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**Environmental Policy Integration:  
How will we recognize it when we see it?  
The case of green innovation policy in Norway<sup>1</sup>**

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## Abstract

Taking the definition of environmental policy integration (EPI) and benchmarks proposed by Lafferty (2004) as a point of departure, the paper outlines an approach that allows for an evaluation of EPI with respect to green innovation policies in Norway.

EPI has a horizontal and a vertical dimension. While the horizontal dimension refers to cross-sectoral strategies for environmental protection, the vertical dimension refers to a 'greening' of sectoral policies. A 'constitutional mandate', an 'over-arching strategy' for the sectoral domain, a 'national action plan' and a 'responsible executive body' are proposed as 'baseline' requirements for achieving (and assessing) horizontal, cross-sectoral integration of environmental goals. With regard to the vertical dimension the combination of a 'sectoral strategy' for change and an 'action plan' are the proposed key initiatives.

Using the benchmarks as evaluation criteria, the paper discusses to what degree Norwegian innovation policy and environmental policy are integrated. The discussion is illustrated with efforts undertaken by the Government as well as the Ministry of Environment and the Ministry of Trade and Industry.

The paper presents a fourfold perspective on stylized modes of combining environmental concerns and innovation. The modes delineated along two dimensions: (1) whether the integration is steered by "processual/instrumental" or "substantive" norms and values; and (2) whether the goal of integration is related to a simple *de-coupling* of economic and social drivers from environmental degradation, or also is related to an active *re-coupling* of drivers to assure more sustainable production and consumption. The findings indicate that vertical environmental policy integration is actively promoted in Norway, but that specific and direct efforts in the direction of green innovation are practically non-existent. The same holds true for the horizontal dimension. This does not necessarily mean that green innovations are not being promoted at all in Norway. But whatever integration effects that are being realized are not the result of an active and goal-directed policy by the Norwegian Government and ministries studied. There is, therefore, a clear potential for achieving a more effective implementation of green innovation in Norway.

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## 1 Introduction

The current Dutch presidency of the European Union has highlighted “eco-efficient innovation” as a key aspect of EU environmental strategy.<sup>2</sup> The focus of the Presidency is primarily on a strengthening of the environmental component of the Lisbon process (“environment as opportunity” for greater economic competitiveness in Europe). The focus mirrors, however, a more general concern with the relevance of environmental concerns for national policies and actions plans for promoting innovation. This issue has recently been highlighted as a sub-theme of the OECD-sponsored project on “Monitoring and Implementing Horizontal Innovation Policy” (MONIT).<sup>3</sup>

The relationship between innovation and the environment has been given separate treatment by four of the MONIT research teams (Finland, Austria, Belgium and Norway), and has been identified within the MONIT conceptual scheme as an aspect of sustainable development. The approach within MONIT is thus broader than that of the EU Presidency, as indicated by the following position statement related to the specific case study on sustainable development:

Sustainable development and environmental policy have often been seen as opposed to an innovation-driven growth policy. But environmental policy contains a number of innovation policy options. This concerns for example how governments design regulation regimes, how these are implemented and communicated vis a vis the private sector, how they are supported by R&D programmes, how foreseen developments are taken into consideration in a framework for transition management and the like. The focus here [of the MONIT sub-projects] should be to generate empirical illustrations on how governments design the link between innovation and environmental policies and how adaptations may be made to increase the role of innovation policy components.<sup>4</sup>

The research programme ProSus in Oslo has had responsibility for the environmental component of the Norwegian MONIT project (Ruud and Larsen 2004). In the course of the project it has emerged that the relationship between innovation and environmental concerns is both conceptually and normatively diffuse. A close reading of the above statement, for example, leaves a decisive impression of vagueness. What is being “integrated” into what? And how will we know a successful (“cohesive”) national plan for *either* innovation or sustainable development when we see it? In terms of EU strategies, is the goal one of integrating environmental concerns into innovation policy: “environment as opportunity” for the Lisbon process? Or is it rather one of integrating innovation into sustainable development: “innovation as eco-efficiency” within the Gothenburg process? Or is the idea purposefully left vague to accommodate the “happy” (and highly illusive) medium of “win-win”: innovation that *simultaneously* promotes economic competitiveness and sustainable development?

Answers to these questions are difficult to produce. While there is considerable discussion of the issue of environmental policy integration (EPI) (Collier 1994; Liberatore 1997; Lenschow 2002; Lafferty and Hovden 2003; Nilsson and Persson 2003), most treatments focus on the integration dynamics between traditional environmental policy and the driving forces of leading economic sectors (industry, energy, transport, agriculture). Neither the broader agenda of sustainable development (integrating the “social dimension”), or a concern with innovation are prominent in the EPI literature. As for the discourse on

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<sup>2</sup> The “Presidency’s Priorities” are available at the website of the Dutch EU Presidency: <http://www.eu2004.nl>. (Accessed Nov 12, 2004) The relevant section is “Environment”, pp. 16-17.

<sup>3</sup> Information on the MONIT project is available at: <http://www.oecd-monit.net>. (Accessed Nov 12, 2004)

<sup>4</sup> For further details on the case studies see: <http://www.oecd-monit.net/tiki-index.php?page=WP2> (Accessed Nov 12, 2004)

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innovation, this has only recently taken on the challenge of policy integration in general, and only very recently reflected an interest in the integration of innovation and the environment.

### 1.1 The structure of the paper

The paper begins by reviewing the particular policy mandates of promoting policy integration with the areas of sustainable development and innovation. We then address the challenge of de-coupling. De-coupling signifies that necessary environmental protective measures should be pursued regardless of economic growth patterns, business cycles and innovation policy priorities. The issue of de-coupling has been identified by OECD as the key challenge of sustainable development. However a de-coupling to alter practices into more sustainable practices requires “re-coupling” of environmental protective measures and economic growth patterns. This requires a policy integration of the dual goals of environmental policy for sustainable development and innovation policies.

The integration of environmental concerns and innovation can be presented in four normative modes. These modes can be distinguished with respect to whether the integration is steered by processual/instrumental versus substantive norms and values. Further, the modes can be distinguished with respect to whether the goal of integration is related to de-coupling unsustainable patterns of economic growth and environmental protection or re-coupling sustainable patterns of environmental protection and economic growth. Normative standards for evaluating both horizontal and vertical policy integration are presented and illustrated with efforts undertaken by the Government as well as the Ministry of Environment and the Ministry of Trade and Industry.

Our findings indicate that vertical environmental policy integration is promoted, but specific and direct efforts on the promotion of green innovations are very limited - if existing at all. On the horizontal dimension little can be documented. This does not necessarily indicate that green innovations are not promoted in Norway. However, efforts undertaken by the public sector, the Norwegian Government and particularly the two Ministries studied, confirm that there is a large potential for strengthening public policy integration for the promotion of green innovations in Norway.

## 2 Mapping the policy mandates

Achieving change for sustainable development requires a strong consensus on the nature and seriousness of environmental degradation as a reflection of existing values and systems. Agreement as to causal relations and political legitimacy are vital prerequisites for effective action. We need only mention the extensive efforts of the Intergovernmental Panel on Climate Change (IPCC) to achieve a consensus on the causes and effects of greenhouse gases to indicate the scope of the problem. Discussions as to the validity of the panel’s findings still continue at the margins of scientific discourse; and politicians continue to play traditional party-political “games” with climate policy, despite the enormous resources that have gone into the documentation and dissemination of the causal framework. The pursuit for innovation has for many years been synonymous with pursuit for economic growth without reference to environmental protection or sustainable development. Is this still the case in terms of the particular policy mandate for a green innovation policy?

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## 2.1 The mandate for policy integration for sustainable development

With respect to sustainable development, we can trace the goal of policy-integration to the Brundtland Report itself. Here it is important to point out that the Brundtland Report is, in fact, that only document that sets down baseline conditions for “sustainable development”. The Rio Declaration, Agenda 21 and the entire follow-up process of the UN Commission on Sustainable Development (UNCSD) anchor their principles and policy instruments in the Brundtland understanding.

In Chapter 12 of *Our Common Future* – appropriately titled “Towards Common Action: Proposals for Institutional and Legal Change” – we find the following:

The ability to choose policy paths that are sustainable requires that the ecological dimensions of policy be considered at the same time as the economic, trade, energy, agricultural, industrial, and other dimensions – on the same agendas and in the same national and international institutions. That is the chief institutional challenge of the 1990s. (WCED 1987: 313)

Sustainable development objectives should be incorporated in the terms of reference of those cabinet and legislative committees dealing with national economic policy and planning as well as those dealing with key sectoral and international policies. As an extension of this the major central economic and sectoral agencies of governments should now be made directly responsible and fully accountable for ensuring that their policies, programmes, and budgets support development that is ecologically as well as economically sustainable. (WCED 1987: 314)

These ideas are then followed up more specifically as a series of “objectives” in Chapter 8 of Agenda 21, entitled: “Integrating Environment and Development in Decision-Making”. The statements chosen are from the two most relevant sub-sections of the chapter: (A) “Integrating environment and development at the policy, planning and management levels”, and (D) “Establishing systems for integrated environmental and economic accounting”. Though the general ideas here are well known, it is important for further discussion that we reference and highlight several of the key formulations:

Governments, in cooperation, where appropriate, with international organizations, should adopt a strategy for sustainable development based on, inter alia, the implementation of decisions taken at the [Rio] Conference, particularly in respect of Agenda 21. This strategy should build upon and harmonize the various sectoral economic, social and environmental policies and plans that are operating in the country. (Para. 8.7)

[To adopt] a domestically formulated policy framework that reflects a long-term perspective and cross-sectoral approach as the basis for decisions, taking account of the linkages between and within the various political, economic, social and environmental issues involved in the development process. (Para 8.4.b)

To expand existing systems of national economic accounts in order to integrate environment and social dimensions in the accounting framework, including at least satellite systems of accounts for natural resources. The resulting systems of integrated environmental and economic accounting (IEEA) to be established in all member States at the earliest date, and should be seen as a complement to, rather than a substitute for, traditional national accounting practices for the foreseeable future. IEEA would be designed to play an integral part in the national development decision-making process. National accounting agencies should work in close collaboration with national environmental statistics as well as the geographic and natural resource departments. (Para 8.42)

[To ensure] transparency of, and accountability for, the environmental implications of economic and sectoral policies. (Para 8.4.e) (United Nations 1994: 65-74, our emphasis)

Finally there is the very specific recognition of the sectoral-integration challenge within the European Union. Here it should be sufficient to mention only three aspects of the current work in this area. First, there is Article 6 of the Treaty of the European Community, which explicitly states that:

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<sup>5</sup> This section builds on work presented in Lafferty 2002 and 2004.

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Environmental protection requirements must be integrated into the definition and implementation of the Community policies and activities referred to in Article 3 [listing the full range of Community activities] in particular with a view to promoting sustainable development.

Second there is the so-called “Cardiff Process”, initiated by the Luxembourg European Council in December 1997, and elevated to a full-scale EU programme at the Council meeting in Cardiff, June 1998. The goal here is that “all relevant Council configurations” should work to develop “their own strategies for integrating environment and sustainable development into their respective policy areas”. The strong nature of the mandate here is reflected in a policy evaluation from 2001, where the report concludes that:

In summary . . . the Cardiff Process can be characterised as binding and committing. Legally, the binding nature is rather weak, but the political commitment is strong. There was a clearly expressed will at the start, which was reinforced at various levels throughout the whole process. Of significant importance are the various self-commitments of the Council configurations to further refine or revise the strategies, and the work packages delegated to the European Commission or specific working groups.” (Kraemer 2001: 33)

Finally we can mention the EU “Strategy for Sustainable Development”. Authored directly by the office of the President of the EU Commission, and presented to the European Council in Gothenburg in June 2001, the strategy stated that:

The process of integration of environmental concerns in sectoral policies, launched by the European Council in Cardiff, must continue and provide an environmental input to the EU Sustainable Development strategy, similar to that given for the economic and social dimensions by the Broad Economic Policy Guidelines and the Employment Guidelines. The sectoral environmental integration strategies should be consistent with the specific objectives of EU Sustainable Development strategy. (CEC 2001: 14).

This combination of general goals and more specific objectives can be seen as a set of minimal “external” standards for adapting “government practice” to sustainable development (i.e. standards formulated and adopted in political bodies “external” to the nation state). The importance of these standards is that they establish the democratic-political legitimacy of the policy-integration task; a legitimacy which Lafferty and Meadowcroft (2000) view as vitally necessary if sectoral integration is to be taken seriously and pursued effectively within the realm of “normal” national politics.

Despite this relatively specific focus and broad-based support, however, the notion of policy integration for sustainable development has clearly not been adequately developed, nor systematically evaluated. Though the situation is clearly changing for the better (as demonstrated by the activities referred to below), the conclusion of the International Institute of Environmental Policy from 2001 still stands:

Despite a progressive commitment to environmental integration, relatively little attention has been given to defining the concept. There is a confusing variety of methods for taking more account of environmental factors in the development of sectoral policies. (IEEP 2001)

As we will see below, a major reason for this is that the concept of policy integration for SD implies a relatively strong revision of the traditional hierarchy of policy objectives. In such a hierarchy environmental concerns are normally ranked below issues of national security, economics, finance, labour relations, education and welfare. This indicates an apparent failure of the discussion of integration to appreciate the extent to which the concept forms part of a broader political process, with the portrayal of environmental objectives as central, if not principal. We return to this discussion below, but will first present the “case” for integrating innovation into national policy.

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## 2.2 The mandate for innovation and policy integration

The goal of increasing levels of “innovation” in the European Union has been a key dimension of “competition policy” since (at least) the introduction of the Single Europe Act (SEA) in 1987. It was not until 1995, however, with the issuance of the “Green Paper on Innovation” that the policy was given distinct status as a key feature of the new “knowledge society and economy” which would keep Europe at the cutting-edge of international market competition. The first “Action Plan for Innovation in Europe” was adopted in 1996; and the second – “Innovate for a Competitive Europe” – is now being circulated by the Commission for comments and amendments. The Commission periodically reviews innovation policy through a series of “communications”, initially in 1998 and subsequently in 2000 and 2003. The current review and revision of the action plan takes place within the context of the “Lisbon Strategy”, and both the Lisbon Strategy and the Strategy for Sustainable Development will be reviewed at the Spring Summits in 2005.<sup>6</sup>

Within the OECD, innovation has long been treated (under different names and concepts) as an important feature of economic growth. More recently the work has reflected the emphasis within the EU of specifically connecting the innovation discourse to the issues of “competitiveness”. The major thrust of the OECD work has been in promoting and monitoring innovation as an aspect of research and development, but the organization has also focused strongly on the issue of innovation in firms. Most importantly for the present discussion, however, is the work done by the OECD on “innovation and the environment” and “technology and environment”.<sup>7</sup> As indicated below, the European Union often makes oblique references to innovation and the environment in the key policy documents, but there has been very little follow-up with respect to either procedural or substantive integration of the two.

Finally, we can mention the joint initiatives taken by the OECD and EUROSTAT to coordinate conceptual and methodological issues related to innovation monitoring. The work is coordinated through workshops and ad-hoc “task forces”, and involves revisions of the so-called “Oslo Manual” (for defining and measuring innovation on a systematic basis) and the coordination of recurring “Community Innovation Surveys” (CIS).<sup>8</sup> If one is looking for a reference point as to what innovation is “really” about, the concepts, indicators and statistics produced here are at least standardized.

Despite these efforts at conceptual clarification and monitoring, however, it is safe to say that there currently exists *considerable* confusion and disagreement as to what “innovation” is all about. And - as with all such “essentially contested concepts” (Gallie 1956; Lafferty and Langhelle 1999, Ch. 1) – the only way one can gain semantic “closure” is to either aim for a consensus among all users, or stipulate specific instrumental criteria for applying and interpreting the idea. Relying on the latter approach, we can say – with reference to the work outlined above – that the notion of “innovation” employed here refers primarily to change that enhances competitive advantage within and among European firms. Such advantage can be measured in terms of increased market shares, gross earnings, profit margins, number

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<sup>6</sup> There are several EU websites devoted to different aspects of innovation, but the concept has its own “portal”, so that navigating from here is well coordinated and highly informative. Visit: <http://www.cordis.lu/innovation/>.

<sup>7</sup> See the references listed in OECD 2001b, p. 4 and pp. 179-180. The chapter on “Technology” in OECD 2001b (Ch. 6) is a key source for the position adopted here.

<sup>8</sup> The Oslo Manual – one of the so-called “Frascati family” of OECD manuals for standardizing monitoring across the OECD member states – was first produced in 1992. It was subsequently revised in 1997, and is now in the process of a third revision, to be completed by 2005. The version currently in effect is available from the OECD at:

<http://www.oecd.org/dataoecd/35/61/2367580.pdf>

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of patents, etc. We will argue, moreover, that this is the *ultimate test* of whether or not innovation actually is achieved (in the EU context).

As we see it, most of the discussion as to what innovation is “really” all about has evolved through a continuous expansion of the technological, economic, social, cultural and political factors *that appear to support or enhance the “ultimate test”*. The emergent discourse as to all the possible factors affecting innovation-as-economic-advantage has led to considerable confusion as to what is what. In our view, however, there can be no doubt that the core purpose of innovation in the EU-OECD context is to enhance “economic growth” in general, and “European economic competitiveness” in particular. In the course of expanding the list of innovation-relevant factors, the idea of innovation itself has gradually become a free-floating “good”; with anything that appears to *hinder* innovation being seen as a free-floating “bad”.<sup>9</sup> Such inherent normative criteria must, however, be “anchored” in a deeper structure of values, (if action and change are at all assessable), and we feel that the “essential test” reflects this structure. It is the promotion of economic growth and European competitiveness – with the gradual emergence of other values directly thought to enhance such an “economic-man” model of “progress” – that constitutes the semantic core of innovation.<sup>10</sup>

With respect to a general integration of innovation policy within and across sectors, the signals from the EU are much “softer” than for EPI, but they follow the same type of logic. Most interesting here, however, is the fact that the relationship between innovation and the environment has recently been given very specific treatment – not only with respect to environmental protection, but more pointedly in connection with the promotion of sustainable development.

On the first point, there has gradually emerged – as an instrumental complement to the expansion and generalization of the innovation mandate – an emphasis on the need for greater “coherence” and “integration” within and across sectors. This is clearly expressed in the most recent “communication” on innovation by the EU Commission:

The Communication . . . suggests several new directions for EU innovation policy development and, in particular, interaction with other policy areas. Innovation policy must often be implemented via other policies, and the Communication suggests, *inter alia*, better coordination and a pro-active follow-up by the Commission and Member States. (CEC 2003)

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<sup>9</sup> Development in this direction was already signaled in the initial Green Paper on Innovation. Here we can read that: “In the context of this document, innovation is taken as being a synonym for the successful production, assimilation and exploitation of novelty in the economic and social spheres. It offers new solutions to problems and thus makes it possible to meet the needs of both the individual and society. There is a wealth of examples, including the development of vaccines and medicines, improved safety in transport, (ABS, airbags), easier communications (mobile phones, videoconferencing), more open access to know-how (CD-ROM, multimedia), new marketing methods (home banking), better working conditions, more environment-friendly techniques, more efficient public services, etc.

According to the dictionary, the opposite of innovation is ‘archaism and routine’. That is why innovation comes up against so many obstacles and encounters such fierce resistance. It is also why developing and sharing an innovation culture is becoming a decisive challenge for European societies.” (CEC 1995).

<sup>10</sup> See Robert Lane (1991 and 2000) on the implications of alternative “models” of human behaviour. One can, of course, argue (and many have) that innovation in a personal and organizational sense is about “flexibility”, “learning” and “adaptability”, and that these characteristics are inherently positive and “progressive”. The logic would seem to be that the new “knowledge society and economy” requires such characteristics. The question would still remain, however, as to how much change in these dimensions is required – to achieve what? Was, for example, the general mode of socioeconomic, cultural and political organization in Europe so “archaic” as to warrant active rejection on these grounds alone? Or is the basic connotation relativistic; a question of positive change that can only be assessed with respect to external “competitors”. Since the latter would clearly seem to be the case in the EU documents, we are left with the question as to “competition for what?” – with the only apparent answer being “increased proportions of capital”.

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This line is then followed up in the second-generation draft action plan currently circulating. Entitled “Innovate for a Competitive Europe” (CEC 2004a), the draft expresses a need for institutional mechanisms to integrate innovation policy at both the national and regional levels. The language is very similar to the discourse on integration for sustainable development:

Innovation can only develop and flourish if it is a recognised value of society, with wide support. It is to be hoped that it will also become the subject of national debates and that the economic, social and environmental challenges that it represents will be the subject of wide-ranging exchanges involving all stakeholders. To this end, Member States are invited to set up national innovation councils or something similar, to encourage dialogue between representatives of public administrations, employers, unions, research establishments and institutes of higher education, and recognised experts. The Commission will hold a European Innovation Policy Forum, bringing together representatives of the national innovation councils to discuss innovation policy, promote innovation issues in policy circles and influence the legislative process at European level. (CEC 2004a: 18-19)

Finally, we can refer to the OECD-sponsored research project mentioned above, MONIT. The statement of purpose for the project succinctly summarizes the integration goals:

The objective of the MONIT project is to generate a new body of knowledge for OECD countries on how to improve innovation policy governance and create a more coherent innovation policy. The project will investigate the current innovation profiles in some member countries, how they have come into being, their political, cultural and economic sources, and will highlight their key modes of policy co-ordination and lessons to be learned. The aim is to identify the origins and determinants of national capabilities in developing and governing coherent innovation policy. In doing so, MONIT will help governments learn from national experiences on how to align STI policy better with the rest of the policy system, and how to better integrate IP elements in a horizontal, cross-sectoral and [cross]-institutional approach for a more coherent innovation policy. (Remoe 2002)

As for the goal of integrating innovation and the environment, the policy signals are much more perfunctory and diffuse. The issue was given very little attention in the initial phases of innovation policy development. Neither the Green Paper on Innovation or the First Action Plan (“Innovation for Growth and Employment”) had anything significant to say on the relationship.<sup>11</sup> More importantly, however, is the fact that the second-generation draft plan currently circulating says even less. Aside from the mention cited above (innovation as an “environmental challenge”), we find only two hints of what the environment could mean for innovation policy: (1) that environmental regulation can be either a hinder or a help for innovation; and (2) that there are positive market opportunities for greater innovation in the environmental technology and services sector.<sup>12</sup>

The reticence of the Commission on the innovation-environment link may, however, be partially explained by a direct reference in the draft action plan to the recently adopted separate action plan on environmental technology. Entitled “Stimulating Technologies for Sustainable Development: An

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<sup>11</sup> The Green Paper makes sporadic references to the environment, touching, for example, on environmental regulations as reasons for innovation, or, more obliquely, the potential for innovation within the environmental-protection sector. Mention is made of a pilot project (“Growth and Environment”) set up at the request of the European Parliament which provided loan guarantees for “projects with beneficial effects for the environment”. (CEC 1995: 30).

The “First Action Plan for Innovation in Europe” had even less to say on the issue. Here we find only a single mention of a possible innovation-environment link – but it is a mention that points towards things to come. In a brief concluding reference to a need for “fleshing out” the plan in relation to “various priority sectors or fields”, it is stated that: “Situations vary widely according to the country, the sector and the technology. The action plan will therefore need to be adapted to certain fields or sectors designated as priorities. These might include environmental protection and sustainable development, the services sector, rural development, aspects related to demand and consumers, the audio-visual sector and better exploitation of space and dual-use technology”. (CEC 1996: 9) It is this “signal” that is strongly reflected in the current draft action plan, and, most specifically, in the separate “Environmental Technologies Action Plan” (ETAP) of 2004 (CEC 2004b).

<sup>12</sup> It should also be mentioned here that the draft action plan now circulating makes it absolutely clear that the major purpose of innovation in the European Union is to “close the gap” between the United States and Europe in levels and rates of economic performance. Anyone looking for less commercial signals as to the purpose of innovation will look in vain.

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Environmental Technologies Action Plan for the European Union” (ETAP), this plan – adopted in January 2004 (CEC 2004b) – moves the innovation-environment discourse in a totally different direction. Just as the innovation action plan seems to be exclusively drafted to accommodate the Lisbon Process, the ETAP is solidly anchored in the Gothenburg Process. With explicit reference to Chapter 4 of Agenda 21 (“Transfer of Environmentally Sound Technology, Cooperation and Capacity Building”), the expanded role for environmental technology is clearly spelled out in the introduction to the plan:

Sustainable development – development that meets the needs of the present without compromising those of future generations – is at the core of the European Union’s (EU) objectives. In 2001, the Gothenburg European Council launched the EU strategy for sustainable development. This set ambitious objectives and called for a more integrated approach to policy making in which economic, social and environmental objectives can be achieved at the same time. It therefore complemented the Lisbon strategy to make the EU “*the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion*”. It also underlined that “sustainable development requires global solutions”, thereby supporting the EU’s efforts to take a leading role internationally to promote global economic and social development while protecting the environment. . . .

The potential of technology to create synergies between environmental protection and economic growth was recognised by the October 2003 European Council. Environmental technologies – taken in this Action Plan to include all technologies whose use is less environmentally harmful than relevant alternatives – are key to this. They encompass technologies and processes to manage pollution (e.g. air pollution control, waste management), less polluting and less resource-intensive products and services and ways to manage resources more efficiently (e.g. water supply, energy-saving technologies). Thus defined, they pervade all economic activities and sectors, where they often cut costs and improve competitiveness by reducing energy and resource consumption, and so creating fewer emissions and less waste. These potential benefits can also be of great importance for developing countries. With sufficient technology transfer they can provide these countries with affordable solutions for reconciling their desire for strong economic growth with the need to do so without increasing the pressure on the local, or the global, environment.

This Environmental Technologies Action Plan (ETAP) therefore aims to harness their full potential to reduce pressures on our natural resources, improve the quality of life of European citizens and stimulate economic growth. As such it is an important means to implement the EU Sustainable Development Strategy and to pursue the Lisbon Strategy, while also helping developing countries. It is based on the recognition that there is significant untapped technological potential for improving the environment while contributing to competitiveness and growth. (CEC 2004b: 2)

The plan goes on to outline numerous policy instruments for realizing these goals, with innovation, and references to the other EU efforts on innovation, as an integral part of the plan. Though the goal of promoting “sustainable growth” is maintained throughout (as it is in the Brundtland Report), the goal of “de-coupling” is also endorsed. With a reference to developing countries that is clearly applicable to developed countries, we read that:

Investment in environmental technologies has the potential not only to increase employment and economic growth within the EU, but also to promote sustainable development at the global level, particularly in developing countries. With economic growth, addressing detrimental social and environmental impacts from production activities is becoming increasingly urgent in many developing countries. At the same time, environmental technologies can promote innovation and competitiveness, as well as decoupling economic growth from environmental degradation, by leapfrogging traditional, polluting and resource-intensive production patterns and switching to increased eco-efficiency in the use of natural resources. (CEC 2004b: 23)

Summarizing the implications of the policy documents, we can say that the EU is solidly committed to a major policy effort to improve European economic competitiveness through innovation. There is also a growing awareness that innovation policy must be integrated within and across sectoral directorates and ministries, and at the regional, national and local levels of government. Finally, there is a more recent commitment to joining innovational efforts with environmental concerns; a commitment which is very ambivalent as to how a balance between the two tasks should be achieved. This ambivalence is most crucially manifest in the political challenge to reconcile an increasingly obvious conflict of priorities within and between the Lisbon and Gothenburg strategies for European development.

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### 3 Assessment of de-coupling and re-coupling: From policy mandates to substantive standards for evaluation

The challenge of integrating innovation and environmental policies towards sustainable development is related to an issue that the OECD has identified as a “key challenge” of sustainable development: *de-coupling*. De-coupling signifies that necessary environmental protective measures should be pursued regardless of economic growth patterns and business cycles (OECD 2001a). With de-coupling as a major goal for sustainable development, the specific task for adapting government practice to sustainable development becomes one of developing more consequential steering mechanisms for relieving pressures on natural life-support systems.

We have earlier made several initial attempts to clarify the nature of de-coupling as a goal of policy integration for sustainable development (Lafferty 2002, 2004; Lafferty and Hovden 2003; Ruud 2002, 2004). Building further on this work, we will here expand the discussion making an explicit differentiation between “de-coupling” and “re-coupling”. This is, we believe, necessary to highlight the particular challenge of integrating the dual goals of sustainable development and innovation. Economic growth and business development must be promoted, but they must be promoted more in line with ecological considerations. This is particularly demanding with respect to policy integration, since the respective policy mandates for the environment and innovation may lead to very different consequences for governance for sustainable development.

Though many treatments of de-coupling presume that continued economic growth is inherent to the idea itself, we believe that the presumption should be more closely explored. The entire debate about “zero-growth” implies that “re-coupling” need not be either a conscious effort or functional prerequisite for change. Reductions in impacts between industrial-business drivers and environmental-ecological resources can be compensated by “drivers” that do not presume continuous economic growth. That such change involves “innovation” also seems obvious – since “innovation” is conventionally understood to imply and kind of change – though it may not necessarily be change for increasing value-creation in a competitive market context. The fact that such a position does not correspond with the position taken in the Brundtland report (and presumed as a basis for both the UN and EU strategies for sustainable development), does not mean that it can’t, or isn’t, maintained as an alternative to continued growth. The crucial premise of the Brundtland report is that continued economic growth is necessary, *but* that the quality or nature of growth can be changed. This is most succinctly expressed in the second so-called “key concept” of the WCED definition of sustainable development: “the idea of limitations imposed by the state of technology and social organization on the environment’s ability to meet present and future needs” (WCED 1987: 43).<sup>13</sup> The de-coupling of *non-sustainable* patterns of social change in this context necessarily implies a search for re-coupling *for* sustainable development. Environmental protective measures must be promoted in a way that triggers modified and even new value added-activities and economic growth patterns. This can be achieved through incremental changes of existing patterns of consumption and production, but can also involve a need for more radical discontinuous change.

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<sup>13</sup> “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: the concept of ‘needs’, in particular the essential needs of the world’s poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment’s ability to meet present and future needs” (WCED 1987: 43).

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Moving from a de-coupling orientation towards re-coupling for sustainable development requires highly creative architectural innovations in both technical and non-technical governance systems.

The content of economic growth in production and consumption must be altered in such a way that it is re-coupled with environmental concerns and imperatives. This implies (for example) technical efforts in the field of dematerialization and decarbonization. Services can increasingly be substituted for the production of material goods, and renewable energy sources can be substituted for fossil fuels. Such efforts must, however, be actively pursued and supported by appropriate governing structures, and it is within this “policy space” that the relationship between innovation and SD concerns becomes crucial. Within the normative-functional framework of sustainable development, innovation must be green – and greening must be innovative.

This perspective provides us with a rationale for assessing the relationship between SD and innovation with respect to *instrumental standards* of governance – what we refer to as processual norms. **How can policy integration between the two goals be achieved as a governing *process*?** We will make the argument, however, that a need for instrumental standards of policy integration must be supplemented by *substantive standards*. It is not enough, in this view, to evaluate the mechanisms of SD governance as process alone. We must also evaluate integration in terms of both “outputs” (policies) and “outcomes” (products).<sup>14</sup>

While the differentiation between “process” and “outputs”/“outcomes” is relatively straightforward, the difference between the latter two requires some elaboration. Vedung (1997) identifies “outputs” with specific initiatives (policy instruments) designed to achieve sub-goals of an overall programme; while “outcomes” are seen as the actual effects of policy on target groups. The difference can be poignantly illustrated for the present discussion by looking at another key notion of the SD discourse: eco-efficiency. Both the OECD and The World Business Council for Sustainable Development (WBCSD) have identified eco-efficiency as a principal standard for de-coupling. It is also a standard which succinctly reflects the second key concept of the Brundtland definition, indicating the prescription of the WCED to change the “quality” (nature, mode) of economic growth.

Ruud (2004) has demonstrated, however, that eco-efficiency must be viewed in a more complex light. As generally understood (and increasingly practiced), the idea emerges as a necessary – but not sufficient – criterion for SD achievement. An emphasis on relative gains through isolated technological improvements does not, for example, always result in absolute gains for environment and development. A differentiation between eco-efficiency and *eco-effectiveness* is thus advised. Whereas the former focuses on technological improvements within a relatively narrow scope of production and consumption, the latter aims to reflect actual impacts and ultimate change within a broader framework of both eco-systems and potential “rebound effects” (Ruud 2004). Increased eco-efficiency may appear as a positive “output” of the policy-implementation process; but we need clear *substantive standards* if we are to assess the overall eco-effectiveness as an “outcome”.

The implications of these preliminary perspectives can be summarized in terms of four “normative modes” for the integration of environmental concerns and innovation policy (Table 1). The modes serve as a simple frame of reference for highlighting different standards for prescribing and assessing the implications of different degrees and types of environment-innovation integration.

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<sup>14</sup> For the differentiation between “outputs” and “outcomes”, see Vedung 1997; and for the differentiation between “process”, “policy” and “products”, see Lafferty (2001: 268-301). Nilsson and Persson (2003) have also adopted a similar approach to that proposed here.

Table 1: Normative modes for the integration of environmental concerns and innovation

		Integration steered by: <sup>15</sup>	
		Processual norms	Substantive norms
Goal of integration	De-coupling	<u>Environmental protection:</u> Major emphasis on end-of-pipe regulation and prevention of pollution.	<u>Ecological communalism:</u> Major emphasis on limiting growth. Reliance on self-sustaining life-styles and communal values.
	Re-coupling	<u>Ecological modernization:</u> Major emphasis on improving eco-efficiency of existing sectoral practices through “win-win” solutions. Plays down zero-sum conflicts of interests and trade-offs.	<u>Sustainable development:</u> Major emphasis on achieving overall eco-effectiveness in a global context. Assigns “principled priority” to maintaining and enhancing natural life-support systems.

By cross-classifying a need for processual vs. substantive norms, with a differentiation between “de-coupling” and “re-coupling”, we arrived at the four types of environment-innovation constellations identified in Table 1:

Environmental protection: This normative mode has a major emphasis on end-of-pipe regulation and prevention of pollution. In this mode *innovation may be perceived as ameliorative environmental technology*.

Ecological communalism: This normative mode has major emphasis on limiting growth. Reliance on self-sustaining life-styles and communal values is highlighted. In this mode *innovation may be perceived as sustainable life-styles in self-sustained communities*.

Ecological modernization: This mode emphasizes *eco-efficiency* of existing sectoral practices through “win-win” solutions. Plays down zero-sum conflicts of interests and trade-offs. In this mode *innovation may be perceived as a “greening” of existing production-market relationships*.

Sustainable development: This mode has a major emphasis on achieving overall *eco-effectiveness* in a global context. It assigns “principled priority” to maintaining and enhancing natural life-support systems. In this mode *innovation may be perceived as a radical transformation of the quality of economic growth*.

The logic of the fourfold categorization allows us to make a number of preliminary observations as to the normative framework being developed.

First, we feel that the two dimensions capture significant aspects of the latent trade-offs implicit in the parallel developments of SD policy and innovation policy in Europe. Both policy tracks attribute great importance to the values and goals being pursued by each, and both declare a clear need for better policy

<sup>15</sup> In the present context, “steering” is done by government actors. While the overall effectiveness of implementation will depend on “governance”, the ultimate responsibility for achieving EPI as a “first-order principle to implement and institutionalize the idea of sustainable development” (Lenschow 2002: 6-7) is the responsibility of “governments”. It is national governments that are bound by the international and regional agreements promoting both sustainable development and innovation.

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integration. As it now stands, however, there has been virtually no open discussion as to the *relative importance* of the two tracks. The differentiation along the principal axis – from “environmental protection” to “sustainable development” – provides a value hierarchy that is in line with the constitutional situation within the EU. By this we mean that the goal of sustainable development has a stronger principled status than the goal of innovation. This is manifest in two ways: (1) both sustainable development in general and environmental policy integration in particular have stronger legal status in the EU treaties; and (2) whereas sustainable development is the overarching value/goal of the Gothenburg Strategy, innovation is only one aspect of the Lisbon Strategy, *and* it is an aspect on a par with “sustainability” in the Lisbon process.

Second, the framework clearly reflects – through the differentiation between “processual” and “substantive” norms – a fundamental aspect of policy-implementation research. Equally important is the fact that the same differentiation is clearly manifest in the EU policy discourses themselves, where (particularly in the different action plans), goals and initiatives reflecting “means” and “ends” are indiscriminately mixed. What the framework clearly indicates, however, is that changes in process do not necessarily result in changes in substantive outcomes; *and* that positive changes in substantive outcomes can be achieved without pursuing the processes designated.

Third, that there exists an implied, but not adequately expressed, presumption that de-coupling involves re-coupling. It is important to explain the implications of not only disconnecting drivers from pressures on natural resources and eco-systems, but also of finding ways (or not) of surplus-generating development. The importance of such a distinction is particularly clear with respect to the Environmental Technologies Action Plan (ETAP), where it is, on the one hand, often assumed that end-of-pipe initiatives require no compensatory growth-maintaining initiatives; or, on the other, that achieving eco-efficiency is the same as achieving eco-effectiveness.

Finally, there are interesting implications in the framework for relativizing the meaning and valence of innovation. Most importantly this comes from an understanding of the potential of innovation which provides a very different context for understanding and promoting innovation as a policy goal. Instead of viewing any kind of innovation as potentially positive for value-creating competition, the framework points out that innovation can serve other ends than increased economic growth through increased market/profit shares.

Innovation in the mode of “environmental protection” referred to in table 1, can contribute significantly to de-coupling, without being commercially competitive. Innovation can also contribute to apparent “ecological modernization”, without contributing to “sustainable development” (due to reduced eco-effectiveness and “rebound effects”); and innovation can contribute to “ecological communalism” by developing life-styles, learning mechanisms and organizational forms that seem to point backwards rather than forwards in terms of economic growth and development. Ecological communalism and ecological modernization are perceived by various stakeholders as *the* most “progressive” solution in the promotion of sustainable development. Apparently there are different approaches and perspectives in how to integrate environmental concerns and innovation. Some are primarily emphasizing the actual goal of integration as related to re-coupling economic patterns in more eco-efficient ways, while other are more concerned with substantive norms and limitation of growth patterns. The variety of perspectives is important for assessing the overall costs and benefits of innovation in a much broader normative context. However, to assess the degree of policy integration towards green innovation, these varieties must be reconciled and integrated in such a way that substantive standards can be stipulated.

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## 4 Stipulating normative standards for policy integration

Integrating new policy demands *into* existing policy areas requires some sort of substantive norm or principle for realizing integration in practice. Given that the political system essentially involves “the authoritative allocation of values” (Easton 1965), some means must be at hand for authorities to determine “who gets what, where, when and how?”. Such means can only be provided (in a democracy) by transparent norms for specific allocations and the resolution of policy trade-offs. Win-win solutions in the pursuit of sustainable development are a blessing when achieved, but such solutions are in general very difficult to realize, and, when realized vis à vis the environment, usually achieved as a sub-optimal solution for long-term environmental degradation.

In previous studies we have identified benchmarks for governing mechanisms to achieve environmental policy integration (Lafferty 2002; Lafferty and Hovden 2003; Lafferty 2004). These benchmarks involve the horizontal (HEPI) and vertical (VEPI) dimensions of integration initiatives within governments. The focus is, in other words, on the responsibilities and activities of governing institutions: ministries, agencies, intra-governmental committees, and other bodies deriving their authority from national, regional or local constitutional mandates. In addition to these institutional-procedural benchmarks, we have also proposed a definition of EPI which directly addresses the issue of “substantive norms”. The most recent formulation of this definition (slight changes have been made in the course of debating and developing the idea), is as follows:

Environmental policy integration implies:

the incorporation of environmental objectives into all stages of policymaking in non-environmental policy sectors, with a specific recognition of this goal as a guiding principle for the planning and execution of policy;

accompanied by an attempt to aggregate presumed environmental consequences into an overall evaluation of policy, and a commitment to minimise contradictions between environmental and sectoral policies by giving principled priority to the former over the latter. (Lafferty 2004: 201)

With respect to the first part of the definition, we have elaborated on VEPI as follows: Vertical environmental policy integration indicates the extent to which a particular governmental sector has taken on board and implemented environmental objectives as central in the portfolio of objectives that the sector continuously pursues. VEPI involves the degree to which a sector has been “greened”; the extent to which it has merged environmental objectives with its characteristic sectoral objectives to form an environmentally prudent decision-making premise in its work. This “greening” does not presuppose an overarching primacy for environmental goals at the cabinet level. Each sector is left free to develop its own understanding of the concept and its implications. The dimension thus focuses on the degree of EPI *within* the steering domain of the individual department or ministry. This *may* lead to significant EPI in the sector itself, depending on the level of ministerial commitment and the ability of sectoral officials to balance internally derived environmental priorities with external demands for “normal” sectoral policy outputs, *and* to discover, employ or foster effective means of governance.

As an initial indication of what VEPI entails, Lafferty (2004) mention the following interdependent check-list of operational mechanisms:<sup>16</sup>

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<sup>16</sup> The list reflects general models of policy implementation (see, for example, Sabatier 1999; Parsons 1995; and Hill 1997), as well as more recent publications on policy integration and de-coupling (OECD 2001a: Ch. 3, and OECD 2001b: Ch. 4; Wilkinson 1998; IEEP 2001, Ch. 4; EEA 2001, Ch. 4; Lafferty and Meadowcroft 2000). It also reflects more specific evaluations and project

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A *scoping report* providing an initial mapping and specification of sectoral activity which identifies major environmental/ecological impacts associated with key actors and processes – including the governmental unit itself.

A *forum* for structured dialogue and consultation with designated principle stakeholders and citizens.

A *sectoral strategy* for change, putting forth the basic principles and goals for the sector.

An *action plan* to implement the strategy, with stipulated priorities, targets, timetables, policy instruments, and designated responsible actors.

A *green budget* for the integration and funding of the action plan.

A *monitoring programme* for overseeing the implementation process, its impacts and target results, including specified cycles for monitoring reports and revisions of the sectoral strategy and action plan.

These steering mechanisms identify institutions and procedures deemed necessary to achieve a minimum of *processual integration* of environmental concerns in sectoral governance. It is important to stress that the term “vertical” is here used in the functional sense of governing responsibility for given sector (transport, energy, agriculture, etc). This should not be confused with the notion of “vertical governance” across different domains of constitutional responsibility (regional, national, local).

The importance of this differentiation becomes clear when we consider the second dimension of EPI: *horizontal environmental policy integration* (HEPI). In its most essentialist form, HEPI involves the question of integrating environmental concerns within governments: that is, *across* sectoral policy and responsibility. If determining “who gets what, where, when and how?” is the essence of a political system, the relevance for HEPI is to substitute “environmental interests” for “who”; and to insist on at least equal treatment for the environment vis à vis other competing interests. This entails, of course, the negotiation of conflicts between environmental objectives and other societal objectives; between different sectors pursuing alternative environmental objectives; and between the alternative possible consequences of specific environmental initiatives. Assessing the degree of HEPI is a question of assessing both the basic mandate for environmental privilege – when and where it is to be regarded as “trump” – as well as the detailed specifics for realising the mandate in and through the workings of public administration.

A list of HEPI benchmarks has been proposed as follows (Lafferty 2004):

A “*constitutional*” *mandate* providing provisions for the special status of environmental/sustainable-development rights and goals.

An *over-arching strategy* for the sectoral domain, with clearly enunciated goals and operational principles, and a political mandate with direct backing from the chief executive authority.

A *national action plan* with both over-arching and sectoral targets, indicators and time-tables.

A *responsible executive body* with designated responsibility (and powers) for the overall coordination, implementation and supervision of the integration process.

A *communications plan* stipulating sectoral responsibility for achieving overarching goals, and outlining how intra-sectoral communications are to be structured and made transparent.

An *independent auditor* with responsibility for monitoring and assessing implementation at both governmental and sectoral levels, and for proposing revisions in subsequent generations of strategies and action plans.

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reports (such as Hertin et al. 2001, Fergusson et al. 2001, and Kraemer 2001). See also the comprehensive state-of-the-art overviews of EPI by Persson (2004) and the European Environment Agency (EEA 2004), and the “stocktaking” of the Cardiff process by the European Commission (CEC 2004c).

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*A board of petition and redress* for resolving conflicts of interest between environmental and other societal objectives, interests and actors.

Also these benchmarks should be seen as indicating “baseline” requirements for achieving (and evaluating) horizontal, cross-sectoral integration of environmental/ecological goals. They cover institutional and procedural aspects of implementation and reflect both processual and substantive norms. Further, each set of benchmarks is sequential as a rational implementation strategy and cumulative as to potential outcome. The degree to which the outcome is substantial for sustainable development is a question of the degree of political and administrative commitment to the substantive norms.

Focusing more specifically on this particular issue, we are confronted with one of the most difficult issues of democratic governance: the actual achievement of change. Policy in a democracy is about the determination and pursuit of collective-choice goals. The implementation of policy is a “game” consisting of interdependent initiatives and ploys to get specific “target-groups” (individuals and collective actors within culturally determined constellations of institutions and procedures) to change their behaviour in specific directions. The effectiveness of the initiatives and ploys (policy instruments) chosen in reaching goals will depend on the interaction between general characteristics of operational effectiveness (the “medium”); and the degree of will, commitment, drive and general moral force pushing the key actors towards a successful realization of goals (the “message”). Why and how the latter acquires impetus and direction has to do with the quality of norms and authority that permeate the transactions, negotiations, intimidations and bargains that effect change.

We have earlier identified such norms and authority with the idea of “trump” in card games (Lafferty and Hovden 2003: 9-11). Some values must be accorded “principled priority” when confronted with other values that do not serve the policy goals if change is to be effected in one rather than many other alternative directions. The governing mechanisms of policy implementation are in this view regulated by priority principles and application guidelines – a “canon of judgement” – that serves to regulate decisions among implementers as to alternative paths of action. At any one time any single policy process (in a democracy at least) will be confronted with alternative “trump” principles. These can, for example, be to the ultimate advantage of free-market competition (the capitalist state); social welfare (the social-democratic state) or the environment (the ecological state). The goal of sustainable development is often expressed as a “balance” between all three. But as we have argued elsewhere (Lafferty 2002; Lafferty and Hovden 2003; Lafferty 2004) the normative message of the SD discourse clearly implies that the ecological dimension – understood as the preservation of vital life-support systems for present and future generations – must be given “principled priority”. How this priority is expressed in the legal-political structure of a political system, and how it is applied in specific decision-making situations, are crucial issues in the design and execution of governance for sustainable development.<sup>17</sup>

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<sup>17</sup> The conceptual imagery and terminology are inspired by Immanuel Kant’s work on “pure” and “practical” reason (Kemp 1968: Ch. 1). Within a context of “procedural democracy” (Dahl 1997), it is presumed that a “trump” regulatory principle would be judiciously applied in accord with the conditions and guidelines of a “canon of judgement” for SD decision-making. The “precautionary principle” (as elaborated, for example, by O’Riordan et al. 2001) would be a necessary part of the canon.

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## 5 Green innovation policy in Norway: Where, when and how?

This paper will not go into detail on whether or not environmental issues are actually considered as “trump” in innovation policies. As we will see by the conclusion, that is clearly not the case. Rather we will take the findings from an analysis of the environmental and innovation documents published by the Ministry of Environment (MoE) and Ministry of Trade and Industry (MoTI) (responsible for innovation policy) to assess to what degree Norwegian environmental and innovation policies are coherent Taking the benchmarks on Horizontal and Vertical Environmental Policy Integration as point of departure (Lafferty 2004) – slightly moderated by the authors to accommodate innovation policy – this section of the paper represents an effort of evaluating the green innovation policy of Norway.

### 5.1 A green innovation policy in Norway: The horizontal dimension

The horizontal dimension of EPI (HEPI) refers to the overall governmental responsibility of sustainable development. Ruud and Larsen (2004) have reviewed a wide range of relevant White Papers, Parliamentary Bills, Policy Plans etc to assess to what extent innovation and environmental policies are horizontally integrated. Below, and in line with the benchmarks proposed by Lafferty (2004), we present a brief summary of the findings enabling a better understanding of the current status.

1. A “constitutional” mandate providing provisions for the special status of green innovation policy.

There is currently no special mandate for green innovation in Norway and the issue has hardly been debated in parliament.

2. An *over-arching strategy* for the sectoral domain, with clearly enunciated goals and operational principles, and a political mandate with direct backing from the chief executive authority.

There is no over-arching strategy for green innovations in Norway.

3. A *national action plan* with both over-arching and sectoral targets, indicators and time-tables.

There is no document or plan especially dedicated to green innovation. Innovation is hardly mentioned in *environmental* policy documents and environmental issues are hardly mentioned in *innovation* policy documents. The Action Plan for a Comprehensive Innovation Policy (HIP) published during the fall 2004 does not consider environmental issues at all. This is interesting because in the National Action Plan for Sustainable Development (NA21), published two weeks earlier, it is stated that the HIP “is consistent with NA21” (White Paper 1 (2003-2004): 195). This is not the situation. In the NA21 the challenge of de-coupling is explicitly emphasized, but in the HIP there are not made any references to either de-coupling or re-coupling.

Within the field of environmental politics eight policy priority areas with strategic objectives and operational national targets are agreed upon. In NA21 seven “central policy areas”<sup>18</sup> are identified. None of them are, however, related to innovation. Consequently a national action plan with targets, indicators and timetables for green innovation does not exist in Norway.

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<sup>18</sup> Norwegian term: “sentrale politikkområder”

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4. A *responsible executive body* with designated responsibility (and powers) for the overall coordination, implementation and supervision of the integration process.

As there is no strategy or plan for green innovation, there is no executive body responsible for green innovation. However, a committee consisting of deputy ministers<sup>19</sup> from 9 out of 18 Ministries is established to follow up the innovation policy plan, but MoE is not represented on this committee.

Further, an expert group has been asked to develop national indicators to facilitate the realization of the objectives stated in NA21, but innovation is not part of its mandate. In general no efforts are made to supervise, coordinate or implement a green innovation policy in Norway.

5. A *communications plan* stipulating sectoral responsibility for achieving overarching goals, and outlining how intra-sectoral communications are to be structured and made transparent.

No communications plan exists.

6. An *independent auditor* with responsibility for monitoring and assessing implementation at both governmental and sectoral levels, and for proposing revisions in subsequent generations of strategies and action plans.

No independent auditor exists.

7. A *board of petition and redress* for resolving conflicts of interest between environmental and other societal objectives, interests and actors.

No board of petition and redress exists.

The Action Plan for a Comprehensive Innovation Policy (HIP) is not very innovative; and in terms of being an action plan, it is not very comprehensive. This is the case, at least, regarding green innovations. Ruud and Larsen (2004) document that the HIP contains virtually no references to environmental concerns and does not take ecological thresholds or Earth's carrying capacity into account. Indirectly the NA21 emphasizes that sustainable economic development must include a green innovation policy. It is stated that the HIP "is consistent with NA21", but as mentioned above: the HIP does not have any references to environmental issues. In conclusion, horizontal coordination of environmental and innovation policies is virtually nonexistent. There is no such thing as a national green innovation policy in Norway, but perhaps this situation is more promising within specific sectoral domains?

## 5.2 The vertical dimension

Again we will use a summary of the results from Ruud and Larsen (2004) to assess to what extent innovation and environmental policies are integrated. It is of course possible to pursue a green innovation policy within a sector without an overarching horizontal policy. However, recalling that there is little emphasis on green innovations in the horizontal steering documents referred to in the previous section, it is not surprising that the findings on the vertical dimension are limited:

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<sup>19</sup> Norwegian term: "Regjeringens innovasjonsutvalg"

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1. A *scoping report* providing an initial mapping and specification of sectoral activity which identifies major environmental/ecological impacts associated with key actors and processes – including the governmental unit itself.

We are not aware of any such mappings or specifications from either MoE or MoTI. Inspired by the EU Plan on Environmental Technologies (ETAP), however, MoE has commissioned a report on current and previous Norwegian efforts on environmental technologies from the Pollution Control Authority (SFT). SFT's report is now pending at the Ministry, but it is highly unlikely that a scoping report will be produced.

2. A *forum* on green innovation for structured dialogue and consultation with designated principle stakeholders and citizens.

There is currently no green innovation forum in Norway.

3. A *sectoral strategy* for green innovation, putting forth the basic principles and goals for the sector.

There is currently no sectoral strategy for green innovation in Norway.

4. An *action plan* to implement the strategy, with stipulated priorities, targets, timetables, policy instruments, and designated responsible actors.

A sectoral green innovation action plan is not in place. All Norwegian ministries have, however, published environmental action plans,<sup>20</sup> but none of them are focusing on green innovation.

5. A *budget* for the integration and funding of the green innovation action plan.

There is no action plan, hence there is no budget.

6. A *monitoring programme* for overseeing the implementation process, its impacts and target results, including specified cycles for monitoring reports and revisions of the sectoral strategy and action plan.

No monitoring program exists (and not much to report on).

The degree of vertical policy integration of environmental and innovation policies in Norway is low. There are no strategic actions or plans for green innovation in place. This said, research on related issues such as renewable energy and environmental technologies is taking place. This is financed by the Research Council of Norway. Technical research is, however, only the start of a long innovation journey. Focus on development and diffusion towards commercialization is also needed. Related to green innovations, few policy instruments are in place.

A few green innovation initiatives are documented within entities like Innovation Norway<sup>21</sup>, SFT<sup>22</sup> and GRIP<sup>23</sup>, but they are all insignificant both in relative and absolute terms. Further, the limited public

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<sup>20</sup> For further detail see another paper presented at this Berlin conference: Lafferty, Larsen and Ruud (2004)

<sup>21</sup> Web site: <http://www.invanor.no/> (Accessed Nov 4, 2004)

<sup>22</sup> SFT - The Norwegian Pollution Control Authority. Web site: <http://www.sft.no/> (Accessed Nov 4, 2004)

<sup>23</sup> GRIP - the Norwegian Foundation for Sustainable Consumption and Production. Web site: <http://www.grip.no/> (Accessed Nov 4, 2004)

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initiatives documented are not related either to each other or to any overall strategy for green innovations (Ruud and Larsen (2004).

## 6 Conclusion

Taking the definition of environmental policy integration (EPI) and the benchmarks proposed by Lafferty (2004) as a point of departure, the paper has discussed green innovation policies in Norway. The general conclusion is that the degree of integration between environmental and innovation policies is still very weak in Norway. The implementation of both the Action Plan for Sustainable Development and the Action Plan for a Comprehensive Innovation Policy is poorly reflected by the EPI benchmarks.

There are, however, some green innovation policy initiatives taking place in Norway. The possibility of pursuing change in terms of strengthened public governance on green innovations without the formal structure of a strategic plan is of course possible. Though such 'ad-hoc' approaches are very 'fragile' in the daily workings of sectoral departments – where they must compete on an on-going basis with the dominant interests of more traditional sectoral policymaking – they constitute a point of departure. And green innovations – both technical and non-technical – are being promoted by a variety of actors within the business community.

While commitments towards SD have been repeatedly endorsed through international agreements and commitments, the commitment to innovation derives primarily from either policy declarations by the European Union, or more general intellectual and interest-based arguments as to why innovation is increasingly necessary for market competition and economic growth. Furthermore, as indicated above, even within the EU context, it is clear that the goal of sustainable development rests on a stronger normative mandate than innovation. As cited above, Article 6 of the Treaty of the European Union explicitly declares that “environmental protection requirements *must be integrated into* the definition and implementation” of Community policies, and that this should be done “in particular with a view to promoting sustainable development”. As there is nothing similar with respect to innovation, it is clear that the integration of environmental concerns has greater immediacy and “lexicographic” (ranked) normative status than innovation.

The case for “principled priority” for environmental concerns is perhaps even stronger for Norway, which has consistently been a key actor in promoting the SD agenda on the international level. Though the follow-up at home has been considerably less impressive (Lafferty et al. 1997, 2002), the strong international profile adds considerable normative weight to SD as a national task of “overarching” importance. The international commitments are, moreover, reflected in the relative weightings of the two policy domains in domestic politics. While there is a National Strategy for Sustainable Development, there is no national strategy for innovation in Norway. Both issues have their own national action plans, but whereas the National Action Plan for Sustainable Development (NA-21) clearly enlists innovation in the service of SD, the Action Plan for a Comprehensive Innovation Policy (HIP) has nothing of substance to say as to the role of innovation in promoting Sustainable Development.<sup>24</sup>

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<sup>24</sup> An English version of the SD action plan is available at: [http://www.odin.dep.no/filarkiv/206401/nat\\_action.pdf](http://www.odin.dep.no/filarkiv/206401/nat_action.pdf). The innovation action plan is currently only available in Norwegian: <http://odin.dep.no/filarkiv/190462/fraidetilverdi-031022.pdf>. In the SD action plan it is stated that: (1) “Business has a crucial role in working to achieve sustainable development. The ability of business to innovate in the direction of more sustainable production processes and a willingness to take social responsibility will

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By relating the results of our evaluation to the categories identified in Table 1, it should be possible to map degrees of integration with respect to “environmental protection”, “ecological modernization” and “sustainable development”. It should also be possible to highlight the normative differences (and practical implications) of contrasting existing EU innovation policies with the prospect of “ecological communalism”. Such a mapping can then be used as a point of departure for identifying barriers and prospects for change in relation to each type of integration, adding thereby greater substance to the discussion of “de-coupling” and “re-coupling”. A more substantiated discourse with respect to the dimensions put forth in Table 1 could provide a more effective approach to governance for sustainable development through a strengthening of green innovation policies.

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ultimately be decisive for reaching key political goals.” (National Action Plan for Sustainable Development 2003: 40-41, Authors’ translation).

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