Chapter 10

LINKING INNOVATION POLICY AND SUSTAINABLE DEVELOPMENT IN FLANDERS

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This chapter describes the policy response to the Flemish innovation system's excessive dependence on material- and energy-intensive production systems. The solution would require a long-term transition to a less resource-intensive and more knowledge-intensive economy. However, the governance of both sustainable development and innovation policy is still dominated by a sectoral logic in institutional behaviour and policy development that is a bottleneck for integrated policy development. There is not yet an integrated governance structure to implement a framework for sustainable development. Moreover, innovation is not at the top of policy agendas elsewhere in the system. Until recently in fact there has been little interaction between sustainable development and innovation. The Environmental Technology Platform (MIP), established by the Flemish government, can be a decisive institutional lever for changing the governance structure in order to manage the transition more effectively, in particular by achieving greater coherence between supply (stimulating excellence in research and innovation) and demand (procurement policies, etc.). MIP has the potential to foster the development of visions and co-operation among different actors in the innovation system. Whether this will happen depends on conditions that remain to be fulfilled.

Introduction

Context

Innovation policy and sustainable development policy are relatively new policy domains. They share characteristics such as complex subject matter, heterogeneous actors, a horizontal approach and weak institutionalisation. They exemplify many of the challenges for managing complexity in modern societies in general, as well as a changed context for policy efforts to build for the future.

Innovation policy evolved from a linear technology-push strategy, which assumes that economic performance follows research performance, into a system approach which recognises the innovation process as an interactive process in which interconnected actors and institutions engage in the production, diffusion and use of knowledge. At national level, this interactive innovation process provides the elements and relationships that constitute a country's national innovation system (NIS).

The system approach, which focuses on the relationships between actors and the knowledge flows in the system, is well suited to help policy makers deal with dynamic, complex processes such as innovation. However, it is still very new. The challenge is to derive operational guidelines from the NIS approach in order to conduct successful innovation policy. In fact, policy practice is often in advance of theory in developing new ways to capitalise on the interactive nature of innovation processes. The OECD Working Party on Technology and Innovation Policy, which had an important stake in the elaboration and diffusion of the new policy framework, has sought to give the approach more operability and focus, in particular in terms of institutional preconditions for enhancing the performance of innovation processes. Because the institutional setting of its national innovation system largely determines a country's adaptive capacity and competitive advantage, the governance issue is of strategic importance and has become more of a focal point in policy development.

At the same time, innovation policy is evolving towards third-generation innovation policy, stressing the need for integration with sectoral policies. This means that sectoral policies have to make innovation a distinct objective and that innovation policy has to expand its scope from economic goals to other types of policy goals. New types of horizontal policies and governance structures are needed to develop a multi-sector, multi-goal innovation policy. Innovation policy combines with sustainable development policy to balance economic, social and ecological goals to preserve the well-being of future generations.

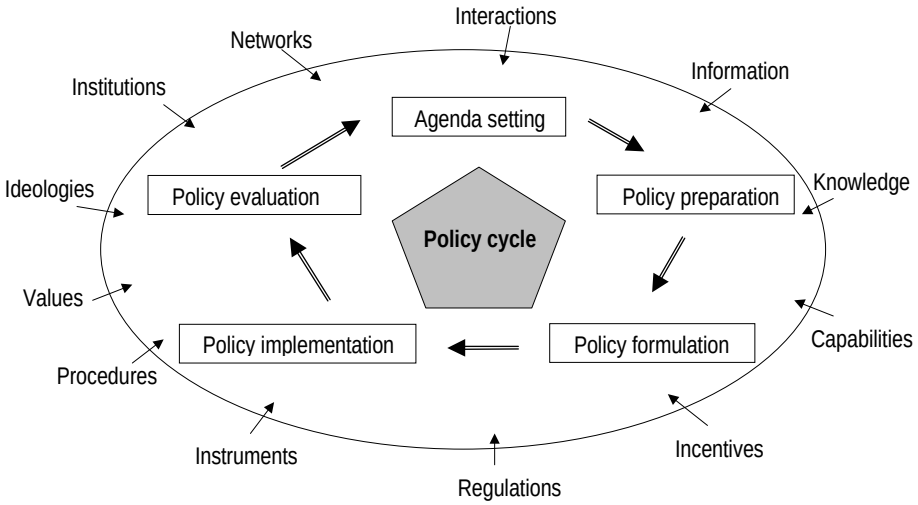
The general issue of governance

The key stages of a policy cycle, as depicted below, are a well-known reference for policy making. The policy cycle, from agenda setting to evaluation of the effectiveness of policies, is a formal linear model that is not generally followed in practice. The processes are in fact interlinked and should be understood as elements of an interactive model in which policies are the result of many complementary inputs and conditions and outcomes are determined by many interacting players. In addition, policies affect each other. Therefore, the consistency of policy cycles in different policy domains and between policy levels is an important issue as well. This leads to a broader view of policy as an institutionalised multi-actor and multi-dimensional process. Governments can hardly be viewed as a single (rational) actor, pursuing clear objectives with full information and clear and consistent preferences. Rather, governments, and their policy systems, act under great uncertainty often with less than optimal information and in-built contradictions and tensions.

Public governance concerns the ways in which the policy cycle is managed and influenced, both formally and informally. It typically concerns the systems and practices that governments use to set agendas, co-ordinate policies, co-operate with stakeholders and build up collective capabilities for policy learning (Figure 10.1). The objective is to develop the capacities, instruments and institutional mechanisms that are required for effective and coherent policies. Coherence is defined here as the degree of correspondence between goals and instruments and between policy formulation and policy implementation in a particular policy domain (vertical coherence), the consistency between policies in different policy domains and the potential for integration (horizontal coherence) and the modulation over time of short-term and long-term objectives or the mutual fit of current policies and perceived challenges (temporal coherence). By institutional capacities are meant the ability of a country to mobilise and/or adapt its institutions to perform functions, solve problems and set and achieve objectives. Institutions are broadly defined

here as sets of rules, processes and practices. They not only include organisations, which are often called institutions, but also all formal or informal rules, processes and practices that exist within society.

Figure 10.1. The policy cycle and the issue of public governance



A country's governance structure determines to a large extent its performance, including its ability to adopt new societal objectives. Improving governance means dealing with the mismatches between perceived policy challenges and the policy mixes adopted, often owing to weak political leadership, lack of decision-support systems, fragmented policy formulation, inefficient interdepartmental co-ordination, competing rationales and ideologies, short-termism in resource allocation, poor transparency and accountability. Political leadership and commitment, institutional mechanisms for policy co-ordination, transparency, stakeholder participation and knowledge management are components of good governance.

The following discussion first analyses the policy space and the policy processes related to sustainable development policy. It next examines the links between sustainable development and innovation policies and the role of the innovation policy in enhancing sustainable development and vice versa. Then, possible ways to improve the synergy between these policies are described. A brief conclusion follows.

Sustainable development policy in Flanders and Belgium

The Belgian/Flemish context

Belgium is a small and densely populated country (10.3 million inhabitants and 32 545 km^2). Flanders is the more densely populated, Dutch-speaking part of Belgium (almost 6 million inhabitants and 13 522 km^2). Flanders is one of Europe's key economic regions. It lies at the heart of the large industrial area of western Europe and has a well-educated workforce. A good transport network provides direct links to all major European markets and – through the harbour network – to the world. Owing to its small scale, high population density, central location and transit economy, Flanders has to deal with problems of congestion, road safety, high emission levels, environmental degradation and

lack of space. A decoupling of economic growth and pressure on the environment has not yet taken place.

The institutional context in Belgium is complicated by the division of competencies among different governments. Apart from the federal government there are three community governments (Flemish, French and German) and three regional governments (Flemish, Walloon and Brussels). Important issues such as taxation and social security are decided at the federal level, but many policy issues have been regionalised (*e.g.* culture, education, environment, public works and transport, science and research policy, etc.). There is no hierarchy of federal laws and regional decrees. Because of its wide scope, sustainable development policy is distributed among various federal and regional policy domains.

This complex institutional organisation is an obvious barrier to a coherent and integrated sustainable development strategy. On the other hand, its advantages include more possibilities for mutual learning and for institutional competition.

Public governance for sustainable development policy at the federal level

Good governance and sound public management are preconditions for implementation of sustainable development policies. These preconditions include political leadership and commitment, institutional mechanisms for policy co-ordination, transparency and stakeholder participation and knowledge management. Political leadership is particularly challenging in this context, given the potential for conflict among various interests in both the public and private sectors. Institutional mechanisms are the source of the capacity to adapt or construct new institutions for sustainable development, to bring together capable personnel and mechanisms for solving problems, and to set, achieve and evaluate sustainable development objectives. Policy coherence is a key element owing to its wide scope. Transparency implies that decision making is sufficiently open and helps ensure broad support. Conflicting interests are often at stake in discussions of sustainable development, and trade-offs are a major feature of policy making. Governments have an important role to play in addressing the major conflicts of interests among stakeholders, in particular by involving them in constructive discussions of these issues, but also in forging compromises, advancing solutions and networking. Knowledge management is extremely important in the context of the long-term thinking required for sustainable development. The complexity and unpredictability of the long-term effects of most issues related to sustainable development imply that, for most policy decisions, conclusive scientific evidence may not be available. Managing knowledge for sustainable development is therefore extremely important. This section analyses how these four aspects of good governance are present at the federal level.

Political leadership and institutional mechanisms

The federal government is ahead of the regions in developing a more formal strategy on sustainable development. It has created a governance framework with a law, a council, different institutions and a planning and reporting system.

As a follow-up to the Rio agreement on sustainable development, a 1997 federal law describes a set of policy instruments for building sustainable development policy. Two important elements are the four-year Federal Plan for Sustainable Development and the bi-annual Federal Report on Sustainable Development. The first plan dates from 2000 and covers 2000-04. The second plan was recently launched and follows the structure of the

European strategy for sustainable development. It covers climate change, transport, health, natural resources, poverty and social exclusion, and population ageing.

The Interdepartmental Commission for Sustainable Development (ICDO) is responsible for preparing the four-year plan and an annual follow-up report. It is composed of federal officials, each of whom represents a member of the federal government. Almost all policy domains that are the competence of the federal government are represented. Until recently the officials who attended the monthly meetings of the ICDO were not high-ranking.

Although there is a legal framework, it is clearly insufficient (and probably not the most important issue in building sustainable development policy). Since sustainable development has not been a political priority, it has proven very difficult to implement the plan. There has also been a lack of human and financial resources. As a result, many actions have been delayed.

Because the federal government is the competent authority for only a limited number of policy issues and instruments, it has difficulty developing a truly integrated policy plan for sustainable development. For example, it can introduce certain labels or product standards, *i.e.* for recycled materials, but the regional governments are the competent authorities for instruments such as subsidies for recycling centres, agreements with industrial sectors, information campaigns, etc. For water, the federal government legally has almost no policy competence. A truly integrated sustainable development plan would need the consent of the regions and the elaboration of a common national strategy on sustainable development as agreed in the Johannesburg Plan of Implementation (JPOI).

An important challenge is to achieve true policy integration and implement sustainable development through a horizontal approach rather than a set of scattered initiatives in separate policy domains. Today's federal plan looks like a list of actions to tackle specific problems in particular policy domains, rather than an integrated approach to horizontal challenges in the overall context of sustainable development. This fragmentation is also reflected in the functioning of the ICDO. For example, for the annual follow-up report, every member prepares a document for his or her policy domain. Little interaction takes place. Although the content of the Federal Plan for Sustainable Development is still highly fragmented, progress has been made in certain areas.

Recently, the federal government has responded to some of the drawbacks by founding a new horizontal central administration (PODDO: Programmatic Public Service on Sustainable Development) to support sustainable development policy. Its mission is to help other institutions to prepare and implement sustainable development policy.

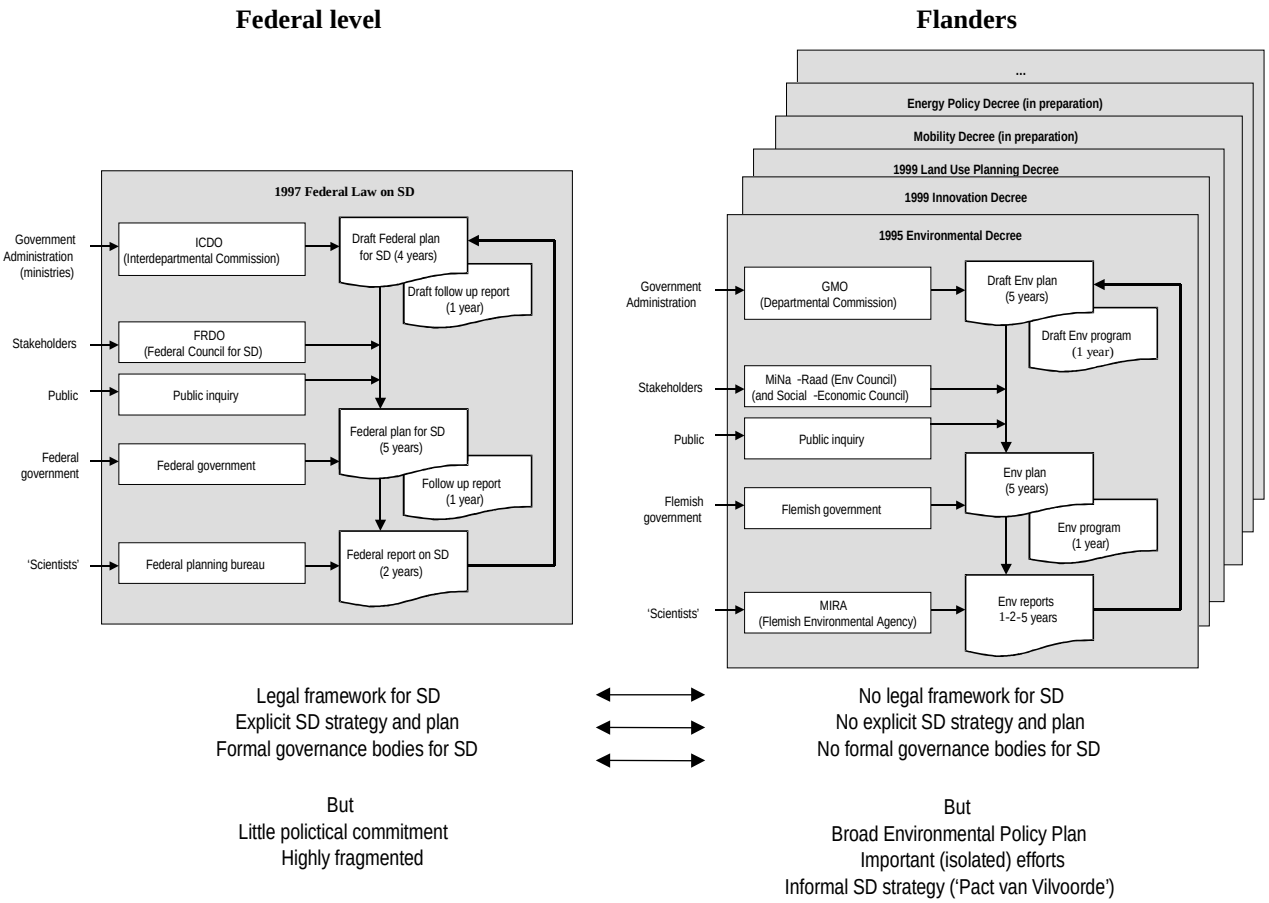
Following the policy agreement of the new federal government (July 2003), units for sustainable development in the different ministries have been approved. Their main task is to analyse the effect of all governmental decisions on sustainable development (sustainable development impact analysis). The government has also announced that it will pay more attention to the annual follow-up report of the ICDO, as well as to the reports of the Planning Bureau. Every year it will ask the advice of the Federal Council, and all these documents will be delivered to parliament.

Stakeholder participation on the federal level

Stakeholder participation is considered very important. An important actor in this context is the Federal Council for Sustainable Development (FRDO), an advisory body composed of a large number of experts, representatives of socio-economic, cultural and environmental protection organisations, as well as of the federal and regional governments. The federal government can ask advice on its proposed policy, but the Council can also initiate advisory procedures. It has several thematic working groups, in which interaction and discussion take place. It can also take initiatives to communicate with the public on sustainable development. For example, for the preparation of the World Summit on Sustainable Development, the Council organised several conferences.

There is also a public inquiry on every new Federal Sustainable Development Plan. All citizens can give their opinion during a two-month period (three months in future). But there are no rules on how this inquiry should be organised, on the instruments to be used, the way to approach the public, appropriate timing, etc., or how the results of inquiries should be taken into account.

Figure 10.2. Sustainable development policy governance at the federal level and in Flanders



Knowledge management at the federal level

Political commitment and policy integration can only come together in a framework for long-term strategic convergence. At the federal level, the Research Programme for Sustainable Development and the Planning Bureau in particular provide important support in this respect.

The Task Force on Sustainable Development of the Planning Bureau prepares the Federal Report on Sustainable Development every two years. The report analyses the current situation and evaluates sustainable development policy. It is used as an input for both the follow-up of the present plan and the elaboration of a new plan. Figure 10.2 compares sustainable development policy governance at the federal level and in Flanders.

Public governance for sustainable development policy at the Flemish regional level

Flanders does not have an overall sustainable development policy and there is no legal framework for co-ordination of such a policy. Environmental policy clearly takes the lead in promoting sustainable development through a legal and institutional framework similar to that for sustainable development on the federal level, laid down in a 1995 decree. In fact, the federal framework was inspired to a large extent by the Flemish environmental policy. The Flemish government approves an environmental policy plan every five years and an environmental programme annually. The Flemish environmental agency is responsible for a series of environmental reports that describe the quality of the environment, forecast the state of the environment under different scenarios and evaluate environmental policy. Based on the 1995 decree, there is a public inquiry on every new plan. The Environmental Council and the Social-Economic Council act as advisory bodies. Some other policy domains in Flanders have a more or less comparable policy cycle framework. For example, the 1999 decree on innovation introduced among other things a four-year innovation policy plan for which the Council for Scientific Policy and the Social-Economic Council act as advisors. In spite of the lack of an overall strategy or framework, important efforts have been made recently.

Political leadership and institutional mechanisms

In the last decade sustainable development was part of policy declarations in 1995, in 1999 and less explicitly in 2004. In 1999 the policy agreement stated more explicitly the importance of sustainable development: "We must provide for the needs of this generation without limiting the possibilities of future generations. Sustainable development has to take place within the borders of the ecological system and pay attention to the less favoured members of society." The new 2005-09 government declaration makes a less explicit reference to sustainable development but affirms a continuation of policies to integrate economic, social and ecological concerns. The new policy agreement states that one of the core tasks of Flanders is "to evolve towards a competitive and responsible region, with an economy that fosters simultaneously economic, social and ecological development". On the other hand, responsibility for sustainable development policy was for the first time formally assigned to the Minister-President of the Flemish government. His cabinet prepared a first policy note for sustainable development for the coming five years.

While Flanders did not have a defined, overall sustainable development policy at the end of 2004, many issues relating to sustainable development were included in the policy letters of different ministers between 1999 and 2004 and there have been some interesting projects related to sustainable development: sustainable entrepreneurship and employment in the environmental sector, sustainable mobility, rational energy consumption and renewable energy supply, sustainable agriculture, sustainable technology development, etc.

In 2001 the government launched a policy vision project, called Colourful Flanders, to establish a platform involving all social actors for longer-term societal development. It can be considered as a first move towards an integrated strategic policy that finds its inspiration in the sustainable development agenda, because of its horizontal goals and themes and its longer-term thinking (2010). Six working groups, composed of experts, members of the Cabinet, officials of the ministries, and representatives of socio-economic organisations and non-governmental organisations (NGOs), drafted long-term vision texts on entrepreneurship, education, work, culture, care and the environment. These were translated into "21 objectives for the 21st century" and signed during a high-level conference by all ministers and by representatives of the social partners and environmental organisations. Afterwards, a set of indicators was agreed to follow up the Pact of Vilvoorde (named after the town where the conference was held). The Pact of Vilvoorde can be considered as a valuable effort to formulate policies with a longer-term horizon, combining ecological, social and economic objectives for sustainable growth. On the other hand, the Pact of Vilvoorde cannot be more than a first step. The process was characterised by a lack of integrated thinking. The six vision groups worked independently without much interaction. As a consequence, the horizontal aspect is absent and certain dimensions that are important for sustainable development are lacking, *i.e.* the international dimension (international solidarity, technology transfer to the developing countries) and a balanced approach to the three pillars of sustainable development. The pact is a political message that long-term thinking is important. Furthermore, governance by conferences, a common thread in political decision making in Belgium, has limited impact if it is not combined with efforts to translate objectives into coherent policies.

The recent policy letter on sustainable development explicitly states that the government will formulate a sustainable development strategy for Flanders. To enhance this scenario, a study was carried out in 2004 to examine tools and conditions for structuring the future dialogue and policy framework for sustainable development.

Institutional mechanisms at Flemish level

Flemish public servants will have to deal with cross-department issues relating to sustainable development, and an interdepartmental working group on sustainable development was established in 2003. One of its tasks was to prepare in common papers for international meetings on sustainable development, such as the Commission for Sustainable Development of the United Nations. Other tasks were to prepare co-ordinated advice on preparatory texts of the Federal Plan for Sustainable Development and to prepare a Flemish strategy on sustainable development, which the group felt was a priority. In this context, they have made an inventory of the different approaches, visions and actions related to sustainable development in the different policy domains.

An important tool for the integration of sustainable development thinking in policies and regulations is the recently introduced regulatory impact analysis. Its aim is to improve the quality of regulation and policies by carrying out a systematic analysis of the social, economic and environmental effects of existing and proposed regulations.

Stakeholder participation and transparency

At present, there have been several exercises with focus groups, test panels, etc., and there is increasing use of different forms of interactive policy making developed by government administrations, universities, NGOs, etc. However, these are often separate, small-scale initiatives.

There are several well-established advisory boards such as the Environmental Council (MiNa), the Social-Economic Council (SERV), the Council for Innovation Science, and the Council for Education.

MiNa and SERV recently decided to collaborate on sustainable development. They have published a call, directed to the whole Flemish government, to prepare a Flemish Strategy for Sustainable Development.

Knowledge management

Flanders has no framework for long-term strategic convergence. There is an emerging use of scenario analysis and foresight in Flanders (administration of planning and statistics, ViwTA, VRWB, universities), scientific policy support points have been established at universities and departmental policy units are under way (BBB), and advisory councils like SERV and MiNa sometimes fulfil a think-tank function. New innovation projects like transition management (sustainable building and living) and foresight (rural areas) are initiated by the environmental policy domain. Also, instruments like MIRA (environmental reporting and foresight) play an important role. But generally, instruments for strategic intelligence to support decision processes are not well developed. Initiatives involving foresight, back-casting and other explorative techniques for policy development are scattered and not well linked to the policy cycle. Forums for sharing experience and knowledge are nearly inexistent.

Co-ordination and integration of environmental and innovation policies in sustainable development

The case for integration

Discovery of a path to sustainable development is a main policy challenge. Leaving aside disaster scenarios, the evolutionary strategies societies currently pursue depend heavily on rebalancing the economic system on which our welfare is based. Technological progress carries high hopes for ecological modernisation and is bringing innovation and environmental policies closer together.

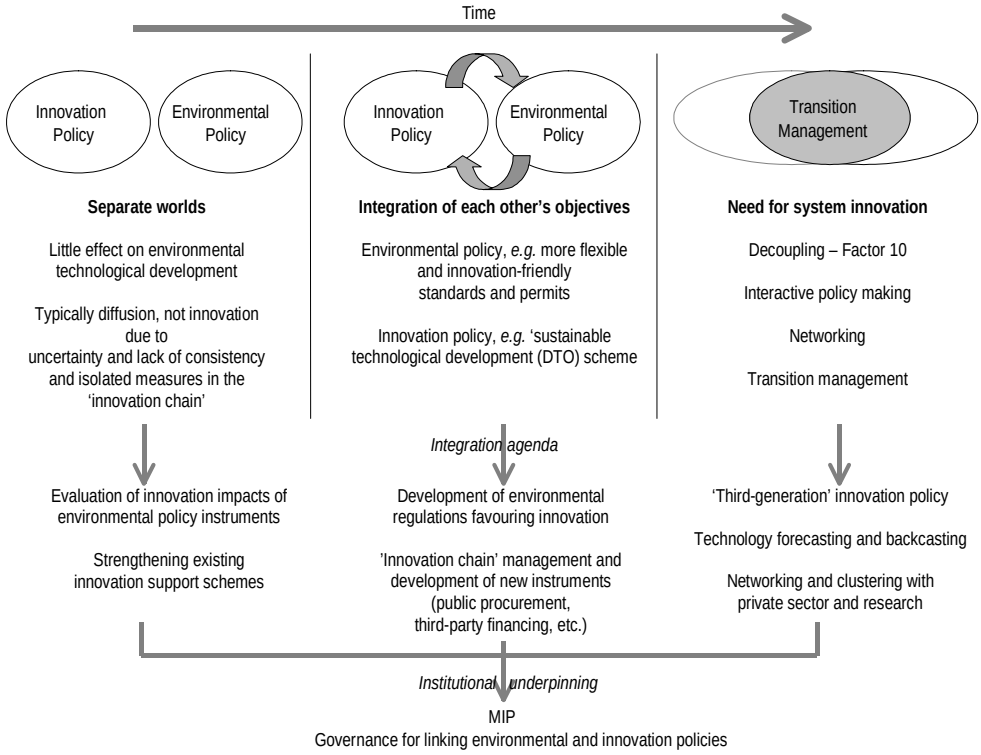
In fact, combining economic, social and environmental goals requires the decoupling of economic growth and environmental pressures. The inadequacy of present policies to achieve the necessary improvement in eco-efficiency puts radical, systemic change and technological, economic and social innovation at the centre of sustainable development policy. Close collaboration between environmental policy and innovation policy is urgently needed.

Instrumental integration and co-ordination of policies

In environmental policy, interest in the potential role of technological innovation for attaining environmental goals is very limited. And, *vice versa*, the consideration given in the innovation policy field to the promotion of environmental quality is also very limited. There has been little contact between innovation policy and environmental policy and a total lack of integration. Not only the two policies, but also their entire policy communities, including policy research, are largely separate worlds.

Approaches to better integration or co-ordination of environmental and innovation policy can take either the perspective of single policy instruments focused on changing (economic) behaviour, or that of transition programmes for system changes. They can also be complementary (Figure 10.3).

Figure 10.3. Emerging collaboration between innovation and environmental policy in Flanders



Not surprisingly, traditional environmental and innovation policy instruments have had little effect on environmental technology development. Environmental policy typically focuses on diffusion of existing technologies, not innovation, and it is often accused of being a barrier to technological innovation. This can be said for instruments such as regulation based on the best available technology, some types of covenants and even economic instruments (subsidies, taxes, tradable certificates) that are used in Flanders.

The basic reason is that innovation tends to be incremental under conditions of uncertainty or when the long-term framework is lacking; Flanders has generally lacked clear goal setting, consistent goal keeping and practical and consistent environmental policies. The calculation of the wastewater charge, for example, was revised in five successive years in the early 1990s; the system for renewable energy certificates has been modified as much as seven times since its introduction in 2002. In a survey of the Flemish environmental industry, business leaders mentioned this uncertainty as the most troubling barrier for technological innovation (Bollen and Van Humbeeck, 2000). It is also one explanation for the success of minimum compliance technology and end-of-pipe solutions in the Flemish environmental industry. This confirms that the effect of environmental instruments on technological innovation perhaps depends more on the role of political leadership in setting clear targets that are reflected in the design and implementation of instruments than on technical characteristics.

Second, traditional policy instruments cannot hope to achieve much more if they are isolated measures. The innovation chain has to be reflected in the design of mutually reinforcing policy mixes. This is the main reason why instruments such as technology impulse programmes, R&D subsidies and demonstration projects have often failed.

Nevertheless, there are some promising examples of integration of the objectives of environmental and innovation policies. The Flemish government recently made explicit efforts to make regulatory policies more flexible and innovation friendly. A decree adopted in 2004 stipulates that, whenever possible, environmental standards and permits should formulate the environmental results to be attained rather than how they comply ("ends, not means"). If it is necessary to use technology standards, firms can always use an alternative with the same environmental effectiveness. On the side of innovation policy, the Innovation Agency introduced a new subsidy mechanism in 2002 called sustainable technological development (DTO). It is not conceived as a particular support programme (a "ghetto") for environmental and energy technologies, but is integrated in all existing technological research and innovation support schemes as a bonus for R&D projects that have a significant impact on resource savings and environmental quality.

Tools like the Benchmarking Covenant and the SO_2 and NOX Covenant with the electricity sector take a long-term perspective involving a long-term commitment to seek new frontiers. Although they only stimulate the diffusion of world-class technologies and do not intervene directly in the innovation process, they could provide a platform for organising the transition from one technological regime to another.

Governance for system changes

In environmental policy as well as in innovation policy, there is an evolution towards a system approach. System approaches take a broader view of policy as an institutionalised multi-actor and a multi-dimensional process. In this perspective, policy integration problems are problems of co-ordination in the governance structure that reveal systemic failures.

The system approach in innovation policy

Flemish innovation policy has evolved from a traditional first-generation innovation policy towards an explorative third-generation innovation policy (European Commission, 2002).

In the 1980s, after the establishment of the first Flemish regional government – still with limited competencies – the Flemish Minister-President launched the DIRV campaign (Third Industrial Revolution in Flanders), which emphasised basic research of international level in the new generic technologies and the creation of university spin-offs. This linear, technology-push strategy assumed that economic performance follows research performance and coincided with the emergence of the first generation innovation policy.

In the 1990s, a full-fledged Flemish innovation system started to become institutionalised with the establishment of a technology agency (IWT – Institute for the Promotion of Science and Technology in Industry) to support bottom-up technology development. Interest in environmental technological innovation was weak. Early Flemish pioneering results in wind energy or hydrogen energy were not pursued when time-to-market was revealed to be much longer than hoped. The introduction of cluster policy as a new economic development policy for Flanders failed because the co-operative mood was not yet strong enough. However, R&D policy evolved towards broader innovation policy with the 1999 decree that provided the legal framework to extend support as well as institutional leverage to stimulate collective innovation. This embodied a second-generation innovation policy. Instead of relying entirely on technology push, it puts the economic outcome as the objective and supports an interactive model of organisation to bring together the requirements for success. IWT evolved from a purely technology-push subsidy agency to the stimulator of innovation with different roles. In addition to being a distributor of subsidies and financier of near-risk capital, it became the co-ordinator of intermediary innovation agents under the influence of the new conceptual framework of national innovation systems which acknowledges the central role of interaction among innovation actors. The name of the IWT was changed and became the Institute for the Promotion of Innovation by Science and Technology.

There has recently been a phase of consolidation and maturation in the Flemish innovation system. The signature in 2003 of the Innovation Pact by the social actors, which is a commitment to the Lisbon targets, has put innovation high on the political agenda. With the appearance of third-generation innovation policy the focus is shifting from pure science and technology objectives to sustainable growth as a programme of broad societal goals. This involves a holistic view and a system-wide approach and stresses the need for an "integrated innovation policy", that integrates innovation with sectoral policies. This requires sectoral policies to make innovation a distinct objective. Innovation policy also has to expand its scope from economic goals to other types of policy goals, not as constraints but as a part of a coherent mission. A sustainable development policy combines these economic, social and ecological goals.

The system approach in environmental policy

The new ecological approach in environmental policy shares a holistic paradigm with third-generation innovation policy and reflects a general shift from a mechanical to a biological worldview in science.

Roughly until the mid-1990s, environmental policy, institutions and legislation were built around traditional environmental sectors (water, air, waste, soil), and environmental problems were tackled by issuing environmental standards and permits and by building large-scale waste and wastewater treatment facilities.

From the mid-1990s, it has become clear that this approach is not entirely effective, and other policy concepts have been added. First, the set of policy instruments was broadened. Because of the high cost and low level of effectiveness of traditional command and control regulation, other types of instruments, such as covenants and economic instruments, were increasingly used. Second, government clearly wanted to steer more at arm's length and looked to greater co-operation with target groups to achieve environmental objectives. With the recognition that society cannot be steered by government and that government is only one of many actors influencing the behaviour of citizens and firms, the relationship between the state, the market and civil society began to change and a multi-actor policy approach appeared. Third, environmental policy is placing greater stress on the strong linkage between environmental problems and socio-economic activities and thus the need for an integrated approach. This implies that environmental objectives should be internalised and pursued by policies for agriculture, economy, energy, transport, etc. More attention is also given to multi-level governance.

Recently, the concepts of system innovation and transition management have entered Flemish environmental policy. The transition to a new, sustainable evolutionary trajectory makes a set of strategies to change behaviour necessary. Policy makers are now conscious of this challenge. The Environmental Policy Plan 2003-07 presents a framework for transition management and for stimulating system innovation. From mid-2004, a project on transition management in sustainable building is being carried out to learn to make this a reality. Also, the 2004 environmental programme announced several initiatives to promote the idea of system innovation (forecasting studies, development of a knowledge infrastructure in co-operation with the innovation and technology policy field, creation of a multi-actor network). The challenge is to concretise and implement these initiatives.

Transition management follows from the system approach and may be what is missing to put the Flemish economy and society on the route towards structural renewal and a coherent and sustainable model of production, consumption and innovation. Environmentally oriented technological innovation will be at the heart of this transformation.

Transition management is used to tackle very persistent problems. In transition management the policy maker conducts the setting of a transition agenda and establishes a communication platform to promote strategic convergence. The transition agenda mobilises society for long-term goals on sustainable development and offers radical innovators an opportunity to interact with complementary actors. One of the main tasks of transformation concerns government itself, because an integrative horizontal policy approach is needed to overcome vertical departmentalism.

The innovation platform for environmental technologies[1]

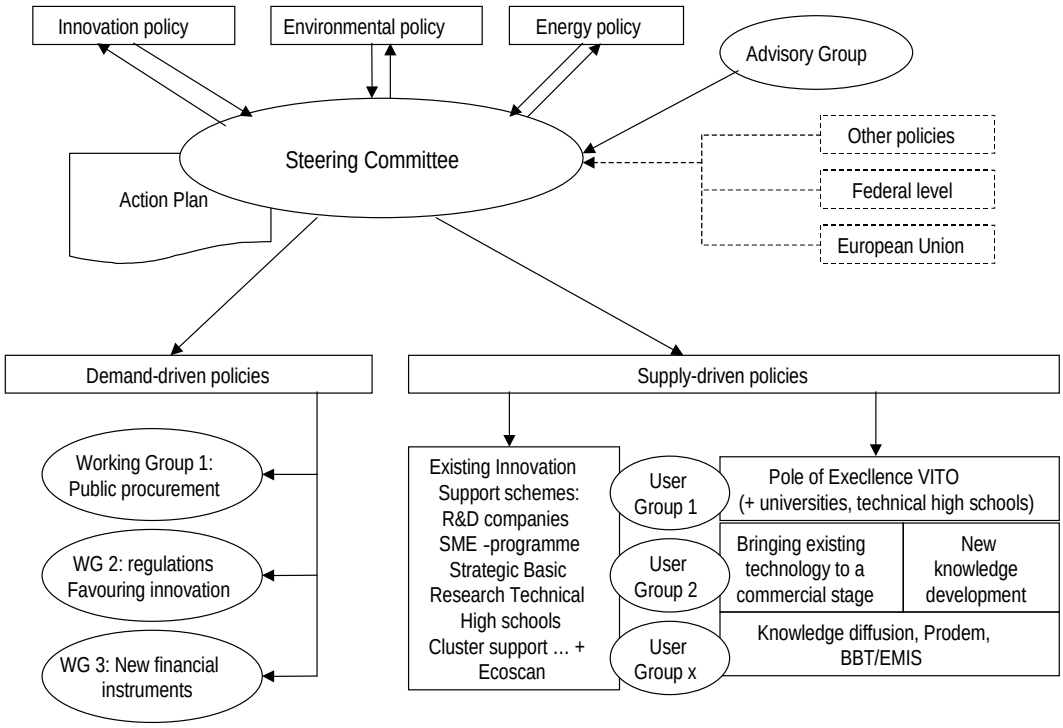
A new impetus for integration of environmental policy and innovation policy comes from their mutual evolution towards a system approach in the context of a broader policy perspective founded on structural change and interactive policy making. Environmental policy and innovation policy are developing into generic policy areas that affect a great number of ministries. In a complex society the interaction of many players determines outcomes. New technologies are also the result of many complementary inputs and conditions. Management of such complexity is bound to fail if it is unable to adapt to an ever-changing policy environment and unpredictable effects of interaction. Therefore, the management of system innovation requires transition strategies to continuously adapt agendas in the light of shifting long-term objectives in order to maintain progress towards the societal goals on which a strategic consensus has been forged. Policy makers in Flanders are starting to realise this and are experimenting with concepts such as interactive policy making, multi-actor governance and transition management. Transition management may serve to bring together innovation policy and environmental policy in the coming years. The translation of such principles into practice is a lengthy process that requires further institutional innovation. However, strategic initiatives to establish new kinds of social contracts (Pact of Vilvoorde, Innovation Pact) need specific institutional underpinnings.

In this regard, at the end of 2003 an Enterprise Conference took place, involving Flemish public authorities, business organisations and labour unions. All parties agreed that social and economic welfare has to be ensured through a strategy of enhancing creativity and innovation. As a consequence, the Flemish government created the Innovation Platform for Environmental Technologies (MIP) as a new form of institutional co-operation based on innovation systems and third-generation innovation policy (Figure 10.4). The platform integrates the policy instruments of three ministries (Innovation, Environment and Energy Policy), and has the potential to become an example of integrated innovation policy. Its success will depend on the will of the parties involved to co-operate on the lines that were put forward. The aim of the Innovation Platform is to bring together all relevant private and public actors in order to boost the innovation potential of environmental technologies in Flanders for internal and export purposes.

The mission of the Innovation Platform is to encourage synergies using the "pooled" policy instruments of the three ministerial domains to meet the common goal. It is "non hierarchical" and based on networking of ministries and administrations. The platform is structured to work closely with (semi) public companies and relevant firms and stakeholders and to encompass and co-ordinate supply-driven (DTO scheme, user groups, Excellence Pole on Environmental Technologies) as well as demand-driven instruments (technology procurement, regulations favouring innovation, and new financial instruments). A central Steering Committee co-ordinates all activities and will draw up an action plan containing the key objectives and pointing to synergies.

1. The authors gratefully acknowledge the contribution of Paul Zeeuwts to this section.

Figure 10.4. Structure of the Innovation Platform for Environmental Technologies (MIP)



Along with these general policy objectives, a new Pole of Excellence on Environmental Technologies was created, located in VITO but involving university and other research capabilities. This pole of excellence will deal with two kinds of projects: first, projects bringing existing knowledge to the commercialisation stage and second, projects developing new basic knowledge. Priorities will be "demand-driven", based on technological and commercial potential and taking into account the need for publicly supported knowledge development. The Steering Committee of the Innovation Platform will decide on priorities, acting as a "board".

Thematic working groups will deal with these issues. They will mainly be composed of members of the relevant administration, (semi) public companies and relevant firms.

Assessment of MIP

To assess Flemish experience and developments requires once again attention to the same factors of good governance as for sustainable development – political leadership, institutional mechanisms, transparency, and strategic intelligence.

Political support and leadership

Sustainability requires policy integration or co-ordination, improved interaction between government and society and a long-term policy view. This cannot happen in a bottom-up manner. It requires political commitment at the highest level and willingness to deal with trade-offs and conflicts of interests.

Political support and leadership in setting up and implementing the MIP is vital. The decision to create an Innovation Platform was taken by the Flemish government following a commitment by Flemish public authorities, enterprise organisations and labour unions in the Enterprise Conference. It is possible, and even probable, that the parties agreed to an environmental innovation platform without a clear picture of its role and relevance. The platform's success will depend a lot on the understanding, support and political will of the new government to implement its goals and working principles.

Institutional mechanisms

At the outset, the only tools for co-ordinating environmental and innovation policies in the MIP are the action plan and the participation of different ministries in the Steering Committee and in working groups. Clear procedures for decision making are lacking, and there is no clear political commitment concerning budget support, personnel and capacity building.

There is not a single best instrument or programme for promoting environmental technological innovation. A mix of strategies is needed to develop an eco-efficient market economy with good conditions for eco-innovations. Good governance requires a wide portfolio of policies. Economic instruments are important but not sufficient. One also needs innovation- and knowledge-oriented policies. Such a policy mix is very time- and context-dependent and should be attuned to the demands of specific clusters in co-operation with the innovation actors. The portfolio of policy instruments should cover the whole trajectory of the innovation and diffusion process and focus on a combined push and pull approach. Market- or demand-side programmes can promote the application of new technologies and stimulate wider application of proven technologies, all within a strategic context of well-defined specialisation.

The basic propositions of MIP are sound and innovative. Its efforts will concentrate on well-defined target areas. There is a clear commitment, not only to strengthen the classical policy instruments of research and innovation policy for the purpose of environmental innovation, but also to complement them with new instruments targeting the demand side of environmental technologies and to work across the traditional borders of environmental and innovation policy. However, one should be cautious to limit the scope of MIP's work to the three potential instruments put forward (smart technology procurement, modification of regulations for innovation and introduction of new financial instruments).

Interactive policy making and transparency

Government, business, investors, consumers, researchers, NGOs and educators all have important roles to play in redesigning the innovation system. This is important in the globalising economy because assessment of markets and new technologies is key to companies' long-term survival. Also, companies themselves are challenged to attend to a broader set of objectives and integrate social, environmental and ethical considerations in their business (socially responsible corporate governance).

At the level of MIP, interaction is the task of the Steering Committee. There is an important opportunity to introduce and experiment with horizontal integration of policies for innovation purposes, with a more pro-active role for different policies aimed at innovation and for networking and clustering. However, it is unclear whether the composition of the Steering Group and a relationship with an advisory group is the best solution. The Steering Group is a hybrid body composed of representatives of government and of a

few business organisations. Involvement of other stakeholders will be organised through an advisory group, but its composition and functions are unclear. At the moment, transparency seems to be lacking, although it is essential to establish a credible policy that is supported by a wide range of actors.

Strategic intelligence

To reach the ambitious goals of MIP requires strategic intelligence. This involves analytical instruments such as foresight, scenario analysis, benchmarking, cost-benefit analysis, monitoring, technology assessment, etc., and competencies in process management, participative methods for consultation and co-ordination, policy instruments and policy mix, system innovation and transition management, etc., in order to create a common mindset, provide a common framework of reference, rationalise the decision processes and help to implement the important choices that will have to be made. Little attention has been given to these new types of instruments for strategic intelligence.

Conclusions and recommendations

Sustainability: the need for a new approach to public sector management

Public management for sustainable development

Public-sector management is in need of new methods to deal with present urgencies and long-term vision. On the one hand, there are challenges such as the ageing of the population, immigration flows, the financing of the social security system, prevention of infrastructure congestion and environmental degradation that require long-term visions and strategies. On the other hand, the pressure of day-to-day decisions and the management of conflicting claims on limited resources is becoming more difficult in an open society where short-term success parameters tend to dictate the agenda. The art of governing is to combine the conflicting agendas of long-term and short-term decision making into new styles of political leadership and new methods of political and administrative management.

The discovery of a transition path to a sustainable development along the economic, social and ecological dimensions may be the main current challenge for policy development. Technological progress carries high hopes for ecological modernisation and is bringing innovation policies and environmental policies closer together.

The important political choices that need to be made are seldom made by single players, whether in the market place or in the political arena. In a complex society, outcomes are determined by interaction among the players and new technologies are the result of complementary inputs and conditions.

Sustainable development requires initiatives to better integrate economic, environmental and social goals within the mandate of each policy sector. This requires measures to build and strengthen a sound policy cycle in every policy sector (vertical coherence), measures to improve the co-ordination of sectoral policies (horizontal coherence) and measures to allow for the modulation of short-term and long-term objectives (temporal coherence). Good governance and sound public management seem more important for the implementation of sustainable development policies than new institutions and regulations. The most important aspects are political leadership, institutional mechanisms for policy co-ordination, transparency and knowledge management (Table 10.1).

Table 10.1. The current situation for sustainable development in Flanders

Preconditions	Current situation	Recent developments	Recommendations for Flanders
Political leadership	Federal: low, not a priority. Flanders: low, not a priority.	Federal: rising, new minister-secretary of state for sustainable development. Flanders: Pact of Vilvoorde; Minister-president formally responsible for co-ordinating sustainable development policy in Flanders.	Strengthen political leadership and vision. Better include sustainable development in social contracts and pacts.
Institutional mechanisms	Federal: ICDO and the sustainable development Plan are weak and are not working properly. Flanders: lack of mechanisms for co-ordination of policies (BBB).	Federal: programmatic public service on sustainable development and sustainable development impact analysis. Flanders: interdepartmental working group for sustainable development; promising regulatory management instruments (*e.g.* RIA).	Set up a central sustainable development unit to act as a catalyst. Install evaluation and reporting mechanisms to support sustainability appraisal. Develop longer-term budgeting and sound regulatory management instruments.
Transparency	Federal: public enquiries; Federal Council for Sustainable Development (FRDO). Flanders: public enquiries; Environmental Council, Social-Economic Council.	Federal/ Flanders: a lot of separate and often small scale initiatives and experiments such as focus groups, test panels and forms of interactive policy making, developed by government administrations, at universities, by NGOs, etc.	Ensure a more efficient and effective participation of citizens, stakeholders and advisory bodies. Use new and more flexible consultation methods. Introduce "white papers" for earlier consultation. Introduce a regulatory agenda and "notice and comment". Develop clear guidelines and minimum standards for consultation.
Knowledge management	Federal: Federal Planning Bureau. Flanders: Advisory Councils, MIRA, NARA, etc.	Federal: PODO Flanders: emerging use of scenario analysis and foresight at APS, ViwTA, VRWB; establishment of university policy support points, departmental policy units in BBB, transition management .	Build strategic intelligence capabilities. Strengthen analytical instruments such as foresight, scenario analysis, etc. and integrate them in the policy cycle. Build competences on process management, participative methods for co-ordination, policy instruments and policy mix, etc. Develop forums for sharing experience and knowledge.

- Political interest in sustainable development policy is still high on the agenda at federal level and in Flanders. A particular promising development is that, following the regional elections of June 2004, the responsibility for co-ordinating sustainable development policy in Flanders was for the first time assigned formally to a minister, the Minister-President of the Flemish government. It remains to be seen whether this will lead to stronger political leadership for sustainable development.

- New institutional mechanisms that have been very recently introduced in Flanders, such as the Programmatic Public Service on Sustainable Development, sustainable development impact analysis at federal level, and the new regulatory management instruments (*e.g.* regulatory impact analysis), are promising tools. They should be developed further to act as catalysts for improvement. Also the new Flemish interdepartmental working group on sustainable development is a first step into the direction of integration of policies.

- The Flemish and federal governments have a strong tradition of working with advisory councils and public enquiries. These are necessary but insufficient components of a full-fledged open policy development process. More effort to enhance the transparency of the policy process is necessary to allow more interaction between administrations and more stakeholder involvement. At present, there are several experiments with participatory approaches, but these are often separate, small-scale initiatives. For Flanders, the priority is probably not to install a Flemish Council for Sustainable Development, not because there are several well-established advisory boards/councils, and the space and resources for yet an additional council is limited, but because such a council would again institutionalise consultation practices, tend to monopolise stakeholder involvement and hinder new participants and innovative consultation methods. The priority should therefore be to integrate sustainable development thinking in each and every advisory council, and more importantly, to ensure more efficient and effective participation of citizens, stakeholders and advisory councils in important policy decisions. Here progress is slow both in Flanders and at federal level.
- Political commitment and policy integration can only go together if there is a framework for long-term strategic convergence. At the federal level the Research Programme for Sustainable Development (PODO) and the Planning Bureau provide important support. Flanders does not have such an institution. Generally, instruments for strategic intelligence to support decision processes are not well developed, either at the federal level or in Flanders. Initiatives with foresight, back-casting and other explorative techniques for policy development are scattered and poorly linked to the policy cycle. Forums for sharing experience and knowledge are nearly inexistent.

Combining positive points of the federal and Flemish situations, and giving more attention to integration, it should be possible to develop and carry out strong and coherent national and regional strategies for sustainable development. The different elements of governance need mutually reinforcing dynamics between government levels in Belgium and between administrative levels in Flanders. The recent collaboration between environmental policy and innovation policy in Flanders indicates a possible way to advance the integration agenda.

From government to governance

The present management of innovation systems tends not to produce the necessary breakthroughs for sustainable growth. The industrial system still normally chooses rationalisation and end-of-pipe solutions to react to pressures arising from ecological problems.

Moreover, in the current transitional phase, market signals for eco-innovations are weak and unclear. Markets can be efficient (to a certain extent) but favour short-sightedness because of the difficulties of coping with uncertainty and pricing. Therefore an economy in which government corrects such market failures has proven better able to handle socio-economic shifts. Environmental policies are crucial for developing new markets on both the supply and the demand side. Innovation policy is also about market creation, as governments can play a role by actively supporting breakthroughs (basic research, product standards, public procurement).

Insufficient production of environmental technological innovations is not just a problem of prices that do not reflect societal costs. The innovation strategies of companies depend on their appraisal of market potential and risk, but companies are also part of networks and national systems of innovation on which their ability and willingness to innovate also depends. The cumulative and embedded nature of technical change means that companies are locked into non-eco-efficient systems and products. Internalising the environmental costs is therefore a necessary but insufficient condition for escaping lock-in.

The system model of innovation shows that environmentally friendly innovation requires conditions other than price incentives. Regulation is usually mentioned as the most important, but the institutional settings of the innovation system have a much broader scope. Making companies behave more pro-actively requires changes at many levels of the innovation system: the government-business relationship has to change, producers and consumers must develop new competencies and the economic framework conditions have to change to make the innovation system perform better from a sustainability point of view. This is a political challenge as much as a challenge for business. There is thus a strong case for active policies to stimulate environmental innovation for sustainability.

Assessment and recommendations

To carry out an ambitious programme of structural transformation requires a combination of instruments that influence behaviour of individuals (consumers and producers) and institutional engineering in the form of transition management. The co-ordination of policy design and policy implementation, especially between environmental policy and related domains (such as energy, agriculture, transport) and innovation policy, is of utmost importance.

Progress is rather slow. Flanders still finds it difficult to capitalise on the synergy between environment, research and competition policies. Investing in the future has no urgency in the actual political business cycle and self-imposed targets (Kyoto targets, the 3% target for R&D) risk being delayed. Other types of governance are necessary to create societal consensus and direction in complex issues of this kind.

To improve the co-ordination of innovation policy and environmental policy under the umbrella of sustainable development, some common goals and strategies can easily be defined:

- Promote environmental technological innovations explicitly rather than implicitly.
- Develop an integrated horizontal strategy towards environmental innovation with other policy fields such as energy, transport, housing, agriculture, etc.
- Create a network with all relevant partners; develop integration and interaction models to stimulate innovation as a common learning process.
- Promote system innovation and new management styles such as transition management.
- Develop joint measures and projects that take advantage of synergies between environmental and innovative strategies.

- Use public technology procurement as a major driver for strategic innovation policies for sustainable development.

In environmental (and related) policy the following actions can be recommended:

- Keep trying to get prices right.
- Create a more innovation friendly regulatory and policy framework; consistency and predictability is more important than financial incentives.
- Set distinctive innovation objectives (together with the innovation policy domain) in transition programmes.
- Integrate technology foresight models into policy design.
- Better integrate and co-ordinate the different instruments and estimate their impact on innovation.
- Use a mix of instruments, favouring those with a stronger impact on system innovation (with long-term goals) over those for system improvements, and analyse the impact on innovation.
- Take existing platforms, *e.g.* for covenants, as a starting point to build trust in more far-reaching changes.
- Promote an integrated approach to the value chain (life cycle analysis, eco-design).
- Promote and evaluate support for demonstration projects.
- Extend the policy toolbox with new, promising environmental instruments such as innovation waivers and environmental technology verification programmes.

In innovation policy, the following actions can be taken:

- Strengthen traditional mechanisms – R&D funding, diffusion, technology transfer – through better synchronised policies along the innovation chain for environmental technologies.
- Increase the use of environmental criteria in policies and programmes that support technology development. Sustainable development or global responsibility has to be an explicit selection criterion on the same level as the technical and financial aspects of project evaluation by IWT.
- Improve the convergence of supply and demand in environmental innovation in Flanders by promoting platforms of strategic actors, supported by foresight capabilities.
- Support the development of new competitive economic clusters in environmental and energy technologies, on both the supply side (technology providers) and the user side (sectors that improve their competitiveness through increased eco-efficiency).
- Target a much greater share of resources explicitly to environmental sustainability in experiments of transition to new technology trajectories in which Flanders has comparative advantages (*e.g.* in energy technology as announced in the Policy Agreement).

- Promote the development of new instruments and measures such as demand-side research, innovative public procurement, technology forecasting and technology roadmaps that ensure that technology meets the societal and environmental needs for sustainability.
- Develop joint measures and projects with the relevant policy domains (environment, energy).
- Pay explicit attention to new policy development for third-generation innovation policy by attention to (international) policy learning and strategic intelligence, with a focus on integration with sustainable development.

The new Innovation Platform for Environmental Technology can bring together several aspects of these recommendations. It could become a powerful instrument for assessing where societal needs and technological capacities might be brought together to achieve breakthroughs in sustainability. It can also bring together strategic actors to develop new innovation chains. It can become an instrument for fostering the development of visions and co-operation among different actors in relevant innovation systems. However, several key aspects of governance need to be improved during implementation of the MIP (Table 10.2):

Table 10.2. Summary of recommendations for improving the governance of MIP

Governance component	Importance	Assessment of MIP	Recommendations
Political support and leadership	Policy co-ordination and improved interaction between government and society in the context of a long-term policy view requires political will at the highest level.	Outcome of the Enterprise Conference, so in principle broad support.	Provide a clear picture of role and relevance of MIP.
Institutional mechanisms: Policy portfolio and policy mix	There is not a single best instrument or programme for promoting environmental technological innovation.	The basic propositions of MIP are sound and innovative.	Do not limit the scope to the three potential instruments put forward, provide additional focus on programmes for system innovation; create interfaces for developing tailor-made policy mixes such as cluster platforms.
Integration	Key issues in integrating environmental and innovation policy are policy style and governance arrangements for policy integration.	Action plan; participation of different ministries in the Steering Committee and in working groups.	Create governance tools and arrangements for policy co-ordination, such as an innovation impact assessment tool; provide clear responsibilities and mandates, clear procedures for decision making.
Interactive policymaking and transparency	Decisions on the future shape of society imply interactions with different actors to build consensus through adequate institutional arrangements.	Steering Committee, advisory group, user groups.	Tackle the hybrid and unbalanced composition of the Steering Committee; clarify the role and composition of the advisory group and user groups; provide adequate mechanisms for transparency.
Strategic intelligence	Without strategic intelligence, there is a real danger that MIP will be captured by particular interests and lobbies to create another one-stop shop for R&D subsidies and business support.	No analytical instruments such as foresight, scenario analysis, technology assessment, etc., and no competence on process management, participative methods, policy instruments and policy mix, system innovation and transition management, etc.	Underpin MIP with a strong and intelligent secretariat or task force and institutionalise learning.

- Although there is some political commitment, the rollout of the MIP will depend a lot on the understanding, support and political will of the new government to implement its goals and working principles.
- Concerning institutional mechanisms, clear procedures for decision making should be elaborated for the Steering Committee, the action plan and working groups, and a clear political commitment is needed concerning budget support, personnel and capacity building. Also the set of mechanisms for policy integration could be much broader (Verhoest *et al.*, 2003). Policy integration also requires competencies, capabilities, communication and mutual learning, for example, through exchanges of civil servants between the ministries responsible for environment and innovation, establishment of mixed task forces, extended consultation and dialogue on sectoral policies and projects, sectoral capacity building, information tools and indicators.
- Interactive policy making is taking place through the Steering Committee but only a few business organisations are participating. Involvement of other stakeholders will be organised through an advisory group whose composition and functions are unclear. At the moment, transparency seems to be lacking. The MIP does not seem to be using new models of interaction such as networking.
- In terms of strategic intelligence little attention is paid to promising policy instruments that merit consideration, such as the use of environmental management systems, measuring and benchmarking, long-term covenants, eco-labels and product declarations, innovation waivers and environmental technology verification programmes (Van Humbeeck, 2002). Making environmental regulation more innovation-oriented can also stimulate innovation. It is clear that forming thematic working groups, composed of members of the administration, (semi-) public companies and relevant firms, to deal with policy instruments and policy mix will not suffice. This requires some strategic intelligence.
- Before choosing programmes, MIP needs to explore the relevant domains in greater depth. The best strategy is to build upon strengths and develop regional clusters of specialisation in sectors and disciplines in which Flemish actors are leaders or have the potential to become international leaders. When there is no established technological base, market support alone will not easily lead to a strong industry. However, to make the necessary management decisions requires an assessment of the strengths and weaknesses of Flemish industry, based on strategic environmental and technology forecasting, balancing long-term goals and short-term results, and integrating an international perspective to avoid duplication and to use knowledge that is available at international level.
- It would merit consideration to underpin the MIP with a strong secretariat or task force, to tap into available information, knowledge and competence and create an institutional memory by pooling experience in an organised information network. The government should institutionalise learning by requiring assessment, evaluation and adaptation as a regular feature of the policy process. A knowledge centre or expert group within the government administration should be created to give methodological advice and to assist departments and agencies on a strategic level with integration of policies, implementation of governance tools and building of strategic intelligence. It should also promote initiatives to strengthen

institutional capacities at all levels: individual, organisational, network, government, society.

- Finally, MIP seems to be missing a clear focus on programmes for system innovation. This is also a necessary and important dimension of strategic intelligence concerned with transition management. Also, learning should be an important objective in its own right. MIP should stimulate experiments and support high-risk projects with high social/environmental benefit. The balance of support to incremental innovation in mature technologies and innovation for new breakthroughs can only be found in a concrete analysis of the technology trajectories from the point of view of their overall contribution to sustainable development.

MIP: A showcase for horizontal innovation policy?

This chapter has analysed the links between innovation policy and sustainable development. Traditional government procedures for addressing cross-sectoral and intergenerational issues, two important aspects of sustainable development and horizontal innovation policy, are often insufficiently effective.

A lack of effective co-ordination among sectors and across the various levels of governments is a major challenge. Good governance and sound public management are preconditions for the implementation of sustainable development policies. These preconditions include political leadership and commitment, institutional mechanisms for policy co-ordination, transparency and stakeholder participation and knowledge management. The same kinds of problems appear when analysing sustainable development and innovation. Political commitment is often very short-term, institutional mechanisms are often very weak, integration is often lacking, especially between environmental and innovation issues, new instruments to enhance transparency have not yet been put into practice (innovation policy) or are small-scale initiatives and experiments, and especially knowledge management is still lacking: there is almost no experience with foresight, scenario analysis, technology assessment, system innovation and transition management. The MIP initiative offers the possibility for learning and can function as an experiment in innovation governance. The conditions are in place to make of MIP a showcase of policy co-ordination and integration.

References

Bollen, A. and P. Van Humbeeck (2000), "Sociaal-economische analyse van de Vlaamse milieu-industrie", Sociaal-Economische Raad van Vlaanderen, Brussels.

De Jonge, W. (2003), "Voorraadbeheer binnen de milieugebruiksruimten duurzame ontwikkeling en systeeminnovatie", RUG, CDO, Ghent.

Dries, I. (2003), "Duurzame ontwikkeling in Vlaanderen en België", mimeo.

European Commission Directorate-General for Enterprise (2002) "Innovation Tomorrow. Innovation Policy and the Regulatory Framework: Making Innovation an Integral Part of the Broader Structural Agenda", Innovation Papers No. 28, Brussels.

European Commission (2004), "Stimulating Technologies for Sustainable Development: An Environmental Technologies Action Plan (ETAP) for the European Union", Communication from the Commission to the Council and the European Parliament, COM(2004) 38 final.

Jansen, J.L.A. (1994), *The Environment: Towards a Sustainable Future*, Kluwer Academic Publishers, Dordrecht.

Kemp, R. (2002), "An Integrated Policy for Innovation for the Environment", in P. Boekholt (ed.) "Innovation Policy and Sustainable Development: Can Public Innovation Incentives Make a Difference?" Contributions to a Six-Country Programme, IWT Studies No. 40, Brussels.

Kemp, R., M. Munch Andersen and M. Butter (2004), "Strategies for Eco-innovation", VROM, zaaknummer 5060.04.0041.

Larosse, J. (2002), "Transition Management as an Instrument for Leadership and Coaching in Systemic Transformations", mimeo.

Larosse, J. (2004), "Towards a 'Third-Generation' Innovation Policy in Flanders, Policy Profile of the Fleminsh Innovation System", in OECD (2005), *Governance of Innovation Systems, Volume 2: Case Studies in Innovation Policy*.

OECD (2004), "Improving Policy Coherence and Integration for Sustainable Development: A Checklist".

OECD (2004), "Institutional Capacity and Climate Actions", Summary Paper.

Rennings, K., R. Kemp, M. Bartolomeo, J. Hemmelskamp and D. Hitchens (2003), "Blueprints for an Integration of Science, Technology and Environmental Policy", STRATA Project (Strategic Analysis of Specific Political Issues).

Rotmans, J., R. Kemp and M.B.A. van Asselt (2001), "Transition Management: A Promising Perspective", in M. Decker (ed.), *Interdisciplinarity in Technology Assessment: Implementation and its Chances and Limits*, Springer-Verlag, Berlin, 165-197.

Van Giessel, J.F., G. van der Veen and P. Larrue (eds) (2004), *Policy Instruments for Sustainable Innovation*, Technopolis BV, Amsterdam.

Van Humbeeck, P. and A. Bollen (2003), "Klimaatbeleid en CO_2 regelgeving in België en Vlaanderen: status questionis anno 2003", SERV sociaal-economische raad van Vlaanderen, Brussels.

Van Humbeeck, P. (2002), "Naar een industrieel beleid voor het milieu. Technologie en innovatie al sleutels voor een duurzame welvaart. Discussienota". Brussels; SERV sociaal-economische raad van Vlaanderen/Academia Press, Ghent.

Verhoest, K., A. Legrain and G. Bouckaert (2003), *Over samenwerking en afstemming. Instrumenten voor een optimale beleids- en beheerscoördinatie in de publieke sector*, Academia Press, Ghent.

Verhoest, K., B. Verschuere and G. Bouckaert (2004), "Pressure, Legitimacy and Innovative Behaviour by Public Organisations", Public Management Institute, Catholic University of Leuven.

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