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Making Sense of Environmental Integration

INTRODUCTION

Although the need for environmental integration has found growing recognition, the expression itself is neither clear nor common. Environmental integration is referred to under different labels, such as "integrated environmental management" (IEM), "integrated pollution control" (IPC), "holistic resource management," "ecosystem management," and "environmental policy integration" (EPI), just to name a few. In an otherwise comprehensive publication on environmental discourses, "environmental integration" is not mentioned as a distinct discourse.[1] The literature that explicitly uses the term "environmental integration" is rare, and even then the label "environmental policy integration" is often preferred.[2] Environmental integration, as it were, goes under many different guises, and is taken to mean different things. Yet, as I will argue in this chapter, the notion of environmental integration deserves a prominent place among the environmental discourses, as it lies at heart of the environmental *problématique*, and at the core of many different efforts directed at preventing, addressing, or resolving environmental problems, including those undertaken by governments.

This chapter has two main objectives. The first is to clarify what environmental integration is about. This involves a discussion of what I see as the main elements, dimensions, or challenges of environmental integration rather than providing a precise definition. Identifying the main elements is a first and important step toward making sense of environmental integration, in the light of the different interpretations, perspectives, approaches, and labels found in the literature. The second objective is to provide a framework for classifying and analyzing the array of more specific means of environmental integration that have been adopted by governments. From the 1970s onward, governments have introduced a growing range of tools or mechanisms to promote integration, many of which have been the subject of international diffusion. The framework can be used as a basis for comparing

the integration efforts of governments or countries, and for assessing their comprehensiveness and orientation. In most countries, governments have adopted approaches to environmental integration that are skewed toward one or two management dimensions, and that favor particular forms of integration. As the forms adopted also vary in the degree to which they include different dimensions of the environment, the framework allows assessing the relative strengths and limitations of government approaches to environmental integration.

The first section elaborates on the meaning and importance of environmental integration, identifying the main tasks or challenges involved. The second section introduces the framework used to classify a range of forms of environmental integration adopted by governments; and describes succinctly the various specific means and the reasons for their selection.

WHAT IS ENVIRONMENTAL INTEGRATION?

Given the paucity of comprehensive and theory-based studies in this field, there is a need for reflecting on the essence of environmental integration and for establishing some benchmarks. Clarifying what environmental integration is about is not just a matter of providing definitions, although conceptual clarification is an important step in building knowledge and understanding. It is also about identifying the main tasks or challenges that are considered to be essential to the idea of environmental integration.

Perhaps it is superfluous to point out that environmental integration does not refer to the environment itself, but to a challenge that humans face. In broad terms, it refers to the need for humans to increase their environmental awareness and to act upon it with a view toward minimizing their environmental impact. The need stems from the ecologically unspecialized nature of human beings and the fact that, unlike other species, humans do not "naturally" adapt to their environment but intervene in and change their environment to suit their own needs and wants. Disregarding, and often unaware of, their connections with, and dependence on, ecosystems, they collectively act in ways that can bring about the collapse of the environmental basis on which their well-being, civilization, and even existence are based.[3] Consequently, to prevent and mitigate environmental damage, humans, individually and collectively, need to learn to find or identify their proper place in the environment, from the local to the global level.

To integrate, in common terms, means to "combine (parts) into a whole" or to "complete (an imperfect thing) by the addition of parts."[4] In the context of what has been described above, environmental integration means that humans need to add an environmental "part" or dimension to their

knowledge and awareness, actions and behavior, and to the social institutions by which they are guided. Moreover, as they add this part, individually and collectively, in different contexts and ways, these parts do not necessarily combine into a whole. Individuals, groups, and societies develop different, often conflicting, views on the environment and how it should be taken into account in their actions and behavior. How people interact with and intervene in the environment differs widely, especially in modern, pluralist societies. Consequently, environmental integration involves two challenges: the integration of an environmental dimension ('part') into *all* spheres of human thinking and action that (potentially) impact on the environment, and bringing coherence and consistency between these efforts.

The challenges can be seen as two sides of the same coin or as two dimensions of environmental integration, which I will refer to as the external and the internal. Integrating environmental considerations assumes some idea about *what* needs to be considered and integrated (from the "outside," hence "external" integration). And to ensure consistency between integration efforts, there must be a common and coherent basis for integration (internal integration). In other words, environmental integration presumes the existence of a common framework for guiding integration efforts but is incomplete so long as there are areas of human activity (that impact on the environment) that have not been incorporated into that framework. In more graphic terms, external integration adds pieces to the environmental integration puzzle, while internal integration provides the picture used to guide putting the pieces together and to identify the pieces that are still missing.

This interpretation of environmental integration is quite broad. It depicts environmental integration as a challenge or process that involves all humans, individually and collectively. It affects (or should affect) all spheres of human action (behavior) and interaction that impact on the environment, even potentially, and all elements that provide a basis for such actions and interactions, including thinking, values, norms, goals, discourse, rules, and decision-making. Environmental integration can occur at the individual level, and in informal groups, as well as in formal organizations and in government agencies. Arguably, it is ultimately the integration of environmental concerns at the *individual* level that counts most. If *all* individuals were to integrate the environment in all of their thinking, decisions, and doing, in ways that are mutually consistent, environmental integration would be fully achieved.

It is hard to see how such a situation might occur on more than the smallest scale. To expect that all humans, on their own accord, are willing and able to integrate environmental considerations into all their thinking and actions in mutually consistent ways can be easily dismissed as utopianism. Although, in many societies, an increasing number of individuals do

include environmental considerations into their thinking and behavior, many do not or do not consistently do so. Ensuring that most if not all people (including those in groups and organizations) take the environment into account, and in mutually consistent and supportive ways, is a collective challenge. Governments, still the most important agents of and for collective action in democratic societies, have a major role to play in advancing environmental integration. This does not imply advocating a totalitarian green government intent on brainwashing (or "greenwashing") all people. On the contrary, like many other environmental advocates I believe that enhancing democracy offers a preferred and better way towards the greening of states and societies.

Environmental integration, though, is more than just a process of balancing or weighing different and conflicting values, interests, and views, as is often implied in discussions of integration under the heading of "sustainable development." In line with the general definition referred to above ("combining parts into a whole"), it implies a process of *changing* values, interests, and views to bring them in line with one another, to make them compatible and mutually supportive. Moreover, as we speak of *environmental* integration, this implies change based on what is considered environmentally important or imperative (environmental parameters). Consequently, environmental integration implies adapting knowledge bases (cognitive frameworks), actions (policies), and human systems (institutions) on the basis of collectively decided environmental parameters, so that they become "environmentally rational." Where values and interests are only balanced or traded off against one another, this is not environmental integration but the common practice of bargaining and politics.

The crunch, of course, lies in determining what is environmentally rational and what the environmental parameters are. Obviously, people will also disagree on that point, based on different values, interests, and ideologies. What is environmentally rational is socially constructed, not an objective truth that is easily uncovered. This applies even more so to the notion of environmental rationality, which includes a "human well-being" dimension (as discussed below), than to the notion of ecological rationality.[5] This conundrum, one might argue, makes talking about environmental rationality and environmental parameters meaningless, as their definition, too, is subject to conflicting views, interests, and ideologies, and thus bargaining and politics. Groups and societies can and do end up with quite different definitions of environmental rationality and parameters.

The answer to this conundrum lies not in denying the reality (and value) of diversity and conflict, but in recognizing that, de facto, in collective decision-making (often through governments) groups and societies always do assign different priorities and weights to values, and interests,

and that those who advocate more specifically environmental values and interests often do not have much of a say and tend to lose out, leading to aggravated environmental damage. In practice, then, environmental integration is about *enhancing* the incorporation of environmental knowledge, values, and interests in human thinking, decisions, actions, and institutions as well as about *promoting* the consistency between environmental management efforts by a variety of ways and means. Environmental integration depends on and requires the strengthening of environmental advocacy in the processes and institutions of collective decision-making with the ultimate aim that all policies and institutions are "greened" so that they no longer cause avoidable and unnecessary environmental harm and can thus be considered environmentally rational. Human actions will always have *some* environmental consequences, but there is enormous scope for reducing the tremendous (and growing) damage that is being caused now, and for bringing human practices more in line with collectively determined environmental parameters that now often are not even defined, let alone assigned priority. Although environmental integration is likely to be a long, arduous, and reiterative process by which humans improve their knowledge and capacity for minimizing their environmental impact (which implies also enhancing the environmental conditions for their well-being, as we will see below), much can and must be done in the short term and medium term to boost that capacity.

Advancing environmental integration at the collective (including government) level requires changing the way(s) the environment is managed. Management is used here in a broad sense, and relates to the ways humans interact with and intervene in the environment. It encompasses the ideas, assumptions, knowledge, and views on which environmental management is based (the *cognitive* dimension); the decisions, courses of action, and the choice of means and technologies (the *policy* dimension); and rules and organizations (the *institutional* dimension). The three areas or dimensions are intricately interwoven and interdependent: policies, decisions, and actions are based on cognitive (management) frameworks, and supported and implemented by (formal and informal) rules and organizations. Consequently, environmental integration efforts are incomplete and likely to suffer in their effectiveness if not undertaken consistently across all three dimensions. Yet, the environmental integration efforts of governments are often slanted toward one or two of these dimensions and are not backed up adequately by efforts in other areas. Here I will elaborate a bit further on each of the dimensions to clarify its importance to environmental integration.

How the environment is managed depends most fundamentally on the cognitive frameworks (belief systems, assumptions, knowledge, and information) that guide individuals, groups, and societies in their thinking, behaviour,

Table 1. Environmental Management Dimensions

Dimension	*Description*	*Examples*
Cognitive	The ideas, knowledge, interpretations, and frameworks that guide human interactions with the environment	Nature as a (mere) pool of resources; humans being above, at the center of, or part of nature; knowledge and views of ecosystems and of environmental problems, what causes them, and how they can, should, or must be addressed
Policy	Intentional courses of action affecting the environment (if by governments: public policy)	Aims, objectives, and practices, including choice of technology and other means, associated with agriculture, mining, energy use, transport, building, fishing, manufacturing
Institutional	Formal and nonformal rules and organizations that guide actions, behavior and practices affecting the environment	Taboos on (access to or use of) parts of nature; environmental laws and regulations; corporations, governments, environmental agencies and groups

and actions. Societies differ in the way(s) they interpret the environment and in the extent to which environmental views are integrated into dominant belief systems. Within modern, pluralist societies there is often a wide range of environmental views and considerable variation in the extent to which individuals and groups give consequence to these views in their behavior and actions. However, that does not mean that all views carry the same weight and are equally important in terms of their environmental impact. Moreover, in modern societies, implicitly or explicitly, some views will be much more prevalent and influential than others, with consequences for environmental impact. Environmental considerations may not figure much at all in the cognitive frameworks that dominate many of the decisions and practices of many governments, businesses, groups, and individuals.

Cognitive environmental integration, then, refers to the "greening" of knowledge and views that underlie human (including government) thinking, decisions, and actions. This involves two main aspects or challenges. The first is the integration of environmental knowledge into the cognitive basis for decision-making in areas where previously environmental knowledge has not, or has inadequately, been considered. In line with the distinction made

above, this will be referred to as "cognitive-external integration." The second is the development and adoption of an overarching cognitive framework to guide or direct environmental integration efforts across all areas, which will be referred to as "cognitive-internal integration."

Governments have used a variety of mechanisms or tools, among which environmental impact assessment (EIA), cost-benefit analysis (CBA), and risk analysis (RA), to advance the integration of environmental knowledge into the cognitive bases of decision-making in different areas. The use of overarching cognitive (environmental management) frameworks to guide environmental integration efforts across the board has been of more recent date, but has become quite significant since the late 1980s. In particular, many governments have adopted the notion of "sustainable development" as a cognitive framework for their integration efforts.

Cognitive integration cannot avoid the complexity and uncertainty that is inherent to all human knowledge. As human knowledge of the environment and environmental problems, like all knowledge, will always be incomplete, tentative, and contested, there is always scope for improving understanding. Moreover, as new environmental problems keep on surfacing, to the extent that modern societies have become "risk societies,"[6] the need for enhancing knowledge is ongoing and keeps growing. Improving human understanding of environmental issues is often seen as holding to key toward more effective management.[7]

However, improving understanding is not a straightforward matter. The cognitive dimension lies within the domains of ontology, epistemology, and ideology. Individuals, groups, societies, and cultures have different conceptions of the world and of the place of humans in it, and they also have different ideas as to what is valid and important knowledge. Knowledge formation, including scientific knowledge, inevitably involves interpretation and making judgments, and is influenced by contextual values.[8] Consequently, environmental knowledge is subject not only to uncertainty, but also to different interpretations of what the environment is, of how it functions, and of the seriousness and causes of environmental problems. Cognitive environmental integration, most clearly in its internal forms, involves making value judgements about the place and rights of humans in the environment, about the place and rights of other species, and about the importance of environmental values relative to other concerns. Inevitably, it raises questions about the principles on which environmental management should be based. It thus is subject to contesting views and politics, as will be amply demonstrated later in this book.

As noted above, environmental management and integration efforts are always based, implicitly or explicitly, on a particular interpretation of the environment. Fundamentally, this begs the question of *what* needs to be integrated and taken into account. As there is no agreement on the

interpretation of the environment, there is also no common yardstick for assessing the degree to which the environment has been incorporated into integration efforts. Fortunately, however, there is a characterization of environmental dimensions that has obtained considerable currency and that can provide a rough but useful measure for the degree of comprehensiveness or inclusiveness of cognitive integration efforts. These dimensions overlap to some extent with the three dimensions or aspects that are commonly associated with the notion of sustainability or sustainable development. I will label and define these three more narrowly as the ecological, resource, and human-environment dimensions.

The ecological dimension refers to ecosystems. Although, as I will discuss below, ecology and the notion of ecosystems do not provide the solid scientific basis for environmental management that some initially thought or hoped that they could or would, there are presently few people who would deny the importance of giving consideration to ecological or biophysical conditions, processes, and interconnections in the management of the environment. Early moves toward integrated management based on this recognition occurred when efforts toward the protection of animals were expanded to include their habitats. The protection of natural areas, such as parks and reserves, was a step toward more encompassing scales of integrated environmental management. More recently, the need for the protection of interconnected ecosystems, whether or not they have been set aside as parks or reserves, has been the subject of efforts toward integrated environmental management. In short, the ecological dimension of environmental integration refers to the extent to which ecosystem protection has been incorporated.

The resource dimension overlaps with the biophysical dimension inasmuch as animals, plants, and ecosystems also are resources. The term

Table 2. Environment Dimensions

Environment Dimensions	*Description*
Ecological	The biophysical environment encompassing all ecosystems, from local to global
Resource	Biophysical elements (potentially) of use to humans, including animals, land, water, forests, and minerals
Human environment	The biophysical environment shaped by humans, including the built environment, agricultural land, and human-made products

"resource" is defined here anthropocentrically as anything, living or nonliving, that is potentially of use to humans. In many parts of the world, the decline, depletion, or degradation of resources, such as land, forests, and water, has long been of concern. In 1972, concerns about resource depletion reached the global level with the publication of the Club of Rome's *Limits to Growth* report.[9] Although there have always been skeptics and optimists who deny (the seriousness of) problems of this nature, or who have unlimited faith in human ingenuity to overcome any such problems if they do arise, few people deny the desirability or importance of the judicious management of resources. Rational or science-based resource management became an important branch of environmental management in the nineteenth century. More recently, the need for managing resources (such as soil, water, plants, and animals) in a more integrated manner has become an important plank in resource management. In short, the resource dimension of environmental integration refers to the extent to which considerations regarding the long-term availability, and quality, of resources has been incorporated.

Economics is the discipline that focuses on the allocation of scarce resources, and this dimension of the environment is often referred to as the economic dimension. I prefer to use the term "resource dimension," since resources are substantive elements of the environment, whereas the "economic dimension," as used in the sustainable development discourse, has come to refer to nonenvironmental concerns, such as about economic growth, competitiveness, and profits. Therefore, talking about the integration of the *economic* dimension in environmental management is likely to shift attention away from a concern about the *physical* or *natural* resources and their long-term availability, in quantitative and qualitative respects.

The human environment dimension offers the greatest scope for confusion, as it could be interpreted to include all aspects of human life and societies, or to refer to the very elastic notion of "quality of life." Here, I use it to refer to those biophysical environmental conditions that have been shaped by humans. For many humans the environment is foremost about the "human environment," the environment shaped by humans, including cities and modified landscapes. Many, if not most, environmental problems have come to be recognized as problems because of the effects on humans of human-induced biophysical changes, such as pollution, urban sprawl, traffic congestion, noise, the decline of natural areas for recreation, and the physical conditions in which people work and live more generally. Efforts toward environmental integration that ignore such issues and aspects of the environment can be called integrated only in a limited sense.

More recently, "quality of life" has become an important topic in environmental and sustainable development discourse. Governments have incorporated quality of life as a concern in their environmental plans or

sustainable development strategies, and quality-of-life indicators increasingly are adopted in environmental reporting systems. However, the notion of quality of life is commonly interpreted very broadly to include the extent to which people are affected by crime, unemployment, insufficient income, social breakdown, family abuse, and other socioeconomic conditions. Although such issues are important, it is debatable whether, or to what extent, such issues are, or should be called, *environmental* issues.

The approach advocated here is to delineate the human environment dimension by confining it to human-induced *biophysical* phenomena. Pollution, the built environment, the noise generated by human activity or machinery, the food manufactured by humans, sewage disposal practices, access to and quality of drinking water, housing conditions, and waste disposal practices are some of the most obvious biophysical conditions and processes that affect people's well-being, and many of these have been the subject of environmental management for quite some time. There is no doubt that transport, urban development, and housing are policy areas that have, or should have, a strong environmental component, as they create or affect biophysical conditions that impinge on human well-being, as well as on ecosystems and resources. While improving the biophysical conditions that affect people's well-being may contribute to reducing crime and other social problems, we should avoid interpreting all human conditions as environmental conditions, as this would make the "environment" concept all-encompassing. Crime, alienation, youth problems, care for the elderly, family breakdown, unemployment, and insufficient income are most of all social and economic issues that are, or should be, addressed by social and economic policies and institutions.

Ultimately, where to draw the line around these three environmental dimensions is a matter of judgment. For practical and political reasons, it makes sense to promote a notion of the environment that does not encompass everything. Promoting a virtually all-encompassing interpretation of the environment may further increase the risk that environmental issues like those described above are swamped by economic and social agendas and priorities. A totally comprehensive interpretation of the environment is likely to be less meaningful and helpful in identifying environmental priorities and the development of environmental policies. Given the broad nature of, and the connections and overlap between, the three dimensions described above, the integration of environmental concerns already is enough of a challenge.

The integration of environmental concerns into and across policies has been a second main area of environmental integration pursued by governments. Here (public) policy is understood as purposeful courses of action (including deliberate nonaction) undertaken by governments. Policy has an intentional component (which may take the form of official, nonofficial, or

even hidden, goals, objectives, or targets), and also comprises what governments *do* to advance their intentions. At times, governments may not be clear or certain about their objectives, or do very little to advance officially stated goals. Nonetheless, even poorly targeted action and deliberate non-action are part of policy as long as there is some intention behind such courses. Policy needs to be distinguished from single decisions and almost always comprises a series of decisions and actions stretched over a period of time, and commonly involves multiple decision-makers and actors. The intentional nature of policy should therefore not be equated with the notion of "rational-comprehensive" decision-making. More commonly, policies are the result of multiple and even conflicting goals and interests pursued by different actors rather than the product of rational design by a single policy maker. When constituting compromise, policies reflect (a mix of) intentions or purposes, even if these are not mutually consistent.

Policies need to be distinguished from institutions. Although some policies may receive institutional backing (in the form of legislation, or regulations), not all of them do. Moreover, as new governments inherit the legislative framework created by their predecessors, existing laws and regulations do not necessarily constitute or reflect the policies of the government of the day. In fact, governments usually adopt an agenda of legislative and/or regulatory change in the pursuit of their goals and objectives. In large part, institutions are the cumulative and sometimes enduring results of the policies introduced by governments of the past. Sometimes, the original intention or purpose behind institutions (traditions or rules) may have faded, or even have disappeared altogether. Nonetheless, such institutions may still be kept alive because of an inherent value or merit or because they have obtained some value or merit they did not have before. Depending on the political-ideological orientation of a government, the gap between the "frozen" intentions built into the institutional framework, on the one hand, and the policies pursued by that government, on the other, can be significant.

"Environmental policy integration" refers to the integration of environmental concerns into, and across, the array of policies pursued by governments. Given that many if not most government policies have (potentially) significant environmental implications, it is desirable or necessary that an environmental dimension is built into a broad range of policy areas, including economic (development), agriculture, urban and regional planning, and transport and energy policies.[10] Integration of this kind will be referred to here as *policy-external* environmental integration, or more colloquially as the greening of (nonenvironmental) policies or policy sectors. In the literature, environmental *policy* integration is often treated as synonymous to environmental integration, and interpreted to include the integration of environmental concerns into institutions.[11] However, as explained above,

there is a significant distinction between policies and institutions. In fact, environmental policy integration and the integration of environmental concerns into institutions constitute two different paths or approaches that have received different degrees of emphasis across countries, as will become apparent in subsequent chapters.

The integration of environmental concerns *across* policy areas or sectors raises the question of consistency and coherence between integration efforts, and therefore of *internal* integration. What, and how, environmental concerns get integrated into policies or sectors can differ significantly, depending on the views, interests, and power held by actors within the respective policy communities. Weak integration within some areas or sectors may constitute significant brakes or obstacles to the success of environmental integration efforts in others areas or sectors, and may even negate achievements in the latter. The creation of some kind of overarching policy framework that guides or directs policy-external integration efforts, promoting their coherence and consistency, is therefore an important second element of environmental policy integration.

It should be noted that the terms "external" and "internal" integration are similar but not identical to the concepts of "vertical" and "horizontal" environmental policy integration put forward by Lafferty and Hovden. Although vertical environmental policy integration also refers to the integration of environmental concerns into sector policies (here referred to as external integration), this is seen by Lafferty and Hovden as largely a voluntary process controlled by the sectors themselves, even if guided by particular ministries or departments. This contrasts with horizontal integration, which is referred to as involving authoritative decision-making in the process of "balancing" conflicting interests while adopting a "strong supposition in favour of environmental concerns."[12] However, the terms "horizontal" and "vertical" in this context are potentially confusing, as vertical suggests hierarchy (mandatory integration stipulated from above), while horizontal could be interpreted as involving a process between "equal" parties. In practice, both types of integration may involve hierarchy (environmental integration into specific policy areas may be mandated by the government or a central agency, but based on a nonstatutory green plan). I therefore prefer to use the terms "internal integration" and "external integration," as these refer more clearly to the nature of the tasks or challenges involved rather than to whether they are imposed or voluntary.

Although environmental policy integration can overlap with policy coordination, the two concepts should not be seen as identical. Inasmuch as policy coordination is based on environmental parameters, goals, and objectives (substantive environmental policy coordination), it can be regarded as a form of policy-internal environmental integration. However, coordination

can be based on nonenvironmental goals and objectives, and often involves more procedural mechanisms for consultation and/or a process or bargaining or "mutual adjustment" that do not necessarily assign any great importance to environmental interests or concerns. Procedural coordination is an essential and necessary mechanism for environmental policy integration but is not in itself a sufficient means for bringing about such integration.[13]

Governments have used a variety of ways or means to promote environmental policy integration of both kinds. Policy-external integration, or the greening of policies, has been advanced, among other, by strategic environmental assessment (SEA), the development of environmental sector plans, the introduction of departmental environmental strategies, and sustainability assessment and voluntary agreements. Policy-internal environmental integration has been pursued most notably through "green planning," a concept used to refer to the adoption of comprehensive and integrated environmental policies, plans, or strategies, including sustainable development strategies. Green planning has been heralded as a promising and significant new stage in the development of environmental policy, and arguably the capacity to undertake it effectively constitutes a pinnacle of environmental integration at the national level.[14] However, as we will see in chapter 5, the promise of green planning has been far from fully realized.

To the extent that efforts and tools directed at promoting cognitive integration and policy integration have been backed up by legislation or other rules, they overlap with institutional integration. The term "institutions" covers a wide range of things that guide or channel human behavior and actions, including collective decision-making and policy development. Institutions comprise formal and informal rules, including constitutions, traditions, and conventions, organizations, the allocation of responsibilities and powers, mandates, processes and procedures, and legislation and regulations. Institutions lie at the basis of relatively stable and entrenched structures and processes through which environmental management takes place. Interest in institutions, and in particular the state, and their role in directing societal development has seen a revival since the 1980s.[15]

As institutions guide or channel much of human behavior and action, in government as well as in the wider society, their importance to environmental integration is obvious. Many rules, including those that guide government and business organizations, traditionally did not require or even encourage people to take note of environmental concerns, let alone to assign significant importance to them. Over the last three to four decades, governments have introduced many institutional changes to promote or ensure that environmental interests receive greater attention, in the form of the establishment of environmental organizations (like environment departments or ministries), environmental legislation and regulation (for a

whole raft of environmental issues), and even constitutional environmental rights. Also, many of the approaches, mechanisms, and tools directed at cognitive and policy integration, mentioned above, have been supported by the introduction of formal rules or legislation. For instance, in many countries, environmental impact assessment (EIA) has become a formal, legal requirement for particular categories of proposals, providing some teeth to cognitive-external integration efforts.

In fact, in many countries, the institutional environmental framework has become so elaborate and fragmented that it has become one of the driving forces behind moves toward internal integration. The introduction, over time, of laws and regulations for different environmental areas or media (such as for pollution of air, water, land, for waste management, and for hazardous substances) and the allocation of overlapping responsibilities to different agencies and levels of government, with their separate processes and procedures, have led to complaints about inefficiency and ineffectiveness, and the imposition of unnecessary costs and delays upon those who advocate development. The rationalization of environmental institutions, bringing them together into one, coherent whole, became an important plank of government policy in many countries the 1980s, but was perhaps most pronounced in New Zealand. New Zealand's bold reforms, and their limited effectiveness in promoting internal and external environmental integration, will be elaborated upon in chapter 7, alongside a discussion and assessment of a range of initiatives and developments in institutional reform in other countries.

As already noted above, how the environment is treated, and how environmental issues are dealt with, depends on what happens in all three areas or dimensions of management. Knowledge, policies (including their implementation), and institutions all shape or influence human action and behavior. To be effective, environmental integration efforts in each of these areas need to be consistent with and supported by efforts in the other two areas. Efforts directed at integrating environmental concerns in the cognitive realm, unsupported by policies and institutions, are likely to face considerable obstacles and to have limited effect. Environmental policy integration requires a knowledge basis, particularly with regard to the linkages between environmental problems, their causes, and proposed actions. Cognitive integration and policy integration are on firmer ground if backed up by institutions supportive of integration, especially when political support and commitment wanes. But institutional integration, even though it may give formal expression to integrative cognitive notions like sustainability, may not amount to much more than symbolism if not accompanied by environmental policy integration. The *scope* of environmental integration efforts refers to the extent to which they encompass the different dimensions

of management. Environmental integration is likely to be most effective and enduring if it occurs in mutually supportive ways across all three dimensions of environmental management.

One further qualification needs to be added in this context. As noted above, the main focus in this book is on environmental integration efforts undertaken by governments at the national level. However, given the interconnected nature of the environment, from the local to the global level, many environmental issues can only be addressed effectively if tackled in concert at all levels. This implies that environmental integration efforts, on all three dimensions of management (cognitive, policy, and institutional), also need to consider the linkages between the local, national, and global levels. The scope of environmental integration, and its effectiveness, therefore also relates to the extent that environmental integration efforts at all levels of government are linked and made mutually consistent.

Environmental integration efforts may also vary in their focus or degree of emphasis with respect to the three environmental dimensions. Some integration efforts, like integrated pollution control (IPC), primarily address pollution (from a range of sources, or in different media), while others are directed at increasing resource efficiency as well as reducing pollution. Some forms of environmental integration, like green planning, may be aimed at formulating courses of action for environmental problems across all three dimensions. I will use the label "environmental inclusiveness" to refer to the degree to which these dimensions are included in integration efforts. Given the interconnections and interdependence between the three environmental dimensions, the assumption made here is that environmental integration efforts are more likely to be effective if they consider the linkages between environmental problems and processes between all three dimensions. Integration efforts that are confined to issues within one dimension, although they may be or seem effective in the short term, are likely to be less effective or totally ineffective in the long term.

In practice, forms of integration are often confined only to one area of management, and include only one or two of the dimensions of the environment. In other words, they differ in their *scope of management* and vary in *environmental inclusiveness*. In most cases, therefore, environmental integration initiatives only partially address the environmental integration challenge. This is not to say that this makes them worthless. The main point here is to identify and clarify differences between approaches to environmental integration, and to point out that most forms of integration are likely to focus on particular environmental and/or management aspects, possibly for good reasons. To some extent, the limitations of several forms might be addressed by linking or combining them with others. However, many of the limitations of the more specific forms adopted by governments

are not the result of oversight but have been deliberately built in for political reasons, which makes overcoming them difficult. Nonetheless, there is a need for thinking about how approaches to and forms of integration can be improved, and I will set out to do so in chapter 8.

Having clarified what environmental integration is about, and having identified its main dimensions or aspects, I will now present a framework for classifying forms of environmental integration. The aim of doing so is, first, to make sense of the wide range of means, tools, and mechanisms that are frequently used to advance environmental integration; and second, to point out some of the strengths and limitations of these forms in terms of their degree of environmental inclusiveness and their scope of management. As most of these forms and means will be discussed more extensively in the following chapters, here they will be described only briefly, largely to explain why they have been selected for further discussion.

FORMS OF ENVIRONMENTAL INTEGRATION

As noted in the previous section, the growing recognition of the desirability, or even necessity, of environmental integration has led to the development of a variety of approaches to, and forms of, integration, in the literature as well as in practice. In this section, my aim is to make sense of this variety of approaches and forms, which has emerged under a confusing array of labels. Ironically, the rise of the notion or theme of environmental integration has added to the diversity of ideas and practices in environmental management. While this is not necessarily a bad thing, it has done little to address or overcome the fragmentation in thinking and action that characterizes much of the human endeavor to come to terms with the environmental *problématique*. Many forms of integration, so it seems, are associated with distinct schools of thought and/or practice, each pushing its own favorite wheelbarrow of ideas, models, tools, and techniques, without even acknowledging the existence, let alone merit, of other schools or forms, and their own limits in this common challenge.

Using the differences in foci of integration (cognitive aspects, policies, and institutions), and the distinction between external and internal integration as a basis, six categories of forms of integration can be distinguished: cognitive-external, cognitive-internal, policy-external, policy-internal, institutional-external, and institutional-internal. Within each category, a range of means, mechanisms, or tools can be identified.

Cognitive-External Integration

As described in the previous section, cognitive-external integration refers to the integration of environmental considerations into cognitive frameworks

Table 3. Forms of Environmental Integration

Management dimension / *External/internal*	*Cognitive* Information, knowledge and interpretations of the environment	*Policy* Policies, plans, programs, strategies	*Institutional* Institutions: rules and organizations
External forms	Environmental impact assessment, cost-benefit analysis, risk assessment, integrated environmental assessment, environmental assessment, environmental education	Strategic environmental assessment, sustainability assessment, economic instruments, voluntary agreements	Greening of government, green accounting, environmental management systems
Internal forms	Sustainable development, ecological modernization, environmental space, ecosystem management	Integrated pollution control, comparative risk assessment, green planning	Integration of environmental institutions, environmental rights, integrative principles, National Councils for Sustainable Development

that underlie human behavior and activities that affect the environment but that do not (yet) give consideration to environmental implications. In common terms, cognitive-external integration means the greening of nonenvironmental knowledge or knowledge frameworks—in particular, knowledge that guides human actions that impact on the environment.

Cognitive-external integration is more about processes, means, or mechanisms by which environmental knowledge is brought into cognitive frameworks than it is about the integration of *particular* knowledge. *What* knowledge (and associated values) is integrated depends, first and foremost, on the views of those who are involved in the integration processes used. Often, different views and interpretations will compete for integration, but the views held by those who are in *control* of the process, practically and/or politically, are likely to dominate or prevail. Although cognitive integration, especially of the external kind, is often portrayed as a matter of bringing in

scientific and objective knowledge, it is in fact very much subject to the interplay between different worldviews, ideologies, values, judgments, and interests—in short, to politics. The scientific, technical, or professional nature of the tools or mechanisms used may actually disguise the politics that is associated with them, as will be shown in chapter 2.

Since the environment became a focus for public policy in the 1960s, the United States has been a leader in the development of processes directed at enriching the cognitive basis of decisions with environmental knowledge. EIA, first introduced in 1970 with the adoption of the National Environmental Protection Act (NEPA), provides for assessment of the (potential) environmental implications of proposals. In the United States and many other countries, assessments are required to be based on rigorous scientific methods. And although, to varying degrees, EIA may provide opportunities for public input, scientists and experts play a dominant role in the assessment process. In the 1980s, risk assessment (RA) and cost-benefit analysis (CBA) became increasingly popular as additional means for incorporating and weighing environmental values in decisions. Risk assessment, as a systematic method for assessing risks, originated from the need to come to terms with the (potential) hazards arising from human-made chemicals—in particular, pesticides. However, during the 1980s it was developed into a tool for assessing the risks associated with a broader array of (proposed) technologies, projects, and even policies. Like EIA, RA is science-intensive and is practiced mostly by experts and professionals. CBA is an economists' tool by which the (potential) costs and benefits of proposals are quantified in monetary terms, with the aim of identifying their relative attractiveness. Over time, the use of these tools, especially of EIA, has spread to many other countries.

More recently, there have been moves toward combining or even integrating these forms of integration. Increasingly, CBA is being undertaken alongside, or within the context of, EIA and RA. In some countries, like New Zealand, requirements for environmental assessment encompass elements of all three forms, and have been referred to as integrated impact assessment.[16] More recently, integrated environmental assessment (IEA), also referred to as integrated assessment, has emerged as a comprehensive form of external environmental integration. Developed initially to assess the effects and implications of climate change, it has been touted as a more generic tool for building a sound knowledge basis for decision-making, incorporating ecological, economic, and, to a lesser extent, social dimensions.[17] Like its predecessors, IEA is strongly science- and expert-based, and aimed at providing the "best" knowledge basis for decision-making.

Environmental education is a form of external integration that governments have adopted to instill environmental knowledge into individuals and groups in society. In many countries, environmental subjects have been

introduced in school curricula, and many universities now offer courses in environmental science, studies, or management. Moreover, governments, especially at the local level, often use environmental education campaigns to enhance knowledge and awareness, and to promote particular behavior—for instance, with regard to waste disposal, recycling, and energy efficiency. Consequently, the environmental dimension that is sought to be integrated with environmental education can range from general knowledge about the biophysical environment to knowledge about more specific aspects or issues.

As environmental education programs offered vary in content and aims, and are not tied together by a coherent or particular set of environmental views, environmental education does not constitute a form of cognitive-internal integration. It is neither based on, nor necessarily brings about, common or shared interpretations of the environment and environmental problems. This does not detract from the importance and value of environmental education. Nor does it imply that environmental education *should* be based on a particular environmental view or ideology. Increasing environmental knowledge and awareness is a crucially important element for environmental integration, and *must* do justice to the diversity of views held in society. But this means that it cannot be relied upon, or expected to function, as a mechanism for bringing about coherence and consistency between actions and behavior affecting the environment.

Another limitation of environmental education is that its outcomes are difficult to assess. Although environmental knowledge and awareness in a society may change over time, it is problematic to attribute this primarily to formal environmental education efforts. News about environmental problems and campaigns by environmental groups, as well as changes in social, economic, and political conditions, also affect people's environmental views. Perhaps an even greater limitation is that environmental education can contribute to individualizing the environmental *problématique* if it is based on the assumption that every person is equally responsible for environmental problems, and that solving these depends primarily on changes at the level of individuals. It thus can divert attention from the structural, political, and economic causes behind environmental problems, and from the disproportionate contribution and responsibility of certain groups, organizations, and sectors in society. Such factors are unlikely to be affected by environmental education, unless it increases awareness and knowledge of such issues and leads to stronger demands for changes in policies and institutions. Given the difficulty of assessing the influence of environmental education as a form as a form of external integration adopted by governments, I will not elaborate further on it in this volume.

The main reason for grouping these forms of integration together in the category of cognitive-external integration is that they have in common

a focus on greening knowledge, by a variety of means. By implication, they are *not focused* on changing policies and institutions, although they may contribute to such change. It is commonly argued that these forms are directed at improving the knowledge basis for decisions, but that it is up to the decision-makers to determine whether and how policies and institutions should be changed. They do not, at least not explicitly, advance normative or political-ideological views on the environment, and on whether and how societies should be changed to accommodate environmental concerns. They are often portrayed as neutral, objective, or scientific, and nonpolitical means for taking on board sound environmental knowledge in decision-making processes, actions, and behavior.

However, as I will discuss in chapter 2, the claims of objectivity and political neutrality of these forms is untenable. Moreover, although they may not be focused on, or directed at, changing policies and institutions in a particular way, their role and functioning is conditioned to a large extent by the political-institutional framework. What these forms bring about is largely conditioned by the specific way they have been shaped (including their institutional basis), and by the policies (environmental and other) pursued by governments.

Cognitive-Internal Integration

While forms of cognitive-external integration provide the means (tools, processes) by which the cognitive bases of human choices, actions, and behavior, individually and collectively, are greened, they do not, by themselves, advance a coherent view of the environment. The content of the knowledge infused depends in large part on the views of those who administer the means of integration, and is also circumscribed by the political context in which this occurs. In other words, the knowledge infused by external integration is diverse, fragmented, contested, and often the subject of disagreement and conflict. Consequently, cognitive-external integration efforts, by themselves, do not guarantee, or even provide a means for, creating coherence or integration between these processes.

Cognitive-internal environmental integration is directed at providing a degree of substantive coherence between external environmental-integration efforts. While external integration is mostly about creating or improving *processes* for integration, internal integration is about creating or improving some kind of overarching cognitive framework that can provide guidance about *what* should be integrated. Such overarching bases or frameworks can take a variety of forms, such as environmental principles, parameters, or environmental belief systems.