspective of the writings of cultural theorists about risk, risk conceptions are not merely a function of the more or less well-done analysis of the 'real' risk, biased by ideology, misinformation and insufficient information processing capacities. Instead, risk perceptions are also a function of different forms of society (Douglas and Wildavsky, 1983, p. 89). The basic question of risk analysis: who fears what and why, is thus best answered by pointing to cultural biases as a reason for different risk perceptions (Wildavsky and Drake, 1990, p. 48 seq.).[10]

The present study is not about the greenhouse effect as a risk. It adopts the perspective of seeing different conceptualizations of risk as equivalent and socially constructed. However, the emphasis is not placed on the emergence of risk perceptions but on their usage. In any case, there is no 'objective' definition of risk which can be found by sophisticated technical models in the traditional sense and there is also no direct way from data on the state of the environment to the perception of environmental danger (Hagstotz and Kösters, 1986). Conceptualizations of risk are social constructs reflecting different factual, normative and symbolic elements. They are frames shared by different actors or actor groups. Whereas cultural theory treats risk perceptions mainly as interpretative frames in the terminology used here, the present analysis is also concerned with the usage of these frames in the shaping of the EC's policy towards the greenhouse effect, in other words, with action frames. The analytic path chosen here is not the one of an inquiry into the nature of the risk constituted by the greenhouse effect and ways and means of improving its understanding and thus of improving ways and means of managing such a risk. Instead, it focuses on the use and transformation of different ways of framing the risk of the greenhouse effect in the policy process of the European Community. As talking about 'risk' means talking about the future, these different interpretations and concepts are even more important for political action than if the issues were on the interpretation of the present.

Notes

[1]. The emphasis is on 'states', not on 'negotiations'. Decision-making by negotiation is also found in the domestic context (Benz et al., 1992, Scharpf, 1991).

[2]. Formal acts are 'regulations', 'directives' and 'decisions', as enumerated in Art. 189 of the EEC Treaty. If not otherwise indicated, articles quoted refer to the

EEC Treaty in its 1987 version incorporating the changes introduced by the SEA but prior to the Maastricht Treaty.

3.   'Primary Community' legislation designates the treaties establishing the European Communities and the acts modifying them, such as the Single European Act or the acts of accession of new member states; 'secondary legislation' are all legal acts adopted on this basis.

4.   Whereas the EEC Treaty mentions only one Council as the organ representing the member states, the Council in fact meets in different compositions reflecting the competencies for the respective policy field in the member states. In the following text, I will use an abbreviated terminology for referring to this proceeding. When I talk, for instance, of the 'Energy Council', this refers to the national ministers dealing with energy matters in the context of the EC. The German representative in this Energy Council, for instance, is its minister for the economy. Legally, the terms 'Energy Council' or 'Environment Council' refer to the 'Council' as it is mentioned in the EEC Treaty. Each Council can take legally binding decisions only for its field of competencies. In some cases, thus, several Councils have to meet either jointly or separately in order to take a decision in a policy field. This is also the case with respect to the greenhouse effect, where the Energy, the Environment and the 'EcoFin' Councils (Ministers for the Economy and/or Finance) possess the main competencies.

5.   A 'policy' is the wider notion and may consist of several 'issues'.

6.   Due to the considerable difficulties in obtaining information on the multitude of committees existing in EC policy-making, little has been written from a social science perspective on the institution of committees as such. More frequent are occasional references to specific committees in case studies (e.g. Burkhard-Reich and Schumann, 1983, pp. 38-61). The same statement applies to the 'Committee of Permanent Representatives' (Hayes-Renshaw, Lequesne and Mayor Lopez, 1989, Hayes, 1984). An anecdotal but interesting account of an insider is von Donat (1977).

7.   In some cases of environmental policy, namely those related directly to the internal market, the EP even has the formal power to reject the Council's position according to the 'co-operation procedure' of Art. 149, 2 of the old EEC Treaty. The most prominent case when it has used these powers is in the negotiations on emission standards for cars (c.f. Corcelle, 1985, 1986, 1989).

8.   Max Miller (1986) introduces his book on collective learning with two mottoes: 'Alles Leben entsteht durch Streit' (Heraklit) and 'Le bien est un produit de coopération' (Piaget). The above-mentioned view exclusively opts for the second motto.

9.   'Der Beobachter erster Ordnung sieht, was er sieht. Der Beobachter zweiter Ordnung sieht, wie der Beobachter erster Ordnung sieht, was er sieht' (Luhmann, 1991a, p. 77). For Luhmann (1991a, p. 14), this is the only possibility of a sociology of risk: it should deal with the way risks are communicated in the different functional subsystems of society and not with these risks themselves.

The greenhouse effect emerged only slowly on the political agenda of the EC institutions. Since the beginning of the 1980s, related topics such as climatological research, energy saving or international environmental policy were dealt with by the EC in a more or less systematic way. Although these activities took place within the logic of the respective policy field and were only loosely connected, the specific way they developed constitutes the background for their later link with the issue of the greenhouse effect. Hence, environmental research, energy policy and international environmental policy must be analysed in order to understand why the debate on the greenhouse effect, once it was perceived under this label, developed in the way it actually did. In other words, the frames used in other policy fields prepared the way the greenhouse effect was dealt with.

This section analyses the pre-history of the greenhouse effect in the EC up untill the Commission's communication on 'The Greenhouse Effect and the Community' (Commission, 1988a), which for the first time addresses the issue not only in terms of a problem but also endeavours to conceive a strategy for action. It is restricted to those events and frames in the respective policy fields which later became important for the development of the greenhouse issue. Occasionally, it also deals with non-events and frames which were not shared by actors in order to explain the later greenhouse policy.

Climatological research

A standard argument in the *classic environmental policy* frame as well as in other (often rather technical) fields of policy-making is that natural scientific research is necessary to establish a solid factual basis on which policy-makers can develop their options and strategies. The more exact this factual basis, the better or the more appropriate the policy can be. The fact that already in 1981, a first climatological research programme [1] (Council, 1981) was adopted by the Council in the framework of the third environmental research programme (ERP) could thus indicate that

already at that time, climate change was perceived as a problem and technical advice for seeking a solution to this proble m was sought.[2] Although the first Commission proposal finds strong wordings for the importance of possible climatic changes caused by human action,[3] the programme itself is concerned with basic but not with applied research. This orientation is characteris tic of a large part of EC research. The proposed budget of 8 MECU for a five-year programme (which was later endorsed by the Council) dealing with a wide variety of subjects in climatology indicates that climatology was not among the EC's research priorities at the beginning of the 1980s.

In its proposal for the second climatology programme in the framework of the fourth ERP, the Commission put even more emphasis on establishing a link between environmental research and environmental policy. The former should establish the scientific basis for the latter (Commission, 1985, p. 3). The rising CO_2 concentrations in the atmosphere received more attention than in the first programme. This phenomenon was assessed as 'the great environmental issue of the present century and of the next one' (Commission, 1985, p. 37), and the Commission proposed a considerable increase of funding for climatological research (25 MECU as compared to 8 MECU for the first programme). Both the EP (Estgen, 1986, p. 17, European Parliament, 1986a, p. 76) and the Council opposed this increase and the Council later allocated 17 MECU of a total of 75 MECU for research on climate (Council, 1986a, p. 32).[4] Even if political attention directed towards a problem should not be measured exclusively by the amount of money spent in the respective area, 17 million ECU hardly seems appropriate to deal with the most important environmental problem of the 20th and of the 21st century.

Two conclusions can be drawn from this. In the first place, it is obvious that in 1985 and even more so in 1981, the greenhouse effect was not considered as an important political problem and hardly an important topic for fundamental natural scientific research in the Council and in the EP. The Parlia ment, which usually tries to promote subjects which it considers apt to raise public interest and mobilisation, even proposed a cut in the money spent on climatology. Within the Commission, the assessment was largely the same. Second, the purpose of the proposed research is not its direct use in policy-making but the establishment of a certain knowledge in *areas* which are considered important for the *European Community*.

Since its beginning after the Stockholm environmental conference of 1972 and the declaration of the heads of state and of government of the EC in the same year, EC environmental policy has been accompanied by EC environmental research (Liberatore, 1989). Subsequent environmental research pro grammes refer to the role of research for policy-making (e.g. Commission, 1985, p. 2). While on numerous occasions the role of research for policy-making is stressed in EC documents, it is, however, hardly ever made explicit why EC environmental policy had to rely upon *EC generated* research instead of research carried out at national level or in other international fora. Without denying the role of the results of EC environmental research for EC environmental policy, it seems therefore more appropriate to look

for other reasons for the development of Community environmental research than the desire to provide policy-makers with a solid factual basis.

An important reason for the emergence and strong growth of research on an EC level is the creation of a specifically European research community and a European research network, as well as the establishment of a European tradition in what was perceived as world-wide research competition. For this reason, the co-ordination of national research activities should not only avoid duplication of work but also allow for scientific economies of scale. Most important is the networking function of research programmes (Commission, 1985, pp. 36 seq.): virtually all of them require applicants to consists of teams coming from at least two member states. Thus, a major motivation behind the proposal and adoption of EC research programmes is *supranational integration*. In the view of the Commission, EC research furthers European integration by its very existence.[5] Similar references to the identity of the EC can be found in speeches and reports of the European Parliament. The EC has positive connotations because it provides an opportunity to solve problems which the nation-state is unable to solve alone. Only the EC provides an opportunity to solve these problems in common. *Common* problem-solving and the EC as the only institution capable of solving new or large-scale problems are features of the *supranational integration* frame.

Until the entry into force of the Single European Act in 1987, neither environmental policy nor research policy were a formal competence of the European Community. Any legislative or action proposal in these fields thus had to justify not only its particular content but its very existence.[6] Whereas the Commission used perceived problems to justify Community action and thus a Community competence in this field with the aim of furthering integration, the Council was generally reluctant towards the adoption of such programmes or legislative texts because their adoption was likely to justify *de facto* a permanent competence of the EC in this matter, partly at the expense of national measures. In this situation, research, and in particular fundamental research appeared likely to contribute in an unspecified way to the improvement of living conditions in the EEC, as required by Art. 2, without interfering too much in member state competencies.

Research was also important for justifying policies in the field of the environment. In a period where environmental policy was not yet considered a well-established and legitimate policy of the EC, it had to refer to a solid basis in facts in order to justify action. Environmental policy and environmental research thus mutually justified each other: The results of environmental research could lead to policy measures whereas proposed policies demanded more research to give them a foundation in natural scientific knowledge. This relationship has even found its way into the SEA's chapter on the environment, which codified the 'acquis communautaire' in this field. Art. 130r, 2 states that 'in preparing its action relating to the environment, the Community shall take account of ... available scientific and technical data ...'.

Climate problems transcend national boundaries. They are typical examples of cross-border problems which can be best dealt with in international co-operation.

Hence, action in the field of climatology can be justified by the inherent features of the problem but also contribute to integration. In addition, research, as it is necessary for laying the cognitive foundations of a policy, can give additional legitimation to EC environmental policy, which at the beginning of the 1980s was still in the making. Justifying a transfer of competencies to the EC level in this policy field it also contributes to integration.

It would, however, be erroneous to attempt an explanation of the emergence of the first climatological research programme (in the 3rd ERP) and its expansion in the 4th ERP in terms of rational action. Commission civil servants preparing these proposals do not have as their first preference the furthering of integration by any means whatsoever and only on the second or lower ranking the protection of the environment, high-quality research or the avoidance of duplication in research. The Council, on the other hand, does not consist of civil servants with 'preventing integration' ranking first among their preferences. Such preferences could only be constructed by the scholar but could not be revealed by empirical analysis. Such a distribution of preferences would very much look like an image of the institutional setting of the EC written in the 1957 Treaty of Rome with the Commission as the promoter of integration and the Council as the defender of national interests. Members of the respective policy-communities on the other hand tend to perceive themselves as problem-solvers. They are concerned and motivated by the problem at stake and not with integration or protection of sovereignty. There is no need for a master plan of integration which is constantly pursued by the Commission and opposed by the Council. This is also one of the main findings of neo-functional integration theory: integration does not happen as the result of a major institutional debate but as the outcome of a large number of 'problem-solving' decisions.

Energy

In its later strategy paper, (Commission, 1991b) the Commission established a firm link between its climate and its energy policy. Improving energy efficiency[7] became the cornerstone of the Commission's greenhouse policy. This privileged position of energy policy has been justified by the crucial role of energy production and consumption in the emissions of CO_2, which is regarded as the main cause of the greenhouse effect. Indeed, energy is probably the most important single factor responsible for CO_2 emissions and hence for the greenhouse effect, as long as the latter is mainly attributed to CO_2 while other possible greenhouse gases, such as methane, are neglected (Bundestag, 1990, Vol. I, p. 45).

Energy is also indirectly responsible for the CO_2 emissions from the transportation sector. The strong emphasis on changes in energy policy could thus be explained by the importance of this policy field for the greenhouse effect: it is here where targeted measures are likely to have the greatest effect. This statement is, however, already an interpretation and a choice. It suggests that energy *policy* is the best means of reducing energy *use*, which is undeniably responsible for a huge

part of CO_2 emissions. In fact, this interpretation of the Commission was not shared by all actors. Some member states, for in stance, strongly objected to the emphasis on energy policy and demanded instead that measures in other fields, such as housing (insulation) and transport (speed limits, standards for vehicle consumption), also be considered.

Therefore, the importance of energy consumption for the greenhouse effect cannot alone explain the strong reliance on energy policy in the Commission's strategy to fight the greenhouse effect. Another hypothesis would be to assume that the way energy policy has been conducted by the EC, and in particular by the EC Commission, which prepares policy orientations and decisions, matters for the explanation of the prominent role of energy policy in the Commission's greenhouse strategy. It is thus the dynamics of EC energy policy which explains later policy choices and not considerations of optimal problem-solving. This argument will be developed in the present study. It is therefore necessary to begin with a brief analysis of the basic frames and events of EC energy policy until the mid-1980s.

EC energy policy, to the degree it exists at all, can be characterised by the *supply* perspective. Energy policy, not foreseen in the EEC Treaty, became a matter for the EC as a reaction to the 1973/74 oil crisis, which led to sharp price increases and thus challenged the prevailing supply frame. Secure supply of energy at low prices without disruptions, the professed ends of the energy policies of the member states, (Council, 1975c, p. 1, Council, 1986b, p. 1) seemed endangered. Within the *supply* frame, the problem was the drastic price increase for energy and the possibility of being cut off from oil supply. Three basic strategies to cope with the oil crisis were envisaged in a Council resolution dealing with the energy policy of the Community after the oil crisis, although with different priorities. Firstly, energy saving could in principle reduce the dependence on outside energy supplies but – within the *supply* frame – had the disadvantage of impairing economic growth (Council, 1975c, Council, 1975e). Activities in this sector were therefore marginal. Still, the Council in 1974 decided on a first action programme on rational energy use. This action programme endorsed the Commission's activities in the field of research which were not considered a threat to vital areas of national energy security and thus became the small-scale predecessor of later programmes (Council, 1975b).

More compatible with the *supply* frame were activities to reduce the dependence on oil imports from the Middle East by returning to domestic sources of primary energy. i.e. to coal and to (North Sea) oil and, as the third possible strategy, by a massive increase in the use of nuclear energy. (c.f. Council, 1975a, p. 3). Although at the time, the Commission in particular was fervently pro-nuclear, (e.g. Council, 1975a) nuclear energy was contested even in the aftermath of the oil crisis.[8]

Despite frequent references to common action faced with an external threat, EC energy policy remained largely restricted to a loose co-ordination of member state action (Daintith/Hancher, 1986, Daintith/Williams, 1987, Black, 1977). Energy policy was perceived by the member states as too vital an issue to leave it to any kind of international organisation. The resolutions passed on a new energy policy strategy of the Community or on energy policy goals mainly set indicative aggregate targets

for all member states but left all concrete decisions to the member states. (e.g. Council, 1975a, p. 3) The first major revision of the EEC Treaty, the Single European Act of 1986, did not contain any item on energy policy among the new competencies of the EC.[9]

Summing up, EC energy policy until the late 1980s can be characterised by a prevailing *supply* frame. Despite a rhetoric of common problem solving, a *Community* energy policy, properly speaking, hardly existed but remained characterised by *member state dominance*. Switches to domestic energy resources (most prominently North Sea oil and gas) remained a matter of national policy. The Community was most active in the field of energy-related research. Here, the emphasis was clearly on nuclear energy. Energy saving, which is not a fully valid option in the *supply* frame, was only promoted by small scale research programmes.[10] Hence, from a Commission point of view, EC energy policy was not successful. The Community still seemed unprepared for a new energy crisis because its member states refused the only means of avoiding the consequences of such a new crisis, namely common action, in other words: *supranational integration*.

The emergence of the greenhouse issue

Apart from occasional references in EP debates, the greenhouse effect emerged as a political issue (apart from being a research topic) in the EC with the submission of a report on the issue by James Fitzsimons (Ireland) in 1986. Until this point, the Commission had dealt with the greenhouse effect exclusively as a topic for research. While the fourth environmental research programme, adopted only a few months before, had insisted on the existing uncertainties in the natural sciences and thus entirely remained within a *classic environmental policy* frame according to which natural science has to produce the cognitive basis for political action, the Fitzsimons report has a somewhat different emphasis. While referring at length to the results of natural scientific studies on the greenhouse effect published in the last decade, the report also dealt with possible economic and societal impacts of the greenhouse effect and possible policy measures on the basis of the existing natural scientific information and with regard to possible consequences of the greenhouse effect. With some exaggeration, the Fitzsimons report can be regarded as being in - spired by the 'precautionary principle', according to which environmental policy measures are justified even by the mere risk of environmental danger, despite remaining natural scientific uncertainties. Such an approach is consistent with *classic environmental policy* but triggers action more quickly.

The report comes to the conclusion that present natural scientific knowledge, represented by American and German studies as well as by publications arising from the EC's climatological research programme, confirm the existence of a greenhouse effect which is serious enough to justify some political action on this basis despite remaining uncertainties (Fitzsimons, 1986, p. 7). The resolution

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adopted on the basis of the report also refers to the 'growing scientific certainty' that the earth's average temperature was rising as a result of increasing CO_2 concentrations and of propellants. (European Parliament, 1986b, p. 272). The responsibility for these carbon dioxide emissions is put on fossil-fuel burning, intensive farming, industrial activities and deforestation. Hence, major fields for Community action are agricultural, industrial and energy policy. Energy policy is singled out by pointing to the 'automatic benefit to be gained from large-scale energy-saving and rational use of energy' (European Parliament, 1986b, p. 273). The strategy to cope with the greenhouse effect proposed by the report and by the resolution relies on three pillars: energy saving, reforestation (in the Community as well as world-wide) and development policy measures to stop tropical forest destruction.[11] The countries of the Northern hemisphere, the report says, are responsible for the major part of the greenhouse effect and hence have the responsibility to help Third World countries, for instance by transferring technology. This argument is put forward in terms of moral responsibility and not in terms of self-interest as has been frequently used in the discussions preceding the UN conference on environment and development (UNCED).

Besides the relationship of natural scientific knowledge and political action which the report answered by pushing the uncertainty argument aside, the document contains considerations on the effects of global warming on the economy, although these remained vague and addressed the issue of (geographical) winners and losers from the greenhouse effect.

This report was a first departure from pure natural scientific research in the emerging greenhouse policy of the EC. This approach, implicitly based on the precautionary principle, is the first EC document which contains a political assessment of the greenhouse effect instead of natural scientific and technical solutions.[12] During the debate on the report, Commissioner Pfeiffer gave the Commission's view on the topic. Pfeiffer's statement was entirely concerned with the problems of climatology. His presentation was characterised by the remaining deficiencies of climate modelling. He emphasised the remaining uncertainties of those models and stressed that these uncertainties justified prudence, in particular with regard to short-term action. Consequently, Pfeiffer's first priority was the intensification of research with the aim of using the knowledge generated by it 'as a basis for measures to counter these developments' (OJ 2-342, 12.9.86, p. 302).

The Commission remained on the path described by Pfeiffer. In November 1986, its directorate-general for research (DG XII) organised a symposium on 'CO_2 and other greenhouse gases: climatic and associated impacts' in Brussels (Fantechi and Ghazi, 1989). The conference was organised in the framework of the climatology research programme in order to present the results of research and stimulate scientific contacts. Natural science was at the centre of the proceedings. Only as a conclusion did the some 60 European and US scientists adopt the recommendation that the dialogue between scientists and policy-makers should be intensified and institutionalised (Agence Europe, No. 4388, 15.-16.9.86, p. 16, Laurman, 1989, p. 271).

In January 1988, Commissioner Narjes addressed the European Parliament on the issue of EC climatic research, stating that extrapolations of present CO_2 emission data suggested a possible increase of emissions from 5 billion tons in 1974 to 19 billion tons in 2025. From these data, he drew the conclusion that further in-depth research was necessary while acknowledging that present Community research programmes did not provide for massive research on CO_2 emissions (Agence Europe, No. 4708, 27.1.88, p. 10). The Fourth Environmental Action Programme (EAP) of the Community, adopted in December 1987, reflects the prevailing frame of *classic environmental policy*.[13] The 4th EAP, covering the period from 1987 to 1992, mentions the greenhouse effect only in relation to climatological research. No mention is made of social scientific research on the greenhouse effect, e.g. in the form of economic analyses, or of policy analysis in the wider sense (Council, 1987b, p. 35). The programme devotes a large amount of attention to the protection of tropical forests. The climatic impact of tropical forest destruction is, however, mentioned only once, the economic and environmental consequences for the countries concerned remaining predominant (Council, 1987b, pp. 37-38).

It appears that the first phase of EC policy towards the greenhouse effect can be characterised by the term 'orientation'. Some actors tried to put the issue on the political agenda but their actions were rather isolated. In this initial phase, the Commission maintained a restrictive position, initiating solely natural science research on climate change but not at all addressing the economic or political consequences of the increasing CO_2 concentrations in the atmosphere, let alone measures to tackle these effects. Statements from the Commission at this time were fully in line with a frame of *classic environmental policy* by pointing to the need of technical knowledge as a basis for action. This exclusive reliance on natural scientific and technical research could also, in the view of the Commission, help to establish its own competence and a European Community tradition in this field, in addition to a national one. The predominant concerns for *supranational integration* on the part of the Commission fitted well to the *classic environmental policy* frame, as well as to a line of thinking which considers natural science as the only real science.

Energy policy was dominated by a *supply* frame in which the secure and continuous supply of cheap energy for the economy is the first priority. Occasional references to energy policy as a crucial field of action for measures against the greenhouse effect, made in particular by the European Parliament, were a challenge to this frame and were rebuffed. On the other hand, energy policy remained largely in the hands of the EC member states, leaving to the Commission only studies and the proposal of indicative targets for energy use. Since the beginning of the 1970s, the Commission tried in vain to establish a common energy policy but even two oil crises and strong appeals to common action as a means of facing an external threat, typical for the *supranational integration* frame, did not change *member state dominance* in this field.

The European Parliament started a slight departure from the *classic environmental policy* frame by pointing to the 'automatic benefits' of some action, in

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particular large-scale energy saving. By doing so, it introduced a broader calculation of costs and benefits of environmental policy: environmental policy (action against the greenhouse effect) puts costs on economic agents or on the state but these costs have to be assessed not merely in terms of their environmental effects as in *classic environmental policy*, but also with respect to benefits in other policy fields. Such a calculation is a different way of balancing advantages and disadvantages of policy measures. In *classic environmental policy*, policy measures in general are considered to create only costs, environmental benefits (e.g. the maintenance of genetic diversity) being outside the scope of economic calculation. These costs must be justified, and this can only be done of the basis of solid natural scientific knowledge.

In 1988, some elements of the later policy package were already present, though not yet linked. Others, which were later removed from the agenda, were also dealt with. Energy policy is appearing as a central issue but meeting strong resistance from the proponents of *supply*. Energy saving is identified as a strategy for a greenhouse policy. Environmental research is dominated by *classic environmental policy* thinking. The first political document on the greenhouse effect has been put forward by the European Parliament, whereas Commission and Council neglect the issue because of a lack of scientific evidence. The situation at the end of the first phase is thus a confrontation of different views which are beginning to be linked.

Notes

1.   This programme has in fact reorganised the activities launched by its short-lived predecessor (Council, 1980, p. 24). For an overview of the somewhat confusing succession of EC research programmes related to climate and the budget allocated to them, see Table 8, page 227. In general, it is useful to distinguish between three layers of research programmes which have been introduced successively. *Sectoral programmes* (e.g. on climatology or on renewable energies) are the most concrete level. They may contain several sub-sections. These programmes were later grouped together in *specific programmes* (e.g. on the environment or on microelectronics). Finally, since 1984 EC research policy has been organised in three successive *framework programmes* covering all fields of research. To make things even more complicated, this terminology has not been used consistently throughout the years.

2.   In fact, the programme was initiated in 1979 as a follow-up to the first World Climate Conference.

3.   In the preamble of its proposal, the Commission wrote: '*Whereas man's economic and social structures are largely dependent on climate*; whereas es-pecially such vital resources as water and food can be seriously impaired by possible adverse climatic conditions; whereas *man himself could contribute by his own activities, and especially by polluting the atmosphere, to climatic instability and even to drastic climatic changes*; whereas it is therefore in the Community's

interest to promote a better knowledge of the mechanism and behaviour of climate, as well as of the possible impacts of climatic variability in view of sound planning as far as European resources are concerned' (emphasis added) (Commission, 1978, p. 2). The Council later endorsed this statement (see Council, 1980, p. 24).

4.   The view that environmental research should serve as a signpost for politicians and executive bureaucracies has also been expressed in the parliamentary debate on the 4th ERP, see for instance OJ 2-355, 18.2.86, p. 34.

5.   See the laconic remarks in the third ERP: 'Whereas Article 2 of the Treaty assigns to the Community the task inter alia of promoting throughout the Community a harmonious development of economic activities, a continuous and balanced expansion and an accelerated rising of the standard of living; whereas research in the field of the environment contributes to the attainment of these objectives …' (Council, 1981, p. 1). This reference to article 2 of the EEC Treaty is a standard justification for the adoption of new competencies not foreseen in the Treaty: it is hard to imagine an action which could *not*, at least in principle, contribute to the 'harmonious development of economic activities, a continuous and balanced expansion, and increase in stability, and accelerated raising of the standard of living and closer relations between the States belonging to it' (art. 2 of the EEC Treaty). The meaning of this justification is that the policy in question is considered to be good for European integration, and that it is adopted for this reason.

6.   In this case, measures had to be adopted on the basis of Art. 235 of the EEC Treaty which required that these measures had to be 'necessary to attain ... one of the objectives of the Community' listed in Art. 2.

7.   Energy efficiency is the relationship between final energy demand and GDP. It expresses how much energy is needed to produce one unit of GDP. Improving energy efficiency means that less energy is needed to produce the same amount of GDP.

8.   Objecting to the development of nuclear power, the Netherlands and Denmark had made a reservation on an indent in the Council resolution on the Community's new energy policy strategy (see Council, 1975c).

9.   Instead, the conference adopting the SEA added a declaration confirming that 'the Community's activities in the sphere of the environment may not interfere with national policies regarding the exploitation of energy resources'. In the Maastricht Treaty, adopted five years later, the energy policy competencies foreseen in the earlier Luxembourg and Dutch drafts (reprinted in Europe Documents, No. 1722/23, 5.7.91 and *ibid*., No. 1746/47, 20.11.92 respectively) were finally omitted.

10.   See the reports of the green German MEP Undine Bloch von Blottnitz, 1986 and Bloch von Bottnitz, 1987, as well as the EP debate on the subject (OJ 2-360, 19.1.88, pp. 120-125) criticising the preference of the Commission for large-scale energy generation and the relative neglect of energy saving and renewable energy sources.

[11]. See also the statement of the rapporteur during the debate (OJ 2342, 12.9.86, pp. 299-300).

[12]. But compare the statement of the conservative MEP Nicolas Estgen during the debate on the Fitzsimons report: 'There is a general agreement that science and technology, which are often the cause of ecological damage, can also repair the damage done' (OJ 2-342, 12.9.86, p. 300).

[13]. Action programmes in the field of the environment are not legally binding documents but a mixture of programmatic statements, the setting of priority areas for action and a shopping list of desirable legislation and other measures. A comparison of the five action programmes adopted since 1973 allows a rather exact view of the programmatic development of EC environmental policy over the last twenty years and of changes in the frames of environmental policy-making.

Whereas until 1988, the greenhouse effect was mainly a topic for natural scientific research in the EC, the Commission in November 1988 published a large report setting out its view of the nature of the greenhouse effect and proposing orientations for action. With the submission of this report, the greenhouse effect became a political problem in the EC which required reaction. The debate initiated by this report, together with an intense international discussion on the greenhouse effect, led to a Council decision in October 1990 on the stabilisation of the EC's CO_2 emissions by the year 2000. Partly independent of the debate on the greenhouse effect, partly stimulated by it, new frames emerged in some policy fields whereas in others, slow frame changes started. In the field of energy, although still dominated by the *supply* frame, a slow movement towards *conservation* and *energetics* started. In parallel, a general programmatic discussion on the relationship between economics and the environment indicated a move towards the *sustainability* frame and prepared the conceptual ground for the later proposal of a tax on CO_2. The strong growth of international environmental diplomacy, in particular with respect to the greenhouse effect, led to the emergence of the concept of 'environmental leadership' which linked environmental policy with *supranational integration*. Finally, a slow erosion of the *classic environmental policy* frame started with respect to the role of knowledge, putting exact natural scientific knowledge as a basis for policy somewhat out of the political attention.

The development of the greenhouse strategy

As a reaction to the findings of the international conference on 'The Changing Atmosphere: Implications for Global Security', held in Toronto in June 1988,[1] the Commission set up an 'interservice group'[2] to make a first political assessment of the greenhouse effect. When announcing the establishment of the group to the press, the Commissioner at that time responsible for the environment, Stanley Clinton Davis, said that there was no doubt that the earth was getting warmer and

that there were prospects of far-reaching changes in climate and sea levels over the forthcoming decades. He also declared that the Community had a key role to play in the field. A response would involve industry, energy, agriculture, forestry and development policies of the EC (Agence Europe, No. 4828, 20.7.88, p. 12). The Toronto conference had thus changed the cognitive basis for Community policy: whereas only shortly before the Commission had referred to the remaining uncertainties with regard to climate changes (c.f. p. 83), this assessment had changed now. The change was not inspired by the environmental research programme of the Community which was supposed to lay the scientific basis for EC environmental policy but is an indication that one of the tasks of the Toronto conference, namely to establish a minimum scientific consensus on the nature and consequences of the greenhouse effect had been fulfilled.[3]

The Toronto conference also inspired some activity of the European Parliament. Whereas the Commission set out to produce a comprehensive review of natural scientific knowledge and possible policy measures, the EP took up the media debate after the Toronto conference and concentrated on possible rises in sea-level as a consequence of the melting of polar ice, one of the estimated consequences of the greenhouse effect (Agence Europe, No. 4842, 1.9.88, pp. 6-7). The topic of rising sea-levels rise was full of allusions to the grand topic of environmental disasters in the public debate. The title of a later EP report on the '*rapid rise* in the sea level along Europe's coasts' (Roelants du Vivier 1989, emphasis added) indicates a feeling of urgency and threat. The danger is confirmed by several international scientific conferences quoted in the report. Faced with this danger, 'it is clear that the problems ... must be tackled at a level higher than the nation states, for example by the EEC' (Roelants du Vivier, 1989, p. 13, c.f. European Parliament, 1989, p. 330). For the author of the EP report, *supranational integration* is the answer to the external danger.

The Commission's strategy paper

The Commission's report on 'The Greenhouse Effect and the Community' (Commission, 1988a) was more concerned with stock-taking than with ringing alarm-bells. A large part of the report is devoted to the state of knowledge in the natural sciences. Most references to natural scientific results refer to international consensus-building conferences. It seems therefore that one of the main tasks of the interservice group was to establish a solid factual basis of causes, effects and consequences of climate change in order to avoid subsequent proposals being rejected by some countries claiming that the state of knowledge was not sufficient for the adoption of costly measures.[4]

After the statement of a cognitive consensus on the natural scientific aspects of the greenhouse effect, the Commission report reviews possible actions. Here, the Commission only quoted the far-reaching policy proposals of the Toronto conference at length without endorsing them. The Toronto conference had demanded, for instance, a 20 per cent reduction of CO_2 emissions by the year 2005

as compared to 1988 levels. In the section reviewing possible EC action, the report is much more cautious. For the Commission, the reduction of greenhouse gases 'does not seem at this stage a realistic objective but could be a very long term goal' (Commission, 1988a, p. 44). Even stabilisation of greenhouse gas emissions is only a long-term goal (but not a very-long term goal). Taking up a standard argument of the climate change debate, the Commission insists that measures must be co-ordinated the international level (Commission, 1988a, p. 40). Much attention is devoted to further research and here again mostly to natural sciences research (climate modelling, effects on particular geographic areas). A considerably shorter section deals with the consequences of implementing measures, in particular with the question which economic sectors should have to bear which share of possible measures and with the costs of these measures. In this regard, a first research activity outside the field of climatology is mentioned (Commission, 1988a, p. 44 and Annex).

The report for the first time lists proposals for preventive action, i.e. action to be undertaken in the case of a *risk* of environmental hazard. These proposals mainly deal with energy policy, more concretely with improving energy efficiency, thus taking up an old theme of EC energy policy, and with changing the share of different raw materials for energy generation ('fuel switching'). On the basis of the conclusions of the Toronto conference, which had also recommended energy efficiency as a central strategy to fight the greenhouse effect, the Commission report put energy policy in the centre of its own emerging strategy. The wording indicates that the authors were well aware of the conflict potential of this proposed link.[5]

Other fields of preventive action are the conservation of forests (including assistance to developing countries) and reafforestation. Some space is also devoted to other greenhouse gases such as CFCs, methane and nitrous oxides. Taxation of products causing emissions of these gases is mentioned as a possible complement to technological abatement measures (Commission, 1988a, p. 48).

The 'conclusions of the Commission' (Commission, 1988a, pp. 51-54) prepare the ground for the climate change policy of the EC in the following years. The report already contains the main elements of a Community policy in this field. Within the prevailing *classic environmental policy frame*, its most important function is to state a cognitive consensus about the features of the greenhouse effect relating to the natural sciences. On the basis of the findings of several international scientific conferences, the Commission acknowledges the existence of the greenhouse effect, despite some remaining uncertainties about its precise consequences and extent. Energy policy, again corresponding to the recommendations of the Toronto conference, is put into the centre of the emerging strategy. The research proposed by the report is only partially devoted to natural scientific research in order to have a better understanding of the physical reality of the greenhouse effect. Much of the research to be initiated was instead directed at preparing decisions, in particular a policy-options study programme (Commission, 1988a, p. 51).

The Commission conclusions also set out a first outline of a strategy to deal with the problem at stake. Central elements of the later strategy paper (Commission, 1991b, c.f. pp. 122 seq) have been already mentioned. Energy efficiency is a top priority, and in this field the Commission already enters into a commitment to take action instead of merely studying option. It is underlined that action in this field is justified independently of uncertainties on some aspects of the greenhouse effect (Commission, 1988a, p. 53). This is the first appearance of the later 'no-regret strategy' (c.f. p. 96). The greenhouse effect thus serves as a justification for relaunching older policies for achieving energy efficiency and the other goals of EC energy policy which had been considered unsuccessful so far. Tax incentives are also mentioned but only in a rather general way and do not occupy the prominent place given to them later.

At this point, the Commission is still analysing the greenhouse effect and proposing its first tentative strategy in terms of *classic environmental policy*. According to this frame, policy on the greenhouse effect is only justified if it is clear what the greenhouse effect is and what its consequences for the environment are. A risk of (possibly enormous) damage can justify action even on the basis of some remaining uncertainties (always with regard to the natural sciences). This is the normative requirement of the precautionary principle, adopted by the Single European Act (Art. 130r, 2). In order to propose action according to the precautionary principle, there must be a certain agreement about the nature of the risk at stake, in other words, a common problem definition at least in natural scientific terms. The task of the Commission's report was the promotion of this common problem definition.

The cognitive aspects of the problem definition may not, however, be reduced to natural scientific knowledge. Knowing that a risk exists is not sufficient for justifying action in environmental policy. After this first step has been accomplished, a second step is carried out in *classic environmental policy*: a cost-benefit assessment of the possible action or the lack of action (Art. 130r, 3, iii of the EEC Treaty). Economics belongs to the cognitive part of the problem definition. The notion of damage, which is at the basis of environmental policy, is often defined in economic terms as damage to property rights. When there is no damage in these terms, there is frequently no political problem. Hence, it becomes more difficult to mobilise action for tackling this problem. To obtain a mandate for assessing these costs and thus extending the cognitive part of the problem definition was thus the second major task of the Commission's report.

By and large, the report contains the main elements of a strategy to combat the greenhouse effect. What is lacking is their mutual relationship and the political package linking certain important elements. The proposal for a Council resolution which was attached to the report and which the Council adopted a few months later, acknowledged the reality of the greenhouse effect and in principle agreed to the need of adopting response measures 'irrespective of remaining uncertainties on some scientific aspects of the greenhouse effect' (Council, 1989a, p. 4). The Council also accepted the desirability for Community action, which was not self-evident but

had to be explicitly established. The Council had thus accepted the natural scientific part of the problem-definition as presented by the Commission on the basis of the international consensus-building process in this field. On the basis of this common understanding, the Commission obtained a mandate to assess not only the environmental but also the socio-economic impact of the greenhouse effect (Council, 1989a, p. 5, point 7). To this end, the Commission should launch a 'substantial' policy-options study programme, dealing among more technical and natural scientific elements with different policies and their consequences in different societal fields.

By adopting this resolution, the Council in fact shifted its emphasis from natural sciences to policy studies and in particular to economics. Climatology was still pursued in the EC research programmes, even with a considerably increased funding (see Table 8, p. 185), but remained of secondary importance once the natural scientific aspects of the problem had been agreed upon by Council and Commission, although with some hesitation. Still, the argumentation rests entirely within the *classic environmental policy* frame: the first step is to reach agreement about the natural scientific basis of the problem, the second to find out what different paths of action (or non-action) would cost, and the third to decide on policy measures on the basis of the first two sets of information, which form the cognitive part of the problem definition. In *classic environmental policy*, this order has to be maintained: without solidly established natural scientific facts, action can only be justified on the basis of the precautionary principle. In this perspective, any measure which is adopted on the basis of insufficient or uncertain knowledge bears risks and costs (but has hardly any use) and is thus unlikely to be adopted. The Council resolution on the greenhouse effect must therefore be considered as substantial progress in the *policy development*, although it was probably weak in meeting *environmental* needs. During the meeting, France, the Netherlands, Luxembourg, Germany, Denmark and Belgium had a statement entered into the Council minutes expressing their regret that no policy measures had been adopted (Agence Europe, No. 5032, 9.6.89, pp. 7-8). The opponents as well as the proponents of further measures both acted on the basis of *classic environmental policy*; their differences are a matter of degree, not of principle. Whereas the Northern member states consider the state of natural scientific knowledge to be sufficient to adopt at least an indicative goal for CO_2 emissions (be it because of insight, domestic pressure or for other reasons), the South (including the UK) did not consider the scientific evidence sufficient. The disagreement over the natural scientific problem-definition was thus only sorted out in the wording of the resolution, not in substance. It does not matter in this context whether some countries used the lack of scientific knowledge as an 'excuse'; it is important that this argument can be used at all and indeed played a role in the Council negotiations. The reason is the *classic environmental policy* frame shared by *all* participants.

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The Council conclusions on climate change policy

The Commission strategy paper on the Greenhouse Effect and the Community had opened a debate between Commission and Council on ends and means of a Community climate change policy. The *desirability* of such a policy had already been acknowledged in the first Council resolution on the greenhouse effect (Council, 1989a, p. 4). This general agreement to launch a Community policy towards the greenhouse effect had been justified with the emerging world-wide consensus on the existence and extent of the greenhouse effect. This understanding was still limited to the natural scientific side of the problem definition and did not extend either to its economic aspects or to the policy fields which were mostly concerned. Energy efficiency had been proposed as an important strategy to deal with the increase in CO_2 concentrations in the atmosphere but only in very broad terms. The debate after the submission of the Commission's first strategy paper therefore consisted mainly in finding a common problem definition in terms of policy, i.e. in identifying the policy fields which were responsible for the greenhouse effect and which offered opportunities for action. The search for a more operational problem definition was spurred by international events, in particular by the Second World Climate conference held in Geneva in November 1990.

The next step of Community climate change policy was marked by the unanimous conclusions of the Council the day before the opening of the Second World Climate conference. These conclusions for the first time contain a concrete policy goal: the stabilisation of the EC's CO_2 emissions by the year 2000. Natural scientific debates about the scope of the greenhouse effect have vanished. Instead, three other fields have emerged in the meantime and shaped the Council conclusions of October 1990 to differing degrees. These three fields, which continued to be the main themes of the EC greenhouse policy until the UN conference on environment and development in June 1992, i.e. until the end of the period dealt with in the present study, concern a policy field (energy), a policy instrument related to a programmatic change in EC environmental policy (the CO_2 tax) and a concept involving the identity of the EC (environmental leadership). The emergence of these three elements of the future EC greenhouse policy will be analysed in the next three sections. How they are reflected in the second important document of EC greenhouse policy, the Council conclusions on climate change policy, will be briefly analysed here in order to allow a comparison with the Commission's first strategy paper.

In its introductory part, the Council conclusions on climate change policy (Council, 1990d) 'fully support' the 'authoritative scientific view' of the Intergovernmental Panel on Climate Change on the existence of the greenhouse effect. In addition, the Council declares that the 'absence at present of full understanding of the complexity of the scientific inter-connections involved should not be used as a reason for postponing measures to combat climate change' (Council, 1990d, para. 1). This paragraph reinforces the formulations used in the Council resolution on the Commission's strategy paper in even stronger words.

From this point onwards, natural scientific arguments do not play any important role in the formulation of the EC's greenhouse policy any more. They become a foreign policy device, intended to show other countries, and in particular the United States, that the EC endorses the IPCC's findings without further questioning and is ready to take policy measures on the basis of this assessment. Still, this indicates the presence of the *classic environmental policy* frame, but here and in future documents, references to the IPCC assessment of the greenhouse effect become a ritual. They are still necessary to justify action but the debate has now turned away from the justification of action to the choice of the type of action.

Although the document lists energy, agriculture, industry, transport and forestry among the sectors contributing to the greenhouse effect, it privileges energy policy from the outset on the basis of the argument that energy production and use was the largest anthropogenic (i.e. human-made) cause of the greenhouse effect. The particular role of energy policy is emphasised by the fact that this declaration, as well as later documents on the greenhouse effect, have been adopted by joint meetings of the Energy and the Environment Council. In the negotiations preceding the conclusions of the joint Energy/Environment Council, the Energy Council had always been more reluctant to agree to policy measures in the field of the greenhouse effect than the Environment Council (pp. 98 seq), resisting active measures to limit energy consumption on the basis of the prevailing *supply* frame. The Council conclusions of October 1990 say on the subject:

> The revision of energy and transport policies to curb global carbon dioxide released into the atmosphere should be one of the priority targets of the world. Community and international energy policy must be adjusted to this new task. *At the same time, those energy-policy goals which remain valid must be maintained, such as sufficient and secure supply of energy in order to assure employment and economic growth* (Council, 1990d, para. 3; emphasis added).

While acknowledging the need to take active policy measures in the field of energy, and thus indicating the move towards a new frame of energy policy which sees energy in its socio-economic context (*energetics*), the paragraph also restates the central elements of the *supply* frame: energy must be supplied in 'sufficient' quantities, therefore, supply should not be restricted but can be expected to grow. The reference to secure supply, on the other hand, can be in conflict with the first goal: the larger the EC's energy consumption, the more likely it is to be dependent on outside energy supply (mainly Middle East oil and Russian gas) and the more insecure the energy supply is. Even within the *supply* frame, measures to reduce energy consumption may contribute to one of its basic elements, namely the secure supply of energy. More important for the policy development is, however, another link. Energy policy on the basis of the *supply* frame, it is stated, guarantees employment and economic growth. This symbolic link of energy policy with a liberal market economy (and indirectly with general welfare) reflects the old contradiction of economics and the environment: environmental policy measures may be deemed

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necessary but they impede economic growth and *reduce* overall welfare. It might be necessary to take measures in the field of energy policy to fight the greenhouse effect, this argument says, but these measures are likely to cost jobs. The same argument is valid in the *classic environmental policy* frame. The natural scientific reality of the greenhouse effect is thus acknowledged. As a consequence, the debate now shifts to the economics of the greenhouse effect, in other words, to the question of the costs and benefits of different policy measures.

This has also consequences for the strategies of different actors. The Commission, who had strongly promoted the decision to stabilise CO_2 emissions by the year 2000, had to support the argument that a policy of energy efficiency, the main tool of its greenhouse policy, was not hampering economic growth. Therefore, the Commission had introduced the idea of adopting so-called 'no-regret' measures during the preparations for the Council meeting. The concept of no-regret measures, endorsed by the Council (Council, 1990d, para. 9), attempts to avoid controversial cost-benefit debates by arguing that some policies are profitable for member states in any case, irrespective of the greenhouse effect and without incurring high costs. The main example of a no-regret measure is energy efficiency.

Hesitant member states as well as industrial lobbyists on the contrary could be expected to claim the contrary. This cost-benefit debate was one of the reasons why the Commission slowly moved towards the *sustainability* frame which allowed for a totally different assessment of costs and benefits and later actively promoted this frame.

The fact that the Energy/Environment Council had at least not rejected the possibility of a tax on CO_2 or on energy opened the possibility for the later debate on *sustainability* and the internalisation of environmental costs by the producers of pollution and waste (Council, 1990d, para. 11). The debates on the Commission idea of proposing such a tax had been so controversial that the mere mentioning of the tax is already a success for the Commission. The debate on the tax, hardly reflected in the Council conclusions, became the major issue in the field in the coming years and went in parallel with the slow shift of the Commission and at least some member states towards the *sustainability* frame.

Finally, the Council also accepted the concept of 'environmental leadership', according to which the EC should actively seek the adoption of a global convention on climate change including protocols setting targets for the limitation and possibly reduction of greenhouse gas emissions (Council, 1990d, para. 13). This concept had again been proposed and promoted by the Commission in order to exploit the apparent weakness of the United States which was extremely reluctant in its international greenhouse policy, insisting that remaining scientific uncertainties did not justify costly policy measures (Grubb et al. 1991, Vol. II, pp. 233 seq). Although it was not given any concrete content except that 'the EC and Member States should seek to persuade all industrialised countries to set ... stabilisation targets ...' (Council, 1990d, para. 13), the leadership concept had an external as well as an external dimension which influenced the greenhouse debate in the years to come because it linked this debate with the role of the EC in international affairs in

particular and with integration in general. Externally, it created a self-imposed obligation to conduct policies which could be understood by other countries as constituting leadership. The commitment to stabilise CO_2 emissions by the year 2000 was a first step in this direction but at the time of its adoption remained a mere commitment without implementation. The public endorsement of 'environmental leadership', which was an implicit challenge to the United States, thus increased the internal pressure to adopt these implementing measures, whatever form they might have. By linking greenhouse policy and integration, the policy debate left the field of specialised environmental or energy policies and concerned the identity of the EC and its member states. Therefore, even those member states which were reluctant to agree to an increase in supranational powers would suffer a loss of status if the leadership concept to which they had subscribed was to fail.

Still, the Council was far from unanimous on the degree and meaning of 'environmental leadership'. The opposing positions were represented by Germany and Denmark on the one hand, the UK and Spain on the other. Germany and Denmark asked for far-reaching conclusions in accordance with the *Environmental Imperative Declaration* of the Dublin European Council of June 1990 (pp. 109 seq.). Both countries argued that the EC should send out a clear message concerning the actions it is willing to take in order to put pressure on other industrialised countries, notably the US and Japan, and that therefore the Council should agree on specific figures, in particular with regard to the stabilisation or reduction of CO_2 emissions.

Whereas Denmark and Germany thus argued for a kind of environmental unilateralism, the UK and Spain had strong reservations on the topic. The UK considered the stabilisation of carbon dioxide emissions by 2000 with the reference year 1990 as too early and had proposed the year 2005 instead, arguing that coal consumption on its territory was very high whereas other countries could more easily switch to gas or nuclear power (Table 7, p. 184). Spain did not object to a decision on stabilising or reducing emissions as such but insisted that the EC had to accompany this commitment by a declaration guaranteeing possibilities for countries with slower economic development to continue fast growth which would also imply rising CO_2 emissions. In other words, Spain made a plea for internal differentiation with additional emission allowances for economically backward countries (such as Spain). Spain supported its argument by pointing out that at present, per capita CO_2 emissions on its territory represented only 30 per cent of the German emissions (Table 5, page 182, and Figure 4, p. 183). The UK joined this position by introducing the argument that an 'equitable sharing of the burden' must be guaranteed (Agence Europe, No. 5359, 27.10.90, p. 11). The Community thus faces internally the same North-South divide as the entire globe, where developed countries are urged to shoulder a larger part of the burden in order to allow continued economic growth for those still in their economic development. In addition, the burden-sharing argument contains a strong appeal to Community solidarity and thus opens the debate on the degree and the patterns of burden-sharing, which is closely related to the differing positions resulting from *supranational integration* and *member state dominance* respectively.

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The conclusions of the joint Energy/Environment Council of October 1990 mark the end of the debate on the Commission's communication 'The Greenhouse Effect and the Community' (Commission, 1988a). Since this time, the debate was not about the nature of the greenhouse effect in terms of natural sciences anymore but about the economic aspects of abatement measures. In terms of environmental policy, *classic environmental policy* was still dominant but the possibilities for a change towards *sustainability* were already present. In the field of energy policy, a conflict existed: the *supply* frame was explicitly restated but at the same time, the intervention into energy markets which is an indication for *energetics*, was also considered as an important policy. With the affirmation of the 'environmental leadership' idea, the EC's greenhouse policy (and not only the Commission's) became linked to *supranational integration*.

The following four sections will analyse in more detail the developments in four crucial sectors. Particular emphasis is laid upon how the conception of the different policy fields or instruments changed with respect to the greenhouse effect. The main intention of this analysis is to show how the evolution in the conceptualisations of these four central sectors shaped the evolving EC greenhouse policy.

Energy policy

The on-going debate on the greenhouse effect increasingly influenced the energy debate. Energy saving, the main strategy against the greenhouse effect, seemed to be a chance of relaunching EC energy policy, which in the past had merely consisted in the co-ordination of national policies. As EC energy policy had been a response to the oil crises of the 1970s, the low oil prices in the 1980s had diminished the incentives for common action in this field. By the end of the 1980s, energy consumption in the EC was rising again and energy efficiency was only marginally improving. It appeared as if the EC was to miss its energy policy aims for 1995, which it had set itself in 1986, in particular the goal of achieving a twenty per cent improvement in energy efficiency (Council, 1986b, p. 3).

On the other hand, the acid rain debate and the adoption of the directive on large combustion plants (Council, 1988a, Bennet 1988), which put huge costs on the power generating industry, as well as the debate on the greenhouse effect had turned attention towards the environmental aspects of energy policy. Within the Commission, the environment directorate-general (DG XI) had made one of its priorities the integration of environmental protection requirements into the Community's other policies, required by the Single European Act of 1987 (Art. 130r, 2). In collaboration with DG XVII, responsible for energy, it was planned to present a communication on 'Environment and Energy' to the Council.

Commission 'communications' often have the purpose of taking stock of a particular policy field and discussing possible policy measures. Often, they serve as a reference point for Community policy-making in subsequent years. The

publication of a communication on a particular topic frequently also indicates an expected disagreement with the Council on the topic in question, which does not make it advisable to immediately present concrete legislative proposals. The third function of such a communication is the creation of a consensus *within* the Commission in order to avoid permanent clashes of the diffe rent directorate generals on the topic. This function has been very important in the case of the communication on Energy and the Environment. Be cause of their programmatic role, Commission communications are a particularly useful source for the analysis of issue framing.

This communication, originally announced for July 1989, led to a split within the Commission on the subject of nuclear energy and on energy saving (Agence Europe, No. 5061, 20.7.89, p. 11). It became quickly clear that the differences e xisting within the Commission made it impossible to present a document with a factual and an operational part, as originally intended. The most controversial points were the possible introduction of fiscal instruments aimed at the eventual creation of new taxes based on the environmental impact of various energy sources and nuclear energy, which was by far the most controversial issue. Environmentalists feared that nuclear energy, one of the hopes of the EC in the 1970s to reduce its dependence on oil but under considerable criticism in the meantime, would re - emerge as a solution to the greenhouse problem on the basis of the argument that nuclear energy does not emit CO_2 (Agence Europe, No. 5063, 24.-25.7.89, p. 12). Only after a considerable delay, was the Commission finally able to publish the communication, which still refused to adopt a position on different sources of energy in terms of their environmental consequences or to give any recommendation to member state authorities (Commission, 1990c, p. 3). The document is thus an – involuntary – indication for the theses that no policy follows from 'objective facts' and that these facts are meaningless without an interpretation. This dissent within the Commission can be understood in terms of frames, with DG XVII promoting the traditional *supply* frame and DG XI arguing for a moderate *energetics* frame including elements of *conservation.*

The views of DG XVII are reflected in the public statements of the Energy Commissioner,[6] Antonio Cardoso e Cunha. On the occasion of the presentation of a Commission study on 'Energy in the year 2010', Cardoso e Cunha declared that energy consumption was increasing in the EC (and throughout the world) due to the democratic foundation of economic activity and the search for g reater economic and social cohesion in the framework of the Single European Act. To translate this statement into common language: the less developed countries of the Community need more energy to achieve economic growth and the Community must help them to this end. Despite lip-service to energy efficiency and increasing environmental protection in the energy sector, the Commissioner declared himself opposed to any idea of maintaining energy consumption at the lowest possible level, thus making himself the advocate of the southern member states of the Community, in particular of Spain and Portugal, the latter being his home country (Agence Europe, No. 5102, 2.-3.10.89, p. 13).

Commissioner Cardoso e Cunha was in favour of nuclear energy and thought that it was the only realistic option to combat the greenhouse effect.[7] He considered that renewable energy sources could not satisfy more than 4 per cent of EC energy needs.[8] Speaking at the World Energy Conference, he stressed that a reduction of energy consumption was unrealistic given the general economic growth patterns and the regional disparities in the EC which needed economic development requiring increased energy consumption. He added that reducing energy consumption might also be considered as 'immoral' since it would slow down or prevent development in the Third World.[9] Industrialised countries which have not paid much attention to the environmental consequences of their growth cannot demand this. Thus, Cardoso e Cunha literally repeated a standard Third World argument within the EC. In the same speech, he considered that the EC's dependency on outside energy would not fall rapidly (Agence Europe, No. 5124, 2.-3.11.89, p. 11).

Cardoso e Cunha's statements could be interpreted as if he was defending the interests of his home country. However, these interests exist only within the *supply* frame. If this frame changed, the perception by different actors of their interests would also change. The rejection of certain policy measures depends thus on ways of perceiving and interpreting the world instead of the balancing of different interests (c.f. Carlsnaes 1988, p. 38).

These few extracts from Cardoso e Cunha's public speeches are typical statements of the *supply* perspective: Energy is not only necessary in order to maintain economic activity but the supply of energy will create economic growth. Increasing the supply of energy and keeping its price low is thus a valid policy of economic development: energy supply creates progress. In this dominance of a perspective of economic development and progress, another aim of EC energy policy, namely the reduction of the dependence on outside imports, hardly has a place. To a certain degree, it can be met by the increased use of nuclear energy (as was believed in the 1970s). Keeping energy consumption 'artificially' below the 'needs' of economic actors, would indeed, in the *supply* perspective, prevent economic growth and reduce the standard of living. For this reason, fiscal instruments, such as a tax on CO_2 emissions, were categorically rejected. They would also violate the principle of economic and social cohesion, which is one of the central principles of *supranational integration*.

Despite this extreme *supply* perspective put forward by the Commissioner for Energy, the *energetics* frame put forward by DG XI can also be found in the final version of the communication on 'Energy and the Environment'. Several formulations point in this direction. The executive summary preceding the document states that 'it is essential to define a policy which can face future energy demand without necessarily growing supply capacities' (Commission, 1990c, p. 3). The introductory part entitled 'the global challenge' (as so many documents on the subject) even suspects that after the security of supply perspective had dominated EC energy policy in the 1970s, this concern might in the 1990s be replaced by environmental constraints (Commission, 1990c, p. 6). By referring to the report of

the Brundtland Commission (WCED, 1987), the paper goes on to state that 'present energy consumption trends and policies cannot continue and that the concept of "sustainable development" needs to be accepted and followed' (Commission, 1990c, p. 6).

The only area where an agreement with the traditional *supply* frame represented by DG XVII seemed possible was – again – energy efficiency, which was declared as the 'cornerstone of integration of the environmental dimension into energy policy' (Commission, 1990c, p. 18). To support this argument, economic studies were quoted which came to the result that the same amount of additional energy supply could be obtained cheaper by investing in energy saving than in energy production. Again, a direct attack on the *supply* frame followed: 'shifting emphasis in energy planning from expanding supply to improving the efficiency of end-use is therefore a central element for consideration' (Commission, 1990c, p. 18). This attack was justified with reference to the Council resolution on the energy policy goals for 1995, which stated that energy efficiency in the EC had to increase by 20 per cent (Council, 1986b, p. 3).

In extremely prudent terms, the Communication even approached the hotly debated issue of taxes on energy and on CO_2. Higher energy prices, which would hinder economic development according to the *supply* frame, would further a more rational use of energy and a larger market share of renewable energy sources (Commission, 1990c, p. 20). In this context, the idea of a CO_2 tax is mentioned, although not in concrete terms due to the resistance of DG XVII but in very evasive terms ('... in the longer term ... in the global context ... such a tax ... could not be excluded ...'; Commission, 1990c, p. 21).

The distinctive feature between the *supply* and the *energetics* frame is the possibility for active intervention in the energy markets in order to achieve goals other than those of energy policy which are possible according to the second frame. The link between both, which appeared also in the communication on energy and the environment and which is constantly and prominently mentioned in the documents relating to the greenhouse effect, is energy saving. For the *energetics* frame, shared by DG XI, energy saving contributes to a reduction of pollution without the need to install expensive end-of-pipe filter technologies, all other factors being equal (cognitive dimension). It is also in line with the moral imperative of respecting the right of future generations by avoiding a depletion of energy resources, in particular of oil and by minimising the shift of pollution consequences into the future whereas the benefits are yielded at present (normative dimension). Symbolically, it allows energy saving to be associated with progress and the use of advanced technology. In the *supply* frame, on the other hand, progress is associated with the *use* of energy. The higher the consumption of energy, the higher the level of (economic) development. Proponents of the *energetics* frame have tried to exploit the notion of energy security, characteristic for *conservation*, which is also important in the *supply* frame. Within the *supply* frame, energy security can be achieved by diversification of the sources of energy as well as geographically, by promoting domestic sources of energy and, in the last resort, by

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military means, although the EC does not have the latter at its disposal. Within the *supply* frame, there is an inherent tension between the goals of meeting energy demand and achieving energy security: A high energy demand which is to be expected (and positive) in this frame is likely to compromise the goal of energy security. Energy saving could help to better achieve this goal and is thus also linked to an increase in security. For this reason, the major initiatives proposed in the document on energy and the environment concerned energy saving (Commission, 1990c, pp. 28-29).[10]

However, this tension does not only characterise the differences between the two respective directorate generals of the Commission but also the views of the respective Councils. The Energy Council, in its conclusions on the Commission communication on energy and the environment

> recognised that whilst there are still uncertainties on some scientific aspects of the greenhouse issue, CO_2 emissions will continue to grow in the absence of alternative policy decisions, especially in the energy sector but also in other areas, and that the greenhouse effect may in the long term become the main constraint on fossil energy use; welcomed the Commission's work programme on the evaluation of the options to reduce CO_2 emissions and indicated its willingness to collaborate closely with the Commission in the subsequent development and implementation of the part of the programme relating to energy policy (Council, 1990a, paras. 4 and 5).

It also declared that 'nuclear energy contributes to the limiting of polluting emissions arising from the use of fossil fuels' (Council, 1990a, para. 9). While acknowledging the existence of the greenhouse effect in terms of natural science and declaring that something must be done, these conclusions do not contain any concrete commitment. Only in the long term, could the greenhouse effect become the main constraint to fossil energy use. This constraint can be tackled, within the *supply* frame, by increasing use of nuclear energy. Although the Council conclusions merely repeat the calls for increased energy efficiency which were a standard topic of EC energy policy for the preceding fifteen years, they did not contain any strong statement of the *supply* frame anymore. Given the tradition of EC energy policy, this fact indicates a change in the Council's position.

After the debate on the communication on energy and the environment, the greenhouse effect was also firmly on the Energy Council's agenda. Within the Commission, the *energetics* frame put forward by DG XI had found its way into the Communication, although the *supply* frame of DG XVII remained present. In the Council conclusion on the topic, the *supply* frame is weaker, though still dominant and *energetics* does not play any visible role.

Economic instruments

The most controversial policy measure in the discussion on the greenhouse effect has been the proposal of a tax on CO_2 or on energy in order to achieve energy saving and thus a reduction of CO_2 emissions. After the first Council resolution on the 'Greenhouse Effect and the Community' (Council 1989a, p. 3), the Commissioner for the Environment had considered a tax on carbon dioxide as one possible measure (Agence Europe, No. 5010, 8.-9.5.89, pp. 6-7). The tax discussion is more than a debate on a specific policy proposal among others. It is embedded in a broader discussion on the reorientation of EC environmental policy. The tax proposal and the place it occupied in this debate is thus an indicator of a frame shift from *classic environmental policy* to *sustainability* within the Commission and partly also in the Council. However, the tax proposal is not the frame, and EC environmental policy may move towards *sustainability* without the adoption of a CO_2 tax.[11] The CO_2 tax, the discussion about economic instruments in environmental protection and emergence of the *sustainability* frame are closely linked. The CO_2 tax is the first major policy instrument which has been justified on the basis of *sustainability*, and the debate on economic instruments in environmental protection, which is a predecessor and a component of the sustainability debate, has from the outset taken place with regard to the possible introduction of a CO_2 tax.

The discussion of the relationship between the economy and the environment and the subsequent attempt to introduce economic and fiscal instruments for environmental protection can be traced back to the report of the task force on the environment and the internal market. This report was originally intended as a counterweight to the Cecchini report on the benefits of the internal market programme, which had been published in 1988. The Cecchini report, although very successful in providing economic arguments in favour of the internal market, had frequently been criticised as following a narrow-minded growth ideology without taking into account the effects of increased economic growth stimulated by the completion of the internal market on the environment. This report, which had never gained the popularity of the Cecchini report, is one of the first EC documents arguing on the basis of a *sustainability* frame. It is often cited in later programmatic statements of EC environmental policy and constitutes a sort of reference text for the frame shift towards *sustainability*. Its arguments reflect a line of thinking known as 'environmental economics', which considerably influenced the programmatic thinking of the Commission, culminating in the Fifth Action Programme. The basic concept of the voluminous report can be best given in a quotation:

> The Task Force stressed that the environment should be considered as a positive force and a necessary condition for economic development. A 'traditional' view of the environment and its management is that environment is a problem; it costs money to maintain environmental quality, and this expenditure acts as a 'drag' on economic development. A more positive view is now emerging, in which a high quality environment is seen as a very

important element in attracting tourists, in providing a quality of life which attracts talented people and capital, and in providing conditions conducive to the success of certain environmentally sensitive sectors of industry. Countries which have taken the lead in improving their environment have tended to lead also in the development, production and sale of environmental equipment and management systems (Task Force, 1990, p. VIII).

The task force report argues for a different cognition of the relationship between the environment and the economy as compared to *classic environmental policy*. Attention is directed from economic losses by costly environmental protection measures to economic gains by environmental industries, a healthy environment, etc. Implicitly, natural science becomes less important in this context. When strong environmental policies and economic success go hand in hand, an active environmental policy is recommended for economic self-interest, independently of the removal of the latest weak link in the natural scientific causal chain. Symbolically, the report tries to move the notion of 'progress' from unconditional economic growth (exemplified in the Cecchini report) to sustainable growth which respects environmental considerations.

The task force report did not contain the proposal of a tax on CO_2. This idea had been carefully introduced by the Commission into the debate and then systematically promoted by Environment Commissioner Ripa di Meana on several occasions. The different forms of these proposals make it clear that they were not concepts worked out in detail but public statements with the aim of testing the acceptance of such an instrument.[12] Ripa di Meana's insistence led to a first Council discussion on a CO_2 tax and on economic instruments in environmental protection, which requested a report on these instruments from a group of independent experts from the member states (Agence Europe, No. 5146, 6.12.89, pp. 11-12).

The debate on economic instruments launched by DG XI and Commissioner Ripa di Meana took up a broader debate which had existed in the OECD for several years and which had resulted in a study and policy review of the organisation on the role of economic instruments in environmental policy (OECD, 1989) in 1989. As all EC member states are also members of the OECD, there is a quick penetration of ideas developed in the OECD framework to EC policies. OECD documents are often quoted as a reference in EC policy proposals. The fact that the debate was also taking place in an organisation in which the EC's main trading partners, the USA and Japan, are members, might be responsible for the taking up of the debate by the Council. In fact, the years 1989 and 1990 witnessed a long series of international conferences on global environmental problems and addressed the relationship between the environment and the economy in terms of the 'sustainable growth' debate, launched by the WCED in 1987. The Paris Economic Summit of 1989 (the 'Summit of the Arch'), for instance, was to a large degree devoted to questions of global environmental policy. Among other points, it stressed the role of pricing, taxes and levies for environmental protection (c.f. Churchill and Freestone, 1990, pp. 327-330). The ministerial declaration of the Bergen conference on sustainable

development in the ECE region repeated the call for increased use of economic instruments in environmental protection in its chapter on 'The Economics of Sustainability' and mentioned energy policy as a particularly important field of action (reprinted in Churchill and Freestone, 1990, pp. 344-355).

As the first EC body, the European Council in Dublin 1990 took up the themes of those international conferences in its 'Environmental Imperative Declaration'. This declaration, adopted by the heads of state and of government of the EC, is a basic programmatic outline of future EC environmental policy. On the topic of economic instruments, it reads:

> the traditional 'command and control' approach should now be supplemented, where appropriate, by economic and fiscal measures (European Council, 1990)

The declaration of the Dublin summit was used by Ripa di Meana to publish a Communication to the *Commission* in order to convince his colleagues of the newly emerging approach within DG XI. This document contains clear references to the *sustainability* frame (Commission, 1990e). Large parts of it are devoted to the discussion of economic and fiscal instruments for environmental protection. It thus appears that the new orientations of Community environmental policy mainly concern new *instruments* of environmental policy. Although the paper addresses different environmental problems, the greenhouse effect occupies a central role. It is used as a justification for the need of increased Community action in the environmental field and identified as a main application for new policy instruments. The section on policy instruments underlines the weaknesses of regulatory measures, characteristic of *classic environmental policy*. These measures are 'static' and rigid, delay technological progress, involve administrative costs, and 'excessive regulatory intervention and bureaucracy may inhibit the dynamism of undertakings' (Commission, 1990e, p. 4).

On the other hand, the 'use of economic and fiscal instruments provides a more flexible and dynamic approach' (Commission, 1990e, p. 4). Still, these instruments alone are not considered to be sufficient but only a mix of both (Commission, 1990e, p. 5). Economic and fiscal instruments are linked to the greenhouse effect where they are considered to be decisive.[13]

The use of economic and fiscal instruments was also recommended by the expert group created by the Environment Council of November 1989. Its report makes clear the link between *sustainability* and market economy.[14]

The report recommended the use of economic and fiscal instruments for dealing with the greenhouse effect and with energy consumption without, however, directly advocating a tax (Arbeitsgruppe, 1990, pp. 13-15). On another occasion, the report recommended that environmental taxes should be 'fiscally neutral', i.e. they should not increase the overall tax burden (Arbeitsgruppe, 1990, p. 7).

On the basis of these reports, the Environment Council held a meeting on the use of economic instruments in environmental protection in September 1990, a month before the Council meeting which was to decide about the EC's CO_2 stabilisation target. The ministers discussed a paper which the Italian presidency had prepared

on the basis of the above-mentioned report of the expert group. Although no understanding on the concrete use of these instruments emerged, an agreement in principle on their usefulness and desirability was achieved. The greenhouse effect was frequently mentioned as a possible field of application, and environmental taxes which were fiscally neutral were considered to be particularly interesting (Commission, 1990b, Annex II, p. 3). The conclusions of the president stressed that the aim of 'sustainable development' could only be reached by supplementing the present command-and-control approach of environmental policy with economic and fiscal instruments.

Thus, a broad though diffuse acceptance of economic and fiscal instruments in general and a tax on CO_2 in particular had emerged not only within the Commission but also within the Council. Although in prudent formulations, even the joint Energy/Environment Council of October 1990, which decided on the stabilisation of CO_2 emissions in the EC declared that they 'may play an important role' in the EC's greenhouse policy (Council, 1990b, para. 11). It appears that the introduction of the CO_2 tax in the Community policy debate is one of the rare cases of a political strategy developed by a Commissioner who did not consider himself as a kind of top bureaucrat preparing Council meetings but someone carefully trying to find a profile of his own by taking up an issue which was 'in the air'.

This might at least partly be due to the personality of Ripa di Meana, who at the time of his appointment had been regarded by many environmentalists as a weak personality in the strong Delors team. Prior to this post, Carlo Ripa di Meana, an Italian national, had been responsible for the 'Europe of the Citizens', a notoriously unsuccessful effort to give the technocratic EC a better standing among citizens. He was responsible for a directorate general within the Commission with a low reputation and had the image of somebody who enjoyed life at the expense of his professional activities. When he replaced Stanley Clinton Davis (UK) in 1989, this was seen as a sign that Commission President Delors and the member states did not attach great value to the environmental policy of the EC. In addition, he was only given this portfolio whereas most of his colleagues are responsible for more than one field. In retrospective, this seems on the contrary to have strengthened Ripa di Meana's position as it allowed him to concentrate on one single policy field and thus to behave more like a 'normal' government minister. In addition, he was probably determined to use his public relation capabilities in order to promote his own career in a policy field which was undervalued in the Commission but very popular among European citizens.

Ripa di Meana had the gift to take up the popular greenhouse issue and make it a Community theme. By doing this, he linked popular feelings that much more should be done in environmental protection with the desire of the Commission to do something concrete and positive for the citizens instead of being in the press because of agricultural marathons or simply as a mega-bureaucracy threatening national identities. The proposal to protect tropical forests also joined a popular desire. The idea of a CO_2 tax still had another component: it linked the fight against the greenhouse effect to progress in the integration process as a Community-wide

tax or an equivalent would constitute a major new element in the institutional structure of the Community. Such a tax would increase the role of Community institutions and from the outset prevent single countries trying out their own strategies with the risk of hampering the internal market which was to be realised by the end of 1992.

External relations

The way the Commission – and later the Council – defined the greenhouse issue as a political problem was not only shaped by frames in the field of environmental and energy policy but to a considerable extent by an emerging concept of the Community's role in international environmental policy. The internal (i.e. in the EC) framing of the greenhouse issue was influenced by the emerging concept of 'environmental leadership', which does not only concern the field of (international) environmental policy but the identity of the EC as an actor in international politics. Leadership is a term usually associated with power politics: Only powerful states have the capacity to provide leadership. Usually leadership was demanded from the United States which possessed the economic and military capabilities to exert it. The other states of the Western Alliance, small or powerful, often had no choice but to follow the leadership of the US. [15]

In the military field, this situation had for decades been the subject of a debate between proponents of a close alliance with the US (and a almost unconditional acceptance of their leadership) and those of a stronger assertion of European identity (France in particular) (Grosser, 1978). Whereas in the military field, the US position has basically remained uncontested (and the EC does not posses any significant competencies), the situation is different in the economic field. As the Community possesses exclusive competencies in the field of trade policy (Art. 113-116), the EC can act on an equal footing with the US and Japan, for instance in the GATT. The Commission has constantly furthered the idea of three main trade blocs in the world. Still, the trade sector is a case for partnership (or confrontation), not for leadership.

Whereas the EC in the trade sector is also formally accepted by states, the situation is different in other fields, such as the environment (Clinton Davis, 1987). Here, international negotiations on the substance of a possible agreement are paralleled with negotiations on the rights and responsibilities of the EC in the respective agreement. The EC, stressing its unique character as a supranational organisation and the formal competencies it possesses, wants to be treated as a state and not as any other international organisation having only observer status in international negotiations.[16] States, on the other hand, in most cases refuse to accept the EC as an equal partner independent of its member states.[17] The status of the EC in international negotiations and agreements is thus an aim in itself for the negotiators of the EC (c.f. Jachtenfuchs, 1990). A strategy for achieving a higher status in international agreements would be to take far-reaching positions on

substantive issues. The more actively and constructively the EC contributes to the negotiations, the easier it would be to become accepted by states. A 'leading' position on substantive issues would thus allow the EC's status in the international system to be increased. It is also a compensation for the EC's inferiority compared to the US in the military field.

The opportunity for the development of the 'environmental leadership' concept was provided by a series of international conferences devoted to the greenhouse effect taking place in 1989 and 1990. These conferences have to be seen against the background of the negotiations of another important global environmental problem, the protection of the ozone layer. During the 1980s, the EC had constantly been accused by the United States of blocking any progress in these negotiations. In 1989, the EC and the US had changed sides. Now the EC was pressing for quicker progress in the ozone negotiations (Gehring, 1994, ch. 6 and 7, Lang, 1988, Benedick, 1991) and the US was dragging behind. A similar situation existed at the beginning of the negotiations on the greenhouse effect.

One of the first political (instead of scientific-technical) conferences on the greenhouse effect took place in The Hague in March 1989 and was organised by France, the Netherlands, and Norway. Within the EC, a fierce quarrel about participation at the conference had emerged. Neither the US nor the USSR, both main producers of greenhouse gases (c.f. Table 5, page 182, and Figure 4, p. 183), had been invited, probably out of a French desire to make a genuine European effort in this field.[18] Some EC member states and the Commission had not been invited either. Arguing that the conference might also deal with matters where Community competencies were involved, the Commission obtained a commitment from the participating member states not to take any decisions at the conference (Agence Europe, No. 4937, 3.3.89, p. 5, Churchill and Freestone, 1990, pp. 318-319). Whereas it was only able to prevent member states from acting alone in the field of international environmental policy at the conference of The Hague, the Commission confirmed its determination to be actively involved in the field in a speech given by Commission President Jacques Delors two months later (Agence Europe, No. 5014, 13.5.89, p. 13).

In the field of tropical forest protection, the Commission tried to elaborate a comprehensive strategy which was to become one of the 'cornerstones' of its strategy against the greenhouse effect (Agence Europe, No. 5010, 8.-9.5.89, pp. 6-7). In defending the initial rather far-reaching strategy which included import quotas and a levy on tropical timber, Environment Commissioner Ripa di Meana said that the European Community should give a signal by unilaterally adopting these measures instead of waiting for its trade partners (Agence Europe, No. 5031, 8.6.89, p. 14). However, the ambitious tropical forest strategy the Commission had envisaged did not survive the Council. Despite strong pressure by the European Parliament (Muntingh, 1989, 1990 and 1992), the Council, itself deeply divided over the issue,[19] rejected the most original proposals from the Commission and obliged it to publish a tropical forest strategy which could not meet the original ambitions of 'giving a signal' or 'adopting unilateral measures' (Commission, 1989a).

After the failure of the tropical forests strategy, Ripa di Meana's attention shifted back towards the meetings directly dealing with climate change. A first occasion was the Noordwijk Conference on Atmospheric Pollution and Climatic Change, held in November 1989 in the Netherlands (Churchill and Freestone, 1990, pp. 334-340). On this occasion, the US and Japan refused to make any commitment to stabilise CO_2 emissions (Agence Europe, No. 5127, 8.11.89, p. 12).

The EC attacks on the US grew stronger on the occasion of the White House conference on climatic change organised by US President Bush in mid-April 1990. Before the conference, Ripa di Meana announced the principles for the Commission's policy which constituted the basis for the attacks on George Bush by underlining the differences between the US and the Commission position. After confirming the position already taken by the Council in 1989 that natural scientific knowledge confirmed the existence of the greenhouse effect and was sufficient to justify action (Council, 1989, p. 4), he declared that measures taken in the short and medium term against the greenhouse effect were believed by the Commission to have minimum, if not negligible costs and that there would be even positive spill-overs to the economy.[20] In addition, the Commission was of the opinion that industrialised countries had to make a commitment to reduce greenhouse gases in order to show their willingness to act to developing countries and therefore, it proposed that industrialised countries should agree on a stabilisation of CO_2 emissions by the year 2000, to be codified in a supplementary protocol on CO_2 emissions to the framework convention on climate change.

The conference was seen as a media event by several European ministers, primarily organised to show President Bush's desire to be regarded as a 'President of the environment' without the US being ready to make concessions in the area of carbon dioxide reductions. France in particular had protested against the organisation of the conference (Agence Europe, No. 5236, 18.4.90, p. 7). After the conference, Ripa di Meana used strong words to describe its failure. The inflexible US position allowed the Community to show its unity by pointing out the differences between the minimum EC consensus and the US position (Agence Europe, No. 5238, 20.4.90, pp. 9-10). At the Bergen conference on sustainable development in the ECE region, which took place in May 1990, Ripa di Meana continued his attacks on the US position using expressions which were unusually violent for an EC Commissioner (Agence Europe, No. 5254, 14.-15.5.90, p. 14).

The form of Ripa di Meana's activity might have been unusual for diplomatic usage; the underlying principle of environmental leadership was, however, explicitly endorsed by the European Council of June 1990. On this occasion, the European Council adopted the 'Environmental Imperative Declaration', a programmatic document which was aimed at orienting the EC's environmental policy in the coming years. As programmatic texts of this kind are not too frequent in the European Council's practice, they acquire a special importance. The 'Environmental Imperative Declaration' of the heads of state and of government adopted the 'environmental leadership' concept with the following words:

There is ... an increasing acceptance of a *wider responsibility*, as one of the foremost regional groupings in the world, to *play a leading role* in promoting concerted and effective action at global level, working with other industrialised countries, and assisting developing countries to overcome their special difficulties. The Community's credibility and effectiveness at this wider level depends in large measure on the ability to adopt progressive environmental measures for implementation and enforcement by its Member States. The internal and external dimensions of Community environment policy are therefore inextricably linked (European Council, 1990, pp. 10-12; emphasis added).

As the EC is 'one of the foremost regional groupings in the world', it must play a leading role in global environmental policy. If this leadership role is to be credible, the declaration goes on, it must adopt strong environmental standards internally. Thus, the leadership concept also increases the pressure on member states internally. In a section entitled 'Global Issues', the declaration goes on:

The Community and its Member States have a *special responsibility* to encourage and participate in international action to combat global environmental problems. *Their capacity to provide leadership in this sphere is enormous.* The Community must use more effectively its position of moral, economic and political authority to advance international efforts to solve global problems and to promote sustainable development and respect for the global commons (European Council, 1990, pp. 10-12, emphasis added).

Addressing the greenhouse effect directly, the heads of state and of government went on saying:

We call on the Commission to expedite its proposals for concrete action and, in particular, measures relating to carbon dioxide emissions, with a view to *establishing a strong Community position* in preparation for the Second World Climate Conference. The Community and its Member States *will take all possible steps* to promote the early adoption of a Climate Convention and associated protocols ... (European Council, 1990, pp. 10-12, emphasis added).

The 'Environmental Imperative Declaration' is in fact a continuation and extension of the declaration on the environment, adopted by the European Council in Rhodes in December 1988. At this time, the heads of state and of government had already declared:

In the wider international context, the Community and the Member States are determined to *play a leading role* in the action needed to protect the world's environment and will continue to strive for an effective international response, particularly to such global problems as depletion of the ozone layer, the greenhouse effect and the ever-growing threats to the natural environment, thus contributing to a better quality of life for all the peoples of the world. (European Council, 1988, p. 5, emphasis added).

The continuing discussion on a possible environmental leadership of the EC had gained a certain momentum and was publicly accepted by the European Council in Dublin. Public declarations of the kind made by Commissioner Ripa di Meana and by the European Council also increased the pressure on the EC to keep its deeds in line with its words.[21] The self-imposed pressure to play a leading role in international environmental affairs also increased the pressure on the negotiations of the joint Energy/Environment Council of 29 October 1990, shortly before the opening of the Second World Climate Conference, which adopted the decision to stabilise CO_2 emissions by the year 2000. Again, the conclusions of the Council stress that the EC should play a leading role in the conference (Council, 1990b, para. 13).

The concept of environmental leadership links environmental policy (based on whatever frame) to the identity of the EC. 'Leadership' has strong normative elements about the requested behaviour of the organisation exerting it. In the respective texts, terms like '(moral) responsibility' are often used. The concept implies that if it wants to lead, the EC must adopt a strong internal environmental policy. 'Leadership' also restricts the margin for adopting positions at international conferences. These positions must be maximum positions in terms of environmental protection and cannot easily be balanced with cost-benefit calculations of the *classic environmental policy* frame. Cognitively, the concept is easy to falsify: If other states adopt stricter climate policies or if they (for instance, the US) impose their positions on the EC, the latter does not lead. Due to the strong symbolic element in the leadership concept, its failure involves the EC as such, the Commission as well as the member states. It would amount to a defeat within *supranational integration* as well as within *member state dominance*, as differences about the degree of integration are meaningless for the external world. 'Leadership' applies a vague vision of a new world order beyond US hegemony and a liberation from American dominance in any single policy field. If the EC cannot provide leadership in a policy field where the US position is extremely defensive and under pressure, it is unlikely to be able to do so elsewhere. The concept of leadership also challenges the traditional view of states as the principal actors in the international system: it would be the only case where an international organisation (although of a special type) was able to set the pace for states, thus confirming the independent legal and political personality of the EC as a corporate actor and underlining the claim that its real place is at the side of states, and not at the side of international organisations. Again, a failure of the policy of leadership would confirm the traditional view. By successfully linking the greenhouse effect and the leadership idea, Ripa di Meana involved the symbolic status of the Community in the debate on a specific policy field. The greenhouse effect was thus not only a matter of environmental policy but of integration.

The changing role of knowledge

In the period between the publication of the first Commission communication on the greenhouse effect and the Council decision to stabilise CO_2 emissions by the year 2000, the role and the type of knowledge relevant for the policy-making process underwent a fundamental change. On the basis of its perception of the greenhouse effect and the emerging policy to deal with it, the Commission (and the Council which later adopted its proposals) changed the orientation of greenhouse-relevant research from natural sciences to economics and technological research. The standard phrase of any Community environmental research programme, the statement that environmental research should serve as a basis for environmental policy-making, only applies to the degree that there must be strong evidence for the phenomena known under the label 'greenhouse effect' in order to serve as a basis for action. Any further research conducted in the framework of the EC's climatology programmes broadened and confirmed the initial knowledge about the greenhouse effect without altering the pace of policy development. Economic research, on the other hand, became increasingly important and supplied the arguments used by the Commission to conceive and defend its strategy. The increased role of economic research announces the growth of the *sustainability* frame, at least among the Commission services. Finally, even the climatology research programmes find themselves integrated in an environmental research programme containing research projects which are introduced on the basis of *sustainability*.

In its communication on 'The Greenhouse Effect and the Community', the Commission comes to the conclusion that natural scientific data show the existence of large-scale human-induced climatic changes, i.e. the greenhouse effect (Commission, 1988a). As if to contradict the claim of its own research programmes to serve as a guide for policy, virtually all data mentioned in the report come from US sources,[22] although the draft Council resolution included in the document praises the role of Community environmental research programmes. All subsequent Council resolutions on the subject confirm the view that natural scientific knowledge is sufficient to justify action (Council, 1989a, European Council, 1990, p. 11, Council, 1990b, para. 1). In *classic environmental policy*, this statement and restatement of a shared natural scientific knowledge is necessary to justify policy activity. An authoritative scientific view of the natural scientific aspects of the greenhouse effect did not, however, emerge from the EC's environmental research programmes but from the Intergovernmental Panel on Climate Change, which had been created to establish a world-wide consensus on this matter. After it had delivered its interim report in 1990, before the Second World Climate Conference, its views were simply endorsed by the Energy/Environment Council (IPCC, 1990).

From this point at the latest, natural scientific knowledge became less important for policy-making. The substantial increase in funding for climatology, now under the new name 'EPOCH', adopted by the Council in 1989 (Commission, 1988b, Council, 1989c, p. 9, Table 8, p. 185), is not a sign of the increased need of policy-makers for natural scientific advice but an indication that the EC research policy

community obtained larger funding for on-going programmes by stressing their political importance. EPOCH is not destined to produce directly policy-relevant results but is meant as a long-term investment. Its concrete projects (Council, 1989c, pp. 12-14) closely resemble those of its predecessor (Council, 1986a, pp. 34-35), with a slight emphasis towards research on the impacts of increasing CO_2 concentrations. Although the standard justification of EC environmental research is also given in the introduction to the programme,[23] another function is at least as important. This function is the maintenance and strengthening of a *European* research community in the area[24] by funding the continuation of the research already begun ten years ago and integrating it into the parallel world-wide research co-ordination on the same topic ('global change programmes') (Commission, 1988b, p. 8). Climate modelling requires powerful computers and advanced mathematical models.[25] It is therefore by itself a contribution to the strengthening of European competitiveness (Council, 1987a, p. 1). Climatology is thus linked to high technology and modernisation.

EPOCH can be regarded as an intermediary between the fourth and the fifth environmental research programme. It is basically a continuation along the lines of the fourth ERP with increased funding. The research conducted here still reflects the frame of *classic environmental policy*. The fifth environmental research programme is, however, marked by the change to *sustainability*. Although it contains again a section on climatology (now labelled 'participation in global change programmes') with substantially increased funding as compared to EPOCH, it contains for the first time a section on 'socio-economic environmental research'.[26] Although the task of the subprogramme is a better insight into the legal, economic, social, ethical and health aspects of environmented policy (Council, 1991a, p. 34), it is heavily biased towards environmental economics and thus reflects the trend within the Commission to reconceptualise the relationship between the economy and the environment. The programme part on socio-economic environmental research indicates the frame shift towards *sustainability*; it did not cause it as it was adopted only in mid-1991 whereas the Commission had already begun to reconceptualise its environmental policy in this way more than a year earlier.

It confirms, however, the shift of emphasis towards economic research and economic knowledge, which had begun after the Council resolution on the Community and the greenhouse effect had requested the Commission to study policy options for dealing with the issue. With the growing emphasis on energy policy as the central policy field for measures against the greenhouse effect, part of this research was carried out in the framework of energy-related research programmes instead of environmental ones. The JOULE programme on non-nuclear energies and rational use of energy, adopted in April 1989, did not only fund technological research but also the development of economic energy-environment models (Council, 1989b, p. 15).[27] Within this programme, the first studies on the economic effects of a CO_2 tax and on the cost-effectiveness of different measures to reduce CO_2 emissions appeared (Commission, 1990j and 1991j).

The successor of the JOULE programme was almost entirely devoted to re search on technologies for CO_2 emission reduction and energy saving. The part on strategic analysis and modelling contains an indication that the *energetics* frame has largely inspired this research programme.[28]

These economic studies elaborated within the framework of the JOULE programme were immediately policy-relevant and produced the arguments for the later debate. On their basis, Environment Commissioner Ripa di Meana could argue that a stabilisation of CO_2 emissions was not only necessary on environmental grounds but that it was also feasible without major economic costs. Thus, the earlier view that the greenhouse effect was not only an enormous environmental problem but that a policy against it would also create enormous costs could be challenged. Economic studies led to a reassessment of the earlier vague assumptions about the costs of a greenhouse policy. A study produced by the Commission reviewing the economic analyses of Community research programmes as well as external studies from the lively debate on CO_2 reduction measures in economic journals came to the following result:

> The available empirical studies ... indicate the *existence of a significant emission reduction potential*, the exploitation of which would appear to offer clear (short-run) *economic benefits*. In fact, the exploitation of this emission reduction potential would in principle be profitable for private economic agents, even at *current* market prices. This potential is currently not exploited du to market failures, institutional barriers or hid den transaction costs. ... In addition to this privately profitable emission reduction potential, there is a further potential that should be exploited from the point of view of society, but that is currently not used. Thus, if market prices were to fully reflect all social (i.e. including environmental) costs, the potential for economical emission reduction measures would be even larger (Commission, 1990i, pp. 110-111, emphasis in the original)

This quotation clearly reflects the *sustainability* frame. Even under traditional economic assumptions, environmental protection (in the special case of CO_2 emission reductions) is profitable instead of being a burden. The reason why a further emission reduction potential is not exploited is the fact that the environment is not correctly included in market transactions but excluded as an externality. A change in the underlying economic framework for assessing costs and benefits would thus even further increase the benefits of a policy of CO_2 emission reductions. The report argues, however, on two levels. The first level concerns classic environmental policy (and economics): even in this framework, an emission stabilisation or reduction policy does not lead to enormous costs but to (macroeconomic) benefits. Even without far-reaching changes of the economic framework, a greenhouse policy is not an adventurous exercise. The second level of the argumentation goes further by declaring that market failures lead to the overconsumption of environmental goods. Economic and fiscal instruments (such as a tax or a charge) are suitable means in the *sustainability* frame for internalising

the social cost of fossil fuel use (Commission, 1990i, p. 114) to correct market failures. Thus, a CO_2 tax finds its justification in the emerging *sustainability* frame.

In the period between the publication of the Commission's initial communication on the greenhouse effect in late 1988 and the Council decision to stabilise CO_2 emissions in late 1990, economic research and economic knowledge rapidly gained an important role for the development of the EC's greenhouse policy. Natural scientific research, in contrast, although continued with increasing funding, played no visible role in the policy-making process but continued with a dynamics of its own. During 1990, a debate on the economic aspects of a policy to combat the greenhouse effect emerged which started to change the problem perception within the Commission. This debate, which had its origin in the concern of *classic environmental policy* to calculate the costs and benefits of environmental policy measures, broadened and was at the origin of a larger process which led to a shift of EC environmental policy towards the *sustainability* frame. Until the Council decision of October 1990, which decided on the stabilisation of CO_2 emissions for the EC, the debate on the economics of the greenhouse effect only prepared the possibility for a later frame shift within the Commission. It broadened only during the elaboration of the Commission's CO_2 reduction strategy after the Council had taken its stabilisation decision.

During the debate on the Commission's communication on the greenhouse effect and the Community, which had launched the policy-making process on the greenhouse effect in the EC leading to the decision to stabilise CO_2 emissions by the year 2000, the greenhouse effect was still regarded by the Council in terms of *classic environmental policy*. The Commission, however, began to move towards the *sustainability* frame.

Sustainability was not a strategy used by the Commission to sell a greenhouse policy on which it had already agreed. On the contrary, *sustainability* entered the Commission's environmental policy by the backdoor, on the occasion of a report on the environmental consequences of the internal market programme. In the academic world, a discussion on 'environmental economics' had already been going on for several years. Elements of it had been taken up by the Brundtland Commission's influential report and increasingly by the work of the OECD. This line of thinking entered the Commission with the report on the environmental consequences of the internal market. It would have remained one report among many others had not the *sustainability* frame allowed new linkages with other issues and re-interpretations of old problems which offered the possibility of new solutions.

Sustainability seemed to offer a way out of the implementation problems of EC environmental law, *energetics*, its twin in the field of energy, allowed a new impetus to be given to the stagnating and notoriously unsuccessful energy policy of the EC, and the cost-benefit calculations on the basis of *sustainability* seemed to show that even an active policy against the greenhouse effect would not involve horrendous costs but on the contrary yield economic profits.

The slow emergence of *sustainability* is not a matter of conscious choice. There were no rational decision-makers at the top of the respective directorate-generals of

the Commission searching for coalition partners to achieve their goals and a common ideology to justify this coalition. Nor was there an epistemic community constantly lobbying for its shared knowledge. The debates which contributed to the spread of sustainability – in particular the debate on the implementation of Community law – remained largely independent of the greenhouse strategy. *Sustainability* offers to reconcile the economy and the environment, to bridge the old contradiction between the old and the new way to achieve a good life. It also allows environmental policy to be linked to progress even for those who emphasise the importance of economic growth for achieving human welfare. *Sustainability* also resonates in a world-wide discussion on the same topic within the OECD and the UN. Within the Commission, it brings not only economics but also economists back into the debate on environmental policy.

The second important feature of the development between 1988 to 1990 was the emergence of the environmental leadership concept and its link to the greenhouse effect. The leadership concept was deliberately promoted and put forward by Environment Commissioner Ripa di Meana in the hope of achieving more progress in the field of the greenhouse effect if this issue was linked to the role of the EC in world affairs and to background ideas of overtaking the US in a modern and future-oriented field. Contrary to *sustainability*, the quest for leadership can also be regarded as being in the self-interest of the Commission. When the European Community's status is enhanced, so is the Commission's as it represents the EC towards the outside world. The promotion of leadership can thus be understood in the decade-long tradition of attempts to make Europe 'speak with one voice'.

Until the end of 1990, the leadership idea was more important for the development of the EC's greenhouse policy than the *sustainability* frame. The latter, at this time, was only emerging in the Commission while the former was also shared within the Council and thus able to influence its decisions. Only after the stabilisation decision, did *sustainability* become increasingly important for defining the strategy to implement the decision.

Notes

1.   The final statement of the conference is reprinted in Churchill and Freestone (1990), pp. 367-372. The greenhouse policy of the European Community is embedded in a parallel global policy process. This process will be dealt with only in so far as it relates directly to the framing of the greenhouse effect in the EC. For an analysis of the global greenhouse policy process, see Lipschutz (1991), Kaiser et al. (1991), Oberthür (1992), Fischer (1992), Johnson (1993), pp. 59-78 and Simonis (1992).

2.   The creation of an interservice group is a procedure frequently used to study areas where large parts of the subject matter cannot be dealt with by one particular directorate-general and to prepare proposals for decisions should this be desired. The findings of interservice groups involve the directorate-generals

represented in it so that these groups have the function of sorting out internal differences at a very early stage (Commission, 1991i, point 8.2).

3.   This technique has often and with success been used in the UN frame-work: given the predominance of the *classic environmental policy* frame, an institution with highly reputed experts from all regions of the world has to state a minimum consensus on the state of natural scientific knowledge which is to be endorsed by national delegates. On the one hand, this authoritative set of natural scientific knowledge is the lowest common denominator. On the other hand, it can hardly be put in doubt by policy-makers but only be criticised scientifically. With regard to the greenhouse effect, this function has been performed by the Intergovernmental Panel on Climate Change (IPCC, 1992).

4.   At the time of the publication of the report, Commission experts stressed the enormous costs of protective measures against the consequences of the greenhouse effect which they considered to be politically unacceptable given present uncertainties about the precise extent of the greenhouse effect (Agence Europe, No. 4842, 1.9.88, p. 6-7).

5.   'Any policy decision aiming at reducing CO_2 emissions in the energy sector should be carefully examined taking fully into account the specific objectives and constraints existing at international, community and national level in this sector. On the other hand, any future decision in the field of energy policy should take into account the problem of potential climate changes linked to the greenhouse effect' (Commission 1988a, p. 46). On the link between energy and environmental policy, see pp. 98 seq.

6.   Whereas in national ministries, one minister is the political head of one particular ministry, this is not the case in the EC. Commissioners are usually responsible for more than one subject matter and for more than one directorate general. Formally, the Commission as a collegiate instead of the single Commissioner is responsible for all its decisions. For convenience, however, the terms 'Energy Commissioner' or 'Environment Commissioner' will be used although they are strictly speaking incorrect.

7.   The debate on the role of nuclear energy in the fight against the greenhouse effect is an old one and still unresolved. See already the statements of the Toronto conference (reprinted in Churchill and Freestone, 1990, pp. 367 seq). The EC decided, however, at an early stage not to open Pandora's box and concentrate on other measures. Still, the nuclear debate remains present but simmers under the surface. Whereas the first EC documents on energy policy in the mid-1970s were full of hope in nuclear energy, the Council conclusions on the greenhouse effect adopted in October 1990 do not even mention it explicitly but only under the cover of 'safe zero CO_2 emission technologies', adding that these should in particular comprise renewable energies (Council, 1990d, para. 9d).

8.   As this figure remained the same throughout the years, green MEP Undine Bloch von Blottnitz commented that the constant assessment of renewable energy sources as merely a long-term option was a self-fulfilling prophecy (Bloch von Bottnitz, 1986, para. 10).

9.   The same argument, namely that the standard of living was coupled to energy consumption (a cognitive statement) and that raising living standards required raising energy consumption (a hypothesis), which was legitimate (a normative statement), has been used by a speaker of the socialist group in the EP; see OJ 2-360, 19.1.88, p. 121.

10.   One of these initiatives is the THERMIE programme ('European Technologies for Energy Management'). Its explanatory memorandum is full of references to technological progress, e.g.: 'In the past, technology has played a major role in improving the energy situation, in strengthening security of supply and reducing energy costs. To insure against the uncertainty of the future, and to underpin the achievements of the Internal Market, it is vital that energy technologies continue to play a central role' (Commission, 1989b, para. 7). The Council regulation adopting the programme also stresses the 'key role' of technology for 'meeting the ecological challenge', in particular the 'threat of climate change'. In addition, the promotion of energy technology is expected to contribute to 'economic and social cohesion', i.e. to the development of the less developed regions of the EC, and thus contribute to integration (see Council 1990c, p. 1; all quotations from this page).

11.   This is in fact what happened. The Fifth Environmental Action Programme proposed by the Commission for the period from 1992 until 2000, entitled 'Towards Sustainability' (Commission, 1992c), was presented while the tax has not been adopted. On the frame shift embodied and attempted by the Fifth Action Programme, see pp. 156 seq.

12.   Besides a press conference in May 1989 (Agence Europe, No. 5010, 8.-9.5.1989, pp. 6-7), there was also a short-lived proposal on the introduction of an import levy on tropical woods in order to fight deforestation, one of the main sources of the greenhouse effect (Agence Europe, No. 5024, 29.-30.5.89, p. 11). This proposal has not been included in the later tropical forest strategy of the Commission (Commission, 1989a, pp. 15-18). Similar statements were given by Ripa di Meana on the Fifth World Environment Day (Agence Europe, No. 5031, p. 14), and before the Environment Council of September 1989 (Agence Europe, No. 5095, 22.9.89, p. 10).

13.   *'There is no doubt at all* that it would be impossible to overcome certain environmental problems of a global nature, e.g., the greenhouse effect, without having recourse to these instruments' (Commission, 1990e, p. 7; emphasis added).

14.   'Der Marktmechanismus ist Voraussetzung für das Funktionieren ökonomischer Instrumente in der Umweltpolitik. Wenn die Umweltressourcen richtig bewertet werden, können die Umweltnutzungskosten bei privaten wirtschaftlichen Entscheidungen voll berücksichtigt werden. Dies bedeutet, daß Umweltressourcen in Mengen genutzt werden, die nachhaltiges Wirtschaften ermöglichen, vorausgesetzt, daß die Preise ihrer Knappheit entsprechen und die nicht erneuerbaren Ressourcen angemessen bewertet werden. Durch ökonomische und steuerliche Instrumente soll erreicht werden, daß Umweltkosten, die bislang von den Marktmechanismen als externe Kosten behandelt werden, als interne Kosten

berücksichtigt und daß die derzeitigen Marktpreise geändert werden' (Arbeitsgruppe, 1990, p. 8).

[15].   Critics have, however, argued for long that the EC attempted to become a 'real' superpower (Galtung, 1973 and 1989, Weiner, 1989).

[16].   There are also practical reasons for this quest: observers do not have the right to make proposals or to intervene in the negotiations except at the explicit request of the participating states. There is an extensive legal literature on the question of the EC's external representation and its powers (e.g. O'Keeffe and Schermers, 1983). With particular emphasis on the environmental dimension, see Temple Lang, 1986, Nollkaemper, 1987, Mastellone, 1981, Leenen, 1984. On the political aspects, see Clinton Davis, 1987, Haigh, 1991 and Jachtenfuchs, 1992b.

[17].   As a result, in order to avoid any special treatment of the EC which would give it a special enhanced status, major international agreements contain a clause for 'regional economic integration organisations'. The only such organisation signing and ratifying the respective convention is the EC. Art. 22 of the Climate Convention is an example of this kind.

[18].   The conference was one of the events to celebrate the 200th anniversary of the French revolution. In France, there was a much more intensive press coverage of the conference than, for instance, in the UK or in Germany. Particularly revealing is the coverage of *Le Monde*, which usually does not have international environmental policy as a priority area of its reports.

[19].   Several Council meetings were devoted to the discussion of the draft tropical forest strategy (c.f. Agence Europe, No. 5035, 14.6.89, p. 13, No. 5092, 18.-19.9.89, p. 11 and No. 5095, 22.9.89, p. 10 which also reprints the full text of the Council conclusions).

[20].   These statements are based on the first economic studies on the greenhouse effect, which pushed natural scientific studies in the background during this phase; see pp. 112 seq.

[21].   In September 1988, for instance, the European Environmental Bureau had urged the EC to play a 'leading role' with regard to atmospheric protection (Agence Europe, No. 4850, 12.-13.9.88, p. 15). It repeated this call for the preparation of the UN conference on sustainable development in Bergen (May 1990) and for the UN conference on environment and development in Brazil (June 1992) (Agence Europe, No. 5082, 4.-5.9.89, pp. 9-10).

[22].   I owe this observation to Michael Huber.

[23].   The main objectives of the programme are, among others: to provide scientific and technical support for the environmental policy of the Community with an emphasis on developing preventative and anticipating policy' (Commission, 1988b, p. 2). Similar views were expressed in the European Parliament (e.g. Rinsche, 1989, and the debate on the programmes, OJ 3-381, 10.10.89, pp. 21-28).

[24].   Two of the three aims of the programme concern the increase of scientific productivity and quality and the strengthening of the 'economic and social cohesion of the Community' (Commission, 1988b, p. 2). The latter aim 'is not the least important' (Commission, 1988b, p. 9).

[25].   Under the heading 'anthropogenic climate change', the 5th ERP explicitly aims at 'taking advantage of modern supercomputer and computer-linking techniques' (Council, 1991a, p. 32).

[26].   As in the fifth ERP, research programmes have again been reorganised, the comparison of funding is not easy as not everything now figuring under the heading of global change programmes is climatology in the narrow sense. Even if this is taken into account, the increase in funding is considerable (Table 8, p. 185). The part on socio-economic environmental research obtained 15.7 MECU out of a total of 261.4 MECU (Council, 1991a, p. 35, Commission, 1990h).

[27].   The JOULE programme obtained a funding of 122 MECU (Council, 1989b, p. 14), its successor more than 155 MECU (Council, 1991d, p. 38).

[28].   These models were to be used for assessing the possibilities of a rational steering of energy demand and supply (Council, 1991d, p. 40). An active intervention into energy supply and demand is inconceivable in the *supply* frame.

After the joint Energy/Environment Council of 29 October 1990 had adopted the target to stabilise the EC's CO_2 emissions by the year 2000, the Commission, given its monopoly of initiative in the institutional structure of the EC, had been given the task to present proposals how this goal could be achieved. Although the fundamental features of the Commission's definition of the greenhouse effect and the measures to tackle it resulting from this definition had already emerged during the past two years since the presentation of its communication on the greenhouse effect and the Community, the different, in part only loosely connected changes of framing in the different sectors (energy, tropical forests, external relations, economic instruments, research) had now to be tied together to a political package preparing the adoption of decisions. Given the novelty and the extent of some of the measures taken into consideration, in particular the CO_2 tax, the Commission had decided to present first a strategy paper listing existing and planned measures and putting them into a coherent context of a comprehensive plan to achieve the Community's stabilisation target. This strategy paper would then be discussed by the Council and be modified in the light of these discussions. This is the usual proceeding in cases of complex or new policies and allows the negotiation of a package of measures without dealing with the details of a series of proposals. The first intention of the strategy paper was, however, to achieve a consensus within the Commission on the problem definition and the resulting package of policy measures. Only in a second step, was it to serve as a basis for negotiations in the Council. These two phases did not happen consecutively but in parallel.

The following section analyses the development of the Commission's strategy from the Council decision on the stabilisation of CO_2 emissions in October 1990 until the submission of the final strategy paper to the Council in September 1991. It is divided into four parts. Whereas the first three parts focus on the development of frames in three crucial areas, namely energy, external relations and with regard to economic instruments, the last part traces the development of the Commission's strategy from a first working paper to the final document by looking at the relationship between the different elements of the problem definition and the

strategy mix. As far as possible, these parts endeavour to trace the evolution of the issue in terms of the frames put forward by different directorate generals of the Commission. These parts sometimes strongly rely on interviews with Commission officials and on internal documents which cannot be quoted. Still, interviews and internal documents do not constitute essential parts of the argumentation but serve only to deepen and to illustrate the analysis of the two publicly available Commission papers from this phase (Commission, 1991b; Commission, 1991f).

Energy policy

During the time the Commission elaborated and finalised its strategy paper on measures to counteract the greenhouse effect, it already presented a proposal which later became a part of its CO_2 stabilisation package. At the same time, in the negotiations on the Maastricht Treaty which had revised the EEC Treaty, the institutionalisation of EC energy policy was for the first time considered. Whereas these two developments were characterised by a smooth movement of the Commission's – and to a lesser degree the Council's – energy policy towards *energetics*, slowly giving up the dominating *supply* perspective, the third event, the Gulf crisis and the ensuing Gulf War presented a test case of how the two dominant frames of energy policy could cope with a sudden external event.

The first action the Commission proposed in order to achieve energy efficiency and to limit CO_2 emissions was the SAVE programme (Commission, 1990g), published at the end of November 1990, shortly after the Council decision to stabilise CO_2 emissions. The SAVE programme, which was called the 'essential core' (Commission, 1990g, p. 4) of the EC's energy efficiency policy, is presented not only as a means of achieving one of the goals of EC energy policy (i.e. energy efficiency) but also as a contribution to the reduction of carbon dioxide emissions and as an industrial strategy. This latter point indicates that the formulation of the programme has been influenced by *sustainability* (Commission, 1990g, p. 7).

In making concrete proposals, the programme is very careful to respect the decade-long tradition of independent national energy policies and to avoid creating resistance by proposing a too far-reaching Community measure. A very low budget for the programme compared to its place in the Commission's emerging greenhouse strategy (35 MECU for five years, Council, 1991b, 35, c.f. the criticism by ESC, 1991b, p. 4, Verwaerde, 1991a, p. 22, Verwaerde, 1991b, p. 23) is justified with reference to the subsidiarity principle (Commission, 1990g, p. 7). The subsidiarity principle, which says that action should be taken at the appropriate institutional level, is the place where debates about the institutional balance of the EC, in other words about *supranational integration* vs. *member state dominance*, take place. The reference to the optimal institutional level for problem-solving can in principle also justify a uniform Community tax on energy, if the problem is a global one and the internal market is concerned. The mentioning of the subsidiarity principle by the Commission indicates that it recognises the institutional implications of its proposal

but still upholds it. In large parts, the SAVE programme is a blueprint for the energy part of the greenhouse strategy. In particular, it formally introduces the idea of a tax on energy in order to keep energy prices high. The proposal states that

> maintaining high energy prices, even at times when the markets are relaxed, could work in favour of measures to promote energy efficiency, mobilise alternative and renewable sources and represent some sort of insurance premium against the risks inherent in Europe's heavy dependence on energy imports (Commission, 1990g, p. 24).

This statement is only possible in an *energetics* frame. 'Artificially high' energy prices fundamentally violate the assumptions of the *supply* frame according to which energy has to be available for the economy in sufficient quantities and at low prices. Within *supply*, high energy prices are a bad thing which hampers economic growth. Yet, the explanatory memorandum to the SAVE programme clearly states that the measures of the programme alone were insufficient to reach the CO_2 stabilisation objective and that high energy prices achieved through taxes were one of the necessary means of achieving it.

A test of the viability of the *energetics* perspective was the increase in oil prices during the Gulf crisis in 1990/1991. From a *supply* perspective, in such a situation the EC has to do all it can to lower oil prices instead of elaborating proposals for taxes increasing energy prices even further. Indeed, the proposals to intervene in the energy markets via a tax came under strong pressure both within the Commission and from member states during the Gulf crisis. According to these views, the task of Commission and Council was crisis management in order to alleviate the burden put on the EC economy by the increased oil prices. A particularly striking example of a *supply*-view in this debate was given in the European Parliament:

> It would be completely wrong to call for central state planning and for a drastic increase in energy prices through higher taxes. General increases in energy taxes are not sensible. Control of demand via tax increases is feasible but needs to be very carefully applied. False arguments are often cited, particularly when industrial consumption is concerned. The impression is given that industry saves more energy when this cost factor is unnaturally increased by taxation. If we consider the development of the European energy consuming industry over the last twenty years, we see that these industries have always saved energy on a particularly large scale when the price of energy was low as, logically, this is when the funds needed for investments in energy saving are available' (OJ No. 3-394, 11.10.90, pp. 284-5).

Within the *supply* frame, taxes on energy in general are considered an undue intervention into the functioning of energy markets whereas the release of state-owned oil reserves is allowed. The explicit intervention in the market is a characteristic of the *energetics* frame.

As during the Gulf crisis, oil prices increased only for a relatively short period, this might not be regarded as a valid test of the ability of the *energetics* frame to deal with such a situation. However, the Gulf crisis is very important because it recalls the experience of earlier oil crises with drastic price increases and economic disruptions. *Energetics* proved, however, to be resistant to the challenges by proponents of *supply*. The idea of a tax on energy and on CO_2 was presented *during* the Gulf crisis (Commission, 1991f) and was never dropped or modified as a result of it.

On the other hand, *supply* remains an important driving force of EC energy policy. The negotiations on the European Energy Charter, initiated in November 1990, are a witness to the parallel existence of *supply* and *energetics* in separated parts of energy policy. Whereas in those fields of energy policy which were linked to the greenhouse effect, *energetics* increasingly influenced policy formation, the project of a trans-European energy network, which is the aim of the European Energy Charter, is devoted to the traditional aims of energy policy, i.e. guaranteeing abundant supply at low prices in order to stimulate economic growth (Commission, 1991c, paras. 2 and 6).

As its origin within the CSCE suggests, the project of a European Energy Charter was not only concerned with energy policy but essentially a measure of foreign policy to support Eastern Europe and the remnants of the Soviet Union as well as an endeavour to contribute to peaceful co-operation by creating interdependencies. Still, it is also an effort to initiate a long-term shift of the EC's energy supply from the politically very unstable Middle East to the supposedly less unstable East of the CSCE region. Although the Energy Charter mentions environmental protection and energy efficiency as one of its objectives (Energy Charter, 1991, Title I, Art. 3, reprinted in Europe Documents, No. 1754, 21.12.91), there existed a widespread feeling among observers that low energy prices brought about by the Charter could counteract all efforts to save energy and to promote renewable energies (e.g. ESC, 1991a, para 2.8.), as has been the case within the EC as a result of the low oil prices in the second half of the 1980s.

The European Energy Charter, in this phase, is an example of the slow process of frame shift. Whereas in fields which relate to environmental protection in a wider sense, *energetics* is becoming stronger, *supply* persists in the field of 'pure' energy policy. This is due to the influence of environmental policy-makers promoting the *sustainability* and *energetics* frame. This frame alignme nt is a process of arguing. It cannot be understood in terms of 'negotiations' between the respective directorate generals if the term is not stretched too far. Negotiations involve compromise by definition. Each participant has positions which he can give up according to his preferences. Argument, however, is related to truth, and there is no possibility to compromise about truth.[1] Thus, parts of DG XVII (energy) of the Commission were *convinced* that *energetics* was a better base for energy policy than *supply*, which was not able to deal with new challenges posed by the increasing importance of environmental questions, and in particular the greenhouse effect.

The Commission's new approach in the field of energy policy also influenced the negotiations on the revision of the Treaty of Rome, which were under way from the end of 1990 until December 1991, when the Maastricht Treaty was adopted. The drafts of the Luxembourg (Europe Documents, No. 1722/1723, 5.7.91, Title XIII) and of the Dutch (Europe Documents, No. 1746/1747, 20.11.91, Title XII) presidency both included a new title for energy policy, thus proposing to give the Community formal legislative powers in the field. Although the first priority of EC energy policy mentioned in these documents is to guarantee the supply of cheap energy (and thus seems to indicate the persistence of the *supply* frame), the rational use of energy and the development and use of new and renewable energy sources as well as a high level of environmental protection are also mentioned. The negotiators from the member states thus did not adopt an *energetics* perspective in their draft but moved away from the pure *supply* frame. The wording of the draft articles allows the possibility of policies inspired by an *energetics* frame without fully endorsing it.

In the final version of the Maastricht Treaty, the chapter on energy policy was dropped. This omission is not due to disagreement about the content of the chapter but to a general debate about the regulatory competencies of the Community. In order to make its final draft more acceptable to the countries resisting a further broad transfer of competencies to the EC level, the Dutch presidency omitted the chapters on energy policy and on some other policies contained in the earlier Luxembourg draft. The omission of energy policy indicates that after twenty years this policy field was not accepted by all member states as a Community competence. The reason for this omission had to do with the balance of power between the Community and the member state level, and hence with the increasing strength of *member state dominance* within the Council, but not with the aims of energy policy as such. It can be concluded from the inclusion of the above-mentioned chapter on energy policy and its content in several drafts of the Maastricht Treaty that an energy policy on the basis of *energetics* was at least not rejected, although not strongly welcomed.

It thus appears as if within the Commission at least, energy policy is being increasingly framed by *energetics* and *sustainability* (with regard to its environmental aspects). Energy saving is slowly moving into the centre of the Commission's efforts in the field (at least partly because energy saving, from the Commission's *supranational integration* perspective, seemed to offer an opportunity to establish a *Community* energy policy), a tax is increasingly finding acceptance despite its flagrant violation of basic assumptions and goals of *supply* and energy saving is considered to form part of an industrial strategy, this latter point being the link to *sustainability.*

Leadership

The concept of 'environmental leadership', introduced and actively promoted by Environment Commissioner Ripa di Meana, became the basis of the Commission's proposals in the field of global environmental policy during the phase of the elaboration of the greenhouse strategy. On the one hand, it was extended from the field of climate change policy to the protection of tropical forests and to the preparation for UNCED. Although institutionally these three policy fields are dealt with in different fora, they are closely interrelated concerning their substance. As these are the areas of the world-wide debate on *sustainability*, the leadership concept was increasingly associated with the *sustainability* frame. On the other hand, the quest for leadership was increasingly used by the Commission to justify its competence in the field of global environmental policy. In other words, 'leadership' became increasingly important for the institutional debate within the EC and the conflict between *supranational integration* and *member state dominance.*

In the field of the protection of tropical forests, the Council in 1989 and 1990 had had a series of highly controversial meetings on a draft strategy submitted by the Commission. Compared to the intentions of the Commission, which had launched the leadership debate in this sector, there was no substance on which the claim for leadership could be based. However, the international negotiations on the issue had been even more controversial and remained so until the holding of UNCED. As a result, the Commission could still uphold its claim for leadership in one of the policies of the UNCED process by pointing to the inaction of others (Agence Europe, No. 5560, 5.9.91, p. 13, Agence Europe, No. 5561, 6.9.91, p. 13).

UNCED became increasingly the target of the Commission's leadership claim in international environmental relations. UNCED, the UN Conference on Environment and Development, to be held in Rio de Janeiro in June 1992, allowed the scope of the leadership concept to be extended to development policies and to North-South relations, a field in which the EC had traditionally considered itself as being progressive and pro-Third World, mainly on the basis of is successive Lomé conventions, which constitute the heart of Community development aid policy. UNCED and its preparations thus allowed the EC's challenge to the United States to be extended to the field of development policy. Since 1990 at the latest, the Rio conference had bundled a series of global environmental issues (tropical forest protection, the protection of biodiversity, climate change) and the attempt, originating from the UN, to find a new conceptual basis for development policy.

In parallel to the elaboration of its greenhouse strategy, the Commission worked on a strategy for UNCED. The resulting strategy paper consists of an inventory of past and present Community activities in the fields dealt with by UNCED and defined priorities of action. In the introductory part on the Community's role, it does not only repeat its demand for a leading role of the EC at the conference but even declares that EC leadership could be 'a crucial element for the success of the conference' (Commission, 1991a, p. 3). Further below, the Commission repeats:

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It is clear that the Community is ready and able to assume a leading role on the side of the developed countries, and could act as one of the principal interlocutors of the developing countries (Commission, 1991a, p. 3).

The idea conveyed here is North-South dialogue, with the Community leading the North, i.e. basically the United States and Japan. This claim is hardly supported by concrete evidence. The Scandinavian countries, for instance, have since long devoted a larger share of their GDP to development aid than the EC countries. Japan, on the other hand, has a tradition of giving less environmental aid. In any case, it does not make much sense to compare the development aid policies of different countries or groups of countries in order to find out the 'best' development aid policy. What is important is the claim made here. In its 'Common Platform' for UNCED, the Commission calls upon the member states to adopt the leadership concept and to take decisions on this basis. The 'Common Platform' itself is in fact nothing but a negotiation mandate, although an immensely long one, which the Commission has to obtain from the Council in any international negotiations where Community competencies may be involved. It does not contain fundamentally new or far-reaching initiatives. The only area where the EC actually considered *policies* underlining a leadership role, e.g. unilateral moves, is climate change policy (c.f. pp. 140 seq). The leadership idea thus serves to state the EC's *role* in the UNCED process and less to constitute a summary assessment of the EC's proposals for the conference. Its purpose is a highly symbolic one. It presents the EC as constructive, responsible, underlines its solidarity with the South, and compares this image with the United States, which defends its national interests without regarding the legitimate needs of the Third World.

'Leadership' in international environmental and development affairs is also apt to present the same image of the EC internally, in particular in the Northern member states which are generally more critical towards EC environmental policy which is supposed to lower existing high domestic standards.

'Leadership' is also a strategy with legal and institutional consequences. In the Commission's concept, the Community exerts leadership, and not the member states. As a consequence, the Commission's status is likely to be enhanced as a co-ordinator and spokesman of the EC. The Commission would prepare and defend the Community's policies in the exercise of its leadership role. More importantly, the claim for environmental leadership supports the Commission's attempt to establish a general Community competence for global environmental policy in the negotiations for the Maastricht Treaty. Leadership is thus an attempt by the Commission to change the institutional balance in favour of the Community level in a particular field. In short, the leadership concept is a result of the *supranational integration* frame.

In international environmental relations, the Community only possesses competencies when it has enacted legislation in the respective field or when the Council decides that a field should be regulated by Community action. Usually, the Council is very reluctant to agree to such a transfer of competencies because the competence for Community action thus created is permanent and may be confirmed

and extended by the jurisprudence of the European Court of Justice. The Commission often claims at least some Community competence with the argument that this was necessary to avoid distortions of the internal market or impacts on other fields of Community law. In addition, the subsidiarity principle in the field of the environment (see below) had embodied the assumption that the Community does not have to conclude international environmental agreements unless for special reasons. In sum, the more international agreements the *Community* concludes, the more the decision-making power is shifted to the European level. The right to conclude international agreements thus strengthens the image of the EC according to *supranational integration*. In recent years, a pragmatic solution has been invented: in order to avoid a time-consuming debate about the competence issue, the Community and the member states conclude so-called 'mixed agreements'. The legal problems of the external relations of the EC show how deep-rooted differences on the basis of different frames are transformed into different legal positions.

Besides the legal/institutional balance, international environmental agreements (like any other international agreements) involve the issue of the EC's external representation. The person and the institution representing the European Community (in the spheres of its competence) at international conferences receive the prestige of speaking for a major power. In addition, diplomacy and international representation are seen by states as the manifestations of external sovereignty which are not to be given to any international organisation. Many countries, for instance, have 'representations' or 'permanent representations' to the EC; 'embassies', although their function is exactly the same, remain reserved for relations between states. Therefore, the external representation of the EC has been a field of permanent struggle between the member states and the Commission since the 1960s (c.f. Gerbet, 1983, pp. 271 seq.). Again, pragmatic solutions have been found over the years[2] but the issue is still open to change. In line with his concept of environmental leadership which implies Community representation in international fora by the Commission, Environment Commissioner Ripa di Meana, during the preparations for the Rio conference, had strongly pushed for EC decisions in the field of climate change policy in order to have something in his hands when representing the EC in Rio. He threatened not to go to Rio if the Council were not to adopt measures within the CO_2 stabilisation strategy and, unsatisfied with the results of the preparations, he indeed stayed in Brussels. In this case, Ripa di Meana played the role of a 'real' minister with political responsibility for his subject, as opposed to his Commission colleagues who mostly consider themselves as top civil servants without the right to refuse to go to a conference. Legally, Ripa di Meana's behaviour does not make sense as it is not him who is politically responsible for EC environmental policy but the entire Commission. As he was not politically responsible for the EC's position in Rio, he cannot draw political consequences from this position – in a purely legal logic at least.

'Leadership' includes the Commission's claim that the Community in general is the appropriate level for dealing with global environmental problems and that it

should be given a legal competence in this area. This claim is not self-evident and would constitute, if agreed, a small step of integration achieved by the Commission. It has also to be seen in the light of the discussion on the subsidiarity principle taking place during the Maastricht negotiations. The subsidiarity principle which is conceived as a counterweight to the seemingly irresistible trend of transferring competencies to the Community level, had already existed in the Single European Act – exclusively in the field of the environment (c.f. Art. 130r, 4 of the EEC Treaty as amended by the SEA). 'Leadership' is thus an attempt to achieve a cognitive agreement that global environmental problems are by definition a field in which the objectives of EC environmental policy can be better attained at Community level. In this case, the Community should act (normative dimension).

During the negotiations of the Maastricht Treaty, the Commission could convince the member states of this aspect of the leadership concept. The new Treaty adds a fourth goal to the previous three aims of EC environmental policy, namely

> promoting measures at international level to deal with regional or worldwide environmental problems (Art. 130r, 1 of the Maastricht Treaty).

In this formulation, the Community has the formal competence to deal with global environmental problems (such as the greenhouse effect or the destruction of the ozone layer) as well as with regional problems (such as acid rain). As a result, the Commission does not have to fight anymore for the right to negotiate international environmental agreements provided it can convince the Council that they are of a global or regional nature (which is beyond doubt in the field of the greenhouse effect).

In sum, leadership has been strongly promoted by the Commission during the preparation of its greenhouse strategy. This has led to the codification of a Community competence in the field of global environmental problems and thus furthered integration. Before the negotiations on its greenhouse strategy, the promotion of leadership had strongly linked the expansion of *sustainability* and the adoption of measures against the greenhouse effect with the status of the EC in the world, and thus with *supranational integration*.

The tax debate in the Commission

After the decision in principle to stabilise the EC's CO_2 emissions by the year 2000 had been taken by the Energy/Environment Council in October 1990, the debate shifted from *whether* this should be done to *how* it could be achieved. In the following year, the proposal of a tax on CO_2 or on energy became the central and most controversial element of the Commission's strategy. This section attempts to explain the choice of a CO_2/energy tax in terms of environmental and integration frames. A large part of this section is devoted to the analysis of the tax debate among the different departments of the Commission in order to show how the link

between *sustainability* and *supranational integration* contributed to the inclusion of the tax in the final Commission proposal.[3]

Response strategies and the choice of the tax

In the international discussions on policy responses to the greenhouse effect, a variety of measures of the most diverse kind have been discussed. The reduction of CO_2 emissions can in principle be achieved by technical solutions, regulatory measures, incentives, programmes, voluntary agreements, economic instruments like taxes, charges, or tradable emission rights and by all kinds of combinations of those measures. Although its strategy contains some of these elements, the Commission has increasingly concentrated its activities on the subject of a CO_2 or energy tax. Compared to the findings of the German Bundestag's commission of inquiry on the protection of the atmosphere (Bundestag, 1988, Bundestag, 1990, Bundestag, 1992, Bundesminister für Umwelt, 1991b) and of the plans of the German federal government (Bundesminister für Umwelt, 1991a, Bundesminister für Umwelt, 1992) to reduce CO_2 emissions by 25 to 30 per cent by 2005, this seems to be a rather narrow focus whereas the German approach, although going far beyond the Community target, is based on a very broad range of measures without relying so heavily on the use of a tax.

Whereas it is possible to argue that according to the subsidiarity principle (and also for simpler reasons, e.g. lack of administrative resources) the EC Commission has decided not to prescribe CO_2 reduction policies in detail, the focus on a CO_2 or energy tax may at least in part be explained by the political character of such a tax: it favours integration as it would be the first Community tax; if a Community tax is to be accepted by the member states at all, it is most likely to be a 'green' tax. In addition, it corresponds to the strong liberal market ideology prevailing in the Commission and the rather wide-spread criticism that the command-and-control approach of *classic environmental policy* and DG XI as its proponent have led to little improvement in the actual situation of the environment but to frequent violations of Community law and to strong resistance from the member states. Economic instruments, it is argued by the adversaries of the command-and-control approach, would achieve better results by more elegant means.

Immediately after the Council decision to stabilise CO_2 emissions, the Commission took up the idea of some kind of environmental tax, propagated by Environment Commissioner Ripa di Meana in the preceding years. In mid-December 1990, the Commission requested Ripa di Meana to prepare guidelines to be submitted to the Environment Council on 20 and 21 December with the aim of discussing first ideas of a CO_2 stabilisation strategy. These guidelines for the Council discussions should focus on energy saving measures. However, the Commission came to the result that in this respect, 'no amount of action' in the 'non fiscal area' would be sufficient (Commission, 1990a). Therefore, a tax on energy or on carbon dioxide should be mentioned at the Council meeting as one possibility to reach the Community's stabilisation target. It was left open whether this proposed

tax should be a CO_2 tax, an energy tax or a combination of both, but in any case, it should be 'fiscally neutral', i.e. its introduction should be compensated by a corresponding decrease of other taxes so as not to increase the overall tax burden of the economy (Commission, 1990f, pp. 60-61).

The proposal of a Community-wide introduction of a new tax, although in principle not contrary to the EEC Treaty and even envisaged some years ago in an entirely different context,[4] does not only constitute major progress for European integration, even if the revenues raised by the tax remain at national level. Tax matters belong to the core of state sovereignty. Community activity in this field is therefore closely related to the progress of integration. The only measure comparable to the proposal of a CO_2/energy tax is the introduction of VAT during the 1960s (Puchala, 1984). Whereas the introduction of VAT was a restructuring of the existing turn-over tax system, although a major one, the CO_2/energy tax is entirely new. It could also easily be expected that the introduction of a new tax would meet with strong resistance from the member states as well as from industrial lobbies because of the expected harmful consequences of such a tax on economic performance and because of loss of competitiveness. The imposition of the tax, which in the first Commission drafts was due to begin with US $3 per barrel of oil starting in 1993 and then increasing up to $10 per barrel in 2000, was expected to yield approximately 50 billion ECU per year throughout the EC (Commission, 1991b, p. 10) and thus without doubt constitutes a major interference in the economies of the member states.

The Commission had thus chosen a policy instrument which would meet strong political resistance for achieving the target of a Community-wide CO_2 stabilisation whereas other countries with more ambitious goals had not so strongly relied on a tax or a comparative instrument. Why the Commission adopted this risky strategy and how it came to it shall be explained in this section by arguing that the proposal of a tax is an indication of the spread of the *sustainability* frame within the Commission which allowed the views of several departments that had been conceptually separated for long to be reconciled. Secondly, *sustainability* and a tax resonate with the broader frame of *deregulation*[5] propagated by the Commission in the framework of the internal market programme. Finally, the tax as such and its use for 'leadership' promote *supranational integration*.

In sum, the debate within the Commission and between the Commission and member states is a debate on *sustainability* and on *supranational integration*. Natural scientific arguments and knowledge did not play a role anymore in this debate. The debate shifted entirely towards the perception of the economic effects of the proposed greenhouse strategy.

The debate within the Commission

The main actors during the elaboration of the Commission's CO_2 reduction strategy were DG XI (environment) and DG XVII (energy). DG XXI (indirect taxation) became increasingly involved in the discussion on the tax without being able to influence it

decisively. DG II provided much of the economic arguments for the introduction of a tax whereas the Forward Studies Unit (CdP) strongly advocated *sustainability* and in particular the argument that the proposed CO_2 reduction strategy would create *advantages* for European competitiveness. Other DGs intervened only occasionally.

The link between the emerging *sustainability* frame and *supranational integration* for most DGs involved offered the opportunity to find their views or aims represented or at least seemed too strong an argument to be resisted. A new frame – *sustainability* – actively promoted by some DGs thus provided the possibility of new coalitions among the Commission departments. This possibility should not be interpreted in a narrow rationalistic sense. The different departments are not actors maximising their utility by choosing the appropriate ideology or frame which allows them to build up the coalition that fits their aims best (c.f. Hall, 1989, pp. 12-13, Gourevitch, 1989). A frame is not a suit; DG XI cannot simply choose *sustainability* after coming to the result that this would increase its standing within the Commission or that its aims (which depend on the respective frame) can be better achieved within the new frame. Frames consist of cognitive perceptions, normative convictions and symbolic identities. Their change involves all three dimensions (although not necessarily). A new frame must have a new meaning in the light of the old frame; it must make sense if it is to be convincing. For DGs not directly concerned with the environment or economic policy as such, the new frame of *sustainability* must offer opportunities to link their own policy frames to it in a meaningful way.

DG XI had at the time of the negotiations already largely moved towards *sustainability*. Most prominently, sustainability played a role in the preparations for the fifth Environmental Action Programme of the EC, which the Commission was to present in early 1992 and which was entitled 'Towards Sustainability' (Commission, 1992c). Contrary to earlier action programmes which had mainly consisted in a list of action proposals, the new programme also focused on means of implementing these proposals. Responding to criticism of a wide-spread implementation deficit of EC environmental law (Agence Europe, No. 5190, 9.2.1990, p. 6, Agence Europe, No. 5192, 12./ 13.2.1990, p. 12), the Commission moved away from the traditional legalistic style of policy-making and proposed, among others, voluntary agreements with industry, and economic and fiscal instruments for environmental protection. The tax on CO_2 or energy as a means of fighting the greenhouse effect was considered to be a test case for the introduction of economic and fiscal instruments: if this tax was adopted, others were considered to be much more easily acceptable.

Within DG XI, the tax became the synonym for the programmatic shift towards *sustainability*. *Sustainability* and the leadership concept mutually reinforced each other: *sustainability* (and the tax as the first important step in this direction) was the condition for leadership, and the quest for leadership created the pressure for the adoption of the tax. In addition, the Community-wide introduction of a new tax was considered as progress in integration and presented as such within the

Commission in an attempt to alleviate the expected opposition of industry-oriented directorate generals. This link between *sustainability* (the tax) and *supranational integration* is most clearly visible in a statement of Commissioner Ripa di Meana before the European Parliament, where he declared on the subject of the tax proposal:

> Given ... the significant degree of institutional progress, I hope that the House will continue to support a proposal which, as well as being important for our energy systems and the environment, will contribute towards European integration and the credibility of the European Community at international level (OJ 3-411, 18.11.1991, pp. 28-29).

Within DG XI, *sustainability* had already been adopted before the elaboration of the Community strategy to limit CO_2 emissions (see pp. 103 seq). It was used now as an action frame which was able to cope with several problems at a time. *Sustainability* was considered to be a concept which would allow the opposition between environmental policy-makers (DG XI) and industry and its allies within the Commission to be lessened. 'Common responsibility' and 'partnership' became the new catchwords in this context (Commission, 1992c, pp. 30 seq). The new partnership with industry made possible by *sustainability* was also underlined by the argument put forward by DG II and the Forward Studies Unit, namely that an active policy of energy saving could create benefits for industry ('first mover advantage'). *Sustainability* was also used to increase the status of EC environmental policy and indirectly of DG XI by linking it to *supranational integration*. For DG XI, thus, the new frame could cope better with perceived problems of EC environmental policy (the implementation deficit and the opposition of industry) and at the same time be used as a device for increasing the status of DG XI and the acceptance of its proposals.

DG XVII accepted the central role of energy saving for a CO_2 stabilisation strategy and used it to promote its own programmes on energy saving. This is not merely a matter of organisational self-interest but was made possible only by the previous shift towards *energetics* as a frame of energy policy. This frame shift is by far not complete; in particular, it applied less to the Energy Commissioner of the time, Cardoso e Cunha, than to DG XVII. Whereas DG XVII voluntarily accepted a tax as a means of CO_2 reduction and of achieving energy efficiency, the Energy Commissioner pressed for the lowering of its energy part and the increase of its carbon part. DG XI had proposed a tax with an energy component of 75 per cent (hitting all energy sources including nuclear energy but excluding renewables) and a CO_2 component (applied in accordance with the carbon content of fossil fuels) of only 25 percent. Such a tax structure would in the first place reduce overall energy consumption and only in the second place reduce the emissions of carbon dioxide. The 50/50 mixture finally adopted penalises fossil fuels more than nuclear energy and is a weaker incentive for energy saving. The stronger the energy component, the more the tax structure is compatible with *supply*. This could be interpreted as a manifestation of a *supply* frame. Energy efficiency and a tax as a means of achieving

it were considered to be an opportunity to give a new impulse to the ailing EC energy policy.

This opportunity was further increased by the conceptualisation of energy policy as a policy of industrial modernisation. 'Leadership' was also important for DG XVII as neither the US nor Japan, the EC's main competitors, were pursuing such a policy internally or externally. In the field of energy policy, the EC could thus underline its leadership claim by promoting energy efficiency in Third World countries. Such a policy could be presented as a measure of North-South solidarity, as it would constitute active help for the less developed countries to fight the greenhouse effect (and at the same time a programme of industrial modernisation, as in the EC itself). *Energetics*, *sustainability* and 'leadership' for DG XVII offered new answers and more promising action strategies for old problems and allowed these strategies to be presented as something which was good for the EC externally (leadership) and internally (reduction of energy dependency, industrial modernisation).

Whereas DG XI and DG XVII had collaborated on the CO_2 reduction strategy already for some time, DG XXI (responsible for indirect taxation) had only been included at a later stage in order to discuss the concrete modalities of a tax. DG XXI as well as the Commissioner for taxation, Christine Scrivener, opposed the tax from the outset (Europe Environment, No. 372, 1.10.91, section I, p. 1), claiming that DG XI and DG XVII had made a proposal for a tax which they did not really understand. Besides inter-organisational jealousy, this statement reflects traditional industrial concerns, the opposite side of *classic environmental policy*. A tax would create competitive disadvantages (a 'first-mover disadvantage') with regard to the US and Japan and should thus only be introduced if these countries adopted similar measures. In addition, energy intensive industries should be exempted from the tax for the same reason. DG XXI thus refused the leadership argument which relied heavily on the tax. On the other hand, it was not able to refuse a more general argument of *sustainability*, namely the need for a restructuring of taxation systems with the aim of increasing taxes on resource consumption (the depletion of the 'environmental capital stock' in the language of environmental economics) and of lowering taxes on labour. This shows again the ability of the *sustainability* frame to bridge the opposition between 'environmental' and 'industrial' actors. Lowering taxes on labour and increasing them on resource consumption could in principle remove a major competitive disadvantage of European industry – its high labour costs – and at the same time exert pressure towards industrial modernisation – by favouring resource savings – and achieve environmental benefits.

The *sustainability* frame was strongly promoted by DG II (economics and finance). In addition, the conceptualisation of the greenhouse issue as a problem where economic instruments should be applied is also due to this DG (Commission, 1990i). Within the Commission, DG II is responsible for providing economic studies and expertise. It enjoys a high reputation with regard to the quality of its work and is considered to be an ally of economic interests. Contrary to DG XI, it has no particular 'green' image. The arguments put forward by DG II thus enjoyed a

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favourable bias among industry-oriented DGs and individuals within the Commission. At least, they could not easily be dismissed as green utopianism. The studies of DG II on the economic aspects of the greenhouse effect constituted the basis of the Commission's 'no-regret' strategy, i.e. a strategy comprising measures that are considered to be beneficial in any case, regardless of the existence and degree of the greenhouse effect. DG II was thus responsible for the partial decoupling of the greenhouse strategy from natural scientific knowledge. The support for *sustainability* from DG II meant that this frame was not considered merely as a new way of selling environmental policy but was actively defended by one of the business-oriented DGs of the Commission.

A similar role was played by the Forward Studies Unit (CdP), a small group advising Commission President Delors on major policy issues and their importance for the EC. The CdP is a planning staff with the task of producing ideas and concepts, detached from day-to-day management of current affairs. From the end of 1990 onwards, when the elaboration of the Commission's greenhouse strategy had begun, the CdP worked on a major report on environment and economic development. This report was a detailed elaboration of the *sustainability* frame and a blueprint of its implication for EC policy (c.f. Wright, 1991). It strongly promoted the leadership concept. Although this report does not explicitly deal with climate change policy – which at the time of its elaboration was considered to be already on a *sustainability* path –, it strongly advocates environmental economics, for instance the consideration of natural resources as an 'environmental capital stock' which is used up by economic activity without being paid for. The elaboration of *sustainability* in a report requested by the highly reputed Commission President and the involvement of CdP members in current affairs (UNCED, the fifth environmental research programme, a review of EC transport policy) considerably enhanced the spread of *sustainability* within the Commission.

This is again partly due to the fact that, within the Commission, the CdP was not regarded as a 'green' department. The report on environment and economic development was originally intended to provide arguments and knowledge about a theme which was considered important by the Commission and its president but which was not left to DG XI because of its green orientation, which had in the past only led to conflicts with member states about the implementation of Community law and strong protests from industry. The CdP was to elaborate an outline of an alternative strategy which would allow the implementation of a policy reconciling the needs of business and of the environment. *Sustainability* provided this opportunity. As a result, it was promoted by both the environment directorate general and the more business-oriented DGs, including the CdP. Whereas DG II mainly argued in favour of the macro-economic validity of the tax proposal, the CdP strongly promoted *sustainability* as an opportunity for an industrial strategy. Such a strategy could give rise to industrial leadership of the EC. Whereas the EC, the CdP claimed, had lost the battle against the US and in particular against Japan in the field of microelectronics already, environmental and energy efficient technologies could be the source of a new wave of industrial innovation in a field where both the

US and Japan were hardly present. The CdP thus closely links *sustainability* as a means for coping with the EC's environmental problems with the EC's identity in the world economy. *Sustainability* in this logic means industrial progress, a successful fight against economic decline and the defeats already suffered in other 'key' sectors, it provides a basis for leadership at UNCED and new outlooks for a series of Community policies from agriculture to transport.

With the adoption and promotion of *sustainability* by DG XI as the repre-sentative of environmental interests, DG II as an ally of economic interests and the CdP as a unit dealing mainly with integration, the *sustainability* frame was not limited to the environmental policy community anymore and had a broad basis within the Commission. These actors, as well as DG XVII, were also in favour of the adoption of a CO_2/energy tax as a central policy instrument within this frame. Other DGs played only a marginal role, although DG I (external affairs) supported the environmental leadership concept proposed by DG XI and the CdP which could allow the EC's role in international affairs and its standing at international conferences to be increased.

The *sustainability* frame allowed the development of a common problem definition among these DGs by bridging the gap between the environment and the economy. All DGs involved could use it as the basis for an offensive strategy using the positive connotations of the environmental theme together with the argument of industrial modernisation as a means to survive and even to lead in world-wide economic competition. The tax in this context became the instrument for achieving *sustainability* in addition to its technical role of limiting CO_2 emissions from fossil fuel burning. For this reason, the Commission during the elaboration of the strategy and during the later negotiations on it was willing to give it any possible shape, if this would only increase its chances of adoption. The *principle* of an environmental tax should be adopted; technical considerations, even those with large practical consequences (e.g. the modification of the carbon and the energy component) were considered to be of secondary importance. This is also the reason why the arguments of DG XXI – which were put forward in technical terms – did not receive much attention as they could not undermine the principle of *sustainability* to which even DG XXI subscribed hesitantly.

The debate with member states and industry

A tax on energy and CO_2 emissions which was supposed to raise about 50 billion ECU per year would incur the resistance of member states and of industry. On the basis of *classic environmental policy* they could be expected to argue that such a tax would hamper international competitiveness and economic growth. Although the Commission in its strategy to deal with the greenhouse effect also tried to convince member states and industry of its problem definition in terms of *sustainability*, it mainly relied on a more realistic strategy to have its package of measures, and in particular the tax, adopted by the Council and accepted by industry.

The strategy towards member states consisted in arguing that overall, the proposed tax (in combination with other measures) would not hamper economic growth. A main addressee of this argument was Spain, which had taken the position that its present phase of strong economic growth and industrial restructuring in order to catch up with the industrial development of the northern member states required a strong growth in energy consumption. In other words, Spain argued on the basis of *supply*. In addition, Spain demanded a 'fair burden sharing', claiming that it emitted only one third of the CO_2 emissions of Germany and also remained below the EC average of per capita emissions (Table 5, p. 182). It thus had a 'reserve' which it could still use. In order to meet this latter argument, the Commission included in its proposal a phrase stating that the EC's structural funds (and the Cohesion Fund set up by the Maastricht Treaty) should provide assistance and compensation for countries with a low economic standard of living.

In order to meet the argument that a CO_2 tax would lead to inflation and economic recession, the Commission published the results of an economic study by a consulting firm (DRI) which had come to the result that a tax on energy together with the other measures of the Commission's strategy would lead to a reduction of the GDP of eight selected EC member states of 0.06 per cent annually between 1991 and 2005. Inflation in these countries would rise by 0.29 per cent but by the same token their balance of payments would improve. This study was not based on *sustainability* but on conventional economics. Therefore, the Commission claimed that the additional inflation and the small drop in GDP would be more than offset by additional environmental benefits, increased transport efficiency and the development of technology for energy efficiency which were not included in the economic model (c.f. Agence Europe, No. 5552, 24.8.91, p. 6, Commission, 1991b, p. 25). The tool to promote *sustainability* and the tax as its main instrument was thus the 'no-regrets' strategy, which considered these measures to be beneficial on the basis of *classic environmental policy*.

Another argument in favour of the tax was 'fiscal neutrality'. It was also the basis for the studies on the macroeconomic impact of the tax. Fiscal neutrality means that the income generated by the CO_2/energy tax had to be used to reduce other taxes. In other words, the proposed tax should lead to a restructuring of tax systems but not to increased revenues for the state and to heavier burdens on the economy as a whole. This was an important political argument against the claim that the proposed tax would hamper economic development in the same way as so many other environmental policy measures. Politically, it gave a certain margin to member states. By proposing that the new CO_2/energy tax should be fiscally neutral, the Commission assigned the responsibility for this essential condition of its calculations to the member states. Its own tax proposal would be adopted at the Community level; the corresponding lowering of other taxes was left to the member states which were free to proceed in this direction or to use the tax as a source of additional income (as it was expected in the case of Italy, Belgium and Greece). In relation to fiscal neutrality, the Commission used the subsidiarity argument extensively: according to its interpretation, the tax had to be adopted at the

Community level in order to avoid distortions of competition. The subsidiarity principle which was meant to achieve a limitation of Community regulation thus served to justify a far-reaching integrationist measure such as the tax. Fiscal compensation for the tax was left to the member states, again on the basis of the subsidiarity principle. As a result, the subsidiarity principle served as a justification of a policy of *supranational integration*. The way the concept of fiscal neutrality was implemented in the Commission strategy was also an indication of the importance given to the principle of a Community-wide tax: the tax itself had to be adopted by compulsory Community legislation whereas the compensation in the form of fiscal neutrality was left to the member states. Whether they really followed this recommendation or used the tax for other purposes did not matter for the Commission.

The recommendation on the fiscal neutrality of the tax could only convince member states. In fact, the Commission mostly argued on a macro-economic level when it defended its tax proposal. The *macro-economic* neutrality of the tax did, however, not preclude that *individual* industrial sectors would strongly suffer from the tax. This was even its intention: huge consumers of energy should pay a high tax in order to have an incentive for energy saving. On the other hand, there were industries which were expected to be unable to save huge amounts of energy in the production process. In order to win the support of these industries and to avoid that they could successfully lobby their respective national governments, the Commission proposed to wholly or partly exempt six energy-intensive industrial sectors (steel, chemicals, non-ferrous metals, cement, glass and pulp/paper) which were not expected to achieve high rates of energy saving and at the same time were subject to strong international competition. Should the US and Japan adopt similar measures, the tax would be levied on those industries, too (Commission, 1991b, para. 22, Commission, 1992g, p. 15). The Commission thus followed one of the demands of DG XXI.

The exemption of the most energy intensive sectors from the proposed tax was a flagrant violation of the polluter-pays-principle and the principle put forward by *sustainability* that environmental costs should be internalised. It shows again the central importance of the adoption of the principle of an environmental tax, almost irrespective of its content. The tax was the instrument to make the Council accept *sustainability* and the related concepts of environmental protection as an industrial strategy as well as the leadership concept. Within the Commission, a Community strategy inspired by a pure *sustainability* frame was not elaborated because of the resistance of some departments remaining close to *classic environmental policy*. In addition, its adoption by the Council was not considered to be a realistic goal. The sacrifices on the tax issue were thus not a sign of a prevalence of *classic environmental policy* but of a deliberate strategy to start policies based on *sustainability*, taking into account the expected resistance of the Council.

From the 'Policy Options' to the 'Community Strategy'

The Policy Options paper

Two months after the stabilisation decision of October 1990, the Commission presented a first working paper on 'Policy Options in View of the Community's CO_2 Emission Stabilisation Target' (Commission, 1991f, hereinafter referred to as *Policy Options*) to the Environment Council of 20/21 December 1990. This working paper represents a strong and optimistic *sustainability* frame. Energy policy is at the centre of the strategy (Commission, 1991f, para. 1). With respect to energy policy, the *supply* frame has given way to the *energetics* frame. Energy policy becomes a target of political action by the Community and is not restricted any longer to recommendations to member states and economic agents. The proposed measures cover a wide range from increased R & D activities (in the field of technology with only a small share devoted to basic research, i.e. basically the measures discussed on pp. 113 seq.) and an active programme for energy saving (pp. 154 seq) to the centre-piece of the strategy, a combined tax on energy and CO_2.

Whereas the parts on energy policy mainly insert existing policies into the new greenhouse strategy and reflect the slow reorientation of EC energy policy in the last years, the document is the first EC document which uses *sustainability* in order to defend and justify a new strategy. As the document expresses the Commission's conviction that 'non-fiscal measures' (i.e. increased research and energy saving programmes) will not be sufficient to achieve the stabilisation target, the Commission in this document officially proposes the introduction of a tax on energy and on CO_2 as the 'fiscal' supplement to these measures. However, not only the tax proposal but the entire strategy are presented in terms of *sustainability*. Already in the second paragraph, the Commission supports its proposed measures with the

> growing awareness, supported by converging *scientific evidence*, that they would have a positive overall impact (Commission, 1991f, para. 2, emphasis added).

Here, 'scientific evidence' is completely detached from its usual natural scientific context and refers to the results of *economic* analyses. The paper does not only claim that the proposed greenhouse strategy was of no great harm but sets out that

> the international competitiveness of European companies can also go hand in hand with the protection of the environment (Commission, 1991f, para. 4).

An active environmental policy in this view creates a 'first mover advantage' of European industry on the world market. 'Environmental technology' becomes advanced technology and is thus associated with modernisation. The greenhouse strategy of the Commission is presented in the *Policy Options* paper as a programme of modernisation. For the Commission, there is no alternative to this modernisation. In fact, the paper does not contain different options for policy in the

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sense of a choice. Instead, the Commission presents a package of measures of different kinds which must be adopted together if the stabilisation target is to be reached. The tax in particular is not optional but mandatory if the stabilisation objective is not dropped altogether. The only real choice is between a higher taxation of CO_2 or a higher taxation of energy.[6]

The *Policy Options* paper does not attempt to surround a risky and far-reaching but inevitable measure (the CO_2/energy tax) with some alleged benefits in order to make an inevitable evil less hard to adopt or to avoid the rejection of the proposed strategy because of its high costs to the economy. Instead, it conveys a new way of seeing environmental problems. In *classic environmental policy*, measures with potential losses for the economy have to be justified by the severity of the damage or the size of the risk: the greater the danger, the more society is likely to be willing to pay. *Sustainability* challenges the very notion of 'loss': Environmental protection measures can be taken and be profitable. Modernisation does, however, not only refer to a potential for economic actors but also to the means of environmental policy. The *Policy Options* paper hardly speaks of regulation, the classic instrument of environmental policy but extensively uses terms of the market economy.

In explaining the choice of the central policy instrument, the tax, the paper states:

> Economic analysis and recent Community experience have shown the crucial importance of expectations for economic performance and efficiency, which in turn depend crucially on the clarity and timeliness of economic signals (Commission, 1991f, para. 7).

Later, it goes on to say that the major advantage of a tax 'would be to give the market price signals' (Commission, 1991f, para. 17).

These are the keywords for the frame-shift in EC environmental policy. 'Competitiveness of EC industry', 'correct price signals', 'internalisation of environmental costs', and, again and again: 'efficiency', symbolise the departure from *classic environmental policy* towards *sustainability*. These references do not suggest anymore a costly environmental protection regulation which has to be adopted against the resistance of industry but are reminiscent of a strategy of industrial policy designed for the EC's competitive position in the world market and as a by-product contributing to the stabilisation of carbon dioxide emissions. Environmental policy as a 'new industrial strategy' has indeed been discussed within the Commission and strong formulations in this respect can be found in earlier versions of the *Community Strategy* (Commission, 1990d, p. 2, Commission, 1991b, Commission, 1991d, paras 26-27).

The strong symbolic connotations of 'progress' and 'modernisation' contained in the *sustainability* frame as put forward by the Commission have been linked in the policy options paper to the leadership concept. The introduction of a strategy to limit CO_2 emissions and in particular the adoption of the tax on energy or on CO_2, the paper argues, would necessitate that the Community adopts a leadership role (Commission, 1991f, paras 6 and 7). 'Leadership' has an internal and an external

dimension. Internally, it justifies that the Community – as opposed to the member states – takes action in the field of the greenhouse effect. Although the Council had in October 1990 adopted a Community target for the stabilisation of CO_2 emissions, this does not automatically have legal implications in the sense that a Community *target* has to be reached by Community *policy measures*. On the contrary, a *Community* target could also be reached by the mere co-ordination of separate *national* programmes (and thus considerably diminish the role of the Commission). In other words, the fact that a policy goal (the stabilisation of CO_2 emissions) is to be reached by policy measures on the basis of *sustainability* does not have implications for the institutional aspects of these measures, i.e. whether they are based on *supranational integration* or on *member state dominance*.

A Community competence could be justified by the Commission by re ferring to possible distortions of the internal market of the EC resulting from the adoption of national policies. This is a standard justification for new Community policies and has also been used in the *Policy Options* paper (Commission, 1991f, para 6). Associating this argument with the leadership idea gives it an unusually strong symbolic element.

For the Commission, the leadership role of the Community had also to be assumed in relation to the introduction of economic instruments. A policy to limit CO_2 emissions requires major interventions in economic activity (which are not equal to losses), the paper argues and has therefore to be introduced carefully and gradually, if it is not to impede economic performance and efficiency. Interventions in the EC's internal market from the outs et require the Community level as the appropriate institutional level. Again, the introduction of a market based strategy (i.e. an environmental policy based on *sustainability*) is associated with Community leadership. In this context, 'leadership' also invokes images of the uniting of all forces for common problem-solving, in particular for huge problems such as the greenhouse effect. The Commis sion states: 'A *coherent* Community signal would certainly have a *particularly powerful* effect in this respect' (Commission, 1991f, para. 7, emphasis added). United we stand to solve the world's environmental problems!

Finally, the Commission stresses the external importance of the leadership idea. The reluctance of the US to adhere to the stabilisation objective is deplored in this regard and presented as a danger to the EC's greenhouse policy: due to the nature of the world climate as a true collective good, the EC by itself has only a limited influence on the maintenance of this good. Although the EC finds itself in the company of 'nearly all industrialised countries' (Commission, 1991f, para. 1), the 'bad example' of the US might be taken by others as a pretext for non-action. 'Consequently, the Community has an overwhelming interest to induce through its proper action policy changes in third countries' (Commission, 1991f, para. 8): It has to take the lead for the other industrialised countries.

In its *Policy Options* paper, the Commission adopted a strategy which linked *sustainability* with 'leadership'. Whereas the *sustainability* frame reflects a new interpretation of environmental policy within the Commission and demands the

same frame shift from the member states, 'environmental leadership' links this new and far-reaching action frame to the old quest for European self assertion in world politics (c.f. pp. 107 seq.). Within *sustainability*, a Community strategy to combat the greenhouse effect does not only make sense in terms of nature conservation and moral responsibility but also pays economically. *Sustainability* demands leadership of the Community, both internally and externally. On the other hand, sustainability also contributes to leadership by contributing to the modernisation of the Community's industry in the world-wide economic competition.

Sustainability and *supranational integration*, the new action frame and the older one, are thus strongly linked in the Commission's first strategy paper. The strategy against the greenhouse effect is thus at least partly also a strategy to achieve integration, and the negotiations about the greenhouse effect in the Council are in part also negotiations about the strengthening of the Community or the assertion of member states. This link marked the development of the Commission's own discussions until the submission of the final version of the *Community Strategy* as well as the debates in the Council.

The drafts of the Community Strategy

The first drafts of the Commission document on 'A Community Strategy to limit Carbon Dioxide Emissions and to Improve Energy Efficiency' (Commission, 1991b, hereinafter referred to as *Community Strategy*) stressed even more the mutually reinforcing nature of a CO_2 stabilisation policy, industrial competitiveness and environmental leadership. The political package comprising these elements is a so-called 'no-regret strategy', i.e. a strategy which serves 'at the same time energy, economic and environmental goals' (Commission, 1991d, para 20). Such a strategy was supposed to achieve a 'more secure' energy supply, an 'improved overall environmental quality', a 'dynamic industrial strategy' and a 'transport system with regard for the environment' (Commission, 1991d, paras 22-30). The Community strategy to reduce CO_2 emissions is presented here as a comprehensive set of measures which only partly enter the realm of environmental policy. As the paper was written shortly after the Gulf War, energy security is the first aim of the strategy whereas an 'improved overall environmental quality' receives less at-tention. The argument that a CO_2 stabilisation policy would be a 'dynamic industrial strategy' is even reinforced by pointing to the example of Germany and Japan which – according to the draft – already profit from a first mover advantage (Commission, 1991d, para. 27). The necessity of an offensive industrial strategy is even further stressed by reference to the 'Japanese challenge', a favourite theme of EC technology and industrial policy. Japan has already on one occasion put in place a successful industrial strategy (in the field of microelectronics), this argument suggests, and it might start a new one in the field of the environment. In order to avoid economic inferiority in an economic sector which will be important in the future, the comprehensive strategy for stabilising CO_2 emissions contains the necessary means (Commission, 1991d, paras 43-47). The proposed tax on energy

and CO_2 is also presented as allowing economic reform to increase competitiveness. The revenues from the tax, the Commission recommends, should be used to lower the tax burden on labour (Commission, 1991d, para. 75, c.f. von Weizsäcker, 1989, von Weizsäcker, 1992).

The final Community Strategy

Whereas earlier drafts of the *Community strategy* present an almost enthusiastic picture of the opportunities provided by a CO_2 stabilisation policy in the *sustainability* framework, the final version of the *Community strategy* which was sent to the Council contained a much more 'realistic' package of reasons. The proposed action, however, remained largely unchanged. This is an indication that the Commission wanted to avoid the clash of views in the Council when an optimistic communication on the CO_2 stabilisation strategy, based on the *sustainability* frame, was confronted with a number of member states defining the problem in terms of *classic environmental policy* and thus having a much more negative view of its costs and benefits. In order to convince those member states, the Commission lowered its optimistic tone adopted in earlier drafts which had hardly spoken of the disadvantages of the Community strategy, or played them down as 'transitory costs'.

This constitutes a change of the presentation, not of the underlying *sustainability* frame. The basic elements of the strategy as defined in the *Policy Options* paper are still present, as well as the link between *sustainability* and *supranational integration*. The EC, according to this argument, must shoulder the responsibilities stemming from its role in the world economy:

> With the completion of the Internal Market, the European Community will be the biggest economic/trading partner in the world with the potential to exercise an important level of moral, economic and political influence and authority. As such the Community owes it to both present and future generations to put its own house in order and to provide both leadership and example to developed and developing countries alike in relation to protection of the environment and the sustainable use of natural resources (Commission, 1991b, para. 4).[7]

Given its responsibilities, the EC has 'to fill a current vacuum in global foreign policy and a catalytic role in regard to the Global Climate Convention to be adopted at the UNCED Earth Summit in June 1992' (Commisson, 1991b, para. 4). Thus, the Commission had decided to make 'leadership' one of the central arguments of its strategy.

Virtually the entire remainder of the document is devoted to economic discussions in order to refute the expected claim on the basis of *classic environmental policy* that the *Community Strategy* would involve enormous costs, hamper economic growth and endanger the position of the EC's industry on the world markets. To this end, the principle of a no-regret strategy, i.e. to adopt measures

which would not involve major overall economic costs but have benefits in other policy areas is maintained (Commission, 1991b, para. 8) although the language used is much more careful, avoiding the strong wordings used in the earlier draft of the strategy which reflected much more clearly the underlying *sustainability* frame. The key arguments in favour of the tax are still strongly embedded in *classic environmental policy.* Although the tax revenue would be enormous (some 50 billion ECU per year), the Commission claims that its gradual introduction and the requirement of fiscal neutrality would lead only to a small increase in inflation (0.3-0.5 per cent and year) and a small reduction of economic growth (0.05-0.1 per cent). The economic modelling exercises on which these estimations are based do not take into account positive effects in other policy areas (Commission, 1991b, para. 29). They are thus presented as conservative estimates on the basis of *classic environmental policy*. As a whole, still, the Commission claims that the 'overall strategy ... can stand on its own and have positive benefits for the Community' (Commission, 1991b, para. 36).

The final version of the *Community strategy* departs from earlier drafts because of the less radical exposure of the *sustainability* frame. In order to find political acceptance in the Council, it introduces three elements into the strategy: complementary national programmes, burden sharing and exemptions for energy intensive industries. The two former refer to elements of *member state dominance*, the latter is a qualification of *sustainability*. The concept of burden sharing reflects the acknowledgement that the introduction of the greenhouse strategy would create transition costs which are likely to hit the less developed countries in the EC most heavily. Burden sharing evokes a basic bargain of the EC which consists in the agreement of the less developed EC countries (Spain, Portugal, Greece, Ireland) to accept policies which put heavy burdens on them on the condition that the more advanced countries (France, the Benelux countries, Denmark, Germany and the UK) provide compensation, usually in the form of financial redistribution by the EC's structural funds. Although the extent of burden sharing is not quantified, the Commission acknowledges its necessity and explicitly mentions the structural funds in this context.

The introduction of burden sharing also acknowledges the failure of the earlier concept of 'target sharing', which had consisted in fixing individual CO_2 emission targets for each country in the year 2000 (Commission, 1991g, Commission, 1991h). This concept would have put a stricter obligation on individual member states than an overall Community target. Due to the resistance of France, Italy and the UK, it was dropped from earlier drafts (Jachtenfuchs/Huber, 1993). Burden sharing invokes the idea of Community solidarity in the case of far-reaching measures and is thus a necessary ingredient of compromises in the Council. It is also in indication that the Commission did not consider its 'offensive industrial strategy' of earlier drafts of the Community strategy convincing enough to argue that burden sharing (which invokes the resistance of the more developed member states which have to pay the bill) is not necessary at all because the temporary burden created by the

imposition of the strategy would easily be outweighed by the benefits re sulting from it.

Complementary national measures also concern integration but not in the form of horizontal redistribution but in the form of the vertical balance of power between the national and the European level. Whereas the earlier drafts of the Commission's strategy had foreseen a strong Community dimension of the proposed strategy in line with *supranational integration*, leaving little space for national measures which were already considered in some member states (e.g. Bundesminister für Umwelt, 1992, Belgium, Denmark, and the Netherlands had also pledged to reduce their CO_2 emissions), the final version of the strategy explicitly acknowledged the legitimacy and necessity of these plans. By doing so, it opened up possibilities for a further differentia tion of the CO_2 stabilisation policy in terms of measures. As a whole, however, the distinctive feature of the greenhouse strategy with regard to *supranational integration*, the claim for environmental leadership, has been main - tained.

The third element introduced by the Commission in order to make its strategy acceptable in the Council is an exemption of energy-intensive industries from the proposed energy/CO_2 tax. This exemption is the result of the intensive lobbying campaign of industry against the proposed tax, which had convinced those services of the Commission which shared the *classic environmental policy* frame. Exempting energy-intensive industries from the proposed tax contradicts the Commission's strong programmatic statements on the internalisation of environmental costs (which are the highest in the sec tors now exempted) and on the polluter-pays -principle, although it is true that energy-intensive industries were exempted from the tax but not from all measures under the Community strategy (e.g. Commission, 1991b, para. 22). These conceptual contradictions reflect the compromise nature of the Community strategy which had been debated among the Commission's services. Within the Commission, only some DGs shared the *sustainability* frame whereas those departments associated with traditional industrial policy – and thus with the complementary image of *classic environmental policy* from the point of view of economic policy –, such as the directorate general responsible for the internal market, resisted the wholehearted adoption of *sustainability* as the basis for the Community strategy and obtained an exemption at least in a sector considered vital by them.

As a whole, the *Community strategy* reflects a competition of frames within the Commission. In large parts, it is based on the *sustainability* frame and on a link of this frame with *supranational integration* in the form of the adoption of the environmental leadership principle. The diffusion of the *sustainability* frame in the Commission is, however, not complete. A core element of the strategy, the exemption of energy intensive industries from the proposed CO_2/energy tax, reflects a persistence of the *classic environmental policy* frame as well as a desire to avoid putting forward a radical strategy in order to ease its adoption in the Council where *classic environmental policy* prevailed.

The Commission's problem definition

The Commission's strategy to reduce CO_2 emissions has been conceived on the basis of a *sustainability* frame. Within the Commission, *sustainability* was particularly successful because it allowed new and different policies while at the same time contributing to further integration. For the Commission, *sustainability* was thus linked to *supranational integration*. The final version of the 'Community Strategy' introduced elements which are characteristic of *classic environmental policy* only for tactical reasons in order to ease the chances of the policy package being accepted within the Council and by industry, and, though to a lesser degree, by the industry-oriented directorate-generals of the Commission.

Sustainability and the corresponding frame in the field of energy policy, *energetics*, allowed some old policies to be reconceptualised and new ones to be invented in a way that was able to cope with new problems (the greenhouse effect), that proved to be resistant against challenges (the increase in oil prices preceding the Gulf war) and had, after all, the potential to further integration. As a result of the shift from *classic environmental policy* to *sustainability* within the Commission, the emerging strategy to deal with the greenhouse effect was to a large degree decoupled from natural scientific knowledge. At the latest since the end of 1990, natural sciences have not played any role in the process of framing the greenhouse effect or in the policy proposals based on this problem definition.

Instead, energy policy occupied a prominent place in the emerging strategy. Explaining this increased role of energy policy in terms of 'issue linkage' would, however, only give a partial explanation of its prominence without being able to answer the question why it was precisely energy policy that became so important in the Commission's strategy. A possible answer would be to point to the crucial role of energy production as a source of carbon-dioxide emissions. Any strategy to stabilise or to reduce carbon-dioxide emissions, according to this argument – which was also used by the Commission – had to address the energy issue. However, strong reasons speak against the inclusion of energy policy in a strategy to deal with the greenhouse effect. Community energy policy had been agonising for two decades despite strong reasons for such a policy. The turbulence on the oil markets at the time of the adoption of the Community strategy only highlighted the experiences of the past. Linking the fight against the greenhouse effect to energy policy in the way the Commission has done in the *Community Strategy* would thus risk the failure of the entire strategy instead of enhancing its chances of adoption. Thus, the inclusion of energy policy in the Community Strategy cannot be explained by an act of choice but by the redefinition and reconceptualisation of these policies within the Commission.

In the case of energy policy, this change offered new possibilities not only for the Commission's emerging strategy to deal with the greenhouse effect but at the same time gave new directions for energy policy by re-interpreting it in a different conceptual framework. The key to the understanding of this redefinition is the link of energy policy and *supranational integration*. The new *energetics* frame did not

only provide the basis for a new energy policy but for a new *Community* energy policy. Improving energy efficiency, the central element of this strategy, was not so closely linked to the preservation of national sovereignty as earlier attempts of energy saving with the aim of reducing the EC's dependency on imported fuels had been. Whereas this policy had been conceived in a *conservation* framework of energy policy, 'improving energy efficiency' as a policy goal avoided the issue of national energy security and tried to achieve similar aims by other means. In this logic, the improvement of energy efficiency did not appear as a strategy of 'high politics', closely linked to national security, but as a policy of industrial modernisation which would at the same time reduce the EC's dependency on outside energy and contribute to environmental protection. In this conceptual framework, energy policy could contribute to technological modernisation, one of the professed aims of the Commission's economic policy.

A new energy policy as a policy of economic and industrial modernisation supported the idea of the European Community as a new type of international organisation or state-like entity, not dominated any more by traditional concerns of foreign and security policy but instead presenting itself as a 'civilian power' (Kohnstamm and Hager, 1973; for a critical view, c.f. Galtung, 1973, Galtung, 1989). In these 'modern' and 'civilian' domains, the EC attempts to provide leadership. One reason why the leadership idea did not emerge in traditional areas of foreign policy is the obvious fact that the EC does not have the means to challenge the position of the United States in these areas. A more profound reason is that 'environmental leadership' corresponds to the self-definition of the EC as it was conceived by the Commission. Leadership in the field of the environment is again leadership in a modern policy field. As in the UNCED process, the field in which the EC tried to apply the leadership concept externally, environment and development were closely linked, leadership in the field of climate change policy was also a contribution to the North-South dialogue and a means of showing the EC's readiness to pursue a policy of co-operation and solidarity with the South. As in the field of energy policy, where *energetics* could justify new policy measures by the *Community*, 'environmental leadership' resonated well with *supranational integration*.

This is also true for the proposal of a tax on carbon-dioxide and on energy use as the most important single policy measure to meet the self-imposed goal to stabilise CO_2 emissions of the EC by the year 2000. The tax fitted the vision of the policy-making competencies of the EC conceived from a *supranational integration* point of view and at the same time was in accordance with the strong frame of *liberal market economy* within the Commission. At the same time, it was – at least in principle – able to help solve the implementation problems of EC environmental legislation. The tax made it possible to consider environmental problems and the fight against them from the perspective of the market economy and thus extended the general *raison d'être* of the European *Economic* Community to the field of the environment, which had since its beginning been characterised by strong regulation instead of the deregulation characteristic of the internal market

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programme. By doing so, the proposal of the tax and the emerging frame of *sustainability* for the Commission's approach to environmental policy included the more economic- and industry-oriented directorate-generals of the Commission in the policy-process and thus opened the actor space of the Commission's greenhouse policy, which was not restricted to the environmental policy community anymore. Only for tactical reasons did the final strategy paper of the Commission drop the presentation of the strategy as a policy of industrial modernisation (which had still been included in earlier drafts) and exempted energy-intensive industries under certain conditions from the proposed tax.

In the end, the debate and the problem had become an economic one. The questions asked were not directed any more at the natural scientific nature of the problem. Instead, they attempted to find out which type of action could cope with the problem at stake but could at the same time be justified on other grounds (e.g. by referring to increased standards of living, to the international competitiveness of the EC's industry, to the security of energy supply or to the enhanced international status of the EC). The reason for this frame shift is that the new frame of *sustainability*, which now characterised the Commission's way of presenting the greenhouse effect, did not only provide better (political) solutions to the initial problem. In addition, it allowed a better integration of the Commission's policy with two fundamental frames of the EC from the Commission's point of view, namely *liberal market economy* and in particular *supranational integration*. As a result of the link to the latter, the Commission's greenhouse policy and the tax in particular involved more than a single policy field but the identity of the Community. For the Commission, this has been a major driving force behind its proposals. In the Council, it later became a main reason for the resistance against the Commission's strategy.

Notes

1.   In international environmental negotiations, politicians can compromise about limit values for certain chemicals. Natural scientists, however, cannot compromise about whether these substances cause damage or not. I owe this observation to Winfried Lang.

2.   For instance the 'délégation bicéphale', with the Council presidency and the Commission both representing the Community.

3.   This part relies heavily on interviews with Commission officials, my experience during a traineeship at the Commission's Forward Studies Unit from October 1990 to February 1991 and on discussions with members of the *Global Warming Policy Analysis Group* at the European University Institute.

4.   The regulation of 1988 on the financing of the Community budget foresaw – in long-winded expressions even for diplomatic usage – the possibility of a 'fifth resource' for the EC budget. One of the possibilities discussed at the time was a tax on energy (see Council, 1988b, p. 24 seq., Art. 2).

[5].   On the concept of 'cultural resonance' c.f. Gamson/Modigliani, 1989. *Deregulation* is used here to give a label to a frame and does not relate to the debate on deregulation in the context of regulatory policy-making. Whether 'deregulation' in fact leads to less regulation or just to different regulation is disputed (Majone, 1990).

[6].   A tax on CO_2 (more exactly on the carbon content of fuels) hits coal the most, followed by oil and gas. As nuclear energy would not be taxed at all, a pure carbon tax would be a strong boost for nuclear power. In the long run, a pure carbon tax would heavily penalise coal and lead to a 'fuel switch' to gas and nuclear energy. A pure energy tax would hit all sources of energy to the same degree and thus prevent the substitution of one energy source by another. Instead, it would work as an incentive for energy saving. The seemingly technical debate on a CO_2 or energy tax thus reopens the debate on nuclear energy. In order to avoid this debate, the Commission has from the outset proposed a mix of both.

[7].   The wording is almost literally taken from European Council, 1990.

After the unanimous adoption of the 'Community Strategy to Limit Carbon Dioxide Emissions and to Improve Energy Efficiency' by the Commission in September 1991, the Commission had presented the greenhouse effect and the policy measures deemed necessary in order to cope with it in terms of *sustainability*. After the publication of the 'Community Strategy', the Commission elaborated measures to implement the strategy paper. In addition, the strategy and the proposed measures were discussed in the Council as well as by industry. The task of this section is to analyse the different problem definitions of Commission, Council, and industry. After the publication of the Commission's strategy paper, negotiations on the future greenhouse policy of the EC were conducted on this basis. Instead of presenting an analysis of this process as a process of bargaining (or as a multi-level game), I will try to present this phase of the EC's greenhouse policy as a process of arguing in which different actors try to promote new problem definitions viz. new action frames. The main thesis is that the Commission has adopted a new problem definition – *sustainability* – which is slowly and hesitantly being accepted by parts of the Council and by industry. This new problem definition is not limited to the greenhouse effect but extends to environmental policy-making as such. In other words, a learning process is taking place in the EC which involves a reconceptualisation of environmental policy making in general and which is promoted by the Commission. The Commission, on the other hand, is most advanced in this learning process because of its placement in the EC's institutional structure.

A caveat is important here. The subject of this study is the process of defining and redefining the greenhouse effect in the EC system. It is not a case study on the introduction of a CO_2 tax. Although the plan to introduce a carbon/energy tax has played a most prominent role in the public debate after the publication of the 'Community strategy', the tax is a policy tool adopted *on the basis* of a new problem definition and even an important means to put this problem definition into political practice but it is not the problem definition itself. The fact that the tax – at the time of writing – has not been adopted as it was proposed by the Commission is

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without doubt a defeat for the latter but it does not put into question the new problem definition and the learning process going on in EC environmental policy.

The Commission: towards sustainability

The first part of this section deals with the way the Commission's new problem definition of the greenhouse effect found its way into the proposals for the implementation of its strategy paper. As a whole, these proposals make important concessions to *classic environmental policy*, reflecting on the one hand the on-going debate within the Commission and on the other hand tactical moves to ease the adoption of these measures. On the other hand, *sustainability* in this phase became the basis of the Commission's approach to environmental policy as a whole and in particular to those areas which are relevant for the greenhouse effect. This is the subject of the second part of this section.

Implementing the greenhouse strategy

Due to its institutional and possible economic implications, the proposed tax on CO_2 emissions and on energy became the most controversial part of the Commission's strategy.[1] It had been introduced by Environment Commissioner Ripa di Meana as a means of promoting *sustainability* and EC leadership in global environmental affairs. The tax was conceived as the predecessor of a whole series of economic instruments for environmental protection. If the tax was accepted despite its far-reaching character against the background of the threatening greenhouse effect, DG XI was convinced there would be no further resistance in the Council or in industry-oriented DGs of the Commission. For this reason, DG XI and DG XVII, the main proponents of the tax within the Commission, were willing to make virtually any sacrifice in the concrete shape of the tax if only the principle was adopted. The intensive lobbying of industry and the strong resistance of some member states, as well as the resistance of industry-oriented directorate generals within the Commission, such as DG XXI and DG III, had already led to the exemption of 'energy-intensive industries' from the proposed tax in the first version of the Community strategy (Commission, 1991b, para. 22). From the point of view of the internalisation of external costs (i.e. from the point of view of *sustainability*), this is a flagrant contradiction as those industries which contribute most to the greenhouse effect are not forced to shoulder the costs they incur on the environment. It is instead the result of the balancing of environmental benefits and economic disadvantages which is typical of *classic environmental policy*. The fact that energy-intensive industries were exempted from the tax highlights that the DGs promoting *sustainability* had been unable to convince their colleagues that a modernisation of taxation by introducing environmental factors would also lead to economic modernisation (e.g. to the development of less energy-consuming technologies for the industries concerned). This part of the proposal thus

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reproduces the opposition between the environment and the economy which characterises *classic environmental policy.*

The concrete proposal of the tax, presented shortly before the Rio summit in June 1992, went even a step further in the direction of *classic environmental policy* by adding the 'conditionality' clause to the proposal. 'Conditionality' in this context means that the EC makes the introduction of the tax dependent on the introduction of measures with equivalent financial impacts by the other member states of the OECD, in particular the US and Japan. Although the possibility of a later unilateral introduction of the tax is not ruled out,[2] the conditionality clause invalidates the Commission's *environmental* leadership concept by making one of its core elements in fact dependent on the decision of the United States, which had in the past repeatedly rejected the tax proposal. As a result, Commissioner Ripa di Meana, after having invested a lot of personal prestige into the leadership concept and the tax proposal refused to participate in the Rio summit and eventually left his office. The EC's position at UNCED was thus considerably weakened.

According to the Commission's estimations, CO_2 emissions in the EC are likely to rise by twelve per cent compared to 1990 levels in the absence of any measures. 'Conventional' measures (energy saving, research and technological development) are supposed to lower this projected increase by 5.5 per cent. The remaining 6.5 per cent has to be achieved by fiscal measures and national programmes complementary to the Community programmes (Commission, 1992a, para. 16). National programmes, only four of which existed in mid-1992 and which were originally given a minor place in the Commission's strategy (Bundesminister für Umwelt, 1992), occupy a more important role as a consequence of the discussions on 'subsidiarity' preceding and following the Maastricht summit of December 1991. In this respect, the Commission had to redefine its own role: although in principle competent for dealing with global environmental problems, the shift from *supranational integration* towards *member state dominance* has had its consequences. During the elaboration of its strategy, the Commission had thus to redefine its response strategy by taking the new interpretation of subsidiarity into account. This change cannot be explained by the nature of the problem (the greenhouse effect) but only with reference to the conceptualisation of European integration by the Commission on the one hand and the Council (to varying degrees) on the other. In theory, the EC's stabilisation target could be met either by exclusively relying on Community policy instruments (e.g. a tax, energy-saving programmes, etc.) or by merely fixing national targets which meet the overall target if taken together. The choice of either possibility and of the varying mixtures between the two extremes depends instead on the way in which the role of the European Community is seen with respect to the nation state, in other words, how integration is framed. The debate about the role and structure of the EC, reanimated by the Maastricht summit, thus has consequences for the EC's greenhouse policy. Although the Commission favours *supranational integration*, which implies common problem-solving and international solidarity, it increasingly took account

of the strengthening of *member state dominance*, which insists on the priority of national sovereignty over supra national problem-solving.

The tax proposal has met with considerable resistance both within and outside the Commission. Although those DGs of the Commission which were in favour of the tax tried to promote it in parallel with a reinterpretation of its significance (i.e. together with the *sustainability* frame) as the only means of achieving its acceptance, they only achieved an acceptance of the principle of the tax in the context of a strategy which is in large parts marked by *sustainability* but has also strong elements of *classic environmental policy*, in particular with regard to the economic consequences of the tax. With regard to the tax, the new version of the Community strategy and the tax proposal itself are transitory documents reflecting an incomplete frame shift. Therefore, the new version of the Community strategy in particular looks incoherent and even contradictory. On the one hand, it speaks of important benefits for the Community industries and almost no negative impact on the economy but on the other hand makes the adoption of these beneficial or at least neutral measures dependent on their adoption by the EC's main competitors (Commission, 1992a, paras. 19 and 27-28).

With regard to energy, the *sustainability* frame is more visible in the concrete policy proposals. Energy policy had from the outset been a central element of the Commission's greenhouse strategy. In order to put it into practice, the Commission proposed two types of measures, namely the promotion of renewable energy sources emitting no or very little carbon dioxide and increased energy saving. The new proposal on energy saving has been proposed in the framework of the existing SAVE programme (Commission, 1992i). Here, *supply* as the old energy policy frame has been replaced by *energetics* and elements of *conservation*.

As a result of the increasing influence of the discussion on the internalisation of environmental costs (i.e. of an element of *sustainability*), the Commission moved even further towards *energetics* by presenting a programme for the promotion of renewable energy sources (ALTENER). In its own understanding, the programme does not attempt to give subsidies to energy sources which are not profitable under market conditions for environmental reasons but endeavours to correct market failures which make these energy sources uncompetitive (Commission, 1992j, para. 17).

According to *energetics*, market failures in the field of energy policy are not only to be corrected by active policies such as the ALTENER programme but also by modifications of the tax structure. Whereas the CO_2/energy tax has been designed to attribute environmental costs to those who produce them, tax reductions for environmentally benign sources of energy serve the same effect and follow the same reasoning. In its proposal to reduce the rates of excise duties on motor fuels produced of agricultural sources, the Commission is anxious to explain this argument:

> The tax advantage proposed cannot therefore be regarded as aid to a sector in structural deficit, it being designed instead to create conditions favourable to

the investment necessary to enable an industry which will eventually be intrinsically viable to take off (Commission, 1992h, p. 3).

As a result of the spread of *sustainability* in the debate about the greenhouse effect, EC energy policy is to a large extent characterised by *conservation* and even *energetics* instead of the *supply* frame. This does not mean that traditional goals of energy policy, such as the security of supply, have completely vanished from the political agenda. Instead, they have become reformulated and reinterpreted in a new conceptual setting. After dropping the distinctive feature of *supply*, the requirement to meet the energy demands of the economy which were considered to be 'correct' and 'natural', the new frame of *energetics* is able to integrate old goals as well as new ones. The old goal of the security of supply is thus easier to achieve if it does not mean the security of *any kind* of supply irrespective of its source. If the split among energy sources is subject to change through active government intervention (or by the EC), the security of supply can be better met by promoting domestic energy sources, such as renewables, instead of having to rely on imported fuels from unstable regions of the world.

Energetics also allows new goals to be achieved, such as finding outlets for the surpluses of the EC's common agricultural policy (CAP). In the course of the new CAP reform (COM (92) 100), farmers are expected to produce lower quantities of products for human consumption in order to limit subsidies and to avoid trade conflicts within GATT. One way to compensate them for the resulting loss of income is to produce agricultural goods for *industrial* consumption (Commission, 1992b, Caspari and Neville-Rolfe, 1989). The frame shift from *supply* to *energetics* should thus not be misinterpreted in an idealistic way, for instance in the sense that *energetics* would be better for the environment and that policies adopted with reference to *energetics* were designed to serve environmental purposes first. However, the opposite conclusion should also be avoided, namely that the 'real' reason behind the EC policy to promote the use of agricultural energy sources were the 'agricultural lobby', in other words, interests instead of ideas.

Analysing frames does not exclude the existence of organised interests with specific goals (such as agro-industrial firms engaged in the production of agricultural fuels in an alliance with farmers' organisations searching for new income possibilities). The crucial point is that the new frame can integrate this concern much easier than *supply*. In addition, it gives an important symbolic device to the proponents of agricultural energy sources ('bio-fuels', 'bio-mass'). In this way, fuels, a source of pollution and exploitation of depletable resources, become less harmful and even contribute to the solution of a major environmental problem (the greenhouse effect). So do their producers who are often associated with overproduction and subsidies. 'Bio-fuels' can exist within *supply* but they remain hopelessly uneconomic. Only the *energetics* frame includes a recalculation of economic costs and benefits and thus makes it possible to engage into a large-scale exploitation of agricultural energy.

The programmatic change of environmental policy

Within the Commission, *sustainability* has increasingly marked the strategies to deal with the greenhouse effect. For DG XI and DG XVII in particular, it became an action frame which allowed the redefinition of old goals and policies and the addition of new ones which had been unsuccessful in the frame work of *classic environmental policy* or even inconceivable. Whereas the proposal of a combined CO_2/energy tax, originally intended as a spearhead of *sustainability*, had in reality been at least partly counterproductive in the sense that the resistance against the proposal of a tax extended to resistance against the frame behind it, *sustainability* became the basis for a fundamental programmatic shift of EC environmental policy. In other words, the learning process which had started with regard to the Commission's greenhouse policy became generalised to environmental policy-making.

This change, which had been prepared by the discussion on economic in-struments in environmental policy, culminates in the Fifth Environmental Action Programme. The title of the programme, which sets out a strategy for the EC's environmental policy up till the end of the decade, is already a programmatic statement: 'Towards Sustainability'. Whereas earlier environmental action programmes had mainly consisted in an inventory of environmental problems and a list of legal measures to tackle them (Council, 1973; Council, 1977; Council, 1983; Council, 1987b), the Fifth Action Programme is much more programmatic in character and puts great emphasis on laying the conceptual foundations of a new approach to environmental policy-making. The new EC environmental policy conceived on the basis of this programme shall enable the Community to take the leadership role in international environmental affairs which had originally been linked to its greenhouse policy and to the carbon/energy tax (Commission, 1992c, p. 4).

'Leadership' has thus been transferred from a specific issue (the greenhouse effect) to the totality of EC environmental policy. As an indication of the trend to base the EC's environmental leadership claims decreasingly on action in the international field but on the totality of its policy, the brief section of the programme on the international role of the Community is confined to a general statement of some problems of a world-wide nature, such as resource depletion, pollution and population growth. The reported urgency of those problems does not find an expression in the instruments the EC has at stake to contribute to the solution of those problems, except for a general reference to the Maastricht Treaty on the European Union which gives the EC an explicit competence to deal with global environmental problems (Art. 130r, 1) (Commission, 1992c, pp. 84 seq.). 'Leadership' is not based any more on concrete policy measures as originally intended with the unilateral introduction of the CO_2/energy tax, but could be labelled 'conceptual leadership' instead.

On the other hand, virtually any aspect of the entire programme is discussed with reference to subsidiarity. Subsidiarity also finds its expression in the concept

of 'common responsibility', which had already appeared in the environmental imperative declaration of the Dublin European Council of June 1990 (European Council, 1990, c.f. pp. 109 seq. of this study). 'Common responsibility' means that problems shall as far as appropriate be tackled by the three levels of government in the EC (Community, member states, and local or regional authorities) as well as by economic enterprises and the consumer or the public. In contrast to earlier notions of 'common problem solving' which had justified a shift of competencies to the highest institutional level (i.e. to the Community level) by referring to the magnitude of the problem which could not be solved by nation states alone, 'common responsibility' indicates a downward shift of the preferred institutional level for problem-solving (Commission, 1992c, pp. 74 and 91) and does not anymore automatically reserve a major role for the Community. 'Leadership' as a concept for the EC's greenhouse policy has vanished from the part dealing with climate change (Commission, 1992c, pp. 82 seq.); with respect to UNCED, the EC does not attempt any more to play a leading role but merely an 'active' one (Commission, 1992c, p. 99). As a result of the debate on subsidiarity and the institutional level of problem solving, the Commission had considerably weakened its leadership concept and extended its scope. 'Leadership' in international environmental affairs does not anymore convey the image of the Commission leading the Community and the Community's leadership role with regard to the US and Japan.

In the Fifth Action Programme, 'leadership' has been transformed from an active policy to a state of affairs. Instead of leading the world towards a sustainable future, the Commission now only proposes a concept of environmental policy-making which – if it is applied *internally* – will enable the Community to lead a ranking of states and organisations with regard to environmental policy-making. In terms of the framing of integration, this is an indication of a weakening of more radical positions on the basis of *supranational integration* and at the same time an attempt to avoid *member state dominance*, which would in the last resort reduce the Commission's role to one of a secretariat of an international organisation. With regard to the cognitive aspect of the frame, environmental problems are not seen anymore as almost automatically demanding a harmonised Community response. The symbolic element of common problem-solving has been transformed from the image of an alliance of nation-states under the leadership of the Commission (according to the motto 'united we stand') to the common responsibility of three central groups of society, namely the state (including the EC level), the economy (enterprises) and the citizen (as consumer or organised in non-governmental organisations). 'Leadership' can thus formally be upheld, and concessions to *member state dominance* be made with a minimum loss of Community involvement in environmental policy.

Concerning the frame for environmental policy-making, the Fifth Action Programme is entirely marked by *sustainability*. The programme's main aim is to achieve the integration of environmental policy considerations into other policies of Community relevance. This demand, already formulated by the Single European Act in 1986 (art. 130r, 2), but pursued with little success in the meantime, is difficult to

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achieve in *classic environmental policy*, which separates environmental and economic concerns, policies, and actors. However, it forms the core of *sustainability*, which considers the environment and the economy as an inseparable unit. Central new elements of the programme have come from the debate on the greenhouse effect and the slow emergence of *sustainability* in this context. The overwhelming importance of climate change as *the* 'environmental' problem of the coming decades is mentioned frequently in the document. Energy policy, one of the priority areas of the EC's greenhouse policy, is one of the five priority areas which shall be reformed in the direction of *sustainability*, together with transportation, which is also gaining importance in the debate on the greenhouse effect.

Besides influencing the choice of two out of five priority areas of the new programme, the debate on the greenhouse effect has also influenced the choice of instruments and is an important reason for the emphasis on the correction of market failures and 'environmentally efficient pricing' (Commission, 1992c, pp. 67 seq.) in the programme. Whereas the earlier environmental action programmes had almost exclusively relied on command-and-control methods (i.e. on law) to correct market failures leading to pollution and resource over-consumption, the new action programme attempts to correct market failures by 'market conform' instruments such as taxes, levies, tax incentives, subsidies and environmental auditing. A crucial element in the political feasibility of the proposed measures are costs. In the same way as has been tried with regard to the greenhouse effect, a new 'environmental' cost-benefit analysis is intended to contribute to a different assessment of advantages and disadvantages of environmental policy measures or of the reform of the five key policies enumerated in the document. 'Traditional' command-and-control measures (on the basis of *classic environmental policy*) in most cases are perceived as costs in the 'traditional' economic framework (a major reason for the implementation problems of EC environmental law). *Sustainability*, as it is put forward in the Fifth Action Programme, sees environmental protection as an investment necessary to maintain the long-term profitability of society. Society has to extend the market logic to the environment if it is to maintain its wealth:

> Society's income (or GDP) was seen to depend only on capital and labour resources. However, it is now clear that society's income today and in the future and the sustained production of goods and services depend not just on the availability of capital and labour but also on natural and environment resources. Failure to properly account for, cost and value the environment and environment policy may lead to a wholly misleading understanding of society's wealth, its income and its real sustainable development potential (Commission, 1992c, p. 96).

As a consequence, the relationship of society with nature is interpreted in analogy to the behaviour of an enterprise in the market:

> Just as a sound business enterprise endeavours to maintain and increase its capital value and invests in facilities, expands production, buys new

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equipment and improves the quality of its services in order to protect its long-term health, so also Planet Earth requires certain types of 'investments' in order to maintain itself as a healthy ecosystem and to ensure long-term sustainable, economic growth. Future generations depend on the investments we make now. Failure to make these investments in due time could ultimately put whole regions and ultimately civilization itself out of the business. … If the concept of sustainable development has any credibility, the ultimate benefits should outweigh the so-called costs over time (Commission, 1992c, p. 96).

The reasoning which has been briefly presented here indicates that *sustainability*, which had originally been discussed and developed in the issue area of the greenhouse effect has now become the basis for a Commission attempt to engineer a major programmatic change of EC environmental policy. It is not claimed that the debate on the greenhouse effect has been the only reason for this change; the broader international discussion initiated by the report of the Brundtland-Commission (WCED, 1987) and more specifically, the report of the task force on the environment and the internal market (Task Force, 1990) have certainly played a role as well. The greenhouse effect has, however, been the first case in which the argumentation has spilled over from the theoretical discussion to practical policy-making.

This practical debate on *sustainability* in the policy-process and the elaboration of the Fifth Action Programme has also had effects on other policy areas although they remain, for the time being, restricted to the programmatic level. Thus, the Commission's 'green book' on transport and the environment endeavours to achieve a 'sustainable mobility' (Commission, 1992d). The green book on sustainable transport, which has been prepared conceptually by a report of the Forward Studies Unit (Forward Studies Unit, 1990), marks a turning point in the Commission's approach to transport policy.

Transport policy could be analysed by resorting to three basic frames parallel to those of energy policy. *Free mobility* in the transport sector corresponds to *supply*. It considers transport as a natural consequence of economic activity. A free market economy demands unrestricted transportation possibilities according to the needs of the economy. Hence, an increase of transport is an indicator of economic progress, just as an increase in energy consumption has been associated with economic progress (e.g. Commission, 1992d, p. 36). It is the task of the state to provide for the necessary infrastructure to meet the needs of transportation. In addition, *free mobility* is strongly associated with the freedom of the individual and sometimes acquires the character of a de facto fundamental right. *Transport limitation* corresponds to *conservation* in energy policy. Here, the negative consequences of transport (accidents, pollution, costs) are of a size that requires restriction of transportation (mostly of private cars and air traffic) because it damages nature and limits the freedom of other people who do not use cars or airplanes. This position has been put forward mostly by green parties and movements. *Sustainable transport*, finally, corresponds to *energetics*. It attempts

to find a compromise between the demands for transportation stemming from the market and the needs of restriction because of the limits of nature or of human needs. Whereas in *conservation*, the state has to pronounce prohibitions, its role is different in *sustainable transport*. Here, prohibitions are only a measure of last resort. Normally, the state has to develop an overall transport concept, balancing the needs and restrictions, and implement this concept without resorting to detailed regulation.

After decades of inactivity, the approach to transport favoured by DG VII (transport) had mainly consisted in liberalising the Community transport marked in parallel to the establishment of the internal market programme. In this framework, which could be characterised by *free mobility* in parallel to the *supply* frame of energy policy, the increase of transport is seen as progress. The green book on sustainable transport acknowledges the need to direct transport instead of taking the increase of (road) transport as given. On several occasions, the greenhouse effect is mentioned as the environmental problem which requires this new approach to transport policy (Commission, 1992d, pp. 1, 6, 8, 11, 15 and others). Economic instruments and the assignment of the whole array of costs (including 'environmental' and 'social' costs) to those causing them occupy an important place. As in the case of energy policy, the new frame of *sustainable transport* allows the inner-organisational opposition of DG VII and DG XI to be ended with the former fighting for more and the latter for less transport. In addition, *sustainable transport* can serve as a basis for a re-launching of the ailing transport policy, which is attacked as outdated and damaging to the environment. At the same time, transport can still be associated with modernity, progress and freedom without having to resort to appeals and demands for renunciation which are characteristic of *transport limitation*.

The idea that environmental protection is not a cost factor but can even be a competitive advantage ('first mover advantage') had first been put forward in the context of the proposed CO_2 tax. The tax, the Commission had argued, would in the short run indeed increase the cost burden of enterprises (and should therefore be introduced gradually) but in the medium and long term constitute an incentive for cleaner, less energy consuming, smaller etc. products which were more competitive on the world market. This argument appears now in a communication on industrial competitiveness and environmental protection which has been elaborated by DG III (internal market) in collaboration with DG XI (environment) (Commission, 1992e, p. 2). Environmental policy, according to this document, can be a stimulant for industrial competitiveness (Commission, 1992e, pp. 1-2). As in the field of transport, the introduction of 'clean technologies' is not only beneficial for the environment but corresponds also to the requirements of new, advanced production processes (Commission, 1992e, p. 3). Similar to the formulation used in the Fifth Action Programme, leadership in environmental matters is only a state of affairs instead of a policy (Commission, 1992e, p. 22). Technology is a core area to integrate environmental protection and industrial competitiveness. The Community

instrument to achieve this aim is the forthcoming Fourth Framework Programme for research (Commission, 1992e, p. 15).

The communication of industrial competitiveness and the environment is particularly important because it involves DG III, which has long been considered a proponent of *classic environmental policy* in the sense that as few environmental burdens as possible should be put on industry. DG III is an ally of economic interests and has a strong standing within the Commission because of its responsibility for the internal market programme. The text of the document is again an indication that *sustainability* allows the integration of economic progress and environmental progress, which are contradictory in the old frame. The communication is only a first programmatic document and often uses ambiguous wording. With some care, however, it could be regarded as a sign that the learning process which replaces *classic environmental policy* (or its complement which could be labelled *classic economic policy*) with *sustainability* is extending to traditional industrial DGs within the Commission.

The Council: conflicting frames

When analysing the Council's reaction to the Commission's strategy to deal with the greenhouse effect, account must be taken of the fact that 'the Council' is a legal fiction. With regard to the greenhouse effect, two specialised Councils are competent, namely the Environment and the Energy Council. Besides their different national positions, both differ considerably from each other. Whereas the Environment Council is at least partly accepting *sustainability*, this is not the case for the Energy Council. In other words, taken as a whole, sectoral differences are more pronounced than national ones. At the same time, both Councils rather successfully promoted *member state dominance* as the frame guiding the institutional dimension of the policy measures to deal with the greenhouse effect.

Policy-specific frames

The 'Community Strategy to Limit Carbon Dioxide Emissions and to Improve Energy Efficiency' (Commission, 1991b) was first discussed at the Environment Council of 1 October 1991. After its meeting, the Council issued the following statement:

> The Council welcomes the Communication from the Commission setting out a strategy to stabilise CO_2 emissions in the Community in general at 1990 levels by the year 2000. The Council recognises the great importance of the Communication as a cornerstone for the establishment of a climate change policy in the Community. The Council attaches great importance to reaching a firm position at the combined Energy/Environment Council meeting on 10 December 1991 on the instruments needed to implement the Community's commitment to reach a stabilisation of CO_2 emissions by the year 2000. The

> Council agreed that intensive preparation work should be undertaken on the basis of the Commission's Communication, taking into account all the various interests involved (Agence Europe, No. 5580, 3.10.91, p. 7).

The labelling of the Commission communication as a 'cornerstone' of a future climate change policy of the EC seems to indicate that there was a general agreement on the principle that a reduction of CO_2 emissions must also involve the Community level and that the measures necessary include a tax or other economic instruments, as was proposed by the Commission. The consensus among the ministers of the environment on the principle of a tax does, however, not yet cover the specific conditions and modalities of such a tax. In this respect, three different groups can be distinguished. Denmark, the Netherlands and Germany, joined by France, Belgium, and Italy, welcomed the tax in principle. Spain, Portugal and Greece did not oppose the tax as long as their demands for 'burden sharing', i.e. compensation for the economic costs of the tax from the richer member states in the form of increased aid through the EC structural funds, were satisfied. The UK minister of the environment finally, although not openly rejecting the tax, tried to prevent it by using the argument of the EC's international competitiveness, declaring that

> the United Kingdom's objective is clear: we have to reduce CO_2 emissions and we will need different measures to arrive at this. We believe that in the longer term, the relative price of energy should increase. A tax on energy will be appropriate, but to be effective, measures will have to be taken at international level ... (Agence Europe, No. 5579, 2.10.91, p. 9).

The statement is a good illustration of the position of more reluctant countries. The UK minister of the environment does not put into question the decision of the joint Energy/Environment Council of 29 October 1990 which had decided on the stabilisation of the EC's CO_2 emissions by 2000, despite the strong opposition of the UK (Council, 1990b). He even acknowledges the need to 'reduce' CO_2 emissions. Concerning the instruments to achieve this goal, the introduction of a tax is accepted in principle, although with caveats: the price of energy should increase only 'in the long term' (by means of a tax) and such a tax should not be imposed by the EC alone but be accompanied by measures at the international level. This is a rejection of the arguments based on *sustainability*, put forward by the Commission, that the introduction of the tax would not lead to macro economic costs but could even be a stimulant for industrial competitiveness and new production structures. The same is true of the argument of the southern member states which demand compensation for the disadvantages caused by the imposition of the tax. In the Commission's logic, the tax in particular and ecological modernisation in general would constitute an *advantage* for backward economies (c.f. Commission, 1992e, p. 17).

The informal Environment Council held in Amsterdam on 11-13 October was almost exclusively devoted to climate change policy and the preparation of UNCED. At the meeting, Belgium, Germany, the Netherlands and Denmark, supported by

Italy and France, strongly backed the Commission's climate change strategy (Agence Europe, No. 5588, 14.-15.10.91, p. 8). On this occasion, a extension of the scope of the strategy was considered. The ministers discussed the possibility of EC-wide emission targets for other greenhouse gases (methane, nitrous oxide and CFCs) based on an inventory. The establishment of such an inventory was decided at the Council meeting. The inclusion of other greenhouse gases in a comprehensive strategy increases the possibility of compromises and trade-offs in the negotiations on the strategy package. An increase of CO_2 emissions could thus, for instance, be compensated by a corresponding reduction in CFC emissions, although CO_2 is by far the most important single source of the greenhouse effect (c.f. Table 4, p. 181).

In addition, the Commission gave up its initial plans to fix national targets for each member state by Community legislation (i.e. in legally binding form). Instead, the ministers decided on a re-nationalisation of part of the strategy. National targets for the emission of greenhouse gases should be implemented by national programmes. The Commission was asked to report on these targets to the Council in order to ensure that the overall Community stabilisation target was reached. Compared to the fixing of mandatory emission targets by Community legislation, the main responsibility for national targets was now in the hand of member states; the Commission had only a co-ordinating role. This re-nationalisation of the strategy was meant to secure agreement from the southern member states as well as from the UK, which had not agreed to mandatory national targets. In the earlier Commission proposals for 'target sharing', the southern member states and Ireland had already been allowed to *increase* their CO_2 emissions by 15 per cent until the year 2000. This increase had to be compensated, according to these proposals, by the reduction of CO_2 emissions by Denmark, the Netherlands and Germany by 5 per cent whereas the remaining member states should stabilise their emissions (Commission, 1991h, p. 2). Even this had not been accepted by Spain in particular. In addition, it prepared the redefinition of the institutional dimension of policy-measures in the light of the discussion on subsidiarity and the parallel strengthening of *member state dominance* as the frame relating to integration.

Probably as a reaction to the strong resistance of industry against the planned CO_2/energy tax, the Council declared its readiness to discuss the planned measures with industry. At the same time, the importance of the tax was confirmed. In addition, policy measures other than a tax were explicitly mentioned in order to allow for a package to which adherents of a tax as well as opponents could agree (Council 1991f, para. 30). As a result of the broadening of the strategy and the bridges built for the southern member states, economic instruments in general and the CO_2/energy tax in particular were accepted by the Environment Council by the end of 1991.

Whereas the Environment Council thus reluctantly accepted the Commission's strategy and the reasoning of *sustainability*, the Energy Council raised strong objections against the strategy and in particular against the tax on the basis of *classic environmental policy*. At its meeting of 29 October 1991, only Denmark had

no objections against the respective Commission proposal. Germany, a fervent advocate of the tax in the Environment Council, raised no objections against the principle of a tax but disagreed with its level and the method of progressive implementation proposed by the Commission. In addition, and in common with France, it put forward the argument that only CO_2 emissions should be taxed as this would correspond to the polluter-pays-principle. This position implies that nuclear power – which would not be subject to a CO_2 tax – is a solution to the greenhouse effect. Implicitly, it is a rejection of the Commission's link between greenhouse policy and energy policy. As such, it reflects a frame of *supply* with respect to energy policy: The environmental problems caused by power generation have to be solved but without interfering with the patterns of energy consumption or the level of consumption as such. Spain and Portugal (and to some extent also Italy) argued that their industrialisation might be hampered by such a tax. In this context, Spain stressed again the problem of distributive justice by pointing out that its emission level (par capita and absolute) was only a fraction of the emissions of Germany or the UK (c.f. Table 5, p. 182). Spain also put forward the argument again that the United States and Japan had to take measures similar to those proposed by the Commission if the EC plans were not to lead to competitive distortions and to a dangerous increase in energy prices. Some countries preferred tax *incentives* for limiting CO_2 emissions and others, like France and Germany, criticised the link between encouraging energy saving and reducing pollution.

The Council's conclusions were guided by the idea that energy was vital for economic performance and that, even under the assumption of severe environmental damage, its price could only be increased with utmost care. Therefore, the Council declared that measures to combat the greenhouse effect must not distort competition and that special attention must be paid to the EC's large energy consumers who compete on the world market (Agence Europe, No. 5599, 20.10.91, p. 12, Europe Environment, No. 374, 14.11.91, section I, p. I). This attitude was confirmed in the Energy Council meeting before UNCED, after it had become known that the Commission had linked the introduction of the tax to the adoption of similar measures by its main trade partners (the 'conditionality' clause). A large majority of ministers were in favour of the principle of conditionality, although Germany, Denmark and the Netherlands insisted that this clause should not lead to the Community finally abandoning the project should its trading partners' reaction be negative (which was expected to be the case) (Agence Europe, No. 5736, 23.5.92, p. 9). In the Environment Council, meeting a few days later, the principle of a CO_2/energy tax was restated by all participants. Germany, Denmark, the Netherlands, Italy and Luxembourg challenged the conditionality clause while Spain, Greece and Portugal welcomed it (Agence Europe, No. 5738, 27.5.92, p. 8).

Although an intervention into the energy markets was not altogether rejected (which would have amounted to a complete return of *supply* as a frame of energy policy), *energetics* (i.e. the view that energy policy can be managed by the state with goals other than the exclusive security of supply) is only reluctantly being accepted. The frequent references during the Council meetings and in the final

statement on the danger of competitive distortions indicate that the overwhelming majority of the Energy Council (with the sole exception of Denmark) has not accepted the Commission's reasoning of *sustainability* and conceives the relationship between the economy and the environment in terms of *classic environmental policy*.

The differences in the positions of the two Councils also show that interests or preferences cannot simply be deduced from 'objective' data, such as per capita emissions of CO_2. In the first place, sectoral ministers from the same country have different positions. A striking case is Germany, whose minister of the environment has fought strongly for a CO_2 tax or levy and who has made climate change policy one of his political priorities. The German minister for the economy, on the other hand, responsible for energy policy, has constantly tried to delay and to weaken the Commission's greenhouse strategy and the tax in particular. Denmark and to a lesser extent the Netherlands have per capita emissions higher than the EC average but are in favour of a strong climate change policy in both Councils. The UK has per capita emissions above the EC average and pursues a rather reticent policy whereas France emits CO_2 below the EC average and is generally in favour of the Commission's strategy.

Whereas within the EC, countries with high per capita emissions are more positive towards an active policy to combat climate change than those with lower emissions, the picture is different on a world-wide scale. Here the US, which has the highest per capita emissions, strongly opposes a world-wide climate change policy (Grubb et al., 1991, pp. 233 seq., Fischer, 1992, pp. 62 seq.). Japan and the EC have almost the same CO_2 emission level considerably below the US emissions (c.f. Table 5, p. 182) but whereas Japan's engagement in the international climate negotiations has been very reluctant (Fischer, 1992, pp. 102 seq.), the EC has at least tried to assume a position of leadership in this area. The argument could also be extended to other factors, such as the structure of energy consumption. Germany and Denmark have a high share of coal (which emits most CO_2) in energy consumption and are in favour of a CO_2/energy tax, whereas the UK, with a correspondingly high share of coal is very reluctant in this respect (c.f. Table 7, p. 184). If a selective use of a single variable were to be avoided, such as the 'explanation' of the UK opposition against the Commission's strategy by its high per capita emissions, a whole range of variables would have to be considered in comparative analysis (Jänicke, 1992, Jänicke/Mönch, 1988). As a result, however, the simple deduction of *preferences* from hard data is impossible. Data on emissions, energy consumption, dependency on specific energy sources, etc. have to be interpreted. As there is usually more than one interpretation of a specific fact, it is impossible to conclude from data to interpretations. Instead, these interpretations have to be at the centre of the analysis.

Against the background of the diverging views of the ministers of the environment on the one hand and those responsible for energy on the other hand, a joint Energy/Environment Council took place on 13 December 1991. The joint Council did not come to a decision on the Commission's strategy paper but

narrowed down the divergences of position and confirmed some developments which had already been prepared before.

The most important of these developments is a re-nationalisation of the package of measures. The Council conclusions speak of a 'need for a strategy at Community level based on a wide ranging package of Community and national measures' (Council, 1991g, para. 4). On the one hand, this is a recognition that *Community* measures are inevitable for reaching the stabilisation target adopted in October 1990. On the other hand, national measures gain an increasingly important place. On the topic of those national programmes, the Council conclusions announce:

> These programmes, appropriate to the specific circumstances of each Member State, will include measures decided at Community level as well as national measures. Possible measures to be considered include instruments of a technical, financial and social nature to be applied in the relevant sectors (Council, 1991g, para. 5).

With such a principle, anything goes: a tax as well as non-fiscal measures, as well as technical measures, information campaigns, etc., both at the national and at the Community level. Sectoral differentiation is also possible. Only two elements are mandatory: the stabilisation of CO_2 emissions of the entire EC by the year 2000 (explicitly) and the requirement that these measures do not disturb the functioning of the internal market (implicitly). Despite this differentiation of possible measures, the principle of a CO_2/energy tax is beginning to be recognised. The respective text of the Council conclusions read:

> The Council, basing itself on existing studies and analyses, recognises that the national programmes and specific measures referred to above are unlikely to be sufficient alone to reach the Community objective of CO_2 stabilisation. It further recognises that, in order to reach CO_2 stabilisation in a cost-effective way, higher energy pricing through the use of fiscal instruments is likely to be needed to complement national and Community energy efficiency programmes (Council, 1991g, paras. 9-10).

The recognition of the necessity of the tax was made dependent on the accomplishment of further studies on the economic consequences of such a tax and of its concrete design. Some of the studies commissioned relate to the feasibility and effects of exemptions from the tax or reductions of it, either for industrial sectors (with energy-intensive production and strong involvement in international trade, as already proposed by the Commission) or for some member states (which reflects the desire of Spain in particular not to hamper its economic development and its position that it emitted considerably less CO_2 compared to Germany or the United Kingdom). Spain in particular followed its strategy to accept even wide-ranging Community environmental legislation even if it seemed to hamper Spanish economic development under the condition of 'Community solidarity', i.e. provided that the richer states support the poorer ones or that the latter ones have the right to derogations from the general norm.

Whereas the idea of a tax had been more or less accepted at this point, there was still complete disagreement about the extent or nature of the tax. Denmark, Germany, Italy, Luxembourg, France and Belgium, i.e. half of the Council, resisted the idea of introducing a tax on CO_2 *and on energy* (Europe Environment, No. 378, 7.1.92, section I, p. 7). Therefore, the request for further studies does not seem to reflect a simple desire to delay the decision, although this motive may be an important one. Instead, the Council called upon the Commission to present concrete proposals, 'including any necessary proposals for Community-wide taxation' (Council, 1991g, para. 11). In addition, the joint Energy/Environment Council has not even mentioned doubts about the physical reality of the greenhouse effect. The debate was concerned only with the ways and means of coping with it and the possibilities of avoiding severe consequences for the economy. This indicates that a position on the basis of *classic environmental policy* has been the lowest common denominator for the Council on the basis of the unanimity rule.

The tax debate was important for member states not only because of the expected size and economic consequences of the tax but also because it was meant by the Commission as the first attempt at a policy on the basis of *sustainability*, which allows interference in other policy areas (here taxation and energy policy) in order to achieve environmental goals. Therefore, the tax debate acquired a more fundamental dimension as the entry into a different way of policy-making. This may explain why the Maastricht Treaty in Act. 130s, 2 explicitly maintains unanimity decision-making in environmental matters relating to taxation and to energy whereas it provides for majority voting as the general rule. Although taxation matters are subject to Art. 99 of the Maastricht Treaty, which provides for unanimity in any case and energy policy is not a competence of the EC even after Maastricht (and thus subject to unanimous decisions on the basis of Art. 235), the formulation of Art. 130s, 2 is a reassurance that a CO_2/energy tax will not in any case be adopted by majority voting with the environmental chapter of the Maastricht Treaty as a legal base. The adoption of many policy measures on the basis of *sustainability* is thus confined to unanimity decision-making.

The renationalization of policy measures

The debate on specific policy measures to deal with the greenhouse effect has confronted proponents of *classic environmental policy* arguing that a tax on CO_2 or energy would put a heavy burden on the economy and a smaller group of countries advocating a more far-reaching policy on the basis of *sustainability* (in particular Denmark, the Netherlands and Germany). The prevalence of policies on the basis of *classic environmental policy* in the Council conclusions implies that measures which could constitute a backing of the EC's earlier claim for environmental leadership were unlikely to be adopted. In parallel to this policy-specific development, the institutional debate before and in particular after the Maastricht summit has had consequences for the EC strategy to deal with the greenhouse effect. *Member state dominance* became more important, in particular

under the British presidency of the Council in the second half of 1992. The most important consequence of this frame of integration is the re-nationalisation of the greenhouse strategy.

Before the Maastricht summit in December 1991, 'leadership' had still played an important role in the Council negotiations. At the Environment Council of 1 October 1991, the French minister of the environment (Brice Lalonde) declared that the EC had been the first major power in the world that wanted to stabilise CO_2 emissions and that it was now the first to look for concrete means to achieve this goal. For Brice Lalonde, this was proof that the EC was the most dynamic actor in this field world-wide (Agence Europe, No. 5579, 2.10.91, p. 9). A few weeks later, the informal Environment Council in Amsterdam still upheld the claim for leadership (Council, 1991f, para. 22).

Half a year later, only two weeks after the Rio Summit, where the EC had planned to exert its environmental leadership, the Lisbon European Council mentioned the leading role of the EC only in relation to the establishment of the 'Commission on Sustainable Development' (a permanent follow-up body of the Rio conference) and the reform of the 'Global Environmental Facility' (an environmental financing instrument) (European Council, 1992). Important as they may be, these two issues hardly correspond to earlier aspirations of world-wide environmental leadership.

The quest for environmental leadership has also been given up in relation to the Fifth Action Programme on the environment. The Commission had still regarded the programme as a condition for a leading position (but less for a leading policy) in international environmental policy and based its claim on the Environmental Imperative Declaration of the European Council of June 1990 (Commission, 1992l, p. 3). Whereas in a first Council negotiating text of the resolution, this reference was still maintained (Council, 1992a, para. 6), it had disappeared in the second draft resolution, which speaks only of a 'positive role' of the EC in international environmental policy and a positive contribution to it (Council, 1992b, paras. 37-38) but at the same time contains several new paragraphs on subsidiarity (Council, 1992b, paras. 14-16).

Despite the fact that the Maastricht Summit had given the Community a formal competence to deal with global or regional environmental problems (new Article 130r), the interpretation of the new Treaty provisions and of the old ones which were still valid at the time was increasingly marked by *member state dominance*. This interpretation neither follows from the Maastricht Treaty nor from the subsidiarity principle adopted in this Treaty (Art. 3b). The fourth indent of Art. 130r, which gives the Community a competence in global or regional environmental policy, could be the legal basis of a policy of environmental leadership; it could also legitimise a mere residual competence for the Community. The subsidiarity principle does not provide a solution for the institutional level on which policy measures are carried out but is open to interpretation. The way in which member states and Commission reflect about the subsidiarity principle, either in terms of *supranational integration* or in terms of *member state dominance*, is responsible for the institutional dimension of policy measures.

The increasing framing of the policy-measures proposed in the framework of the Community strategy to deal with the greenhouse effect in terms of *member state dominance* instead of *supranational integration* can be illustrated with the example of energy saving measures, which are one part of the original strategy proposed by the Commission. The Commission had originally conceived a strategy consisting of policy measures mainly at Community level or at least with a Community legal framework to guarantee that they meet the CO_2 stabilisation target and their compatibility with the internal market. National measures were only foreseen as a supplement (Commission, 1991b, paras. 30-32). The informal Environment Council in October 1991 and the joint Energy/Environment Council in December 1991 had already increased the role of national programmes for the implementation of the strategy and urged member states to submit those programmes to the Commission (Council, 1991g, paras. 5, 9 and 10).

One of the first concrete proposals on the basis of the Community strategy, a directive on energy saving in the framework of the SAVE programme, hardly contains any Community element. The proposal bears strong traces of the discussion on subsidiarity. In other words, it is marked by the increasing weight of *member state dominance* at the expense of *supranational integration*. As a result, the negotiating text of the directive on energy saving, submitted by the British presidency, a fervent advocate of *member state dominance*, consists of a list of programmes to be set up and implemented by member states without specifying targets, deadlines or content (Council, 1992c, in particular Art. 5). Within the Council, the debate on integration has thus superseded the one on environmental policy.

Industry: defending classic environmental policy

Industry was engaged in a major lobbying campaign against the Commission proposals of a tax on carbon-dioxide emissions and/or energy (Agence Europe, No. 5731, 16.5.92, p. 11). When it became certain that the Commission would finally propose such a tax, several EC-wide interest groups not only increased informal lobbying but went public in order to prevent such a decision. This campaign was almost exclusively directed against the proposal of a CO_2/energy tax whereas the other elements of the Commission's strategy paper (in particular energy saving schemes) were hardly dealt with. In order to prevent the tax, industry was willing to accept virtually all other measures proposed by the Commission.

The most important argument which industry used in its campaign against the tax was to warn against the competitive disadvantages it would create for European industry. At a joint press conference the day before the Commission internally adopted its *Community Strategy* (Commission, 1991b), the European Chemical Industry Association (CEFIC), the Association of European Automobile Manufacturers (ACEA), the European Association of Metals (EUROMETAUX), the European Cement Association, the European Petroleum Industry Association

(EUROPIA) and the European Federation of Industrial Energy Consumers (IFIEC-Europe) declared that a 'unilateral' EC-wide tax on energy consumption or carbon-dioxide emissions would cause severe economic damage without any certainty of achieving the desired environmental objective (Agence Europe, No. 5574, 25.9.91, p. 13). Similar statements had been made earlier by the organisation of the European steel industry (EUROFER) (Agence Europe, No. 5564, 11.9.91, p. 13) and by the umbrella organisation of European industry (UNICE) (Europe Environment, No. 372, 1.10.91, section II, p. 1). On the same occasion, the threat of industrial relocation, another standard argument in environmental policy-making, was also used: unilateral energy/carbon taxes, according to industry, could produce the opposite of the desired effect by forcing energy-intensive industries in the EC to close down, leaving a gap in supply which would be met by less energy-efficient industries outside the EC.

Whereas the Commission has regarded the Community's share of 13 per cent of world-wide CO_2 emissions (c.f. Table 0, p. 182, Figures 0-0, p. 183) as high enough to justify even unilateral action, industrial associations claimed that with *only* 13 per cent of global emissions, the EC should wait for action by the US and promote energy saving in Central and Eastern Europe in the meantime (Agence Europe, No. 5574, 25.9.91, p. 13). UNICE even subscribed to the Commission's 'no regret principle' by stating that whether or not global warming was occurring at a significant rate, some immediate measures were beneficial and should be encouraged in any case. These measures should be seen as an insurance premium related to the risks of global warming. UNICE's proposals for no-regret measures included the promotion of energy saving in Central and Eastern Europe and in particular the development of energy-efficient technologies (i.e. subsidies) (Europe Environment, No. 372, 1.10.91, section II, p. 1). Technology was also the solution which the coal industry, one of the main losers of a carbon/energy tax, offered. The Coal Industry Advisory Board (CIAB), an advisory board to the International Energy Agency (IEA), claimed that CO_2 emissions could be reduced by more than fifty per cent with new technologies. These opportunities, according to the CIAB, should be exploited given the long-term importance of coal as a source of energy and the risks of other forms of energy, in particular of nuclear power (Europe Environment, No. 373, 15.10.91, section II, pp. 2-3).

After the Commission had adopted its strategy with the tax proposal as an integral part, claiming that non-fiscal measures would achieve only 60 per cent of the CO_2 emission reduction from the projected increase to the desired stabilisation (Commission, 1991b, p. 19), industry began to offer compensatory action if only the tax plan was dropped. ACEA, the car manufacturers' association, volunteered to reduce the CO_2 emissions of their cars by ten per cent within the period from 1993 to 2005. Further reductions, according to ACEA, could be achieved by introducing traffic management methods and developing non-fossil fuels (e.g. from agricultural sources). Voluntary reduction schemes were also offered by the European Committee of Electricity Supply Industries (EURELECTRIC) and by the association of the mechanical, electrical, electronics and metalwork industries of the EC and

EFTA (ORGALIME). ORGALIME also criticised the idea that a considerable part of the Commission's greenhouse strategy consisted of national measures which could threaten the internal market by establishing new barriers to trade. The Association of the European Chambers of Commerce suggested that industrial sectors of business firms should either commit themselves to programmes for the rational use of energy or take steps to compensate for their emissions of greenhouse gases, such as reforestation. A further proposal was to exempt industries which submitted CO_2 reduction plans from the CO_2/energy tax (Europe Environment, No. 377, 10.12.91, section II, p. 1, Agence Europe, No. 5629, 13.12.91, p. 15).

In sum, it appears that industry has changed its strategy from outright rejection of a tax and of any other measures to offering a deal. This deal meant that industry was willing to commit itself to voluntary and sector-specific CO_2 reduction plans if the tax plan was dropped. Before the joint Energy/Environment Council of December 1991, the strategy was even further modified. Some statements of industrial associations seem to indicate that industry expected a tax in one form or another to be adopted. Therefore, associations aimed at gaining exemptions from the tax or tax rebates if voluntary CO_2 reduction programmes were offered.

The offer by industrial interest groups to establish sector-specific voluntary energy efficiency schemes if the plan of a CO_2 or energy tax was dropped was directed at the industry-oriented DGs within the Commission which had from the outset been critical towards the tax plan, in particular DG III and DG XXI. DG III in particular favoured an approach which left the choice of the instruments and tools for energy efficiency measures to the enterprises themselves, arguing that in such a way, the goal of energy efficiency could be achieved in a most cost-efficient way. Centralised regulation such as the proposed CO_2/energy tax, DG III argued, would incur higher costs than decentralised solutions adapted to specific circumstances. This argument is usually combined with the claim that voluntary arrangements are less 'bureaucratic' than centralised regulations (to which proponents of binding legal obligations objected that they are also less efficient).

Industry argues thus on the basis of *classic environmental policy*: a tax is a cost factor which should only be adopted by all countries with which strong economic links exist in order to avoid an unfavourable treatment of EC industry. The Commission's argument that the gradual introduction of the tax over a seven-year period would allow adaptation processes and lead to an improvement of industrial competitiveness by forcing technological innovation, has not been taken up. 'International competitiveness' as an argument against environmental regulations indicates a separationist view of the economy and the environment and a primacy of economic goals. On the other hand, 'voluntary agreements' are a favourite instrument of liberal economic policy and of its proponents within the Commission (DG III and DG XXI). Pleading for voluntary agreements does not deny the necessity of environmental protection measures but leaves the choice of instruments to those concerned. It incorporates a belief in responsible entrepreneurship and a distrust of state regulations. Decisions with economic consequences, in this logic, are preferably and most efficiently taken at the level of

the enterprise, as close as possible to the immediate consequences of the decision. The resonance of this version of the *classic environmental policy* frame with the economic liberalism of DG III and DG XXI might have been a reason why the Commission introduced the 'conditionality' clause into its final tax proposal. Voluntary agreements, the responsibility of the entrepreneur and the principle that decisions should be taken at the lowest possible level (a kind of economic sub-sidiarity principle) are a central feature of the 'new approach' of the Fifth Environmental Action Programme (Commission, 1992c, pp. 9, 33, 69 seq.). They resonate even better with *sustainability* than they do with *classic environmental policy* because *sustainability* extends economic thinking to the environment, including a positive attitude towards economic activity and economic actors which, contrary to *classic environmental policy*, are not considered primarily as those causing pollution and therefore treated with suspicion. As the decentralised responsibility of economic actors has been one of the elements of the programmatic change of EC environmental policy advocated by DG XI, this may be a further reason for the success of industry's lobbying campaign. In addition, decentralised, 'adapted' schemes were consistent with the re-nationalisation and differentiation of policy measures as a result of the increasing importance of *member state dominance* at the expense of *supranational integration* in the aftermath of the Maastricht summit.

The new problem definitions

Two main developments characterised the emerging new problem definitions of the respective actors after the publication of the Commission's strategy paper, namely the generalisation of *sustainability* within the Commission and the strengthening of *member state dominance* stemming from the Council. The generalisation of *sustainability* within the Commission and its explicit adoption as a basis of a major programmatic change of the Commission's approach to environmental policy making allows an alliance or at least less conflictual co-operation between the more industry-oriented DGs and DG XI. The main reason for this possibility of alliance is that the policies for which those DGs are responsible can be continued and in particular be reformed under the label of modernisation. 'Sustainable transport' can be the basis of a relaunch of EC transport policy which at the same time tries to meet transportation goals and those of environmental policy. The same is true for energy policy. *Sustainability* even allowed a common programmatic document of DG III and DG XI, which had previously been conceptually separated. This shift from *classic environmental policy* to *sustainability* is an example of a learning process. Its results in terms of policy proposals are only beginning to become visible. As this learning process constitutes the potential for a strengthening of the Commission's role by allowing a relaunch of some important policies, it thus fits with the Commission's frame of *supranational integration* and is likely to persist as a basis of the latter's policy.

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The Council as a whole has not yet accepted policy proposals on the basis of *sustainability* but endorsed the Fifth Environmental Action Programme, which is the Commission's blueprint for pursuing *sustainability*. However, the same factors which contributed to the frame shift within the Commission, namely the possibility of better co-operation between ministries which are more opposed at present and the opportunity to modernise those policies by taking environmental considerations into account instead of opposing them could work in the same direction. Until this point, however, the most important contribution of the Council to the framing of the greenhouse issue has been the reframing of its institutional dimension. The debate on subsidiarity and the ensuing strengthening of *member state dominance* have led to a re-nationalisation of the proposed policy measures even within the Commission. The target remains the same but the instruments are located at a different institutional level.

The increasing influence of *member state dominance* has also marked the Fifth Environmental Action Programme, which puts great emphasis on the concept of 'shared responsibility', i.e. the specific responsibility of the state, enterprises and the consumer for different problems as a replacement of a primary and exclusive responsibility of the state to force enterprises and consumers to respect environmental concerns. Industry is still motivated by *classic environmental policy* and achieved that the proposal of a CO_2/energy tax, the core of the Commission's greenhouse strategy and its spearhead of *sustainability*, has been at least delayed.

As a result of these developments, *sustainability* has offered the Commission new possibilities for action. It has, however, not strengthened its institutional role by contributing to the adoption of strongly integrationist policy measures, such as the planned CO_2/energy tax. On the contrary, the debate on integration and the strengthening of *member state dominance* has superseded the debate on environmental policy.

Notes

[1]. The operational measures of the original strategy paper (Commission, 1991b) are presented in an abbreviated form in Commission, 1992a. While keeping the same title, this document is rather different from the first version which will still be described in this study as the 'Community Strategy'. The later document, presented shortly before the Rio conference, is the conceptual envelope for four specific proposals to implement the CO_2 stabilisation strategy (Commission, 1992f, 1992g, 1992i, 1992j).

[2]. At least not in the statements of Commissioners Ripa di Meana and Cardoso e Cunha (Agence Europe, No. 5729, 14.5.92, pp. 7-8). The wordings of the respective texts do not mention this possibility. The second version of the 'Community Strategy' makes the introduction of the tax 'in the present state' dependent on the introduction of similar measures by other OECD countries (Commission, 1992a, para. 28). The tax proposal repeats this argument in its

explanatory memorandum (Commis sion, 1992g, p. 4), and in the preamble of the draft directive as well as in its first article.

This study has tried to trace the development of the EC's policy on the greenhouse effect up to the Rio summit in June 1992. It has not adopted a classic interest-oriented perspective but instead assumed that needs, resources and preferences of actors are socially constructed. These social constructions have been called 'frames'. A change of those frames has been conceptualised as a learning process.

In the period analysed, such a learning process took place in the EC Commission. Within the Commission, environmental policy is now conceived on the basis of *sustainability* instead of *classic environmental policy*. In parallel, the basic frame of energy policy making has changed, though less radically, from *supply* to *energetics*. The *sustainability* frame became prominent within the Commission in the course of the debate on the greenhouse effect. Later, it became the basis of the Commission's approach to environmental policy-making in general. It allows the integration of the greenhouse effect in particular and EC environmental policy in general into the logic of the internal market and the ongoing debate on implementation problems of Community law, in particular in the field of the environment. Whereas *classic environmental policy* leads to conflicting goals and strategies in the field of environmental protection (preventing the greenhouse effect), the internal market (economic liberalisation and growth) and the implementation of Community law (by allegedly contributing to the widening of the implementation gap), *sustainability* offers opportunities to fight the greenhouse effect without hampering economic growth, distorting the common market or enacting legislation which runs the risk of not being implemented by the member states. This enhanced problem-solving capacity of the *sustainability* frame compared to *classic environmental policy* refers to political problems. I do not claim (nor did I analyse) that *sustainability* is in any sense better for the environment or that it indeed offers solutions which are less bureaucratic and less sensitive to non-implementation than the command-and-control approach of *classic environmental policy*. On the contrary, the critical potential of analysing the way issues are framed and how these frames are used by actors lies precisely in pointing out the type of problems for which they are used.

The new frame of *sustainability* which emerged as the result of a learning process within the Commission does not only possess an increased political problem-solving capacity compared to the old one but it also involves different actors and different types of knowledge in the policy-process. If an environmental problem is framed in terms of *classic environmental policy*, natural scientists and natural scientific knowledge are of central importance for the design of policy measures. Within *sustainability*, economists and (macro)economic knowledge acquire a central importance. For this reason, the Commission's strategy to deal with the greenhouse effect at a rather early stage became decoupled from natural scientific knowledge and increasingly depended on economic arguments. For the Commission, *sustainability* allowed for co-operation among different directorate-generals or at least the lowering of conflicts among the DG responsible for environmental protection and other DGs which are considered more business-oriented. The deeper reason for the possibility of co-operation among new groups of actors offered by *sustainability* is that it constitutes an attempt to integrate environmental policy concerns into economic policy and thus ends the defensive position of environmental policy and environmental policy-makers against economics and economic interests. In principle at least, although this potential has not been realised yet, *sustainability* allows even alliances with industry in a much easier way on the basis of appealing to common interests instead of having to resort to moral appeals as in *classic environmental policy*. The Commission's Fifth Environmental Action Programme, entitled 'Towards Sustainability', relies heavily on this potential as a new instrument of environmental policy.

For the Commission, *sustainability* also allowed a link between environmental policy and integration by introducing the concept of environmental leadership. Progress in the field of the greenhouse effect, the main area for the debate and development of *sustainability*, could thus lead to progress of integration in terms of *supranational integration*. A strong greenhouse policy, as a part of a broader policy of environmental leadership, would thus contribute to integration. This idea, vigorously promoted by the Commissioner for the Environment, ensured support even among his critics within the Commission. An important reason for the transformation of *sustainability* to an action frame which the Commission actively used and defended in order to gain support for its measures was the strong symbolic component of *sustainability*. It allows policies to be presented in terms of modernity. This is in particular true for the external aspects of the greenhouse policy and the leadership claim. Environmental leadership conveys the image of the EC as a new type of power, dealing with contemporary problems in appropriate terms and contrasts this image with the one of the United States as a traditional military power neglecting problems that cannot be solved by traditional means of foreign policy. 'Leadership' underlines the EC's aspiration to become a superpower, but a modern one. By promoting the leadership concept, the Commission could enhance its own role and status as the representative and speaker of the Community.

The European Parliament, on the other hand, started at an early stage to frame the greenhouse effect in terms of *sustainability* but has remained incapable of using it as an action frame. Instead, it remains within the argumentation of *classic environmental policy*, demanding tougher standards, higher eco-taxes and shorter deadlines. The offensive use of an action frame like *sustainability* appears to be an important means of the European Parliament to increase its influence on the policy-making process in cases where it has no legal or institutional leverage. This would, however, require not only the institutional conditions enabling the European Parliament to develop and present new frames but also a different assessment of its own role, which at present is aimed at becoming a 'normal' Parliament. As the European Parliament has no legal competence in the policy-making process with respect to the greenhouse effect and has also not used the potential stemming from the promotion of an action frame for enhancing its role in the same way as the Commission has done, its role in the policy-development remained insignificant.

The Council has increasingly accepted *energetics* whereas *sustainability* is only beginning to be accepted by a minority of its members. *Energetics* offers possibilities for a relaunch of EC energy policy without major sacrifices. *Sustainability*, on the other hand, and in particular the CO_2/energy tax, would lead to far-reaching changes in present environmental policies. The tax proposal in particular is assessed in completely different ways in *classic environmental policy* and in *sustainability*. Whereas in the former, it could be a dangerous blow to economic competitiveness and ineffective in terms of its environmental objective, it would be a means of internalising environmental costs and of increasing international competitiveness in the latter. In 1992, only Denmark, the Netherlands and Germany seemed to accept the logic of *sustainability* whereas the other member states still assessed the proposed carbon tax and the Commission's strategy to deal with the greenhouse effect in terms of *classic environmental policy*. The new frame of sustainability, actively promoted by the Commission, could open the same opportunities for new actor coalitions among the bureaucracies and political and economic forces within member states as it has done within the Commission. The same is true for the political problem-solving capacity of the new frame.

In sum, *sustainability* allows environmental policy and liberal market economy to be linked in a single conceptual framework, i.e. the linking of the frames of environmental policy and of economic policy-making of the Commission and the member states. For this reason, *sustainability* allows new coalitions among actors which have conflicting problem definitions (and hence conflicting interests) if *classic environmental policy* is the dominant frame of environmental policy-making. This applies to coalitions among the different departments of the Commission or the member state governments as well as to coalitions between policy-makers and industry. *Sustainability* attempts to dissolve the conflict between environmental policy and market economy. Within *sustainability*, there is thus no embedded conflict between environmental priorities and economic interests. The link between *sustainability* and *supranational integration*

introduces a third crucial element, namely the identity of the European Community. Thus, *sustainability* allows the integration of environmental policy, market economy and integration without *a priori* leading to conflicts among these three areas. The statement that there are no fundamental conflicts between these three areas does not exclude that conflicts may emerge. It only implies that, for instance, there is no basic conflict between environmental protection and economic growth as in the *classic environmental policy frame*.

The new frame of *sustainability* is better able to deal with possible conflicts among these policy areas because it is broader than *classic environmental policy* and attempts to integrate economic and environmental policy. Its problem-solving capacity is thus enhanced as compared to the latter. This problem-solving capacity refers to the potential to solve political problems. It does not imply that *sustainability* was more beneficial to the environment than *classic environmental policy*. More precisely, it refers to the ability of the new frame to provide a single framework for the cognitive, normative and symbolic elements of the old frames. *Sustainability* provides a cognitive framework which does not differentiate between economic costs and benefits on the one hand and environmental costs and benefits on the other. The environment, in this framework, does not rank anymore among the 'externalities' of economic logic. With regard to the normative aspect, respect for nature (and creation) and respect for the rights of future generations can go hand in hand with the maintenance of individual rights and responsibilities in economic life instead of having to resort to an ever increasing grasp of government regulations and limitations of individual freedom of enterprise in the name of environmental protection. Symbolically, the creative forces and the dynamism of the market economy can be mobilised in the service of the environment instead of being the sinners. Thus, the market as the best mechanism to balance societal demands can also deal with environmental degradation in its own terms instead of having to admit 'market failure'. Economic progress and modernity are not from the outset opposed to the protection of the environment. On the contrary, *sustainability* allows the inclusion of environmentally benign behaviour in the definition of progress and modernity.

As on the level of problem-solving, *sustainability* only provides a *potential* of action on the level of coalition formation. This structural possibility can, but does not have to, be realised by political actors. Problem-solving capacity and the opportunity for new coalitions must, however, not be interpreted in a narrow rationalistic sense. Speaking about the 'adoption' of a frame does not imply a conscious act of choice. Actors do not choose one frame among several others which are equally available because it better serves their interests or because it secures most widespread agreement in negotiations. Problem definitions and frames are assessed on the basis of the criteria of truth (cognitive element), justice (normative element) and beauty (symbolic element). Actors can only base their actions on a new frame if these criteria are met. Coalitions can then be negotiated and problems be solved *on this basis.*

More generally, this study has tried to support the thesis that politics cannot and should not be analysed exclusively in terms of concepts like power, interest, decision, pressure, influence, etc. Instead, it has argued that ideas are more than mere rationalisations or rhetorical packages but important categories for the analysis of politics and central elements of action. If ideas are important, it must be shown how ideas, events and action are related. This study has offered the concept of 'frames' to capture this relationship. Frames are devices to interpret the world and to orient action. They consist of cognitive, normative and symbolic elements. This concept implies a broader notion of action than the one used by rationalistic approaches and thus allows a systematic investigation into the role of ideas and knowledge.

In this concept, ideas are not mere 'epiphenomena' of the basic logic of power and interest. The present study has endeavoured to demonstrate that ideas are, on the contrary, at the basis of interests and the strategies to pursue them. The other extreme, however, should also be avoided, namely treating ideas as a self-contained abstract universe. Ideas are not to be analysed according to their own logic. Such a view risks privileging the role of consistency and argumentation, in other words, focusing on what happens within the world of ideas. A traditional history of ideas is not far away from this. A similar risk, if attention is not directed exclusively towards the logic of ideas, is a technocratic view which narrows the notion of ideas and knowledge to technical knowledge and thus brings technical experts into the centre of the analysis. Such an approach can also be enlarged and ask about the relationship between the world of ideas and the world of problems. Again, problems are easily defined as technical (e.g. environmental, energy, or health insurance) problems. As a result, technical experts might find the solution to a technical problem but are prevented from implementing it by political forces (lobbies of the most diverse kind, deals among political parties, politicians motivated 'only' by electoral concerns, etc.). The analytical separation of technical problems and political problems leads to the conclusion that politics prevents problem-solving. Hence, political process and technical problem-solving should be separated. The notion of 'learning' in such a view is often defined in technical terms and reflects a naïve relationship to progress and problem-solving.

By considering frames as consisting not only of cognitive but also of normative and symbolic elements, political questions, such as the distributive consequences of different frames, are not a priori excluded or dismissed as less relevant. Broadening the definition of frames instead of restricting it to cognitive elements also avoids that 'learning' is defined merely in terms of technical problem-solving. Instead, a meaningful and empirically fruitful concept of learning does not put the blame for unsuccessful learning on politics while seeing the cure in the hands of technicians which provide better information. Learning, if it includes normative and symbolic dimensions as well, is a political instead of a technical process. It is at the basis of interests instead of being prevented or enhanced by them.

The concept of framing also allows harmony-seeking concepts, which regard shared or consensual knowledge as the basis for action, to be avoided by leaving

behind the analysis of frames *of* action and moving towards the study of frames *for* action and frame competition. Frames are thus not only analytical devices which can be attached ex post to specific actions or which can be used to classify series or sets of action but also devices used by actors without having to consider them as mere rationalisations of actor's interests.

The analysis of frames should thus be able to contribute to the question of why actors want what they want instead of confining the inquiry to the question of how they get what they want. At the same time, it should be able to give ideas a place in the answers to this question by avoiding both extreme idealism and extreme realism. As it does not exclude political questions from the outset, it should also be able to include a critical dimension in the analysis without assuming the primacy of interests and power.

The tables and figures of this appendix show some basic data on the greenhouse effect. The first and simplest aim of their presentation is to make these data, which in this form are not generally accessible, available for researchers interested in the topic. The second reason for their presentation has to do with the basic goal of this study, namely to show that nothing directly follows from these data but that their importance depends on the interpretative frame through which they are perceived by actors (see also the discussion of this point on pp. 165 seq.).

Table 4
Basic facts about greenhouse gases

| Gas	Relative contribution to the greenhouse effect over a 100 year period
Carbon dioxide	61 %
Methane	15 %
CFCs	11.5 %
Nitrous oxide	4 %
Others	8 %

Source: Commission (1991b, p. 14)

Table 5
Total and per capita emissions of carbon (1989)

| Country	Total emissions (in million tons)	Per cent of world total	Per capita emissions (in tons)
Portugal	10.3	0.2	1.00
Spain	55.0	0.9	1.42
France	97.5	1.7	1.74
Italy	102.8	1.7	1.79
Greece	18.6	0.3	1.86
Ireland	8.0	0.1	2.27
Netherlands	38.7	0.7	2.61
Denmark	13.8	0.2	2.69
United Kingdom	154.0	2.6	2.69
Belgium	29.1	0.5	2.93
Germany	186.1	3.2	3.02
Luxembourg	3.3	0.1	8.83
Total EC	**760.9**	**12.9**	**2.34**
USA	1352.7	23.0	5.34
Japan	296.5	5.0	2.40
USSR and Eastern Europe	1463.2	24.9	3.63
Rest of World	2011.9	34.2	0.49
World Total	**5885.2**	**100.0**	**1.13**

Source: Commission (1991b, p. 15)

Because of statistical differences and rounding errors, the figures for the EC do not match the sum of the figures for the member states.

Figure 3   Per capita emissions of carbon in the EC (in tons)
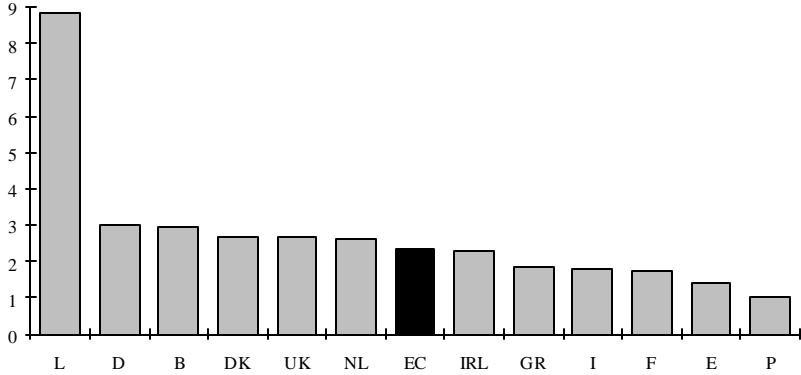
Source: Based on Table 5

Figure 4   Per capita emissions of carbon in the world (in tons)

Source: Based on Table 5

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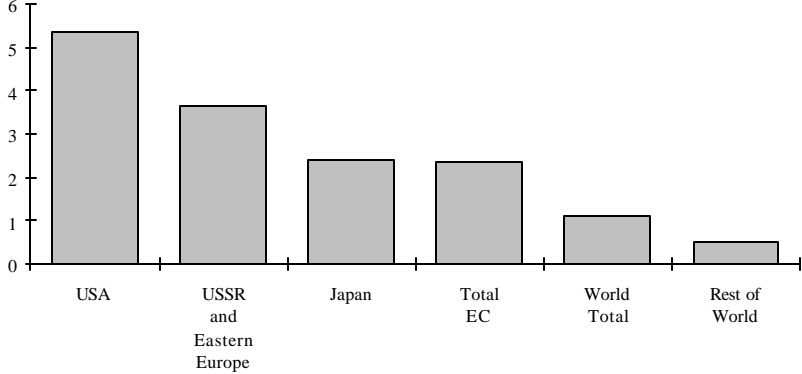
Table 6
Economic sectors and total CO_2 emissions in the EC (in per cent)

	Power Generation	Residential/ Commercial	Transport	Industry	Rest
B	21.1	24.5	21.7	28.3	4.4
DK	43.2	20.5	24.5	10.5	1.3
D	35.1	19.6	21.6	20.7	3.0
GR	46.2	11.9	24.2	14.8	2.9
E	32.9	9.8	32.3	20.1	4.9
F	13.5	25.4	34.0	23.6	3.5
IRL	34.0	30.2	20.0	15.4	0.4
I	29.3	20.2	26.0	19.8	4.7
L	11.9	10.6	21.4	56.1	0.0
NL	30.8	24.3	21.4	16.7	6.8
P	39.1	8.4	28.3	20.7	3.5
UK	37.9	18.8	24.1	15.1	4.2
EC	31.3	19.7	25.5	19.6	3.9

Source: Commission (1991b, p. 16)

Table 7
Structure of gross energy consumption in the EC (in per cent)

	Coal	Oil	Gas	Nuclear	Other
B	20.6	40.1	17.1	22.7	0.0
DK	33.2	52.9	8.9	0.0	5.1
D	28.0	39.7	17.6	13.8	0.9
GR	36.3	62.1	0.6	0.0	0.9
E	22.7	52.5	5.3	17.1	2.4
F	9.6	41.8	11.7	36.6	0.3
IRL	38.4	41.4	11.7	36.6	0.3
I	9.2	60.9	24.7	0.0	5.2
L	33.9	43.3	12.0	0.0	10.8
NL	12.5	36.7	47.9	1.5	1.3
P	16.3	78.8	0.0	0.0	4.8
UK	30.7	38.5	21.6	8.4	0.7
EC	21.0	44.8	18.3	14.3	1.6

*Source*: Commission (1991b p. 17)

Table 8
Research on climate change as a part of environmental research

Program	Duration	Publication in OJ	Climatic research in MECU (per cent of total)	Total amount (MECU)
3rd ERP (1st climatology program)	1981–1985	L 101, 11.4.81, p. 1	8 (18.6%)	43
4th ERP (2nd climatology program)	1986–1990	L 159, 14.6.86, p. 31	17 (22.7%)	75
STEP/EPOCH	1989–1992	L 359, 8.12.89, p. 9	40 (34.8%)	115
5th ERP	1990–1994	L 192, 16.7.91, p. 29	104,6 (40%)	261,4

Source: Official Journal of the EC, own calculations

The figures for 'climatology' in the 5th ERP refer to 'global change programmes', which is a broader notion than 'climatology'.

Figure 5   **Research on climate and total environmental research**
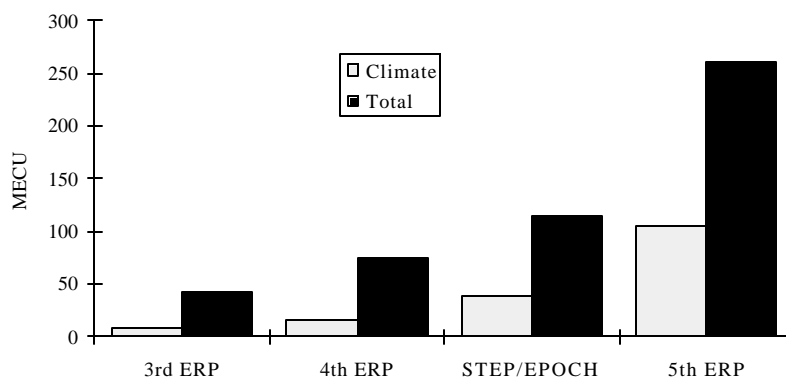
Source: Based on Table 8

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