

# **LINKING INNOVATION POLICY AND SUSTAINABLE DEVELOPMENT IN FLANDERS**

**Contribution to the OECD-TIP Project on  
'Monitoring and Implementing Horizontal Innovation Policy'**

**Ilse Dries**

**Jan Larosse**

**Peter Van Humbeeck**

## Abstract<sup>1</sup>

Sustainable development and innovation policies meet each other in their horizontal ambition towards other policy domains. This working paper on ‘integration of innovation policy and sustainable development policy’ deals with the policy response to the industrial lock-in of the Flemish innovation system in material and energy intensive production systems. The way out in ‘system innovation’ demands a long-term horizon of transition to a new less resource intensive and more knowledge intensive economy. But the present governance of both sustainable development and innovation policy is still dominated by a sectoral logic of institutional behaviour and policy development that is a bottleneck for integrated policy development. Sustainable development has not achieved an integrated governance structure that can implement the planning framework. Innovation is not at the top of policy agenda’s outside the core domain either. In fact sustainable development and innovation have been largely strangers to each other until recently. The establishment of the Environmental Technology Platform (MIP) by the Flemish government can be a decisive institutional lever for changing the governance structure for the ‘management’ of the transition process in more coherent sense, in particular in achieving greater coherence between supply (stimulating excellence in research and innovation) and demand (procurement policies etc.). MIP can become an instrument in fostering the development of visions and cooperation among different actors in the relevant innovation system. Whether this will materialize, depends however on a set of conditions that still have to be fulfilled.

## 1 INTRODUCTION

### Context

Innovation policy and sustainable development policy are both relatively new policy domains that share characteristics as a high degree of complexity of the subject matter, heterogeneity of actors, horizontal approach and still weak institutionalisation. They embody a lot of challenges for managing complexity in modern societies in general, but exemplify the changed context for the striving of policy making to build new futures.

Innovation Policy evolved from a linear technology-push strategy that assumes that economic performance follows research performance, into a system approach where the innovation process is recognised to be an **interactive** process in which different types of interconnected actors and institutions engage in the production, diffusion and use of useful knowledge. This interactive innovation process provides the elements and relationships that - located within the borders of a country - constitute its ‘**national innovation system**’ (NIS).

The system approach is well suited to help policy makers to deal with dynamic complex processes as innovation, by focussing on the relationships between actors and the knowledge flows in the system. But this system approach is still very young. The challenge remains to derive more operational guidelines from the NIS-approach to conduct successful innovation policies. In fact, policy practice seems often ahead compared to policy theory in developing new ways to capitalize on the interactive nature of the innovation processes. In the OECD-TIP Committee (Working Party on Technology and

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Innovation Policy), which had an important stake in the elaboration and diffusion of the new policy framework, therefore new steps are taken to give the approach more operability and focus, in particular on the **institutional preconditions** to enhance performance of innovation processes. Because the institutional setting of its national innovation system determines to a large extent the adaptive capacity and competitive advantage of a country, the **governance** issue is indeed of strategic importance and is becoming more and more a focal point of policy development.

At the same time, Innovation Policy is evolving towards a ‘Third Generation Innovation Policy’, stressing the need for integration with sectoral policies. It means that those sectoral policies have to put forward innovation as a distinct objective, and that innovation policy also has to expand its scope from economic goals to other types of policy goals, as a part of a coherent mission. New types of horizontal policies and governance structures are needed to achieve this type of multi-sector, multi-goal Innovation Policy. In this evolution Innovation Policy meets Sustainable Development Policy in its ambition to balance economic, social and ecological goals to preserve the well-being of future generations.

The MONIT case studies on Sustainable Development have three main objectives:

- Analyse the policy space and the policy processes related to Sustainable Development policy.
- Analyse the links between the Sustainable Development and innovation policies and the role of the Innovation Policy in enhancing Sustainable Development and vice versa.
- Analyse possible ways to improve the synergy between these policies.

This paper is structured likewise.

## 2

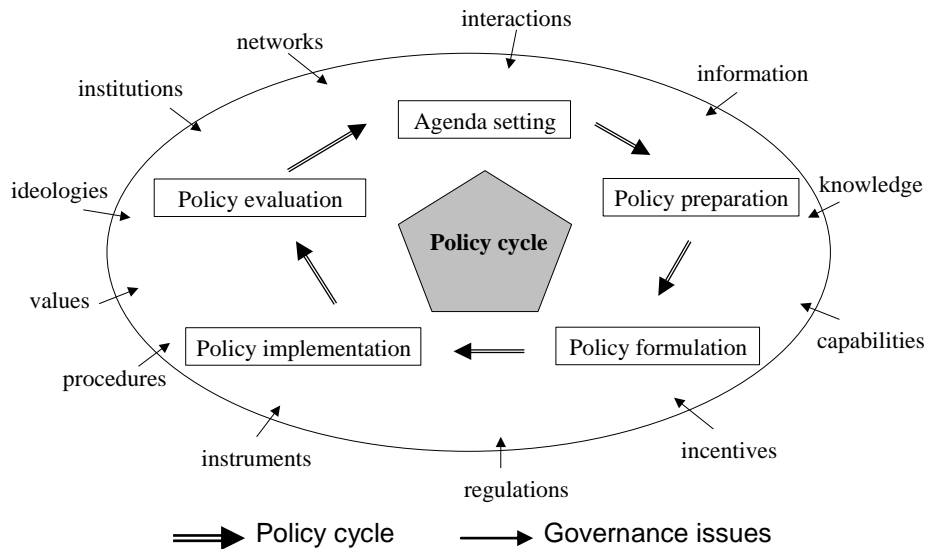
## 2. THE GENERAL ISSUE OF GOVERNANCE

The key stages of a policy cycle, as depicted below, are a well-known reference for policy making. This policy cycle, from agenda setting to evaluation of the effectiveness of policies, is certainly a formalistic version, as the policy making process often does not follow such a linear model. The processes are interlinked and should be understood as elements of an interactive model of policy making. In such an interactive model, policies are the result of many complementary inputs and success conditions and outcome is determined by a lot of interactive players. In addition, policies impact each other. Therefore the consistency between the policy cycles in the different policy domains and between policy levels is an important issue as well. This leads to a broader view of policy as an institutionalized multi-actor and multi-dimensional process. Governments can hardly be viewed as one (rational) actor, pursuing clear objectives with full information and clear and consistent preferences. Rather, governments, and their policy systems act under great uncertainty with often 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 formal and informal. It typically concerns the systems and practices that governments use to set agendas, coordinate policies, cooperate with stakeholders and build-up collective capabilities for policy learning. 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 itself (vertical coherence), the consistency between policies of different policy domains and the potential for integration (horizontal coherence) and the modulation in time of short term and long term objectives or the mutual fit of current policies and perceived challenges (temporal coherence). **By institutional capacities** we mean the ability of a country to mobilize 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.

*The policy cycle and the issue of public governance*



The governance structure of a country determines to a large extent its performance, including the ability to adopt new societal objectives. Improving governance deals with the typical mismatches between perceived policy challenges and employed policy mixes, due to weak political leadership, lack of decision support systems, fragmentation of policy formulation, inefficient interdepartmental coordination, competing rationalities and ideologies, short-termism in resource allocation, poor transparency and accountability, etc.

Political leadership and commitment, institutional mechanisms for policy co-ordination, transparency, stakeholder participation and knowledge management are components of good governance.

### 3. SUSTAINABLE DEVELOPMENT POLICY IN FLANDERS AND BELGIUM

#### 3.1. The Belgian/ Flemish context

Belgium is a small and densely populated country (10,263,414 inhabitants, 32,545 km<sup>2</sup>). Flanders is the more **densely populated** Dutch-speaking part of Belgium (5,972,781 inhabitants 13,522 km<sup>2</sup>). Flanders is now one of Europe's key economic regions. It lies in the heart of the large West European industrial area and can count on a highly educated workforce. A good transportation network provides direct links to all major European markets and - through the harbour network - the world. Linked to its small scale, high population density, central location and transit economy, Flanders has to deal with problems related to these characteristics such as congestion, road safety, high emission levels, environmental degradation and lack of space. A decoupling between economic growth and pressure on the environment has not taken place yet.

The institutional context in Belgium is very complicated because of the division of competences between different governments. Apart from the Federal government there are three Community governments (the Flemish, the French and the German) and three regional governments (the Flemish,

the Walloon and the Brussels). Many important issues are still decided at the federal level (such as taxation and social security), but a lot of policy issues have been regionalized (e.g. culture, education, environment, public works and transport, science and research policy, etc.). There is an exclusiveness of powers without hierarchy between federal laws and regional decrees. Because of its wide scope, Sustainable Development Policy is distributed between different federal and regional policy domains.

This complex institutional organization is an obvious barrier for building a coherent and integrated sustainable development strategy. But on the other hand it has the advantage of more possibilities for learning from each other and even for ‘institutional competition’.

### 3.2. Public governance for Sustainable Development Policy at the Federal level

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. *Political leadership* is particularly challenging in the context of sustainable development given the potential for conflict among various interests both in the public and private sectors. *Institutional mechanisms* means that there is a capacity to adapt or construct new institution for sustainable development, and install or bring together capable personal as well as mechanisms to solve problems and set, achieve and evaluate the sustainable development objectives. Policy coherence is a key element in the context of sustainable development due to its wide scope. *Transparency* means that *decision making* is sufficiently **open** to stakeholders, to assure a broad support. Conflicting interests are often at stake in discussions about sustainable development, and trade-offs remain 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 on these issues, but also in forging compromises and advancing solutions, and networking. *Knowledge management* is extremely important in the context of the long term thinking characterising sustainable development. The complexity and unpredictability of the long-term effects of most issues related to sustainable development imply that, for most policy decisions to be made, conclusive scientific evidence is not always available. Managing knowledge for sustainable development is therefore extremely important.

In this chapter we analyse how this 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. The government created a governance framework with a law, a council, different institutions, and a planning and reporting system.

Following the Rio-agreements on Sustainable Development, the 1997 federal law describes a set of policy instruments for building a 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. It covers the period 2000-2004. Recently the second plan has been launched. This second Plan follows the structure of the European strategy for Sustainable Development and covers climate change, transport, health, natural resources, poverty and social exclusion, and ageing of the population.

The Interdepartmental Commission for Sustainable Development (**ICDO**) is responsible for preparing the four-year Plan and an annual follow up report. This **Commission** is composed of Federal officials, each of them representing a member of the Federal government. More or less all the policy domains are represented, as far the competences of the Federal government goes. Until recently it were not high officials who attended the monthly meetings of the ICDO.

Although there is a legal framework, it can be said that this is clearly not enough (and probably not the most important issue in building a sustainable development policy ...). Since Sustainable Development has not been a political **priority**, it has proven to be very difficult to implement the plan. There has also been a lack of human and financial **resources**. As a result, a lot of actions have been delayed.

Because the Federal government is the competent authority for only a **limited** number of policy issues and instruments, it is very difficult to come to a real 'integrated policy plan' on 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 other instruments such as subsidies for the recycling centres, agreements with industrial sectors, information campaigns etc. For water, the Federal government legally has almost no policy competence. Under these circumstances it is understandable that it is very difficult to make a 'real' integrated SD-plan. This would need the consent of the Regions and thus the elaboration of a **common** national strategy on Sustainable Development as agreed in de Johannesburg Plan of Implementation (JPOI) by 2005.

An important challenge is how to achieve a real integration of policies and implement Sustainable Development as a horizontal approach, instead of a set of scattered initiatives in each policy domain. Today, the Federal Plan looks like a list of actions to tackle specific problems in particular policy domains, rather than an integrated approach to tackle horizontal challenges in the global context of Sustainable Development. This **fragmentation** is also reflected in the functioning of the ICDO. For example, for the composition of the annual follow-up report, every member prepares a document for his or her own policy domain. Little interaction is taking place. Although the content of the Federal Plan for Sustainable Development is still highly **fragmented**, **progress** has been made in different domains.

Recently, the Federal government has responded to some of these 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 the Sustainable Development Policy, i.e. when organising a public inquiry.

Following the policy agreement of the new Federal government (July 2003) 'cells 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**). 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. It will ask each year 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 to be very important. Therefore it was integrated into the 1999 Law. An important actor in this context is the Federal Council for Sustainable Development (**FRDO**). The **Council** is an advisory body composed of a large number of experts, representatives of socio-economic and cultural and environmental protection organisations, and representatives of the federal and regional governments. The Federal government can demand an 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 has organised several conferences.

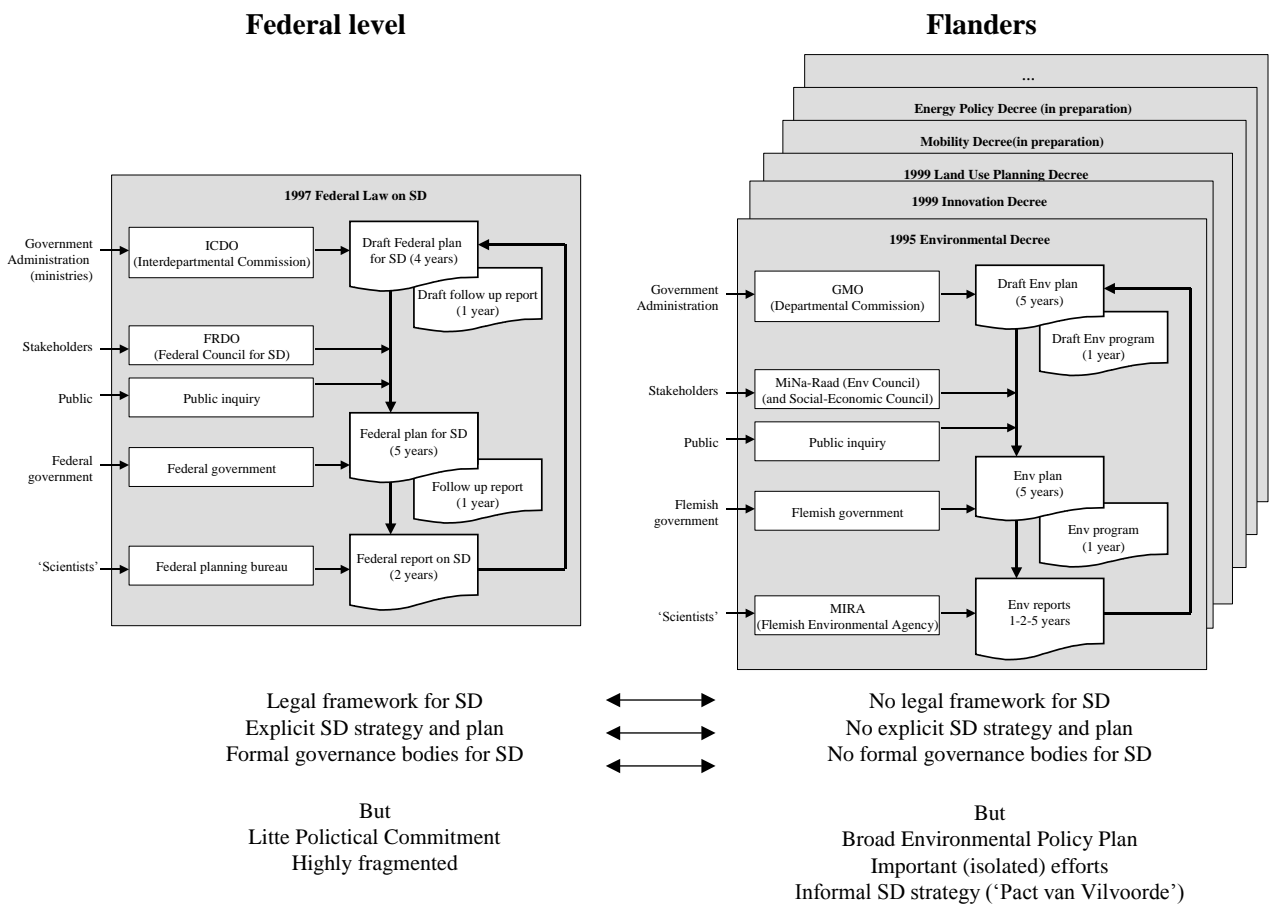
There is also a public inquiry on every new Federal Sustainable Development Plan. All citizens can give their opinion during two months (three months in the future). But there are **no rules** on how this inquiry should be organised, nor on the instruments to be used, the method to approach the public, the appropriate timing etc, nor of how the results of inquiries should be taken into account.

### Knowledge management at the federal level

Political commitment and policy integration can only go together if a **framework** for long-term strategic convergence is created. At Federal level the Research Program for Sustainable Development and in particular the Planning Bureau provides an important support in this set-up.

The Task Force on Sustainable development of the **Federal Planning Bureau** prepares the Federal Report for Sustainable Development every two years. That report provides an analysis of the current situation and an evaluation of the 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.

### Sustainable Development policy governance at Federal level and in Flanders



### 3.3. Public governance for Sustainable development policy at the Flemish regional level

Flanders does not have a defined and overall Sustainable Development Policy. There is neither a legal framework for coordination of that policy. Environmental Policy clearly takes the lead in promoting sustainable development through a similar legal and institutional framework as for sustainable development on the Federal level, laid down in a 1995 environmental decree. In fact, the federal framework was inspired to a large extent by the Flemish example in environmental policy. The Flemish government approves an Environmental Policy Plan each five years and Environmental Program each year. The Flemish environmental Agency is also 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. According to the 1995 decree there is a public inquiry on every new Plan. Both 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 Innovation Decree introduced among other things a four year innovation policy plan, to be advised by the Council for Scientific Policy and the Social-Economic Council.

Although there is no overall strategy or legal framework for sustainable development in Flanders, important efforts on different aspects have been made recently.

#### *Political leadership and institutional mechanisms*

In the last decade Sustainable Development was present in many policy declarations: **in 1995, in 1999 and less explicit in 2004**. In **1999** the policy agreement stated: more explicitly the importance of Sustainable Development: *‘...We must provide in the needs of this generation without limiting the possibilities of the future generations. Sustainable Development has to take place within the borders of the ecological system and pays attention for the less beneficiary in the society.’* The new 2004-2009 government declaration is less explicit in its 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 an economic, social and ecological development’*. On the other hand, the responsibility for Sustainable Development policy was for the first time formally assigned to a minister, notably to the **Minister-President** of the Flemish Government. His cabinet prepared a first policy note for sustainable development, with the intentions for the next five years.

But these are still intentions. At this moment (end of 2004) Flanders does not have a defined and **overall** Sustainable Development Policy in practice. There is neither a legal framework (a decree) for coordination of that policy.

Nevertheless, between 1999 and 2004, many issues relating to Sustainable Development have been included in the policy letters of different Ministers and there have been some interesting **projects** relating 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 with all social actors for a longer-term societal development project. It can be considered as a **first move** towards an integrated strategic policy that finds its inspiration source in the sustainable development agenda, because of its horizontal choice of goals and themes, and its longer term thinking (2010). Six working groups, composed of experts, members of cabinet, officials of the ministries, and often representatives of socio-economic organisations and NGOs, drafted long-term vision texts on entrepreneurship, education, work, culture, care and 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 the environmental organisations. Afterwards, a set of indicators was agreed to follow up this *‘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 transversal character is absent. Certain dimensions that are important for Sustainable Development are lacking: i.e. the international dimension (international solidarity, technology transfer to the developing countries, ...), a balanced



approach to the three pillars of SD. The pact must be seen as a **political message** that long term thinking is important. Furthermore, the 'governance by Conferences' that is common tread in political decision-making in Belgium has a limited impact if it is not combined with **institutional reforms** on the level of policy development to translate objectives into coherent policies.

Recently the policy letter on sustainable development explicitly states that this government will formulate a sustainable development strategy on Flemish level. To enhance this scenario, a study is being carried out in 2004 to examine the necessary tools and conditions on how to structure the future dialogue and policy framework for SD.

#### *Institutional mechanisms at Flemish level*

Flemish public servants will have to deal with **department-crossing issues** relating to Sustainable Development. Therefore, an 'Interdepartmental **Working group on Sustainable Development**' was established in 2003. One of its tasks was to prepare common papers for international meetings on Sustainable Development, such as the Commission for Sustainable Development of the United Nations. Other tasks were to prepare a coordinated advice on the preparatory texts of the Federal plan for Sustainable Development, and, what was felt as a priority by the group, to prepare a Flemish strategy on Sustainable Development. In this contexts, they have made an inventory of the different approaches, visions and actions related to sustainable development present in the different policy domains.

An important tool for the integration of Sustainable Development thinking in policies and regulations is the recently introduces **Regulatory Impact Analysis** system. 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 are several **experiments** with focus groups, test panels, etc. and there is an increasing use of different forms of interactive policy making, developed by government administrations, at universities, by NGO's, etc. However, it often involves separate and 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, the Council for education etc.

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

#### *Knowledge management*

In Flanders there is no framework for long-term strategic convergence. There is moreover 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 underway (BBB), the advisory councils like SERV and MiNa in practice sometimes fulfil a think-thank function. New innovation projects like transition management (case sustainable building and living) and foresights (case rural areas) are initiated by the environmental policy domain. Also instruments like MIRA (the system of environmental reporting and foresight) play an important role. But generally, the **instruments** for strategic intelligence to support the decision processes are not well developed. Initiatives with foresight, back-casting and other explorative techniques for policy development are scattered and not well linked to the actual policy cycle. **Forums** for sharing experience and knowledge are nearly inexistent.

## **4. COORDINATION AND INTEGRATION OF ENVIRONMENTAL AND INNOVATION POLICIES IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT**

### **4.1. The case for integration**

The ‘discovery’ of a transition path to a sustainable development is a main challenge for present policy development. Making abstraction from disaster scenarios that may require disaster management, the evolutive strategies that societies are pursuing, are heavily depending on rebalancing the economic system on which our welfare is based. Technological ‘progress’ carries the high hopes of such a ecological modernization and is bringing innovation policies and environmental policies closer together.

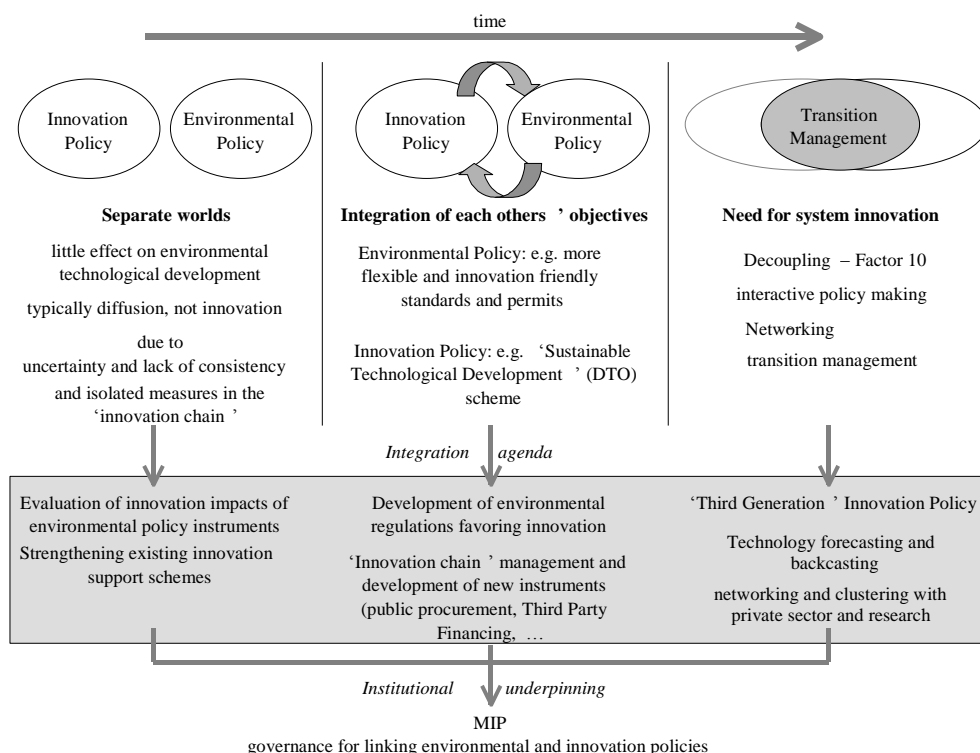
Indeed, combining economic, social and environmental goals needs a decoupling of economic growth and environmental pressure. The inadequacy of present policies to realize the necessary factor 10 improvements or more in ‘eco-efficiency’ puts radical, systemic changes and technological, economic and social innovations at the center of sustainable development policy. Therefore, a close collaboration between Environmental Policy and Innovation Policy is urgent.

### **4.2. Instrumental integration and coordination of policies**

In environmental policy, the interest in the potential role of technological innovation in attaining environmental goals is very limited. And, vice versa, the consideration that is given in the innovation policy field to the promotion of environmental quality is very limited as well. 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 too a large extent completely separated worlds.

Approaches for a better integration or coordination of environmental policy and innovation policy can take either the perspective of **single** policy instruments focussing on **changing (economic) behaviour**, or of **transition** programmes for **system changes**. Both can be complementary (See figure).

*Emerging collaboration between Innovation- and Environmental Policy in Flanders*



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

The basic reason is that innovations tend to be incremental in a context of uncertainty or when the long-term framework is lacking, and clear goal setting, consistent goal keeping and practical and consistent environmental policies have frequently been absent in Flanders. The calculation of the wastewater charge for example was revised five successive years in the early '90s; 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<sup>2</sup>. It is also one of the explanations for the success of minimum compliance technology and end-of-pipe solutions in the portfolio of the Flemish environmental industry. These conclusions confirm the view that the actual effect of environmental instruments on technological innovation is perhaps depending more on the political leadership in **setting clear targets** reflected in the design and implementation of the instruments than on the technical characteristics.

Second, the 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 policy mixes that mutually reinforce each other in space and in time. This is the main reason why instruments such as technology impulse programs, R&D subsidies and demonstration projects often have failed.

<sup>2</sup> Bollen e.a. (2000).

Nevertheless, there are some promising examples of environmental and innovation policies starting to integrate each others' objectives. The Flemish government recently has made explicit efforts to make regulative policies more flexible and innovation friendly. A decree adopted in 2004 stipulates that whenever possible, environmental standards and permits should formulate what environmental results are to be attained, and not how they should comply ("ends, not means"). If it is necessary to use technology standards, firms can always comply by using 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 program (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.

Some tools like the Benchmarking Covenant and the SO<sub>2</sub> and NO<sub>x</sub> Covenant with the electricity sector take a long-term perspective with a commitment on a long-term basis to search for 'new frontiers'. Although they are only stimulating the diffusion of 'world class' technologies, and are not directly intervening in the innovation process, they could provide a **platform** for organising the 'transition' from one technological regime to another.

### 4.3. Governance for system changes

In Environmental Policy as well as in Innovation Policy, we can observe an evolution towards a 'system approach'. System approaches take a broader view of policy as an institutionalised multi-actor and multi-dimensional process. In this perspective policy integration problems are problems of coordination in the governance structure that reveal systemic failures.

#### *The system approach in Innovation Policy*

The Innovation Policy in Flanders evolved from a traditional 'First Generation' Innovation Policy towards an explorative 'Third Generation' Innovation Policy<sup>3</sup>.

In the eighties, 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), with emphasis on 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 **First Generation Innovation Policy**.

In the nineties a full-fledged Flemish Innovation System started to become institutionalised with the establishment of a Technology Agency (IWT, the 'Institution for the promotion of science and technology in Industry') to support bottom-up technology development. Interest for environmental technological innovation was weak. Early Flemish pioneering results in wind energy or hydrogen energy were not pursued when time-to-market revealed to be much longer than presumed. The introduction of a cluster policy as a new economic development policy for Flanders failed because the cooperative mood was not strong enough yet. But R&D policy evolved into a broader Innovation Policy, with the 1999 'Innovation decree' that provided the legal framework to extent support as well as the institutional leverages to stimulate 'collective innovation'. This embodies a **Second**

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<sup>3</sup> **Innovation Tomorrow**, Innovation policy and the regulatory framework:

Making innovation an integral part of the broader structural agenda, Innovation papers No 28, European Commission Directorate-General for Enterprise, Brussels, 2002

**Generation Innovation Policy.** Instead of relying entirely on a ‘technology-push’, it puts the economic outcome as objective, and supports actively the **interactive model** of organisation to bring together all 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 coordinator of intermediary innovation agents under the influence of the new conceptual framework of ‘national innovation systems’ (see figure) that acknowledges the central role of interaction between different innovation actors. IWT changed name to become ‘Institute for the promotion of innovation by science and technology’.

The recent period witnesses a phase of consolidation and maturation of the Flemish Innovation System in which all instruments are deployed. The signature in 2003 of an ‘Innovation Pact’ between all social actors, which is committed to the Lisbon targets, has put Innovation high on the political agenda. The **Third Generation Innovation Policy** is announcing itself with the shift of focus from pure Science and Technology objectives to ‘Sustainable Growth’ as a programme of broad societal goals. It employs a holistic view and a system-wide approach, stressing the need for an “integrated Innovation Policy”, where innovation is integrated with other sectoral policies. In this approach these sectoral policies have to put forward innovation as a distinct objective. But the innovation policy also has to expand its scope from economic goals to other types of policy goals, not only as constraints but also as a part of a coherent mission. Sustainable Development as a combination of economic, social and ecological goals is such a policy.

#### *The system approach in Environmental Policy*

The new ecological approach in Environmental Policy shares a **common** ‘holistic’ paradigm with Third Generation Innovation Policy and reflects the **shift** from a ‘mechanical’ to a ‘biological’ worldview in sciences in general.

Indeed, we can see that roughly until the mid-nineties, Environmental Policy, institutions and legislation were built around the traditional environmental sectors (water, air, waste, soil, ...). Environmental problems were tackled by issuing environmental standards and permits and by building large-scale waste and wastewater treatment facilities.

From the mid-nineties on, it has become clear that this approach is not entirely effective, and it has been complemented by other policy concepts. Firstly, there was a **broadening** of the set of policy instruments. Following the high costs and low effectiveness of traditional ‘command and control’ regulation, we saw an increasing use of other types of instruments like covenants, economic instruments etc. Secondly, government clearly wanted to steer more ‘at arms length’ and aimed at more **cooperation** with target groups to achieve environmental objectives. Following the view that society cannot be steered by government and that government is only one of the many actors influencing the behaviour of citizens and firms, we saw a changing relationship between state, market and “civil society” and a multi-actor policy approach appearing. Lastly, environmental policy is stressing more and more the strong linkage between environmental problems and socio-economic activities, and thus the need for an **integrated** approach, meaning that environmental objectives should be ‘internalised’ and pursued by other government policies such as agriculture, economy, energy, transport, etc. There is also more attention for ‘multi-level governance’.

Recently, the policy concepts of ‘**system innovation**’ and ‘**transition management**’ appeared in Flemish environmental policy. To make the transition to a new, sustainable evolutionary trajectory a **combined** set of strategies to change behaviour is necessary. The policy maker is now conscious of this challenge. The new Environmental Policy plan 2003-2007 presents a **framework** for the strategy of ‘transition management’ and for stimulating ‘system innovation’. A specific **project** has been elaborated from mid 2004 on, focusing on ‘Transition management in sustainable building’, to learn to bring this strategy into reality. Also the environmental programme 2004 announces several **initiatives**

to promote the idea of system innovations (forecasting studies, development of a knowledge infrastructure in cooperation with the innovation and technology policy field, creating of a multi-actor network). The challenge is now to concretise and implement this.

Transition Management follows from the system approach and may be the **missing-link** to put into practice the structural renewal of the Flemish economy and society towards a coherent and sustainable model of production, consumption and innovation. Environmental technological innovation will be at the heart of this transformation. Transitions 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** between all actors to promote strategic convergence. The transition agenda mobilises society for long-term goals on Sustainable Development and gives an opportunity to radical innovators to interact with complementary actors. One of the main tasks of transformation concerns government itself, because an integrative horizontal policy approach is needed that has to overcome vertical 'departmentalism'.

#### **4.4. The Innovation Platform for Environmental Technologies<sup>4</sup>**

A new drive for the integration of environmental policy and innovation policy is coming from a **mutual evolution towards a 'system approach'** in the context of a broader perspective of policy, one in which structural change and interactive policy making are at the heart. Environmental policy as well as innovation policy are developing into generic policy areas where a great number of ministries are affected. In a complex society a lot of interactive players determine the outcome of evolution. New technologies are the result of many complementary inputs and success conditions. The management of this **complexity** is vowed to fail if it is not adaptive towards an ever-changing policy environment and the unpredictability of interaction effects. Therefore the management of system innovation has to follow transition strategies of permanent adaptation of current agenda's in view of also shifting long term objectives in order to maintain progress in the direction of the societal goals on which a sufficient strategic consensus has been forged. Policy makers in Flanders are starting to realize this and are experimenting with new concepts such as interactive policy making, multi-actor governance and transition management. Transition management might serve as the **'missing-link'** between Innovation Policy and Environmental Policy in the years to come.

But the translation of these principles into practice is a lengthy process in which further institutional innovation is necessary. The strategic initiatives to establish **new kinds of social contracts** ('Pact of Vilvoorde', 'Innovation Pact') need specific institutional underpinnings. In this context, the Flemish government decided to create a new form of institutional cooperation that might be of great importance: the Innovation Platform for Environmental Technologies.

During the last months the Flemish Government of 1999-2004 was in charge, it decided to create an Innovation Platform on Environmental Technology. Integrating the policy instruments of three ministries (Innovation, Environment and Energy Policy), it has the **potential** to grow to an example of Integrated Innovation Policy. Its success will depend on the will of all involved parties to cooperate on the lines that were put forward.

At the end of 2003 an 'Enterprise Conference' took place, involving Flemish public authorities, enterprise organizations and labour unions. All parties agreed that the future of social and economic welfare has to be ensured with a strategy of enhancing creativity and innovation. Building on the new concepts of innovation systems and Third Generation Innovation Policy, it was agreed to launch an

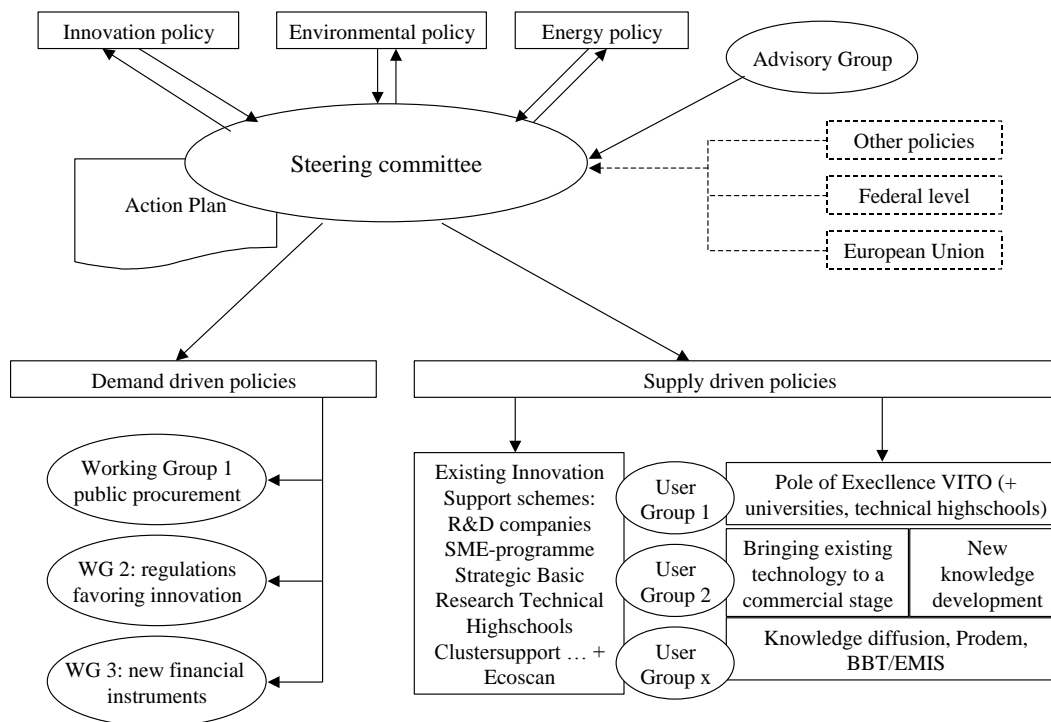
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<sup>4</sup> The authors gratefully acknowledge the contribution of Paul Zeeuwts for this paragraph.

Innovation Platform, involving all relevant private and public actors, with the **objective** of boosting up the innovation potential of environmental technologies in the region of Flanders for internal and export purposes.

The mission of the Platform is to activate innovation synergies between all relevant private and public actors. The new dimension is that the policy instruments of three ministerial domains will be “pooled” on a common goal. This is conceived in a “non hierarchical” way of networking of ministries and administrations. The structure of the platform is tailored to work closely with (semi) public companies and relevant firms and stakeholders and to encompass and coordinate supply- (DTO-scheme, User groups, Excellence Pole on Environmental Technologies) as well as demand driven instruments (technology procurement, regulations favoring innovation, and new financial instruments). A central Steering Committee is coordinating all activities and will in addition draw up an Action Plan developing the key objectives for the necessary initiatives and pinpointing the synergies for the actors to be involved in the implementation of the Innovation Platform.

*MIP set-up*



Along these general policy objectives a new **Pole on Excellence on Environmental Technologies** was created, embedded in VITO but with the aim at involving university and other research capabilities. This Pole of Excellence will cope with **two kinds of projects**: firstly, projects bringing existing knowledge to a feasible commercialisation stage and secondly, projects developing new basic knowledge. The priorities for its activities will be organized on “demand driven” priorities, given the technological and commercial potentials and taking into account the need for public supported knowledge development. The Steering Committee of the Innovation Platform will finally have to decide on priorities, acting as a “Board”.

To deal with these issues **thematic Working Groups** will be installed (see scheme). They will mainly be composed by members of involved administration, (semi) public companies and relevant firms.

#### 4.5. Assessment of MIP

To assess the Flemish experience and developments we focus on the same key factors of good governance for sustainable development, as we described before: *political leadership, institutional mechanisms, transparency, Strategic intelligence*. We consider these of major importance for the governance of innovation for environmentally sustainable growth.

##### *Political support and leadership*

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

Political support and leadership in setting up and implementing the MIP is vital as well. The decision to create an Innovation Platform was taken at high level, by the Flemish Government, as a result of a commitment taken by Flemish public authorities, enterprise organizations and labour unions in the “Enterprise Conference”, with the aim to create new sustainable growth opportunities for the Flemish economy in the domain of environmental technology. But it is possible or even probable that parties agreed to an environmental innovation platform without having a clear picture of its role and relevance. So the rollout of the Platform will depend a lot on the understanding, support and political will of the new Government to implement its goals and working principles.

##### *Institutional mechanisms*

In this context we analyse the capacity to adapt or construct new institution as well as mechanisms/instruments to solve problems and set, achieve and evaluate the objectives. Policy integration is a key element.

In MIP at the outset the only tools for the coordination of environmental and innovation policies are the Action Plan and the participation of different ministries in the Steering Committee and in Working Groups. But clear procedures for decision making are lacking, and there is no clear political commitment concerning budget support, personnel and capacity building.

There is also not one single best instrument or program for promoting environmental technological innovation. We need a **mix** of strategies for developing an eco-efficient market economy with good conditions for eco-innovations. Good governance therefore is using a wide **portfolio** of different policies. Economic instruments for example are important but not sufficient. One also needs innovation and knowledge-oriented policies. This policy mix will be very **time and context depending** and therefore should be tuned to the demands of specific clusters in cooperation with the innovation actors. The portfolio of policy instruments should therefore cover the **whole trajectory** of the innovation and diffusion process and focus on a combined push and pull approach. Market or demand side oriented programs can promote the application of new technologies and stimulate wider application of already proven technology, all within a **strategic context** of well-defined specializations.

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



### *Interactive policymaking and transparency*

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

At the level of MIP, interaction is the task of a central **Steering Committee**. It can be an important opportunity to introduce and experiment with real horizontal integration of policies for innovation purposes, giving a more pro-active role to different policies within an innovation objective of networking and clustering together with players of the private and the research world. However, it is unclear whether the composition of the Steering Group and the relationship with an Advisory Group is the best way to go. The Steering Group is hybrid because it is composed of representatives of government and of a few particular enterprise organisations. Involvement of other stakeholders will be organized through an Advisory Group, but its composition and function rules are unclear. So at the moment, transparency seems to be lacking. **Transparency** however is essential to establish a credible policy that is supported by a wide range of actors.

### *Strategic intelligence*

Strategic public intelligence is another key issue in the integration of policies and in the successful implementation of the Innovation Platform. It is a major success factor to maximize the ambitions and results of MIP for the case of the environment as well as for new innovations in environmental technologies.

To be able to tackle the high ambitions of MIP, it is important to underpin it with **strategic intelligence capabilities**. This involves **analytical instruments** such as foresight, scenario analysis, benchmarking, cost-benefit analysis, monitoring, technology assessment, etc. and **competences on process management**, participative methods for consultation and coordination, policy instruments and policy mix, system innovation and transition management, etc. to create a common mindset, provide a common framework of reference, rationalize the decision processes and help to implement the important choices that will have to be made.

In the case of the MIP little attention is made for this new type of instruments for **strategic intelligence**.

## **5. CONCLUSIONS AND RECOMMENDATIONS**

### **5.1. Sustainability: the need for a new approach to public sector management**

#### *Public management for sustainable development*

Public sector management is in need of new management methods to **match present urgencies and long-term vision**. On the one hand there are challenges as the aging of the population, immigration flows, the financing of the social security system, prevention of infrastructural congestion and environmental degradation that require long-term visions and strategies. On the other hand the pressure of the day-to-day decisions and the management of conflicting claims on limited resources is becoming ever so difficult in an 'open' society where short term success parameters tend to dictate the

agenda. The art of governing is to combine these conflicting agenda's of long term and short-term decision-making in new styles of political leadership and new methods of political and administrative management.

The 'discovery' of a transition path to a sustainable development on the economic, social and ecological domains is maybe the main challenge for present policy development. Technological 'progress' carries the high hopes of ecological modernisation and is bringing innovation policies and environmental policies closer together.

This does not discharge from making important political **choices**. But these 'decisions' are seldom the privilege of single players, be it in the market place or in the political arena. In a complex society a lot of **interactive players** determine the outcome of evolution, and new technologies are the result of many complementary inputs and success conditions.

The management of this complexity is vowed to fail if it is not adaptive towards an ever-changing environment and the unpredictability of interaction effects. Therefore the management of system innovation has to follow **transition strategies** of permanent adaptation of current agenda's in view of also shifting long term objectives, in order to maintain progress in the direction of the societal goals on which a sufficient strategic consensus has been forged.

The main concern for the case of sustainable development is to take 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 individual policy sector (**vertical coherence**), measures to improve the coordination of sectoral policies (**horizontal coherence**) and measures to allow for the modulation of short term and long-term objectives (**temporal coherence**). So good governance and sound public management seem more important preconditions for the implementation of sustainable development policies than new institutions and regulations. Most important preconditions are political leadership, institutional mechanisms for policy coordination, transparency and knowledge management.

- Political interest for sustainable development policy is still high on the agenda at Federal level as well as in Flanders. A particular promising development is that, following the regional elections of June 2004, the **responsibility** for coordinating Sustainable Development policy in Flanders has for the first time been assigned formally to a minister, notably the Minister-President of the Flemish Government. Anyhow, it remains to be seen whether this will lead to a strengthened political leadership for Sustainable Development.
- The **new institutional mechanisms** that have been introduced very recently such as the Programmatic Public Service on Sustainable Development and the Sustainable Development Impact Analysis at federal level and the new regulatory management instruments (e.g. Regulatory Impact Analysis) in Flanders are promising tools and arrangements to proceed on sustainable development strategies. 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.

<b>Preconditions</b>	<b>Current situation</b>	<b>Recent developments</b>	<b>Recommendations for Flanders</b>
<i>Political leadership</i>	- Federal: Low, not a priority - Flanders: Low, not a priority	- Federal: rising, new minister - secretary of state for SD - Flanders: 'Pact of Vilvoorde'; Minister-president formally responsible for coordinating SD policy in Flanders	- Strengthen political leadership and vision - Better include SD in 'social contracts' and 'pacts' - ...
<i>Institutional mechanisms</i>	- Federal: ICDO and the SD Plan are weak and are not working properly	- Federal: programmatic public service on Sustainable Development and Sustainable Development Impact Analysis	- Set up a central SD unit to act as a catalyst - Install evaluation and reporting mechanisms to support sustainability appraisal

	- Flanders: lack of mechanisms for coordination of policies (BBB)	- Flanders: interdepartmental working group for SD; promising regulatory management instruments (e.g. RIA)	- Develop longer-term budgeting and sound regulatory management instruments - ...
<i>Transparency</i>	- 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 NGO's, 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 - ...
<i>Knowledge management</i>	- Federal: Federal Planning Bureau - Flanders: Advisory Councils, MIRA, NARA, ...	- 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, toekomstverkenning plattelend, 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 coordination, policy instruments and policy mix, etc. - Develop forums for sharing experience and knowledge - ...

- The Flemish as well as the Federal government has a strong tradition 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 as well as more stakeholders' involvement. At present, there are several **experiments** with participatory approaches. However, it often involves separate and small-scale initiatives. For Flanders, the priority is probably not to install a Flemish Council for Sustainable Development. Not so much because there are already 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 monopolize 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 important, to ensure a more efficient and effective participation of citizens, stakeholders and advisory councils in important public policy decisions. Here progress is slow both in Flanders and at Federal level.
- Political commitment and policy integration can only go together if a **framework** for long-term strategic convergence is created. At Federal level the Research Program for Sustainable Development (PODO) and in particular the Planning Bureau provides an important support in this set-up. In Flanders such kind of institute is not available. But generally, the **instruments** for strategic intelligence to support the decision processes are not well developed, neither at Federal level nor in Flanders. Initiatives with foresight, back-casting and other explorative techniques for policy development are scattered and not well linked to the actual policy cycle. **Forums** for sharing experience and knowledge are nearly inexistent.

Combining positive points of the Federal and the Flemish level, and giving more attention to the **integration** aspects, it should be possible to develop and execute strong and coherent national and regional strategies for SD. Therefore the different governance elements have to find **mutually reinforcing** dynamics, between the governmental levels in Belgium as well as between the administrative levels in Flanders. An illustration of a possible way to advance this 'integration agenda' is the recent collaboration between environmental policy and innovation policy in Flanders.

#### *From government to governance*

The present management structure of innovation systems tends to underproduce the ‘breakthroughs’ that are necessary to shape sustainable growth. System improvement by rationalisation and end-of-pipe solutions to ecological problems are the normal way the industrial system reacts to pressures.

Moreover, we are still in a transitional phase where the signals from the markets for eco-innovations are weak and unclear. Markets can be efficient (to a certain extent) but favour short sightedness because of difficulties to cope with uncertainties and the limitations to use adequate prices for all choice situations. Therefore the ‘mixed economy’ where government corrects these **market failures** has proven more robust for handling socio-economic shifts. Environmental policies are crucial in developing ‘new markets’ on supply as well demand side. Innovation policy is also about such market creation, where government can play a role in promoting the new market settings by active support to new ‘breakthroughs’ (fundamental research, product standards, public procurement, ...).

But the underproduction of environmental technological innovations is not just a problem of prices that don’t reflect societal costs. The innovation strategies of companies depend on their appraisal of market potentials and risks, but companies are also part of networks and national systems of innovation on which their **ability** and **willingness** to innovate depends also. 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 not a sufficient condition for **escaping lock-in**.

The systems model of innovation shows that environmentally friendly innovation requires **other** change conditions besides price incentives. Regulation is usually mentioned as the most important one, but the institutional settings of the innovation system have a much broader scope. Making companies behave more pro-actively requires change at multiple levels of the innovation system: the government-business relationship has to change, producers and consumers must develop new competences and the economic framework conditions have to change too to make the innovation system more performant from a sustainability point of view. This is a political challenge as much as it is a challenge for business.

So there is a strong case for active policies to stimulate environmental innovation for sustainability.

### ***Emerging collaboration between Innovation- and Environmental Policy in Flanders***

In environmental policy, the interest in the potential role of technological innovation in attaining environmental goals is very limited. And, vice versa, the consideration that is given in the innovation policy field to the promotion of environmental quality is very limited as well. There has been little contact between Innovation Policy and Environmental Policy, and a total lack of integration. Not surprisingly, the traditional environmental and innovation policy instruments have had little effect on environmental technological development. On the part of environmental policy, the effect is typically diffusion of existing technologies, not innovation, and often, environmental policy is accused of being a barrier for technological innovation. Nevertheless, there are some promising examples of environmental and innovation policies starting to integrate each others’ objectives.

### **5.2. New public sector management for innovation in Flanders**

Much more collaboration and coordination between innovation policy and environmental policy is needed. A new drive for the integration of environmental policy and innovation policy is coming from a mutual evolution towards a ‘system approach’ in the context of a broader perspective of policy, one in which structural change and interactive policy making are at the heart and environmental policy as well as innovation policy are developing into generic policy areas where a great number of ministries

The *Environmental Policy plan 2003-2007* presents a framework for the strategy of ‘transition management’ and for stimulating ‘system innovation’. A specific project has been elaborated from

mid 2004 on, focusing on transition management for sustainable building and ‘learning by doing’. The environmental programme 2004 announced several initiatives to support system innovations, such as forecasting studies, development of a knowledge infrastructure in cooperation with the S&T policy field, and creation of a multi-actor network. Also, a project focussing on a transition from a ‘waste management system’ towards a ‘sustainable material management system’ is underway.

In the innovation policy field there is an evolution towards the ‘third generation’ innovation policy.

These initiatives need specific **institutional underpinnings**. In this context, the Flemish government decided in may 2004 to create a new form of institutional cooperation: the **Innovation Platform for Environmental Technologies (MIP)**. The mission of the Platform is to activate innovation synergies between all relevant private and public actors with common goals, a “non hierarchical” way of networking of ministries and administrations and (semi) public companies and relevant firms and stakeholders. The structure of the platform is tailored to encompass and coordinate supply- as well as demand driven instruments. The Platform is an important **opportunity** to introduce and experiment with real horizontal integration of policies for innovation purposes, in line with an Innovation Policy of the "Third Generation". In particular, this implies a more pro-active role of different policies within an innovation objective of networking and clustering together with players of the private sector and the research world.

### 5.3. Assessment and recommendations

To achieve an ambitious program of structural transformation, a **combination** of key **instruments** that influence behaviour of individuals (consumers and producers) and institutional engineering in the form of **transition management** will be necessary. The coordination between policy design and policy implementation, especially between Environmental Policy and related domains (such as energy, agriculture, transport) and Innovation Policy, is of utmost importance.

But progress is rather slow. Flanders is still finding it difficult to capitalize on the synergy between various policies, especially environment, research and competitiveness. Investing in the future has no sense of urgency in the actual ‘political business cycle’; therefore the self-imposed targets (Kyoto targets, the 3% target for R&D) risk to be delayed. Other types of governance are necessary to create societal consensus and direction in complex issues of this kind.

To improve the coordination of innovation policy and environmental policy under the umbrella of Sustainable Development, we can easily define some **common goals and strategies**:

- Promote **explicitly** rather than implicitly environmental technological innovations;
- 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; stimulate 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 the **synergies** between environmental and innovative strategies.
- Use public technology **procurement** as a major drive for strategic innovation policies for SD.

In *Environmental (and related) Policy* the following actions can be recommended:

- Keep trying to get the **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 programs;
- Integrate technology **foresight** models into policy design;
- Better integrate and coordinate the different **instruments** and estimate their **impact** on innovation;

- Use a **mix** of instruments – favouring instruments with a stronger impact on system innovation (with long term goals) compared to instruments for system improvements - and analyse the **impact** on innovation;
- Take the existing **platforms** e.g. for Covenants as a starting point to build better **trust** in more far reaching changes;
- Promote an integrated approach to the **value chain** (life cycle analysis; eco-design);
- Promote and evaluate the support for **demonstration** projects;
- Extend the policy toolbox with **new**, promising environmental instruments such as innovation waivers and environmental technology verification programs.

In *Innovation Policy*, the following actions can be taken:

- Strengthen the **traditional** mechanisms – R&D funding, diffusion, technology transfer –by better synchronised innovation 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 economic **clusters** of competitive strength in the domains of environmental and energy technologies, as well on the suppliers side (technology providers) as the users side (sectors that improve their competitiveness by increased eco-efficiency).
- Target a much greater proportion of the **resources** explicitly toward environmental sustainability in experiments of transition to new technology trajectories where Flanders has comparative advantages (e.g. in energy technology as been announced in the Policy Agreement);
- Promote the development of **new instruments** and measures such as demand-side oriented 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 (international) **policy learning** and **strategic intelligence**, with a focus on integration with SD.

The new ‘Innovation Platform for Environmental Technology’ (MIP) can **integrate several aspects** of these recommendations. It could become a powerful instrument for assessing promising areas where societal needs and technological capacities meet to realise breakthroughs in sustainability and to bring together the strategic actors for the development of new innovation chains. It can become an instrument in fostering the development of visions and cooperation among different actors in the relevant innovation system. But several key aspects of good governance need to be improved during the implementation phase of the MIP:

- Although there is a kind of political commitment, the rollout of the Platform will depend a lot on the understanding, support and political will of the new Government to implement its goals and working principles.
- Concerning the 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 concerning budget support, personnel and capacity building has to be made. Also the set of mechanisms for policy integration could be much broader<sup>5</sup>. Policy integration also requires **competences**, capabilities, communication and mutual learning. We can think for example of **exchange** of civil servants between the ministries responsible for environment and innovation,

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<sup>5</sup> Zie Verhoest e.a. (2003).

establishment of ‘**mixed**’ **task forces**, extended **consultation and dialogue** on sectoral policies and projects, sectoral capacity building, information tools and indicators, etc.

- Interactive policy is taking place through the steering committee but only a few particular enterprise organisations are participating. Involvement of other stakeholders will be organized through an Advisory Group, but its composition and function rules are unclear. So at the moment, transparency seems to be lacking. It seems that the MIP is not using new models of interaction such as networking, transition arenas with for runners.
- Concerning strategic intelligence little attention is made for this new type of instruments for strategic intelligence. New promising policy instruments that merit consideration. For example the use of environmental management systems, measuring and benchmarking, long term covenants, eco-labels and product declarations, innovation waivers, environmental technology verification programs, etc<sup>6</sup>. Also making environmental regulation more innovation oriented is an important tool to stimulate innovation. It is clear that the installation of thematic Working Groups, composed by 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.

MIP needs also further **domain exploration** before programme choices can be made. The best strategy is to build upon own strengths and develop regional clusters of **specialisation** in sectors and disciplines where Flemish actors are leading or have potential to become international leaders. When there is no technological base from the past, market support alone will not easily lead to a strong home based industry. But to make such kind of management decisions there needs to be an assessment of strengths and weaknesses of Flemish industry, based on strategic environmental and technology forecasting, balancing between long term goals and short term results, and integrating an international perspective to avoid duplication and to use ‘free’ knowledge in the international arena.

It would merit consideration, at the level of MIP, to underpin it with a strong and intelligent **secretariat** or Task Force, to tap the information, knowledge and competence that is available and create an institutional memory of experience by pooling it in an organised information network. To allow for learning government should **institutionalise learning** by requiring assessment, evaluation and adaptation as a regular feature of the policy process. A **Knowledge Centre** or expert group inside the government administration should be installed to give methodological advice and to assist departments and agencies on a strategic level with integration of policies, implementation of governance tools and building strategic intelligence. It should also promote initiatives to strengthen institutional capacities at all levels: individual, organisational, network, government, society level.

- A last remark is that in MIP a clear focus on programs for system innovation seems to be missing. This is also a necessary and important dimension of strategic intelligence that is concerned with transition management. Also learning should be made an important objective in its own right. MIP should stimulate experiments and support high-risk, high-social /environmental benefit projects. The balance of support to incremental innovation in mature technologies and open 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.

Governance component	Importance	Assessment of MIP	Recommendations
<i>Political support and</i>	Policy coordination and improved interaction between government and society	Outcome of the “Enterprise Conference”, so in principle broad	Provide a clear picture of role and relevance of MIP

<sup>6</sup> Van Humbeeck (2002).

<i>leadership</i>	in the context of a long-term view in policies requires political will at the highest level.	support	
<i>Institutional mechanisms: Policy portfolio and policy mix</i>	There is not one single best instrument or program 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 programs for system innovation; create interfaces for developing tailor made policy mixes such as cluster platforms
<i>Integration</i>	Key issues in the integrating of 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 coordination, such as an innovation impact assessment tool; provide clear responsibilities and mandates, clear procedures for decision-making..
<i>Interactive policymaking and transparency</i>	Decisions on the future shape of society imply interactions with different actors to build consensus through adequate institutional arrangements.	Central <i>Steering Committee</i> , Advisory Group, User groups	Tackle the hybrid and unbalanced composition of the Steering Group; clarify the role and composition of the Advisory Group and User groups; provide adequate mechanisms for transparency
<i>Strategic intelligence</i>	Without strategic intelligence, there is a real danger that MIP will be captured by particular interest and lobbying to create just another 'one stop shop' for R&D subsidies and business support	No <i>analytical instruments</i> such as foresight, scenario analysis, technology assessment, etc. and no <i>competences</i> 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

#### 5.4. MIP: A showcase for horizontal innovation policy

The OECD TIP activity MONIT aims at improving Innovation Policy governance and creating a more coherent horizontal Innovation Policy. In this particular paper the links between innovation policy and sustainable development were analysed. Good governance seems to be a precondition for the case of implementation of the sustainable development as well as for the case of the innovation policy and their integration. Traditional government procedure for addressing cross-sectorial and intergenerational issues, two important aspects for sustainable development as well as for the horizontal innovation policy, often display a deficit of coherence.

A lack of effective co-ordination between 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 kind of problems appears analysing this components for the case of sustainable development as well as for the case of innovation. Political commitment is often on a short term basis, institutional mechanisms are often very weak, integration is often lacking, especially this between environmental and innovation issues, new instruments to enhance transparency are not yet put into practice (innovation policy) or are small scale initiatives and experiments, and especially the knowledge management is still failing: there is almost no experience with foresides, scenario analysis, technology assessment, system innovation and transition management. The MIP initiative offers the possibility for learning and can function as an experiment of new innovation governance. The conditions are gathered to make MIP a strong show case of policy coordination and integration.



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