POLICY INTEGRATION FOR COMPLEX POLICY PROBLEMS: WHAT, WHY AND HOW

by

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Abstract

Contemporary policy problems concern complex, cross-cutting socio-environmental issues that, combined with changing environmental, socio-economic and political conditions and the quest for sustainable development, place new demands on policy making. The principal problem is that the policy market does not provide a satisfactory supply of arrangements to meet this demand. Policies are often found to overlap or be in conflict and the policy system is unduly complicated, producing inefficient or even ineffective solutions and generating new problems. Policy integration (PI) comes as a potentially suitable answer to address this institutional misfit and facilitate the transition to sustainable development. The paper negotiates selected conceptual, theoretical, methodological and practical issues concerning policy integration with a special focus on complex policy problems, occasionally using the combat against desertification in Mediterranean Europe as an illustrative example. Although the discussion refers primarily to European Union policies, it is relevant to other spatial/organizational levels as well.

The first section of the paper discusses the distinguishing characteristics of contemporary policy problems, drawing on complexity and institutionalist thinking, sketches briefly the changing context of policy making and the quest for sustainable development, and offers a brief account of desertification and the associated policy needs. The second section, drawing on the pertinent literature, attempts a comprehensive conceptual exploration of the notion of policy integration, proposes a particular conceptualization of PI and argues for the need for PI to handle complex policy problems especially at higher spatial/organizational levels such as the EU. The third section suggests a methodological framework to analyze PI holistically as well as to serve as a basis for the development of policy integration schemes. The last section offers preliminary ideas for the design of PI schemes and suggests future research directions.

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POLICY INTEGRATION FOR COMPLEX POLICY PROBLEMS: WHAT, WHY AND HOW

1. INTRODUCTION – THE QUEST FOR POLICY INTEGRATION

Contemporary policy problems concern complex, cross-cutting, socio-environmental issues that, combined with changing environmental, socio-economic and political conditions and the quest for sustainable development, place new demands on policy making. More often than not policies are single-purpose concerning directly or indirectly particular facets of these problems only. Thus, a single sectoral policy cannot address the problem as a whole. Moreover, policies are often found to be little coordinated, to overlap or even to be in conflict. The policy system is unduly complicated, producing inefficient or even ineffective solutions, giving rise to new problems and waste of resources. After several decades of policy-making experience, it became evident that sectoralized, uni-dimensional, uni-disciplinary and uncoordinated policies do not serve well the cause of sustainable development. The principal problem is that the policy market does not provide a satisfactory supply of arrangements to meet the demand for policy making generated by complex problems. Policy integration (PI) comes as a potentially suitable answer to fill this institutional void and facilitate the transition to sustainable development. The paper examines the 'what', 'why' and 'how' of policy integration with a special focus on complex policy problems. The combat against desertification in Mediterranean Europe is used occasionally as an illustrative example. Although the discussion refers primarily to European Union policies, it is relevant to other spatial/organizational levels as well.

The rest of this section sketches briefly the changing context of policy making and the quest for sustainable development that generates the need for PI, presents the distinguishing characteristics of contemporary socio-environmental problems, drawing on complexity and institutionalist thinking, and offers a brief account of desertification and of the associated policy needs. The second section explores the 'what' and 'why' of PI; it provides a conceptual examination of the notion of PI, proposes a particular conceptualization of PI and argues for its suitability in handling complex policy problems especially at higher spatial/organizational levels such as the EU. The third section addresses the 'how' of PI; it suggests a methodological framework to analyze PI comprehensively and to serve as a basis for the development of policy integration schemes. The last section offers preliminary ideas for the design of PI schemes and suggests future research directions.

1.1. The changing context of policy making and the quest for sustainable development

The complexity of contemporary socio-environmental problems, the quest for sustainable development, globalization, the Europeanization of policies, the growth of multi-level governance, the requirements of planning for the needs of client groups and affected regions generate demand for more encompassing, multi-level, spatially and temporally integrated policy approaches. As the next section further details, contemporary policy problems are complex, resulting from the intricate interplay of biophysical and human driving forces over time, cutting across ecological, social, economic, administrative and political boundaries and transgressing the functional

specialization of most current political and administrative systems (Peters, 1998; Robert et al., 2001; Shannon, 2002). Their systemic nature renders causal relationships indeterminate and direct, single-purpose policy interventions ineffective.

In the quest for sustainable development, integration is a central concept demanding the consideration of all, and not only the environmental, aspects of policy problems and of the web of relationships among environmental media, actors and policies, to secure the long-term, coherent functioning of human-environment systems.

Socio-economic globalization has dissolved and blurred political and institutional boundaries, has created or intensified multiple and multi-level interdependencies among people, environmental media, social and economic issues, and policies and has changed the spatio-temporal scale at which problems can be effectively addressed. National and subnational governments are rarely able to tackle alone and provide effective responses to these problems within a *reasonable* time frame (OECD, 1996b; Robert et al., 2001; Hajer, 2003). Moreover, international policies and membership in supra-national organizations press governments to present a coherent policy picture to the external world (OECD, 1996a; Lewanski, 2002).

In the EU, the process of European integration and the Europeanization of several policy areas have spurred decentralization and devolution of decision making power to lower levels of government (Liefferink and Jordan, 2002) thus augmenting the institutional complexity of contemporary policy problems as well as the territorial and temporal reach of policy interventions. The state-centric, hierarchical model of governance is being replaced by multi-level forms of governance (Marks et al., 1996; Hooghe and Marks, 2001) where decision making authority and influence are shared across multiple levels. Solutions to problems are devised and implemented in the context of polycentric, highly complex and interdependent networks of formal and informal actors, procedures and instruments, increasing accordingly the need for co-ordination, development of horizontal cooperative structures, and participatory and joint development and use of public intervention instruments (Hajer, 2003).

Finally, resources utilized in regional and sub-regional planning to address the needs of specific client groups and lagging regions or to promote regional sustainable development more generally originate in numerous policies and administering organizations[1]. This requires that policies be organized not on the basis of function, as it has been historically the case, but on the basis of client groups or of particular regions (Peters, 1998; Hakkinen, 1999; Gibbs et al., 2003; Moss, 2004).

On the supply side, the nature of public policy making and the current performance of the institutional and administrative apparatuses in the context of multi-level governance do not appear to serve satisfactorily the demand identified before. For one thing, policies are ‘moving targets’ (Wittrock and de Leon, 1986). They are not discrete, disembodied events occurring in isolation from one another. On the contrary, policy decisions and their impacts are interlocked making it increasingly difficult for one policy area to function independently of other areas (Greenberg et al., 1977).

[1] Such as regulations, economic instruments, and financial incentives.

Public policymaking follows diverse styles. Policy types differ from one area to the other[2] (Richardson, 1982; Vogel, 1986; Knill and Lenschow, 2000; Moss, 2003). Historically, relatively autonomous policy sectors have dealt with policy issues, leading to sectoral/functional specialization and vertical organization of administration at both the EU and the national level (Avery, 2001; Robert et al., 2001; Hertin and Berkhout, 2003; Zahariadis, 2003). The result is a well-documented, general lack of coherence, coordination and cooperation among policies, generating costs and inefficiencies, taxing limited government budgets and detracting from the achievement of sustainable development (OECD, 1996a; O' Riordan and Voisey, 1998; Peters, 1998; Persson, 2002; Shannon, 2002).

The implementation of several EU policies has uncovered problems of cooperation at the level of the EU and of the member states (MS) (Robert et al., 2001). These include divergent political objectives and interests, lack of collaboration among the Directorates-General of the European Commission, lack of clear position of the Commission, different political prospects among the Community and national and sub-national actors, high degree of policy and administrative sectoralization and centralization in the MS, weak administrative coordination and low degree of consultation of sub-national authorities. Policy implementation has revealed also that asymmetric integration is ineffective; i.e. one policy incorporates concerns of another but this is not always met by similar moves in the other policy. In sum, PI is needed to hold the policy system together and to manage the numerous policy interconnections so that policy supply meets demand successfully and effectively.

1.2. Complex socio-environmental problems and their policy implications

The diffusion of Complexity theory in the Natural, the Social and the Policy Sciences since the 1980s has enriched greatly the study of contemporary socio-environmental problems. A voluminous literature now documents the complexity of natural, social systems and, more importantly, of human-environment systems, shedding light on suitable policy making approaches to address them (Holling, 1986; Dryzek, 1987; Waldrop, 1992; Berkes and Folke, 1998; Byrne, 1998; Marion, 1999; Levin, 1999; Science, 1999; True et al., 1999; Zahariadis, 1999; Gunderson and Holling, 2002). The dominant Newtonian-Cartesian, linear, equilibrium-centered view of nature and society, that dissociates the environment from people, policies and politics, has not been found to fit the evidence. Instead, complexity-informed, non-reductionist, co-evolutionary, interdisciplinary, historical, and comparative systems approaches, adopting integrative modes of inquiry and methodological pluralism, are more suitable for studying these problems. The distinguishing characteristics of complex systems that help comprehend and negotiate the complexity of socio-environmental problems and its policy implications are briefly presented below.

"Complex Adaptive Systems" (CAS) is the term used to refer comprehensively to systems that are constantly adapting to their environment while maintaining their structure and coherence (Batty and Torrens, 2001; Holland, 1995; Janssen et al., 2000; Finnigan, 2003; Gunderson and Holling, 2002; Holling, 2001).

[2] Some being regulatory, others market-oriented, still others voluntary-sector oriented.

CAS are open systems whose boundaries are difficult to delineate precisely. They comprise components, semi-autonomous, individual, self-interested agents[3], hierarchically nested (embedded) within larger aggregate systems[4] (Berkes and Folke, 1998; Gibson et al., 1998; Levin, 1999; Gunderson and Holling, 2002). Agents, such as, flora and fauna in ecosystems, individuals and organizations in social systems, have different characteristics. Human agents[5], in particular, have different socio-economic features, viewpoints, preferences, goals, aspirations, emotions, possess different amounts of resources[6] (Detombe, 2001) and may belong to more than one hierarchies (Manson, 2001) and groups. Thus, CAS possess an inherent variety and flexibility that allow them to be creative, respond fast to unforeseeable events and to try multiple options simultaneously to survive[7] because functions and control are decentralized, system components are linked in parallel through numerous, non-linear feedbacks and their multiple memberships may generate redundancy and contradictions but increase the strength and resilience of CAS to external and internal shocks.

The connectivity of CAS, the particular ways in which agents connect and relate to one another, is critical to their evolution and survival. The properties of CAS are explained by an understanding of the *relationships* among their parts rather than by an understanding of these parts separately (Gallagher and Appenzeller, 1999; Manson, 2001; Limburg et al., 2002). The *non-linear* nature of these relationships distinguishes complex from simple, linear systems and defines their internal structure, behaviour and mode of change (Manson, 2001).

Linear systems evolve smoothly and continuously towards a single equilibrium state. Following a disturbance, *negative feedback* mechanisms bring linear systems back to their initial equilibrium. On the contrary, non-linear systems possess multiple equilibria, changing and co-evolving with their environment through *self-organization* and *adaptation* to changing external conditions and "shocks", a process based on *learning*[8] (Lee, 1993; Berkes and Folke, 1998; Manson, 2001; Wilson, 2002). Following a large, external event or minor, random, and sometimes overtly insignificant, changes, the transition to another state may be abrupt and discontinuous as CAS spontaneously re-arrange, reorganize, redistribute and restructure their components in different patterns, behaviour and structure to better interact with their environment. This happens because mutually reinforcing, *positive feedback* mechanisms amplify changes bringing the system to a new equilibrium state (Manson, 2001; Holling 1986, 2001)[9].

Consequently, CAS exhibit Sensitive Dependence on Initial Conditions (SDIC) (Glasner and Weiss, 1993); i.e. historical events influence importantly *selection*

[3] Seeking to maximize some measure of goodness, or fitness, by evolving over time (Dooley, 1997).
[4] Their characteristic hierarchical organization differs from top-down, serial, command-and-control authoritative structures (Levin, 1999; Limburg et al., 2002).
[5] Such as individuals, households, public and private formal and informal organizations, and resources
[6] Money, know-how, power, etc.
[7] For example, polycentric governance systems have proven less vulnerable to unexpected contingencies than rigidly organized, centralized systems (Ostrom, 1990, 1998).
[8] Through continuous exchanges of information with their environment (feedbacks), the system's agents are able to anticipate the results of their actions as well as to adapt to changing conditions.
[9] The popularly known 'butterfly effect' (Gleick, 1994*)* signifies major changes precipitated by amplification of an original minor disturbance.

among the multiple equilibria of a system (Holling 1978; Manson, 2001). Increasing returns in economics (Arthur, 1989) explain several economic and spatial phenomena[10] and the *path dependence* of socio-economic and spatial development (Anderson et al., 1988; Arthur et al., 1997), highlighting the contingent nature of their evolution and the influence of the institutional settings within which they are embedded (Liebowitz and Margolis, 1995; Henderson, 2001; Berkhout, 2002). Some systems may be '*locked in'* a particular state where change is irreversible (Arthur, 1989; Liebowitz and Margolis, 1995)[11].

The evolution of CAS is characterized by the co-existence and complementarity of long periods of relative stasis (phases), where change is gradual (slow processes) and the system functions smoothly, punctuated by bursts of evolutionary change (phase shifts), discontinuities and rapid transformations (fast processes) triggered by either minor or major disturbances (Berkes and Folke, 1998; Wollin, 1999; Holling, 2001; Gunderson and Holling, 2002). CAS are in a state of tenuous equilibrium, at the '*edge of chaos'* (Langton 1990), tending to collapse into a rapidly changing state of dynamic evolution[12].

A much-celebrated feature of CAS is *emergence*. Instead of being planned and pre-determined, order and control emerge from the bottom up as local interactions, based on simple rules, among individual agents produce over time regular patterns that feedback on the system, informing agents' behaviour (Dooley, 1997; Levin, 1999). *Emergent* qualities are system-wide characteristics, not features of individual components. They are a function of synergism, not superposition, among system's parts at a particular level, rendering CAS unpredictable and difficult to control (Baas and Emmeche, 1997; Manson 2001).

Contemporary socio-environmental problems are biophysically, socio-economically and institutionally complex. They involve numerous, diverse and multifarious actors and resources interacting, through various formal and informal institutions, over and across different spatial and temporal levels in both linear and non-linear fashion. The great number of interactions and differentiation among actors and resources reduce the chances of understanding one another's functions and increase the incidence of problems (Zahariadis, 2003). Problem definitions and the associated goals are contingent and contextual, a function of the initial system conditions (of the actors that defined the problem and the state of the system). These evolve in the course of problem-solving as actors, resources and their relationships change. Hence, these problems are often ill- or multi-defined, definitions and goals may be conflicting, and causation difficult to establish. It is uncertain when, why, and where the problems started, as well as where they lead and when they will end. Consequently, these problems are unpredictable and hard to analyze and handle with ready-made solutions (DeTombe, 2001). Problem solving is a continuous and fluid process. Seldom are

[10] Such as technical standards (the "QWERTY" standard typewriter and computer keyboard), urban sprawl and urban concentrations, clustering of economic activities, and so on.

[11] For example, overgrazing or climate change can push ('lock') vegetated systems into a new stability domain (desertification) that is reinforced by feedback loops that maintain high temperatures and low water and nutrients (Limburg et al., 2002).

[12] Their property of *self-organized criticality* means that they reach an equilibrium state that is not stable but which is the most productive and creative, leading to new possibilities.

these problems 'solved'; at best, they are 'resolved' (Patton and Sawicki, 1986) for their 'owners' and over a finite time period.

The implications of socio-environmental problem complexity for policy making and management are crucial (Dryzek, 1987; Wiman, 1991; Wollin, 1999; Zahariadis, 2003). Resource-related public policies are collective choice institutions mediating "the relationship between a social group and the life-support ecosystem on which it depends" (Berkes and Folke 1998, 9). The policy market supplies multifarious and largely uncoordinated policies. Most policy systems, at all levels, are complicated rather than complex, comprising policies built on the linear-world assumption[13] that ignore system complexity and variously reduce it. Policies have generally unpredictable, uncertain, contextual and contingent impacts at various spatial/organizational levels, frequently, giving rise to undesirable 'surprises' in both the short and the long run or proving to be perverse[14]. At times, policies displace, rather than ameliorate, problems across time, space and medium (Brown, 2000). Moreover, vertical administrative organization and compartmentalization and institutional fragmentation do not permit policy systems to cope effectively with policy externalities[15]. Hence, they are not *fit* and able to come to terms with the complexity of contemporary socio-environmental problems.

Responsive and effective policy making necessitates an understanding of the inherent uncertainty of policy problems and that "there is no single, universally accepted way of formulating the linkage between social systems and natural systems" (Berkes and Folke 1998, 9). Solutions to problems cannot be imposed; rather, they *emerge* from the interactions among system components following the rules set. Policy integration, capitalizing on the flexibility of complex human-environment systems (Zahariadis, 2003), appears to be another avenue worth-exploring to manage problem complexity and provide for better *institutional fit*, 'adding value' to policies, while economizing on resources (Sanderson, 2000) as it will be discussed later.

1.3. Desertification and the associated policy needs

Desertification is a contentious issue (Thomas 1997) and a 'wicked' policy problem. The 1994 United Nations Convention to Combat Desertification defines it as "land degradation in arid, semiarid and subhumid tropics caused by a combination of climatic factors and human activities" (UNCCD, 1994). Land degradation means reduction or loss of the biological or economic productivity and complexity of rainfed cropland, irrigated cropland, or range, pasture, forest and woodlands resulting from land uses or from a process or combination of processes, including those arising from human activities and habitation patterns, such as: (a) soil erosion caused by wind and/or water, (b) deterioration of the physical, chemical, biological and economic properties of soils and (c) long-term loss of natural vegetation (UNCCD, 1994).

[13] Contemporary policy approaches gradually abandon the Newtonian-Cartesian, linear worldview and espouse the complex, non-linear world model. The adoption of the precautionary principle, of learning-based and strategic approaches and of the adaptive management paradigm, all signify the influence of complexity-thinking in policy making (Wiman, 1991; Lee, 1993; Healey, 1997; Brown, 2000; Ascher, 2001; White, 2001).

[14] I.e. generating environmental costs but not economic benefits (Berkes and Folke, 1998; Holling et al,, 1998; Ascher, 2001).

[15] I.e. changes in one policy area produced by changes in another area.

Desertification is an emergent phenomenon as it is a higher-level feature of the land system, the cumulative outcome of numerous individual, local level inappropriate land management practices induced by the intricate interplay of multi-scale biophysical and societal forces that are mediated by a considerable number of formal and informal nature-society institutions. Its occurrence is path-dependent, sensitive to the initial conditions prevailing in particular spatio-temporal contexts. Once unsustainable conditions set in an area, positive feedback mechanisms may intensify degradation leading the land system to other equilibrium states. It is, thus, difficult to disentangle its multi-scale biophysical and societal causes, predict its consequences and reversibility and know with certainty whether and when an area will be 'locked' in an irreversibly desertified state.

As a result of this complexity, desertification is a socio-culturally defined and determined construct. Considerable uncertainty surrounds it, leading to controversies over its definition, relative importance of its anthropogenic causes[16], assessment of land affected or at risk, reversibility and importance of its spatio-temporally variable impacts (Reynolds and Stafford-Smith, 2002b). The *meaning and interpretation* of its determinants and impacts have influenced the collective sense of urgency to combat it. This explains the preference for particular abatement approaches, the slow progress towards developing integrated approaches, the relative inaction and the partial, fragmented, and uncoordinated efforts to address it. Policy making to combat desertification is a complex enterprise (Briassoulis, 2004a). It requires continuous top down-bottom up communication and coordination of policies and local level interventions to alleviate the larger problem.

2. POLICY INTEGRATION: WHAT AND WHY

Although interest in policy integration has a long history in several quarters, the recent renaissance of the subject is associated mainly with the environmental repercussions of economic activities that are not properly accounted for (if at all) by sectoral policies; hence, the proliferation of policy activity and research on environmental policy integration (EPI). In the European Union, Article 6 of the 1999 Amsterdam Treaty gave EPI its current political significance, constituting the official statement for the integration of environmental concerns in sectoral policies: "Environmental protection requirements must be integrated into the definition and implementation of the Community policies and activities referred to in Article 3, in particular with a view to promoting sustainable development" (Lenschow, 2002: 14). Various policy developments aim to provide the necessary procedures to materialize the injunction of Article 6. The focus on EPI has overshadowed, however, other concerns. For example, in addition to environmental repercussions, sectoral policies have spatial, social, cultural and other interdependent repercussions. Moreover,

[16] Controversy centers on its causes and consequences. The problem is two-fold: "(a) whereas desertification is most often attributed to a myriad of human activities, … it may be triggered or exacerbated by climate variability, … so that the causes are not necessarily solely anthropogenic (at least at the local land use level), (b) not all such ecological, biogeochemical and hydrological changes have an immediate or direct economic impact on human activities" (Reynolds and Stafford-Smith, 2002b, 3)

neither environmental policies account adequately for their economic and social impacts nor social policies account for their environmental and economic impacts.

The discourse on policy integration (PI) has met with the common problem of confusion, loose (or no) definitions, differences in the meaning and multiple interpretations (and mis-interpretations) of 'policy', 'integration' and 'policy integration' in various policy contexts that lead to different operational expressions, proposed designs, and so on. Proper and consistent analysis and design require, however, clear definitions of 'integration of what, by whom, where, when, why and how'. Only then it can be judged how well PI facilitates the resolution of problems and contributes to sustainable development.

2.1. Conceptual exploration of the notion of Policy Integration

The meaning of EPI and PI depend on how 'policy' and 'integration' are conceptualized. According to Merriam-Webster's Collegiate Dictionary, "integrate" can mean either "*to form, coordinate, or blend into a functioning or unified whole*" or *"to unite with something else"* or "*to incorporate into a larger unit*" (cited in Persson, 2002, 9)[17]. Figure 1[18] schematically depicts the fine difference between "blending into a unified whole" or "uniting with something else" and "incorporating into a larger unit".

In discussing PI for sustainable development, Thomas (2003) suggests four conceptions of the term 'integration' – integration as efficiency, as mindfulness, as institutional coordination and as 'compatibility-within-a-framework'. Integration as 'compatibility-within-a-framework' aims at striking a compatible relationship among various sectoral goals within an overarching framework, allowing for compromises among them. One step further, 'goal integration' involves the integration of environmental, economic and social dimensions in ways that secure simultaneous realization of the respective goals in a single policy, programme or project intervention (Thomas, 2003). This ideal integrationist conception assumes that "all apparent irreconcilability can be overcome through attaining an underlying unity of purpose" (Thomas 2003, 203).

Turning to the meaning of 'policy', public policies are defined as purposeful courses of action, comprising a long series of more-or-less related activities, which governments pursue to reach goals and objectives related to a problem or matter of concern and to produce certain results (Friedrich, 1963; Lowi, 1964; Anderson, 1984; Pressman and Wildavski, 1992). A policy is not a single, discrete, unitary, disembodied phenomenon, but a series of decisions. It concerns what is actually done (or not done) as opposed to what is proposed or intended, which is the case of decisions; policy implementation and enforcement complete the actual policy process. The main constituent elements of a policy are its object (the characteristics of the problem considered and the theory about it), interested and/or involved actors, their goals (reflecting their value systems), the available structures and procedures (for formulation and implementation), and the instruments used to achieve the goals set.

[17] The *Oxford Combined Dictionary of Current English & Modern English Usage* (1982, 129) leans towards the latter interpretation ("To *integrate* is to combine components into a single congruous whole").

[18] Inspired from Persson (2002).

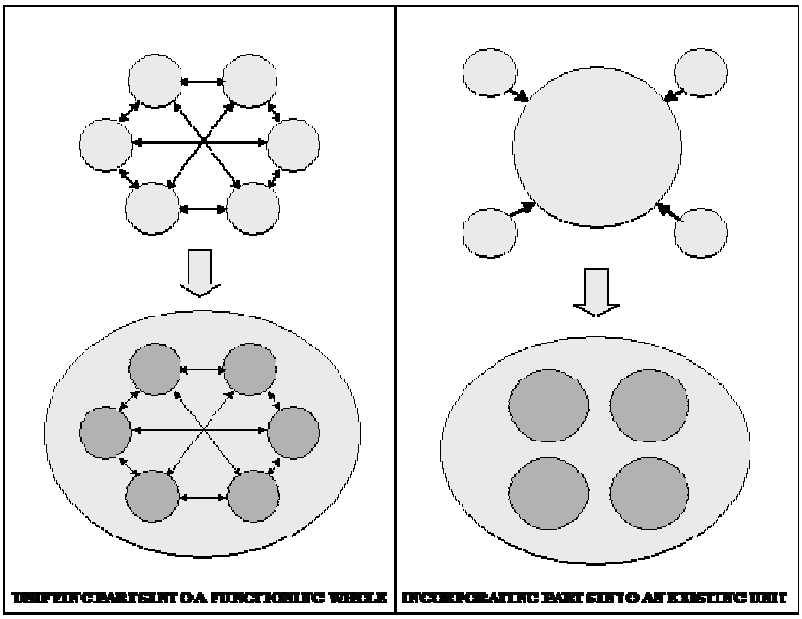

Figure 1. The difference between unifying and incorporating parts

PI, then, can be conceptualized as a process either of coordinating and blending policies into a unified whole, or of incorporating concerns of one policy into another. The literature contains several definitions of PI. Without an adjective, no priority among the objectives of PI is assumed; the task is delegated to the political (democratic) process. 'Environmental', or for the same purpose, 'social' or 'economic', denotes a particular point of view and priority in integrating policies[19]. Since the 1980s, most definitions refer to EPI (even when the 'environmental' is omitted). Some define EPI as a process, other emphasize the output of the process, an integrated policy, while others stress both process and output.

Collier (1994) defines policy integration as aiming at (a) achieving sustainable development and preventing environmental damage; (b) removing contradictions between as well as within policies; and (c) realising mutual benefits and the goal of making policies mutually supportive. She considers that EPI involves different requirements at different stages of the policy process and suggests that a set of criteria for determining goal trade-offs is necessary to guide the EPI process.

The OECD (1996a), focusing on the process side, defines EPI as: "Early co-ordination between sector and environmental objectives, in order to find synergy between the two or to set priorities for the environment, where necessary." The European Environment Agency sees EPI as a process of shifting the focus of environmental policy away 'from the environmental problems themselves to their causes … [and] … from 'end-of-pipe' ministries to 'driving force' sector ministries' (EEA, 1998, 283).

For Lafferty and Hovden (2002:15), EPI implies "(a) the incorporation of environmental objectives into all stages of policy making in non-environmental policy

[19] Lafferty and Hovden (2002) offer the integration of economic goals into several policies as an example.

sectors, with a specific recognition of this goal as a guiding principle for the planning and execution of a policy, (b) accompanied by an attempt to aggregate presumed environmental consequences into an overall evaluation of policy, and a commitment to minimize contradictions between environmental and sectoral policies by giving principles priority to the former over the latter."

Other authors (O' Riordan and Voisey, 1998; Shannon, 2002; Hertin and Berkhout, 2003) emphasize the communicative dimension of EPI; intersectoral PI concerns certain kinds of cooperative behaviour, forms of institutions, and kinds of communicative action.

Finally, EEB (2003: 13, 14) offers a more holistic definition: "Environmental Policy Integration is a long-term process that requires changes in administrative practice and government culture, institutional adaptation and also specific tools… The integration of environmental aspects into other policy areas must contribute to policies that effectively lead us to higher environment protection and greater sustainability."

To develop operational expressions for EPI and PI and measures to achieve them, it is necessary to clarify (a) what should be integrated and (b) along which dimensions. The answers are partly conditioned by the focus on PI as process, output or both, and by the *stage of the policy making process* concerned. Two generic approaches to these intertwined questions are suggested: the vertical/intrasectoral and the horizontal/intersectoral (Lafferty and Hovden, 2002; Persson, 2002; Hertin and Berkhout, 2003).

The *vertical/ intrasectoral approach*, reflecting an *incrementalist approach* to policy making, has dominated thinking on PI given the emphasis on EPI. In a rather narrow sense, the object of PI is to incorporate environmental concerns into a sectoral policy (that were not included in its original design) through proper procedures to produce an integrated policy (Lafferty and Hovden, 2002)[20]. In practice, it is encountered mostly during agenda (and goal) setting where environmental goals are added to the set of goals of sectoral policies (e.g. reduce air pollution from transport). Naturally, the critical question is how one chooses proper means to realize these goals. The literature leans heavily towards procedural measures and instruments for PI and EPI (Peters, 1998; Persson, 2002; EEB, 2003; Hertin and Berkhout, 2003). Underdal (1980) suggested the *vertical consistency* criterion for PI; a policy should be consistent at all its levels, from policy goals to more detailed guidelines. Although it is not often explicitly stated, evidently, the result of a vertical/intrasectoral integration process is an integrated policy (in the sense reflected in its goals).

Vertical PI has a spatial dimension, which is mostly implicit in the literature, with some exceptions to this author's knowledge, so far (Buller, 2002; EEB, 2003). The stages of the policy process span several spatial/organizational levels and different actors are involved at each stage and level, influencing the ease and success of PI. At higher levels, PI in terms of goals is easily achieved (Lenschow, 2002; Persson, 2002) while getting formal and informal policy actors comply with 'integrating' procedures and rules[21] at lower levels proves difficult if not infeasible (O' Riordan and Voisey,

[20] Obviously, this may apply to any other kind of concerns such as social equity, gender equality, etc.
[21] E.g. implement the EIA requirement.

1998). If linkages among the relevant spatial/organizational levels do not exist or are not fully operational, the initial PI intentions never materialize on the ground.

The *horizontal/intersectoral approach* to PI, reflecting a *rational comprehensive* approach to policy making, is increasingly recognized as the most appropriate for *effective* PI. It concerns *relationships* among policies with respect to a given issue (e.g. environmental protection) or to several interlinked issues and may not necessarily lead to a single integrated policy. Most studies concern the environmental version of horizontal policy integration (HEPI); i.e. ensuring that the environmental dimension is integrated in all other policies as a cross-cutting concern. Lafferty and Hovden (2002) consider that HEPI concerns the extent to which a central authority has developed a cross-sectoral strategy for EPI. Until now they could not find evidence of HEPI as it requires negotiation of trade-offs among environmental and other objectives.

Essential requirements for effective HEPI include horizontal communication, substantive and procedural cross-sectoral cooperation, collaboration and coordination and networking between environmental and non-environmental sectors, joint responsibilities and procedures, sharing of resources and lack of administrative fragmentation to design solutions to shared (or common) problems (Peters, 1998; Lenschow, 2002b; Shannon, 2002; EEB, 2003, Hertin and Berkhout, 2003). These requirements can be extended to the general case of PI to address the demands of contemporary ecologically, socially, politically, administratively, and legally crosscutting policy problems.

Horizontal PI has a spatial dimension that is implicit in most of the literature. Liberatore's (1997) discussion of the 'space and time' dimension requires paying attention to 'the interactions between different spaces: the *geographical space* of the affected environment, the *economic space of the activities* that have an impact on the environment, the *institutional space of the relevant authorities and policy instruments*, and the *cultural space of values*' (p. 117). She mentions also the 'organisation' dimension that concerns the mismatch between the territorial competences of environmental authorities with the affected environment.

The distinction between a vertical and a horizontal approach to EPI and PI is not unambiguous or straightforward to make in practice (Persson, 2002). In the perspective of promoting sustainable development, both approaches should be merged through appropriate procedures for complete and effective PI extending beyond the environmental field.

2.2. Proposing and justifying a conceptualization of PI

The preceding discussion suggests that PI is needed to hold the policy system together, to overcome its tendencies towards disorder, and to manage the numerous policy interconnections so that policy supply meets policy demand, supporting the effective resolution of complex problems and the transition to sustainable development. However, PI should be conceived and analyzed more broadly and thoroughly along many more dimensions than it is currently the case.

It is proposed that PI should be construed as 'integration of policies', referring to a process of sewing together and coordinating various policies, both over (horizontally) and across (vertically) levels of governance, modifying them appropriately if necessary, to create an interlocking, hierarchical, loosely-coupled, multi-level, policy system that functions harmoniously in unity. The output of such an integration process will be an *integrated policy system* aiming to achieve multiple complementarities and synergies among policies. Although a perfectly integrated policy system may be a utopian ideal, the more policies 'talk to one another' and the right hand know what the left does, the more satisfactory will be the response of policymaking to the demands of contemporary problems.

The proposed interpretation of PI is more appropriate, compared to the narrow and still vague notion of EPI, for several reasons. First, given the inevitably multifarious and departmentalized nature of policy making, integration of the multitudinous policies better supports the transition to sustainable development. The environment-biased assumption of EPI that the introduction of environmental considerations in sectoral policies will contribute to the achievement of sustainable development is not warranted because it prioritizes the environmental dimension of sustainable development while the broader conceptualization of sustainable development asks for a balance among its economic, environmental and social dimensions. Moreover, this assumption ignores the indubitable linkages that exist between the environmental and the social as well as between the social and the economic facets of policy problems.

Second, the resolution of contemporary, multidimensional and cross-cutting socio-environmental problems is rarely possible through single-purpose, uni-dimensional, and uncoordinated policies or of a super policy that integrates all relevant problem dimensions. The complexity of these problems introduces important non-linearities in the operation of both the human-environment and the policy system, as it was discussed before. Integration of policies may eliminate redundancies (actors, procedures, instruments), constrain conflicts[22], reduce the number of system elements and their interactions, and turn complicated and chaotic or rigid and inflexible policy systems into ones possessing organized and, thus, manageable complexity. This can be done by designing proper hierarchically nested, governance systems, introducing positive feedback mechanisms to reinforce beneficial and attenuate undesirable policy impacts, and managing path dependency. Because PI is based on communication and cooperation, it has the potential to advance policy learning for adaptation to unforeseen contingencies. Creative combination of policies can help exploit opportunities and foster novelty in designing policy interventions.

Third, even narrower goals, such as environmental protection, cannot be achieved simply by (vertically) incorporating environmental concerns into extant policies to create environmentally integrated policies. The way of introducing environmental concerns in sectoral policies still remains unspecified reflecting either a vague conceptualization of 'policy' or an instrumental identification of a policy with its goals and instruments. In any event, environmental concerns relate to more than one environmental policy. Therefore, a meaningful introduction of, say water quality considerations, in sectoral policies would necessitate the coordination of a sectoral policy with water policy. Moreover, policy instruments are not delivered by

[22] And, thus, reduce costs and waste of resources.

themselves; they are administered by specific administrative bodies, involve particular policy actors and relate to other instruments[23]. It follows that essentially EPI inevitably implies integration among policies in terms of their objects, goals, actors, structures/procedures and instruments.

3. HOW TO ANALYZE POLICY INTEGRATION: A METHODOLOGICAL FRAMEWORK

The analysis of PI is approached from an institutionalist, actor-centered perspective, which is more fit and responsive to the policy needs of complex problems (Healey, 1997; Opschoor and van der Straaten, 1993; Ostrom, 1990; Pressman and Wildavsky, 1992; Weale, 1996). This perspective places emphasis on the values, goals, theories about the problem, resources, information-processing capabilities, and multiple memberships of actors, their stakes in particular action situations, and the diverse ways through which they pursue their interests within a 'shared power world' (Healey 1997, Ostrom 1999). Although they operate within opportunity spaces structured by higher-level forces and power relations, actors, as reflective beings, are not passively shaped by but they actively shape their social situation, too, developing relational bonds of various strengths and reach. Policy problems and associated policies are not things that just happen and policy procedures and instruments are not applied by themselves. Actors are central from the definition of the policy problem up to the implementation of particular policy measures. In the following, the object of PI, the dimensions along which it can be studied, and criteria for assessing PI are discussed.

3.1. The object of policy integration

In analyzing the integration among two or more policies, the first question is "what should be integrated", i.e. the *object of policy integration*. PI can be approached from a horizontal direction, on the same spatial/organizational level, and from a vertical direction, across levels. The present discussion focuses on the horizontal direction although a complete analysis should consider both directions.

The object of horizontal, intersectoral integration is fuzzy[24], multidimensional, multifaceted, and complex. Here the 'object of policy integration' summarizes the multi-part content of integration among policies that varies with the stage of the policy process (the 'when') and influences the 'how', the particular procedures and means prescribed to promote PI. Operationally, it concerns *simple and cross relationships* among the objects, goals, actors, procedures and instruments of two or more policies (Figure 2). The main components of the object of PI are discussed below. These concern relationships among policies on the same spatial/organizational level, which are, however, mediated by policy and nonpolicy factors from higher and lower levels.

[23] E.g. environmental regulations cannot be properly enforced in the absence of financial instruments.
[24] Starting from the definition of what constitutes a policy, the conceptualization of the policy process and ending up with asking whether what is finally implemented on the ground bears any resemblance to the policy as formulated and legislated (Sabatier 1999).

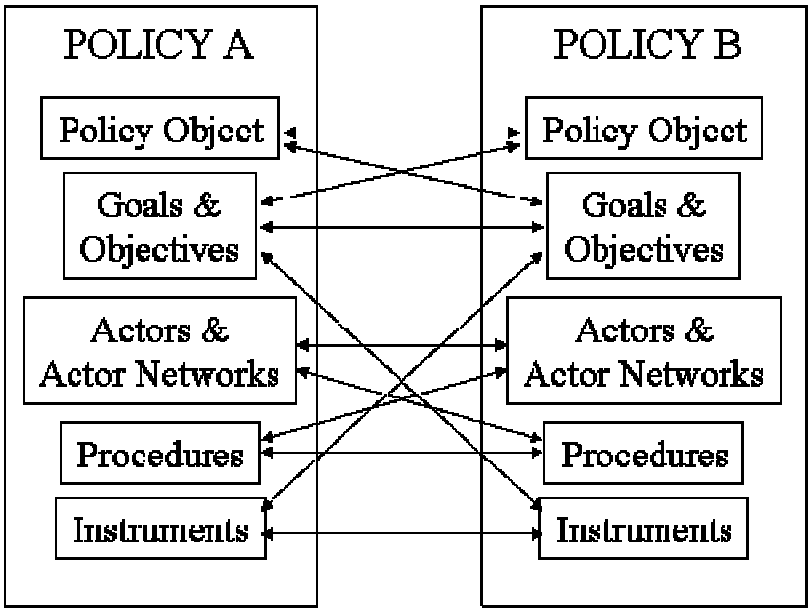

Figure 2. The object of policy integration

Relationships among policy objects. Two policies are integrated, or have chances of being integrated, if they have common scope, treat common or complementary facets (environmental, spatial, economic, social, institutional) of a problem situation in congruent or unified manner[25]; or, equivalently, accommodate or respect variously one another's concerns about the social, economic, environmental, cultural and other features of the issues studied[26]; i.e. frame environmental and other issues positively.

This implies that the policies draw on common or compatible and non-conflicting theories and epistemological frameworks, reflecting common perceptions of the problem and common outlooks of the actors involved, or adopt comprehensive, interdisciplinary problem definitions and theories and define and operationalize concepts similarly. Moreover, they most likely possess the same or compatible spatial and temporal systems of reference and consider cross-scale integration (of global and local issues).

The congruence of the theoretical and conceptual framings of two or more policies is perhaps the necessary precondition and the *sine qua non* for their substantive, and not only instrumental, sustainable integration.

Relationships among policy actors. Two or more policies are, or have chances of being, integrated if they share common actors either by design[27] or for reasons unrelated to intentions to facilitate PI. Satisfactory PI among policies can be expected if the relationships among actors are cooperative, collaborative, non-conflicting, and non-adversarial in general, and if actors have shared values, common visions, common goals and abide by the same rules even when these are not within their organizational mandate (Shannon, 2002). This implies that the corresponding policy

[25] Without, however, overlapping and duplicating one another.
[26] I.e. rural development, regional development, etc.
[27] Such as the integration correspondents, placed in each DG of the European Commission to liaise with DG-Environment and ensure that environmental concerns are given proper account (Lenschow 2002), interministerial committees, special task forces, etc.

networks are somehow coordinated or intersect either spontaneously or by design. As discussed below, formal rules of interaction among policy actors may be provided even when PI is not a policy goal. Besides formal, institutionalised relationships, however, several important relationships among formal and informal actors may be informal, providing for inconspicuous routes towards PI even when this is not required formally (Christiansen and Piattoni 2004).

Several relationships among actors, contributing or detracting from PI, emerge during implementation where many more actors are activated, the stakes are clearer, and winners and losers are identifiable (Pressman and Wildavsky 1992). This means that even if PI is institutionalised at higher policy levels, it may break down during implementation if formal and informal actors do not agree with the integration idea and the related implementation arrangements.

When the objects of two or more policies exhibit commonalities it is likely that the policies have common actors, with common interests and outlooks, established tradition and lines of communication and collaboration, and a genuine interest in some form PI (not necessarily generally approved and supported). If, however, actors are closely tied to 'favorite' policies, PI efforts may founder (Shannon, 2002).

Relationships among policy goals. Congruent, compatible, consistent, common or complementary goals among two or more policies are favourable, necessary but not sufficient, pre-conditions for their integration. Because policy actors define both the policy object and the associated goals, if policies share common actors whose relationships are cooperative their goals may be congruent or common. When the goals and objectives of one policy include its impacts on objects of other policies[28], or if one policy is considered as a tool for the achievement of the goals of another, the two may exhibit some degree of integration. Congruence on abstract goal statements is easier to achieve rather than on concrete measures; sustainable development is a telling example (Lenschow 2002, Persson 2002). Multidimensional policy goals provide more points of contact, thus, enhancing the chances of policy integration.

Relationships among policy structures and procedures. Horizontal linkages should exist among the organizational and administrative apparatuses of individual policies, such as common, congruent, non-conflicting, cooperative and coordinated structures and procedures, for properly formulating and carrying out joint, cooperative and integrated solutions to common problems. Horizontal structures are sometimes already in place at certain spatial/organizational levels indicating need for and interest in coordinating specific policies, for practical purposes, at least[29]; i.e. making sure that observing the prescriptions of one policy does not counteract the requirements of some other(s). The same is true for agencies serving particular client groups that have to exploit and combine diverse policy resources to deliver their services (Peters 1998).

Administrative procedures and other organizational arrangements and requirements for communication, joint decision making, collaboration and conflict resolution within and between state and non-state actors, both during policy formulation and

[28] E.g. the regional economic impacts of water policy; the environmental impacts of regional policy, the impacts of water policies on rural development, the impacts of rural policy on water resources, etc.

[29] Regional and local planning authorities, formulating and implementing development plans, are horizontal structures that necessarily carry out some form of PI in the planning process.

during implementation, are necessary to promote PI. Some policies may already mandate cooperation and collaboration among agencies on common or related issues, which indicates interest in promoting integration with other policies[30]. Effective PI requires also vertical linkages among structures and procedures. It does not suffice to integrate policies horizontally at higher spatial/organizational levels, say the European Union, if this scheme cannot be properly transmitted to national and sub-national levels through proper structures and procedures. The principle of subsidiarity may pose difficulties because needs felt at higher levels may not be equally appreciated at lower levels where other priorities may prevail. The reverse is also true; the lack of integration felt at lower levels, during implementation, may not be perceived easily and directly at higher levels when communication is perplexed and 'noisy'.

Relationships among policy instruments. The relationships among policy instruments necessary for successful PI take various forms depending on their type. Three cases are discussed (a) relationships among instruments of the same type, (b) relationships among instruments of different types and (c) use of integrative instruments.

Compatible, non-conflicting, coordinated and/or complementary and mutually reinforcing policy instruments of the same type – e.g. legal, institutional, or financial – provided by different policies suggests some form of integration. The respective policy objects and goals may be compatible and non-conflicting too. Conflicts among instruments testify to lack of policy coordination (Robert et al. 2001). Although policy instrument compatibility is tested during implementation, several conflicts can be avoided if the design of a policy's instruments takes into account the instruments of other policies. This may not be always possible, however. For example, most EU funding for regional development purposes is provided on the basis of the Community Support Frameworks prepared by each country. It is not, therefore, straightforward to know *a priori* whether this funding will be congruent, coordinated with or complementary to funding deriving from the CAP or the Enterprise Policy to promote sustainable regional development. This example points to the importance of decision and policymaking procedures for effective coordination of policy instruments.

Coordinated, non-conflicting and complementary policy instruments of different types usually promote PI. Non-coordination entails costs and inefficient use of resources, leading at times to inaction. Financial support provided through the Structural Funds or the Cohesion Fund has frequently contradicted the legal provisions of environmental policies, indicating problematic integration between regional and environmental policy (Lenschow 2002b). However, because the successful implementation of a particular policy instrument mix is context-dependent, providing satisfactorily coordinated policy instruments by design at higher levels appears to be very demanding, if not infeasible, as actual integration materializes at lower levels. Again, the importance of appropriate procedures to guide the combination of instruments becomes evident.

Use of integrative instruments is not necessarily an indication of PI. For example, the requirement for EIA or SEA in transport or in regional policy complies more with the notion of vertical, intrasectoral (EPI) rather than with the notion of horizontal,

[30] The EU Water Framework Directive requires participation and cooperation of representatives from all state agencies responsible for the various uses of water in drafting River Basin Management Plans.

intersectoral PI. Similarly, economic instruments are used with the purpose of incorporating economic efficiency considerations in environmental policies and creating markets for goods and services rather than integrating environmental with economic policies. At best, integrative instruments assist the integration between policies *indirectly* by (a) incorporating concerns of other policies in the object of a policy, (b) inducing the harmonization of policies on theoretical grounds[31], (c) promoting the development and use of integrated assessment methods and data sets. Integrative instruments may promote PI only if their use is reciprocal; i.e. not asymmetric[32]. Moreover, reliance on integrative instruments only is not a long-term solution to PI.

In sum, prescribed policy instruments and the rules of their use (implementation procedures) reflect the definition of the policy object and the associated goals of the actors participating in policy formulation. If the latter are dissociated, then the relationships among policy instruments will suffer. The provision of integrative instruments may be a technical solution that does not remove the fundamental requirement of encouraging, facilitating and promoting proper relationships among policy objects, goals and actors primarily. Moreover, during implementation, users combine instruments to achieve their ends (i.e. solve the problems *they* perceive) in context-dependent ways that can be neither anticipated nor specified precisely and unambiguously during policy formulation. It can be argued that PI *emerges* during implementation and as such it cannot be completely prescribed *a priori*.

Lastly, the variability of the object of PI with the stage of the policy process (agenda setting, policy formulation and policy implementation) is briefly considered. Integration among policy objects and goals is more relevant and essential during agenda setting and policy formulation while integration among policy instruments is critical at the implementation stage. Integration among policy actors is relevant throughout the process. Nevertheless, as all constituents of a policy change in the course of its development, a constant occupation with integration among policy objects, goals, actors, procedures and instruments and an unending two-way communication between formulation and implementation to facilitate as comprehensive PI as possible and feasible are necessary.

3.2. The dimensions of policy integration

The object of PI has several facets that should be analyzed not only in functional and procedural terms, as it is mostly the case at present, but more deeply, in substantive terms. Four broad interrelated and interdependent clusters of dimensions of PI – substantive, analytical, procedural, and practical – are discussed in the following to expand on the content of PI and to inform its operationalization (Table 1).

Substantive dimensions of policy integration. The substantive cluster encompasses the thematic, conceptual, and value dimensions that have to do with the constitution of the policy objects to be integrated. The thematic dimension negotiates the essential relationships among policy objects that usually concern selected characteristics of an

[31] E.g. environmental policies adopt the neoclassical economics paradigm and the goal of efficient resource use.

[32] For example, environmental policies may adopt economic instruments but economic policies may ignore the economic value of environmental goods and services used in production and consumption.

issue – environmental, social, economic, cultural, etc. The term 'thematic' may be equivalent to the term 'sectoral', if the latter refers to policy sectors. The thematic integration requirement is embedded partly in the vertical EPI concept (VEPI) (Lafferty and Hovden, 2002). However, VEPI has been framed in narrow (only environmental), vague and procedural rather than broad, concrete and substantive terms thus far, leaving untouched the issue of what relationships should be satisfied exactly.

Table 1. Proposed clusters of dimensions of policy integration

Cluster	*Components*
Substantive	Thematic
	Conceptual
	Value
Analytical	Spatial
	Temporal
	Methodological
Procedural	Structural
	Procedural
Practical	Practical

The need for thematic integration draws directly from the sustainable development requirement that relationships among sectoral policies account for the relationships of the characteristics of the issue considered. Hence, thematic integration is not limited to environmental concerns; it extends to social and economic concerns as well as to relationships between economic sectors; e.g., agriculture and transport, etc.

Multidimensional policy objects and comprehensive policy problem definitions facilitate the thematic integration among policies, especially if these draw on common theories. Integrated, interdisciplinary theories should indicate relationships among the characteristics of an issue to be addressed by the respective policies, thus constituting the substantive basis of their integration.

Related to the thematic, but acting on deeper levels, are the conceptual and value dimensions of policy integration. Different policies frequently define differently similar terms and concepts; such as 'rural', 'social impacts', 'spatial impact', 'region', 'integrated', 'forest', 'pasture', and so on. Frequently, also, the terms and nomenclature used are not defined or they are defined loosely, opening thus the way for a multiplicity of interpretations (and mis-interpretations). The conceptual integration problem is rooted in socio-culturally determined differences in the value systems of actors in the same or different policy contexts. Essential PI presupposes a *common frame of mind*, common interest in and sense of collective responsibility both for the causes and the solution of a policy problem among all those involved; or, at least, a positive predisposition towards cooperation for the 'common good'. From the point of view of its analysis, common value systems among the actors involved are manifestations or indications of some form of PI or of its likelihood.

The combat against desertification is an excellent example of a complex policy problem demanding the coordination of several policies, e.g. regional and rural development, water, environmental, social, economic, transport, at various spatial

levels. However, the prospects for the substantive integration of these policies are dim because at present because a basis for thematic, conceptual and value integration does not seem to exist. An integrated conception of the phenomenon is missing as it has been approached and analyzed from different, narrow disciplinary camps and traditions, with natural sciences dominating social sciences or integrated approaches. Not surprisingly, policy prescriptions are similarly coloured and biased, with most of them concerning its environmental dimensions despite the recent emphasis on its socio-economic and cultural dimensions. The connections between all dimensions are still thin and not well-elaborated, especially on a spatial basis, exposing the lack of a common substantive basis for PI.

The substantive dimensions of PI are directly related to its analytical, procedural and practical dimensions as it is discussed next.

Analytical dimensions of policy integration. The analysis of the object of PI entails spatial, temporal and methodological considerations whose operational expressions depend on the substantive framing of PI. In a horizontal sense, the spatial dimension of PI concerns the congruence among the spatial systems of reference (spatial classification schemes, spatial units of reference and criteria for the delineation of spatial areas) of different policies on the same level. Environmental and socio-economic policies do not always share congruent spatial references. Administrative units are ultimately used that are not, however, suitable for addressing cross-cutting socioeconomic problems.

The spatial dimension concerns also cross-level relationships within and between state and non-state actors involved in policy making. Lack of communication, cooperation and coordination among those who define the policy problem and formulate the relevant policy at higher levels, those charged with implementation and the ultimate policy recipients (e.g. land owners, farmers, etc.) contribute to policy failures.

Similarly, the temporal dimension of PI concerns the congruence among the implicit or explicit temporal systems of reference (temporal units, time intervals, time horizons, and timing of actions[)] that policies adopt. Lack of temporal integration often leads to ineffective and wasteful policy interventions.

The methodological dimensions of PI concern the relationships of the methods and techniques for policy analysis associated with different policies. Different and incompatible methods, owing to epistemological and theoretical differences among policies, lead to conflicting or, more generally, incompatible, definitions and proposed solutions of the policy problem. Multidimensional, comprehensive and integrated policy problem definitions and theories dictate the use of integrated, multi-dimensional methods and techniques at all stages of policy making.

Procedural dimensions of policy integration. These refer to the structural and procedural relationships among policies that constitute the means through which PI materializes and have been discussed in the previous section. Two points are important in studying the procedural dimensions of PI; first, their relationships with the substantive and analytical dimensions and, second, the internal consistency and effectiveness of the procedural arrangements provided. The fact that structures and procedures exist does not automatically imply their suitability for all cases of PI, their

adoption and implementation, and their effectiveness with respect to the goals of PI. Ideally, substantive and analytical considerations should suggest what procedural arrangements are needed to realize PI goals and objectives (cf. Lenschow, 2002). However, the context-specificity of policy problems renders the achievement of this ideal linkage between substance and process difficult in most cases. Even if a perfect PI scheme is designed at higher spatial/organizational levels, the substantive and institutional misfits that arise during implementation are difficult to presage at the formulation stage. It follows that documenting PI in procedural terms does not suffice; evidence of its effectiveness is needed, in other words, whether the policy system functions coherently, coordination occurs, and produces benefits while it minimizes costs. Of course, the possibility of spurious PI should be ruled out; i.e. that the smooth functioning of the policy system does not owe to integration arrangements but to external, non-policy factors.

Practical dimensions of policy integration. These concern the plethora of practical issues related to availability, compatibility, consistency and congruence of data and information needed to analyze properly the object of PI. They draw directly from the associated substantive and analytical considerations. Without spatially, temporally and conceptually integrated data and information systems integrated analysis of policy problems is not feasible and, consequently, limited essential analytical support is provided for the design of PI schemes (Briassoulis, 2001).

Table 2 suggests a correspondence between the object and the dimensions of PI. A complete analysis requires examination of all the components of the object of PI along the appropriate dimensions because all are interrelated.

Table 2. Relationships between object and dimensions of policy integration

		Policy Object	Policy Goals	Policy Actors	Policy Structures & Procedures	Policy Instruments
Substantive	Thematic	X	X			
	Conceptual	X	X			
	Value	X	X			
Analytical	Spatial	X		X	X	X
	Temporal	X		X	X	X
	Methodological	X		X		
Procedural	Structural	X		X	X	X
	Procedural	X			X	X
Practical	Practical	X		X	X	X

3.3. Criteria for assessing policy integration

Based on the proposed conceptualization of the object and dimensions of PI and drawing on the pertinent literature[33], this section suggests criteria for assessing whether integration among two or more policies already exists or for proposing how it can be achieved or improved. The criteria are organized according to the components

[33] Although the literature concerns EPI mostly, the criteria can be generalized to PI because of their predominantly procedural orientation.

of the object of PI and reflect the respective dimensions. General, cross-cutting criteria are included also, considered as enabling conditions for the realization of PI.

The degree of PI achieved is difficult to assess in general. Ideally, if all criteria are satisfied, then policies are perfectly integrated. The more criteria are satisfied the higher the achievement of PI. Depending on the particular criteria being satisfied, it can be gauged whether PI is substantive, analytical, procedural or practical. Lastly, those criteria that are not satisfied may suggest what should be done to promote integration between the policies examined.

General criteria

- Political commitment and leadership for PI in general[34]
- Need for compliance with international and EU commitments[35]
- Existence of long term SD strategy (or a relevant Report or Forum)
- The environmental, social, economic agendas of different sectors form a consistent overall strategy (perhaps guided by a SD strategy)
- Favorable policy tradition and administrative culture (open, participatory, horizontal)
- Shared core belief systems and communication across policy sectors
- Absence of intra-governmental power relations and of vertical alliances hindering EPI/PI and horizontal networking
- Flexible general taxation.

Criteria related to policy objects

- Congruent, compatible, consistent and/or complementary policy objects and related theories
- Multidimensional policy objects and related integrated/interdisciplinary theories
- Common and consistent concepts and terminologies

Criteria related to policy actors

- Common formal actors on and across various spatial/organizational levels
- Common informal actors on and across various spatial levels

Criteria related to policy goals and objectives

- Political commitment/ leadership for PI in the case of the policies analyzed
- Common, shared, congruent, compatible and/or complementary policy goals and objectives
- Stipulation of quantitative, measurable, indicator-based targets and timetables for PI (included, for example, in the Sustainable Development Strategy)

Criteria related to policy structures and procedures

- Administrative capacity for PI; it concerns, among others:
  - Organization in charge of PI; such as, a central unit entrusted with supervision, coordination and implementation of the integration process; or assigning existing institutions a new mandate, responsibility and accountability for PI

[34] I.e., existence of a formal policy framework for PI
[35] Agenda 21, EU SDS, Article 6 of the 1999 Amsterdam Treaty, etc.

  - Special unit for PI in the competent organization
  - Officials charged with integration tasks
  - Administrative reform (restructuring) in favor of PI
  - Presence of *horizontal administrative structures* as opposed to vertical and departmentalized structures; e.g. inter-ministerial committees and task forces, issue-specific *joint* working groups, networking schemes, regular circulation of staff between sectoral departments
- Formal/institutionalized interaction[36] among policy actors and actor networks
- Informal interaction among formal policy actors and actor networks[37]
- Interaction among state and non-state policy actors[38]
- Consistent, compatible and coordinated procedures and rules of decision-making in competent administrative bodies[39]
- Strengthening existing administrative units with regard to procedural rights and rules relevant for coordination and *joint* problem-solving
- *Joint decision making and joint responsibilities* of the policy sectors considered
- Provisions for implementing PI requirements (e.g. compliance, enforcement and accountability mechanisms for PI among competent agencies)

Criteria related to policy instruments

- Institutionalizing PI; existence of a legal framework for PI among the policies analyzed[40]
- Common legal and institutional instruments[41]
- Compatible, consistent and coordinated legal and institutional instruments[42]
- Use of one policy as an instrument to achieve the goals of another policy[43]
- Use of integrative instruments; such as, legal, economic, financial, planning
- Market-based integration between the two policies[44]

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[36] Such as: (a) communication, consultation, routine early consultation on sector policies and projects, cooperation, coordination and collaboration in implementation, etc., (b) policy formulation actors interact formally with policy implementation actors and vice versa.

[37] E.g. *ad hoc* meetings and informal discussions and consultations; environment or other issues are regular agenda items in high-level meetings

[38] For example, goal-related consultation and participation processes among them (from agenda setting to policy implementation); partnerships between government and business on cross-cutting issues

[39] These include the right to set formal agendas and develop PI proposals, participation by departments or agencies in decision-making of other policy sectors, coordinated authorization procedures, coordination/integration of sector approval/licensing processes, spatial planning, EIA, regulatory review procedures, evaluation procedures.

[40] The specific form depends on state political philosophy, ranging from regulating PI to using persuasion and voluntary measures. It includes legal/institutional reforms in favor of PI (filling gaps in legislation), administrative rights (rights and standing to intervene in other administrative bodies), etc.

[41] Such as EIA, SEA and other provisions common in both policies; clear *and common*, or compatible and congruent systems of resource rights for all resources (e.g. land, water, labor, etc.) in all policies; rights to participate in decision making within and between policy areas for all types of actors.

[42] For example, (a) use of legal provisions of one policy as an instrument to achieve goals of another – e.g. Good Agricultural Practice codes used in rural policy to achieve water protection goals of the EWFD, (b) adequacy of existing legal instruments as regards PI, (c) elimination of inconsistencies, duplications, conflicts among instruments, (d) use of voluntary measures (e.g. negotiated agreements)

[43] For example, biodiversity protection regulations may well serve water- or soil-related goals and vice versa; financing transportation projects to promote regional development, etc.

[44] (a) Use of economic instruments to internalize environmental costs of economic activity (e.g. resource pricing, charges, fees), (b) economic instruments for behavior change, *not* for revenue raising.

- Environmental and/or Social Fiscal Reform
- Use of financial mechanisms/ incentives, such as, subsidies for PI
- Favorable budgetary process (e.g. for 'greening' budgets)
- Common or coordinated/compatible sector Action Plans (e.g. forest, biodiversity, desertification, transport)
- Common, shared research resources
- Common, or compatible and consistent, data and information bases
- Common assessment and evaluation methodologies, and tools (PI indicators)
- Common monitoring programmes and infrastructure
- Use of communication instruments for PI
- Education and training services for civil servants, bureaucrats, etc. on PI issues

4. CONCLUDING REMARKS – DESIGNING POLICY INTEGRATION SCHEMES

The quest for sustainable development, the complexity of contemporary socio-environmental policy problems, the poor performance of current policy systems, and several broader socio-political changes in the EU and internationally have generated demand for PI. This paper examined conceptual and methodological issues related to the analysis of PI, construed as integration of policies, in terms of their objects, goals, actors, structures/procedures and instruments. This closing section offers some preliminary thoughts on designing policy integration schemes (PIS for brevity) and summarizes important questions that future research should address to advance the analysis of PI.

The design of effective PIS faces the following broad questions:

- Is a general, all-purpose and all-encompassing PIS possible and desirable or case- or issue-specific PIS should be developed?
- Is horizontal integration sufficient to tackle crosscutting issues or is vertical integration necessary too, or both?
- Is PI at a given level sufficient or is cross-level PI necessary, or even a grand scheme of full-blown integration on and across levels?

The ideal situation might be to design a grand scheme of horizontally and vertically integrated policies, on the same and across levels, which can accommodate all possible cases of crosscutting issues. However, the complex and elusive nature of both socio-environmental problems and policies renders this option utopian and infeasible and necessitates more flexible approaches that can be adapted to the particularities of each case. Before proceeding to suggest one such approach, two points are worth mentioning.

First, a PIS designed to address a given issue may provide for arrangements that also address other issues. Of course, a PIS suitable for one problem may be unsuitable for another. In any event, not all possible cases of crosscutting issues need to (or, can) be considered but only a few strategic ones. This second point is supported by the statement: "Clearly, everything is connected. But because everything *is* connected, it is beyond our capacity to manipulate variables comprehensively. Because everything

is interconnected, the whole environmental problem is beyond our capacity to control in one unified policy. We have to find … tactically defensible or strategically defensible points of intervention" (Lindblom, 1973, 11-34). Therefore, the task is to find which strategic policies should be integrated at each level to enable the integration of policies on the same and on other levels.

The proposed approach builds on the adaptive management paradigm (Holling, 1978) that has been developed to integrate *uncertainty* into decision-making for complex systems. Adaptive management, based on learning-by-doing and experimentation, can be viewed as an approach to managing risks associated with uncertainty. Resource policies are considered as hypotheses and management as experiments from which managers learn from their successes and from their failures. It stresses the importance of two-way feedback between management and the state of the resource in shaping policy, followed by further systematic experimentation to shape subsequent policy. Its flexible, iterative, co-evolutionary and science-based character allows for *institutional learning*; i.e. changing resource management institutions to fit the nature of the system being managed (Berkes and Folke 1998).

The evolving, dynamic character of policy objects and of policy implementation and the resulting uncertainty of policy outcomes justify the adoption of this paradigm for designing PIS. Transferring its main ideas to the present case, the basic tenet of the proposed approach is that any PIS is a hypothesis to be scientifically tested on the ground and revised, through participatory approaches, by incorporating systematically collected information obtained from PIS implementation. The policies to be integrated at a given level should relate to critical, strategic factors associated with important crosscutting issues and the sustainability of human-environment systems on and across spatial levels[45]. Given the interconnectedness of policies, PI may start from the most instrumental and pivotal policy, orchestrating all others around it (assuming that the associated policy actors are willing to cooperate!), some of which inevitably will originate in higher or lower levels. The main steps of the approach include:

- Design a PIS following a systematic and participatory approach along the lines of analysis suggested in this study.
- Design a monitoring and evaluation scheme to gather data to address key uncertainties.
- Implement the PIS
- Systematically monitor all aspects of implementation and record problems such as overlaps, conflicts, inconsistencies, etc.
- Revise the PIS (policy objects, hypotheses, linkages) to fit better the particular situations to which it applies based on feedback from implementation
- Implement the revised PIS; repeat the monitoring and revision cycle.

The adoption, implementation and success of this approach require that certain conditions be satisfied, which usually depend on the spatial/organizational level concerned and the scope of the PIS. The most critical requirement is interest in, commitment to PI and a 'commons' mentality[46] to satisfy the accountability criterion;

[45] For example, economic policies and environmental, mainly water resources, policies.

[46] I.e. a concern for the wise management of the wide range of natural, manmade and human Common Pool Resources (CPRs) (Ostrom, 1990)

namely, 'who will be responsible for the PIS?' and 'who will be charged with coordinating the overall PI effort?' (Peters 1998). It should be noted that context-specific political expediencies, rejecting the idea of social experimentation that the adaptive management paradigm somehow implies, may preclude the adoption of an adaptive management approach to PI, irrespective of its plausibility and suitability.

Despite the above reservations, the proposed approach could serve as a conceptual guide for designing and testing alternative PIS in diverse environmental and socio-economic contexts and problem situations[47]. The PIS may be limited to simply incorporating environmental, social or economic concerns in sectoral policies[48] or may move to more complete PI, ideally starting from the integration of policy objects and moving to the integration of policy instruments, ensuring the consistency of the overall process. As this order may be difficult to follow in reality, the process may start from whichever component of the PI object is handy, convenient, and easy to manipulate while trying to build reasonable linkages with the other components.

The study of PI is still in its early stages as one can glimpse from the literature. Future theoretical and empirical research, used in combination, faces a long list of open questions waiting to be explored. These include the study of:

- the complexity of contemporary policy problems, for a variety of issue areas such as desertification, biodiversity protection, rural development, tourism development, etc., and the contribution of PI to their management
- the appropriate scale for PI and the scope of the task as well as the choice between intra-policy (vertical) versus inter-policy (horizontal) integration and the influence of non-policy factors on the feasibility of particular types of PI
- the substantive integration of EU and national policies and its linkages to procedural integration with emphasis on the actor networks involved in the various EU policies at the EU and the national/subnational levels through suites of empirical studies covering a variety of country and regional situations
- the analytical and practical dimensions of PI especially as they relate to the substantive and procedural ones; integrated methodologies used in common by all policies to provide compatible analyses of policy problems should be explored
- the integration of policy instruments with reference to particular issue areas so as to effect or improve the integration of policy objects, goals and actors and the consistency of the overall process as well as to provide guidelines for the development of policy instrument mixes promoting substantive PI, considering emerging new forms of governance, new kinds of market-based, and voluntary instruments and assessment tools (such as sustainability appraisal)
- the special case of integrative instruments should be re-examined in the light of the more essential need to promote the substantive in addition to the procedural PI
- the appropriateness of the adaptive management approach advocated here at various scales and PI of various scope.

[47] A first application of these ideas in the case of combating desertification, see Briassoulis (2004b).
[48] An extension of the EPI idea.

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