



The Belgian Governance Over Genetically Modified Organisms:
A Comparative Analysis Of Wallonia And Flanders

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Abstract

Historically, the Belgian political life has been marked by the confrontation of two communities: Walloons and Flemings. In 2008 and 2009, Wallonia and Flanders, respectively adopted legislations to regulate the coexistence of GMO cultures with traditional and biological cultures. Very few has been said and written about this, but differences appear between both regulations and they are interesting to analyze within the context of the longest political crisis of Belgium. The aim of this thesis is to analyze those differences through the concepts of governance and institutions both reduced to functional typologies. At the end, our conclusions show that the differences between both regulations cannot be merely reduced to a presumed growing cultural gap between Wallonia and Flanders.

Key words: GMO, Flanders, Wallonia, governance, institutions

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Chapter 1: Introduction

1.1. Research Question

Historically, the Belgian political life was always marked by the confrontation of two communities: Walloons and Flemings. Between the late 1960s and early 1970s, it led to the split of the Unitarian State, and the launching of a federalization process that remains unachieved at the time we talk. Throughout this process, both communities started gaining more autonomy in the management of public policies, including scientific and technological development. Nearly forty years later, this process seems to have favored the development of two different political cultures (Billiet, Maddens & Frogner, 2009).

As many European countries, Belgium has to deal with the development of biotechnology which include the very sensitive issue of genetically modified organisms (GMOs). Following European and international impulses, the Belgian Federal State adopted rules and created new institutions in order to manage the progressive diffusion of GMOs on its territory. The Federal State and the Regions¹ have an equal power to make decisions as Regions were given devolution. The Federal State can decide to allow or not GMO cultures on the national territory. The Regions however decide in which conditions those cultures are to be managed on their respective territory.

Since Belgian GMO legislation is mainly composed of European rules transpositions and because Belgian entities -- Federal State, Regions, Communities -- are linked to each other by diverse cooperation agreements on environment² and biosecurity³, one could expect that Wallonia

¹ The Belgian Federal State is composed of 3 Regions (Flemish Region, Walloon Region and Brussels-Capital Region) and 3 Communities (Flemish, French-Speaking and German-Speaking). As GMOs are essentially a Regional matter, we voluntarily focus on two of them and will refer to them as Flanders and Wallonia for our convenience. We say a few words about Belgium's structure in the subsection 4.2.5

² Accord de Coopération du 5 Avril 1995 entre l'Etat Fédéral, la Région Flamande, la Région Wallonne et la Région de Bruxelles-Capitale relatif à la politique environnementale internationale, *Moniteur belge*, 13 December 1995

³ Accord de coopération du 25 avril 1997 entre l'Etat Fédéral et les Régions relatif à la coordination administrative et scientifique en matière de biosécurité, *Moniteur belge*, 14 July 1998

and Flanders have almost the same rules to manage GMOs on their territories, or so-to-say, that they apply the same governance on GMOs, but it is not the case. It is important to keep in mind that both Regions have gone through different political, economic and social development, especially during the federalization process and the gain of more autonomous competences. For example, it is relevant to mention that Flanders has been building an innovation system since the end of the 1970s (Goorden, 2004), of which biotechnology is one of the main axes, while the Walloon system was only started recently and has not developed its full potential yet (Fallon & Delvenne, 2009).

In 2008 and 2009, Wallonia and Flanders respectively adopted Decrees⁴ to regulate the coexistence of GMO cultures with traditional and biological cultures. Very few has been said and written about those Decrees, although differences soon appeared. Some argue that the Walloon Decree is far more restrictive on GMOs than the Flemish one (Greenpeace, 2009). Furthermore, shortly after the Decree was adopted, Wallonia joined the Network of European Free-GMO Regions (Lutgen, 2008b), which is not the case for Flanders. That somehow confirmed that Wallonia has an anti-GMO objective. This objective is even clearly stated in the Walloon Decree⁵.

Thus, our research question is: why do those differences exist? Where do they come from? Are they political, cultural, economical, or maybe structural? We intend to explore the differences existing between both regulations through an institutional analysis; we want to identify the formal and informal institutions that conditioned, structured and influenced the decision-making process on both sides.

The primary concern of this thesis is thus Belgium. The 2010-2011 political crisis -- the longest in the History of Belgium -- put into light highly sensitive questions about the cultural differences between Walloons and Flemings; although we do not intend to debate on the future of Belgium, we hope this work will show that the existing differences cannot be simply resumed to a growing

⁴ A Decree is the highest norm a Region can adopt. It is somehow an equivalent of Federal Law for Regions

⁵ See the section 3.3 for a detailed analysis of the Decrees

cultural gap. Although this thesis employs a particular and recent way of doing institutional analysis, it does not directly aim at improving nor confirming the relevance of such a way.

The method and the framework are inspired by Parto (2005a). We proceed to an analysis linking modes of governance with institutions. The wide range of definitions and meanings of such concepts imply their reduction to categories that make them functional for the purpose of a Master thesis and clearer for the reader; to say it with Science & Technology Studies (STS) vocabulary: we cannot indefinitely open too many "black boxes".

In the next section, we deconstruct our research question into three main objectives: establishing the differences between both regulations, giving an institutional explanation of those differences, and still through an institutional analysis, thinking about the elements that could bring some changes in the long-term. In section 1.3, we explain the methodology we used to gather and analyze information.

Chapter 2 is divided into two parts. The first part briefly reviews the meanings associated to governance and ends with the presentation of Dryzek's typology on modes of governance(1997). The second part focuses on institutions and ends with a review of Parto's five-types typology of institutions (2005a; 2005b).

Chapter 3 is divided into three parts. The first part focuses on a broad description of GMOS, their applications, opportunities and uncertainties. The second part concerns GMOs legal framework development in Europe and Belgium. This will help to understand in which context Flanders' and Wallonia's legislations, analyzed in the third part, take place; we provide an analysis for both regulations and justify why we can speak about a pro-GMO regulation in the Flemish case and an anti-GMO regulation in the Walloon one.

Chapter 4 consists of three parts. The first part shortly analyzes Wallonia's and Flanders' modes of governance; we present the modes using different examples and we relate them to both Regions' GMO legislations. The second part is an institutional analysis of the differences according to the

framework given in Chapter 2. We provide a mapping of the institutions and show how they played their role in line with the respective modes of governance -- explaining why and how some institutions did play a role, while others did not. In the final part, we mention some elements that appeared during the adoption process of both Decrees or that could appear in a close future, entailing some slow institutional changes.

In our conclusion, we sum up our findings, make some remarks about the limit of our approach and framework, and provide some ideas to explore in further researches.

1.2. Deconstructing The Research Question: Research Objectives

An answer to the research question can only be obtained by deconstructing it into several research subquestions and we choose to do it in three parts. The first objective is to establish the differences existing between the Decrees adopted by both Regions. Without this, the research question would just have no sense. The first objective is divided into two subquestions: what are the differences between both Decrees and is there a pro-GMO and an anti-GMO Decree?

Then comes the central objective of the thesis: accounting for the role of institutions when it comes to decision-making on the GMO matter. We want to identify institutions, show how they were able or not to play a role in the adoption and the characteristics of the Decrees. This implies that institutions or knowledge about institutions can be relayed through different actors and processes to politics. Those connexions can be observed and characterized as modes of governance: each political system, according to different factors, can be more or less opened to certain voices, can better reflect the expectations of the population, the positions of stakeholders and scientists, etc. However, we must be aware that different modes of governance can coexist in one political system and that the privileged mode depends on the matter at stake (De Rynck, 1998; Dryzek, 1997). This is why the conclusion we will draw will be specific to the GMO case. Our second objective is thus

presented through two subquestions: What are the dominant modes of governance and what are the institutions of Wallonia and Flanders in the GMO case?

After the comparison, we intend to use the institutional analysis framework to observe possibility of changes. Modes of governance and institutions can evolve; although we present a rather fixed map in the previous sections, our researches reveal a few elements that could bring some changes in the long-term if they are to be institutionalized. Those elements can be contradictory trends or new political decisions. This allows us to account for the evolving role of institutions and think about possible changes in a structured way. Finally, which elements could induce a change of institutions and modes of governance in the long-term and how? We list here below the subquestions that will guide the reader through the thesis, before going on with the next section: methodology.

- What are the differences between Flemish and Walloon regulations on the coexistence of GMOs with traditional and biological cultures? Is there a pro and an anti-GMO Decree?
- What are the Flemish and Walloon dominant modes of governance?
- What are the institutions of Flemish and Walloon governance over GMOs?
- What could induce changes?

1.3. Methodology

Our approach is essentially qualitative and we make very sporadic use of quantitative data. We need to collect data on two cases and set a framework in order to analyze them. In order to establish a framework, we make a literature review on the concepts of institutions and governance. We give a broad overview of both concepts developments and end with a framework mixing the typology of five institutions given by Saeed Parto (2005a; 2005b) and the three modes of governance described by John Dryzek (1997), eventually completed by remarks and critics.

Regarding case studies, interviews were conducted with politics, scientists, and representative of associations in order to draw a map of the different institutions at play in Flanders in Wallonia. As suggested in Parto (2005b, pp. 38-41), we made use of the interviews to find empirical examples of the different types of institutions and make an inventory of them; we establish linkages between institutions and provide narratives for them. This identification process is completed by a review of scientific articles, laws and regulations, newspapers articles, official reports, publications on blogs, and statistics to concretely catch each institution and its dynamic. Textual analysis was conducted on interviews and official documents, especially to identify the more informal institutions. All the interviews (and one e-mail communication) were registered and can be consulted on demand.

Chapter 2: Literature Review

2.1. Governance

Governance is still an unclear concept at present. It is constantly used in different contexts in which its meaning and scope may vary. We synthesize here various meanings in order to make it a functional concept for us, and we do not pretend to be exhaustive.

When trying to find the origin of the concept, most authors agree to locate the source in the Anglo-Saxon literature where it has long been synonymous with *government*. In English, *government* refers to all official institutions and the legitimate power of the State⁶:

The attention is directly focused on the overall functioning of the State (government) that meets the traditional missions of maintaining order and organizing collective action, particularly by using a number of institutional arrangements for public decision-making. Governance refers to this particular type of relationship between government, broadly defined, and collective action as we may meet it in all the countries classified as developed (Brunet, 2007, pp. 148-149 [we translate]).

However, this synonymy is outdated and many authors comment a general shift from *government* to *governance* (Brunet, 2007; Parto, 2005a; Hajer, 2003; Dryzek, 1997). This shift is mostly commented as the fall of the Welfare State, the weakening of the State as the unique public decision-maker. We have moved toward a society where "solutions for pressing problems cannot be found within the boundaries of sovereign polities" (Hajer, 2003, p. 175) as political power is dispersed in "transnational, polycentric networks of governance" (Ibid.). This observation is close to Ulrich Beck's (2001) thesis where we can read that the major decisions leading to changes in society are more and more in the hands of a range of actors called "subpolitics".

⁶ In other parts of the thesis, we use "Government" instead of "*government*" which refers to the French-speaking acceptance of the term reducing Government to the executive power of the State by contrast to the legislative power exercised by the Parliament

The main reason is that the State has to deal with a growing number of complex social demands. In response to these demands, traditional mechanisms are judged inefficient and inequitable as their "hierarchical, centralized and outside society nature make that the State is increasingly disconnected from civil society" (Brunet, 2007, p. 151 [we translate]). Confronting those demands, the State has also to deal with "international growth of civil society, the emergence of new citizen-actors and new forms of mobilization" (Hajer, 2003a, p. 176). As the State loses its hierarchical status, it is contested and competed by new actors that are organized in associations and networks. Governance could thus be described as the way contestations and interactions between competing actors are settled (Parto, 2005a, p. 4). In concrete terms, the shift from *government* to governance can be observed from two perspectives (Ibid.).

On one hand, there is an optimistic vision seeing governance as an input for democracy:

The informalization of formal state functions signifies a move toward a mode of "co-governance" wherein actors in civil society are able to engage more in matters of public policy than they did during the period immediately following the Second World War until the early 1980s (Ibid.).

This interpretation calls for a redefinition of traditional representation and decision mechanisms, and the co-acting of a broader range of actors:

In this way, governance emphasizes the mobilization and integration of external actors and networks to traditional processes of public decision. It is assumed whereas this encounter between actors from different subsystems is favorable to discussions enrichment, more flexible procedures, better use of resources, and finally, to better results in the determination of a common project and a general desire to support this project (Brunet, 2007, pp. 155-156 [we translate]).

On the other hand, governance is seen as a move toward less democracy. Over the last decades, States have lost some of their prerogatives to supranational bodies -- such as the European Union -- , regional -- e.g. the federalization of Belgium started in the 70s -- and subpolitics. The reduced

presence of the State in public affairs is seen as "an ideological shift toward neoliberalism and a move away from the conception of the State as the provider of welfare and the convener responsible for social cohesion" (Parto, 2005a, p. 4).

It is indeed a perspective...which conceives governance as the rule the minimal State. Since the collective decisions are taken outside the institutional arenas based on interactions between subpolitics without further State intervention, we can assume that the determination of the general will will be held by the most powerful subpolitics, namely the techno-economic world. In this perspective, public decision-making procedures would be assimilated to market mechanisms...the dominance of state institutions is diminished by the production of effective political subpolitics (Brunet, 2007, pp. 154-155 [we translate]).

Although supported by concrete facts, this move towards governance is neither total nor irreversible. States still enjoy significant powers -- including social policy -- and try to preserve them. Some States adapt to changes not by blindly yielding to the pressure of governance but by attempting to balance their prerogatives with the new concepts. We can still observe some of the Welfare State's mechanisms at work. We end this subsection by presenting John Dryzek's typology of modes of governance (1997, pp. 73-142). According to him, three modes of governance prevail in developed countries. It has to be noted that no political power is limited to a single mode: the three of them coexist and to decide whether to use the procedures of a mode or an other remains a case-by-case choice.

The first mode is Administrative Rationalism; politics rely mostly on experts' advice and public interest prevail through the voice of politics and the ability of experts to tell "the truth". Technical experts and managers are indeed meant to be more capable than anyone else. This mode is also characterized by the subordination of people to the State and a strong hierarchy in the citizen-administration relationship. Governing or *government* is thus reduced to a rationalistic administrative routine with techniques such as cost-benefits analysis, risk assessment or even

systematic impact assessment, and internal bodies like expert advisory committee (pp. 75-98). The two other modes are related to the shift toward governance.

Democratic Pragmatism intends to correct some failures in the rationalist model. The complexity of modern social demands sometimes requires an opening of the decision-making procedures not to bring down administrative rationality but to complete it with other kinds of rationality. Indeed, Democratic Pragmatism does not aim at imposing radical participatory alternatives -- although one can opt for such an alternative -- but promotes interactive problem solving within the structures of liberal democracy (p. 99). This mode assumes that relevant knowledge cannot be centralized in the hand of any individual/organization so that problem solving remains a flexible process, involving different voices and cooperation.

We find this kind of problem-solving in administrative structures, in negotiations between parties, informal networks, in legislature, etc. (p. 100). Various techniques have been developed to catch and include stakeholders' and, sometimes, citizens' positions in decision-making. Each technique implies a different degree of "inclusiveness". We mainly find: public consultation which can occur during impact assessment; alternative dispute resolution aiming at recognizing and involving interested parties (like NGOs) and discuss with them under the auspice of a mediator; lay citizen deliberation (conferences, juries, etc.) which can end with policy recommendations⁷; right-to-know legislations to enhances the delivery and access to the relevant information⁸ (pp. 102-108). This implies a less hierarchical relationship not only between politics/administration and citizens/stakeholders, but also between politics and administration through mechanics of power decentralization and devolution (p. 109); pragmatism is thus about giving new (democratic) responsibilities to administration and exercising the right competences at the right level in order to be closer to societal needs.

⁷ For a detailed study of these kinds of techniques, see: N. Slocum (2005)

⁸ This later aspect is closer to transparency than public participation

The third mode which also marked a move toward less formal governance is called Economic Rationalism. This last mode calls for a minimal presence of the State and commitment to market mechanisms in order to achieve public ends. It mainly relies on the assumption that people/private actors are more efficient as they care more about things they (can) hold privately. Where Democratic Pragmatism emphasizes collaboration, Economic Rationalism enlightens competitive relationships between the diverse actors -- State, stakeholders, etc. This mode thus abolishes hierarchical relationships as well, although it shares a common feature with Administrative Rationalism and claims for the superiority of (financial and economic) experts and, even more than that, subordinates Nature to the law of the Market (pp. 121-142).

Whatever the mode considered, governance is a set of rules to codify (formally and informally) the relationships and actions of various actors. Ultimately, those rules give credibility and legitimacy to public decision and whether a mode of governance gives relevant and legitimate decisions depends on the context. As Parto (2005a, p. 7) sums up, governance is "the way a human community organizes itself...through formal and informal institutions that collectively act as structuring phenomena". In later subsections, we would like to identify the modes of governance privileged by Flanders and Wallonia and how we can link that to the GMO issue. For now, we synthesize the typology in Table 1 and we go on with explaining the concept of institution as it is directly related to governance.

Table 1. Modes Of Governance Typology

Mode of governance	Key elements
Administrative Rationalism	<ul style="list-style-type: none"> - Hierarchical citizens/ administration/politics relationship; - Administration centralized; - High power of (scientific) experts
Democratic Pragmatism	<ul style="list-style-type: none"> - Improving decision-making by opening the traditional structure of administrative rationalism; - Participatory methods; - Decentralization and responsabilization of administration
Economic Rationalism	<ul style="list-style-type: none"> - Minimal presence of the State; - Commitment to market mechanisms

2.2. Institutions

2.2.1. Different Meanings Through Time And Disciplines

Whatever the definition one opts for, governance is intimately related to institutions. More exactly, institutions are the "things" through which governance is exercised and which role must be taken into account for any (political) change to occur (Parto, 2005a). What are institutions?

Literature and official reports often refer to institutions with rather vague descriptions and leave the reader with unresolved ambiguity⁹. We find an example of such a confusion when comparing the concepts of North (1990) and Schotter (1981). Douglas North refers to institutions as "rules of

⁹ We treat very briefly the different meanings given to Institutions. For a more complete review, we suggest to read Parto (2008; 2005a & 2005b)

the game in a society" constraining the actions and available options of any individuals and thus shaping individual interactions and the way their society evolve (1991; 1990, p. 3). On the opposite, Andrew Schotter does not think that institutions are the rules but they are the behaviors adopted because of the rules (Schotter, 1981, p. 155). The problem goes even further as even though "scholars were to agree with North that rules and norms are institutions, they would not necessarily agree on what a rule is" (Hollingsworth, 2000, p. 599). As rules, we can think about the ones emerging from legislations, judicial decisions or even from custom and habits as "informal but broadly accepted norms that tacitly restraint the action of individuals" (Levy & Spiller, 1996, p. 4). One can also think about the confusion around European Union; sometimes we speak about the EU Institutions -- Council, Parliament, Commission, etc. -- and other times about EU as the Institution to which Member States have given up part of their sovereignty; institutions can thus be physical bodies as well as abstractions. This leads us to another decisive issue: the distinction between institutions and organizations.

If institutions are rules of the game, organizations could be called the players (North, 1994, p. 361; 1990, pp. 4-5). Organizations are groups of individuals linked by a common purpose and goal to achieve. The rise and evolution of organization take place within the framework of institutions but most of the time their purpose is to reach an institutional change (Ibid.). We find various kind of organizations: political bodies -- parties, Parliament, etc. -- , social bodies -- churches, clubs -- , economic bodies -- trade unions, cooperatives -- , educational bodies -- schools, universities. They represent the opportunities provided by the institutions and they are also a mean of evolution for the institutional framework; as individuals engage in a learning process while doing their organization work, they perceive they could do better than what the framework lets them do and they try to modify the structure of the rules. Through this, organizations engage in an institutionalization process which eventually blurs the distinction between institutions and organizations. This is not the only case in which the distinction is not obvious. Let us take the example of a University: it is an

organization with its own rules and members, born within a particular framework -- intellectual, political, economic, social, etc. -- but as a so-called entity of elite reproduction, it sets the rules of a game which makes a distinction between different categories of students that in turns ends with different labor divisions in the overall society. Another difficulty is related to the treatment of institutions by different disciplines and stream of thoughts¹⁰.

The study of institutions is often divided into old and new institutionalism, and each category has been approached by various disciplines which the most important are economics, political sciences and sociology (Scott, 2001, pp. 1-14; Hollingsworth, 2000, pp. 599-600). In the old stream, economics saw institutions as the formal arrangements of economic actors made in the past which restrains the opportunities and choices of the actual actors. The arrangements took the form of laws, conventions, etc. Therefore, the institutions were: rules of the economic game; formal; voluntarily adopted.

Political sciences also emphasized the formal aspect of institutions; "careful attention was given to the legal framework and administrative arrangements characterizing particular governance structures" (Scott, 2001, p. 6). Emphasis was placed on the formal and physical institutions of *government* that constraints the political actions such as the Parliament, the administration, the ministerial cabinets, etc. Together with economics, political sciences denied the evolutionary aspects of institutions and saw them a finished products (Bell, 2002): "while these institutions had a past, they apparently had no future" (Bill & Hardgrave, 1981 *in* Scott, 2001, p. 6).

Despite critics to both stream, a first breakthrough in institutionalism occurred in the field of sociology. Sociologists saw interdependencies between individuals and institutions¹¹. Institutions are: common to a group; developed and preserved through interactions; presents in minds and actions (p. 8). This perspective thus underlined a cognitive and a behavioral aspect of institutions.

¹⁰ We give a short overview of those disciplines and streams. For a more complete review, we suggest Parto (2005b); Bell (2002); Scott (2001); Hollingsworth (2000); Campbell (1998)

¹¹ It is different from the two other perspectives that made individuals dependent on historical construction

While the other streams focused on a macro-level, sociology drew attention on the micro-level, on the (informal) rules embedded in daily practices and modes of thinking. This attention on the micro-level has become a central tenet of the new institutionalism.

In economics, most of the authors give importance to Ronald Coase's work. The market laws explain why firms enter in competition and make the economic system evolve. Coase observed that some economic transactions occurring within a single firm responded to certain rules, non-directly related to market mechanisms. The reason was that concluding such transactions implied some costs that could be reduced by using other rules than the Market ones (p. 25). Economics also emphasized more and more on cooperation rather than on competition and thus had an insight in the interdependence matter; institutions can raise the benefits of cooperative solutions by reducing transaction costs (Hollingsworth, 2000; North 1994; 1991; 1990).

Political sciences also made a shift from the observation of formal institutions and "and argued instead that political behaviour and the sources of political power were derived primarily through informal relationships within and beyond the institutions of government" (Bell, 2002, p. 367). This somehow behavioralist perspective was highly criticized and opposed to a vision that looks like the old stream, focusing on the determinant impact of formal institutions. New institutionalism in political sciences is thus divided into two broad categories: historical institutionalism, which sees a determination effect of institutions over individuals strategy; and rational choice institutionalism which argues that institutions are the product or rational choices of actors. Both agree that actors are constrained by an institutional framework, but one focuses on a macrostructure coming from the past and the other says that the structure has a strict and actual micro origin (Bell, 2002; Scott, 2001, pp. 26-29; Campbell, 1998). From our short discussion of the organizations/institutions distinction, the reader notices that probably both vision hold a part of truth.

Finally, new institutionalism in sociology is a kind of continuation of the old version completed by studies of organizations -- organizational sociology. In attempting to understand societal facts,

sociological institutionalism is facing a similar controversy with political sciences (Bell, 2002, p. 371; Scott, 2001, pp. 29-32).

As for governance, we need a reduction and simplification of all the information about institutions in order to have a functional framework to apply to our case study. We find such a thing in the five-types typology of institutions in Parto (2008; 2005a; 2005b). The next subsection present in details the typology and explains how it sums up the diverse aspects of institutions.

2.2.2. A Typology

From our short overview, we keep five elements in mind that should be observed to make an institutional analysis. Firstly, institutions impose constraints to social actors in a way or another. Secondly, institutions can be formal or informal as well as physical or abstract. Thus Laws, Parliament, behaviors, modes of thinking, etc. can all be institutions even at the same time. This implies a third characteristic: institutions are located at different levels of society; they concern politics, associations, citizens, stakeholders, etc. Forth element: institutions and social actors are interdependent; institutions guide choices and practices but leave opportunities for actors to induce some changes that allow institutions to pursue their existence. Thus we have the fifth element: institutions are not fixed; they are the result and the cause of a long-term learning process. We think that all those elements are present in Parto's typology¹².

On the most informal level, we find Behavioral and Cognitive institutions. Behavioral refers to social habits while Cognitive concerns way of thinking. Then come more formal institutions. Associative institutions are meant to facilitate some mechanisms and interactions between private and public actors and interests. Finally come the most formal institutions: the Regulative and the

¹² The typology is presented according to Parto (2005a, pp. 10-13; 2005b, pp. 36-41). We eventually complete it with our own assumptions

Constitutive institutions. Regulative institutions fix the written and unwritten rules of the game, while Constitutive institutions fix the limits in which the game will take place.

Behavioral institutions are recognizable social habits. They are practices embedded in everyday life and can reflect social norms. The point is that people act without thinking about what they do. Cognitive institutions are mental models broadly shared by people. Shared values and beliefs are also a part of Behavioral institutions but they are only reflected in practices; here, the focus is on the ideas upon which some practices are built. We can find values, superstitions, culture, etc.

In a more formal shape come Associative institutions; these are mechanisms facilitating interactions between private and public interests. They are mainly composed by associations, groups of interests -- or stakeholders -- , networks, etc. In political systems, they facilitate bottom-up as well as top-down strategies, depending on the privileged mode of governance. Regulative institutions are the formal "rules of the game", defining what is allowed to do or not. Those rules can be written -- laws, constitution, regulations -- or unwritten -- political customs. These institutions regulate the interactions of citizen/associations/politics etc. Finally, Constitutive institutions are the ones by which the limits of the "game" are set; they allow the game to take place.

We have several remarks about the typology and the way we are going to use it. Firstly, there is no hierarchy between the institutions. Informal are not less or more influents than formal institutions;"this typology is very fluid and there is constant interplay and transformation between the different types of institution" (Parto, 2005a, p. 12).

Secondly, when we first saw this typology in Parto's work, each institution was built upon a less formal one: Regulative evolved from the action of Associative which were themselves born from Cognitive. Though it is not false to think in such a way, we believe that this construction was particular to Parto's case study¹³. Our case study is more recent and, combined to the limited scope

¹³ UK's and Netherlands' waste system management

of this thesis, it does not allow us to explore in-depth the construction of Wallonia's and Flanders' institutions in that way -- at least, not for all of them. For example, we could say that farmers' habits gave rise to a certain way of thinking about agriculture and GMOs and that in turns gave birth to associations defending farmers, but some key associations were born long before the GMO issue and thus cannot enter in such a logic. Moreover, we hardly can affirm that all the more formal rules were built after associations positions. For this thesis, we take a systemic view of the typology; the five institutions are intertwined and constitute a system bringing and maintaining specific positions, values, regulations, habits, etc. This systemic view also allows an easier analysis of possible evolutions of the system as one just has to find which entry to take in order to induce a change in the overall system. Of course, we conceive the system as a dynamic one, in which the institutions are allowed to constantly interplay and transform. Thanks to our systemic view, we intend to analyze the eventual changes that could occur in one of the two Regions¹⁴.

Thirdly, when Parto used his typology, he analyzed the success and failure of policy implementation. As our case is very recent, we have to stop at policy adoption. Also, we use the typology to establish a map of institutions; we thus loose informations related to their evolutions and transformations¹⁵. This loss is added to the inherent loss of using a typology.

To summarize, the limits of our framework are linked to a certain transformation of an established typology and its application to a singular case study. These are obviously not the only critics we can make about our research: most of them are revealed in our conclusions. We close this subsection by explaining that the typology permits us to gather the five elements we underlined.

The constraints are present at the informal as well as at the formal level: Behavioral and Cognitive institutions, ingrained in minds and habits reduce/constraint the options for people, and the constraints of Regulative and Constitutive institutions are obvious. Of course, the typology refers also to physical -- written rules, associations -- and abstract institutions -- values, unwritten

¹⁴ See sections 4.2 and 4.3

¹⁵ Although we imagine them in section 4.3

rules. The five types gather all kind of actors: citizens -- Behavioral, Associative -- ; stakeholders -- Associative -- ; politics -- Regulative. The interdependence can be deduced from the upstreaming conception of the typology and from our systemic conception as well. Finally, the possible transformation of institutions relates the fifth element. Table 2 summarizes the typology before we proceed to our analysis.

Table 2. Institutions Typology

Institutions	Definition	Example
Behavioral	Social habits and practice embedded in everyday life	Habits, routines, ways of doing things, theories in use, etc.
Cognitive	Shared mental models and common beliefs	Values, superstitions, culture, etc.
Associative	Mechanisms facilitating interactions between private and public interests	Associations, stakeholders, networks, etc.
Regulative	Formal "rules of the game", defining what is allowed to do or not	Laws, constitutions, political customs, etc.
Constitutive	Rules that set the limit of the "game"	Collective actions, language, agreements, arrangements, etc.

Chapter 3: GMOs In Europe And Belgium

3.1. What Is At Stake?

Over the last decades, Genetically Modified Organisms (GMOs) have become an international issue and they are at the center of a growing number of concerns in our everyday life. They have an undeniable economic potential and are at the centre of a competition between countries with highly advanced Research & Development (R&D) programs. On the other side, they have impacts which risks have not been fully assessed yet. We propose here to define GMOs, to make a synthesis of the process through which they are created and to make a review of the main issues at stake around them. In the scope of this thesis, we focus on the so-called "Green GMOs" or "Green biotechnology"¹⁶; it covers essentially the use of GMOs in agriculture-related domains for the transformation of foods, crops, seeds, energies, etc. It should not be mistaken as "Red GMOs" that concerns the manipulation of living organisms -- animals, human beings -- or other to obtain new medicines and medical treatments. This difference is not only relevant for the theoretical treatment and the specialization of R&D programs; the general public broadly considers Red GMOs as moral and useful while it is still more skeptical regarding the other ones (Schiffino & Varone, 2005a, pp. 41-53).

A definition of GMOs can be found in many National and International legislations. We take one from the Directive 2001/18/CE as it is the European legislation that led Member States to adopt rules for the coexistence of conventional and biological cultures with GMO cultures: "organism, except human beings, whose genetic material has been altered in a way that does not occur naturally by multiplication and / or natural recombination"¹⁷. This is of course a definition of Green GMO as it excludes human beings. The Directive includes a list of the alteration techniques recognized as

¹⁶ Biotechnology relates to the general techniques of biological engineering. GMOs are (but not only) born from the technique known as transgenesis (Schiffino & Varone, 2005b, p. 6)

¹⁷ Directive 2001/18, article 1. See the next subsection for further informations about the Directive

natural and unnatural; a GMO implies the modification of the essential characteristics of an organism by the recombination of its DNA molecules and/or the addition of other agents created or collected outside this organism¹⁸. Such manipulations are called "transgenesis" and are operated on plants. The objective is generally to give the organism new characteristics, to erase a former one or to replace a deficient gene.

The discovery of this process is generally attributed to the Professor Marc van Montagu of the University of Ghent (Flanders, Belgium) in the early 80s. Between the 70s and the 80s, numerous researches were conducted on some plant diseases know as "crown gall" and "hairy root". In 1983, van Montagu and his team -- J. Schell, Ghent University; H. Goodman, San Francisco Medical School -- managed to remove the responsible genes and replaced them with other selected genes (pp. 26-27; Van Montagu, 1997, pp. 10-11).

Transgenesis can occur at several steps of the GMO production process which is divided into three parts¹⁹: laboratory trials or "contained use"; field trials, inducing the "voluntary dissemination" in the environment; "marketing" or the use of GMOs for productions to be commercialized. Of course, it is also during those steps that risks can occur. Two main kinds of risks are distinguished. The first kind relates to the transgenesis technique itself:

In most cases, foreign genes are inserted randomly into a portion of the genome of the host organism. It is not always possible to know in advance which sequences of the genome are modified by the insertion and what the consequences will be and the more so that there are phenomena of interaction between genes from a genome. Several situations can be envisaged. It may be, first, that the inserted DNA fragments recombine accidentally with DNA to form a recombinant host organism capable of synthesizing new substances that may be harmful or allowing the expression of the virus so far disabled. Second, the protective mechanisms of control of the inserted gene can be disrupted by the transfer and thus become ineffective (Le Roy, 1996 [we translate]).

¹⁸ Ibid., annex 1A, first part

¹⁹ The regulation of GMOs is organized according to these steps. See the next subsection

The transgenesis is uncertain and the results might not be the ones expected. This kind of risk concerns the modified organism during the research process in contained space. The research on GMOs also implies the conduct of field trials and here comes a second kind of risk related to the dissemination.

In general, two problems may arise. First, the one generated by the new biological properties conferred to an organism by the insertion of a transgene. If these new properties confer a selective advantage to the GMO, it can invade ecosystems where it would prove harmful, growing at the expense of others. Such a transgene could turn a plant into a weed. Moreover, we could also see new populations as a result of strong selection pressure accompanying GMOs, such as the development of insect populations resistant to the toxin produced by a transgenic plant rendering it ineffective. The second problem concerns the issue of gene flow, that is to say the passage of the inserted gene to species, related or not to the modified organism²⁰. Thus, a gene for herbicide resistance could be transferred to wild plants...leading to the creation of resistant weeds (Le Roy, 1996 [we translate]).

GM species can contaminate unmodified similar species through pollination. The fact they can have an impact on other species is one of the main arguments of their opponents (Sägesser, 2001, p. 26). GMO environmental impacts are one of the key issues at all levels of governance because like any other event that could cause environmental change they "can only be measured with a high degree of probability after several years of experimentations" (Ibid.[we translate]). Other important issues revolve around GMOs.

GMOs are present in products commonly used in agriculture such as soybeans, corn and rapeseed, and in 2001 the Food and Agriculture Organization (FAO) identified more than 40 million hectares of GM crops in the world (FAO, 2001).

Currently, the production of GM seeds is in the hands of a handful of large...groups of seed producers. For now, the development of GMOs benefits mainly to the latter, which enjoy an

²⁰ It means: the move of the gene to an unmodified specie. That specie could be or not similar to the modified specie

oligopolistic position. These groups are American and European (Sägesser, 2001, p. 25 [we translate]).

Economic interests of those groups are at stake and often clashes with farmers' interests and freedom. Although the seed producers oligopoly was a problem long before the creation of GMOs (M.-L. Semaille, interview, July 4, 2011), the latter adds another difficulty as they are often protected by patents. That have led some seeds producers to radical practices for the protection of their interests. For example, in 1998, the firm Monsanto sent detectives in Saskatchewan (Canada) to check if farmers did not illegally cultivate transgenic rapeseed. After that, helicopters sent by the company spread herbicides on the fields (Kempf, 2000). Beside this problematic, biotechnology in general represents a source of employment and a promising investment. Belgium -- and particularly Flanders -- is a good example; since Van Montagu's discovery, numerous biotechnology laboratories and spin-off have been created, and Universities -- such as the University of Ghent -- have set up many research programs (Schiffino & Varone, 2005b, pp. 22-31).

GMOs are also important in terms of Public Health. Allergy cases have already been spotted; some plants were modified by the injection of genes from allergenic plants (Noisette, 2002). The dangers for health are often advocated by GMO opponents, although these dangers have not been proved yet; that is why some associations claim for the use of the precautionary principle. Sägesser replies to that:

Opponents counter that [their] fear is based on the, erroneous, premise according to which natural products are safe -- while there are many natural foods highly toxic to humans -- while any changes to the "Nature" would be dangerous -- while food production have been using for a long time, many "artificial" products from processes of selection, crossover and preparation (2001, p. 27 [we translate]).

Obviously, GMOs have a very high political aspect as they increasingly require regulations for research, cultivation and commercialization. The implication of organizations such as Greenpeace, Oxfam or Inf'OGM shows how much civil society is concerned by all the aspects of the question.

Media coverage has also shown that GMOs have a high potential for dramatization (Schiffino & Varone, 2005a, pp. 41-57). All of this calls for a redefinition of the relationship between politics and the public, or at least between politics and civil society. Beside, it is also important to discuss the relationship between political and economic actors through a clearer regime of responsibility; will the producers or Governments take the responsibility, or how will they share it? (Sägesser, 2001, p. 28)²¹. Despite these important features, GMOs are currently developed and then it is interesting to observe under which "pressure" this is made possible.

The role of the World Trade Organization (WTO) in the progression of GMOs is undeniable:

Despite the obligatory consensus mode for the adoption of decisions in the WTO, it is clear that some countries or trading blocs have more weight than others...The complexity of commercial issues and the establishment of a system of dispute resolution in an almost judiciary pattern are also constraints, including financial, for developing countries (p. 28 [we translate]).

WTO has already faced critical cases related to GMOs -- such as the hormone-treated beef. Those cases were solved through the normal WTO's procedure but some critics emerged on the efficiency of that system as it is only founded on the protection of States' economic interests (Deboyser & Mathieu, 2005, pp. 241-288). Developing countries thus lack a real possibility to negotiate or prevent the development of GMOs which can be damaging for their already fragile agricultures and biodiversity.

Although it has established a wide range of interlinked regulations²², the European Union (EU) clearly seems to be in favor of the development of GMOs on the European territory or, at least it has moved towards a greater acceptance. In February 2011, the Member States gave their agreement to the import of products containing up to 0.1% of unauthorized GMOs in Europe (Apoteker & Gracien, 2011). EU has always tried to reconcile often conflicting considerations. The legislation

²¹ There is a regime of responsibility for producers established by the EU. See Vermandele (2005, pp.99-135)

²² See the next subsection

more or less restrictive since the 1980s was adopted as part of the implementation of the Single European Market. Eventually the Europe intends to finalize a harmonious market for biotechnology. However, the EU is not restricted to economic promises of GMOs. Between 1998 and 2004, under the leadership of France, Europe did not grant permission to the marketing of new GMOs, establishing a de facto moratorium. Studies conducted between 1998-1999 and criticism from the NGOs pushed it in that direction. The moratorium stopped with the adoption of new regulations on the tracking and labeling of products containing more than 0.9% GMOs. Finally, it must be said that the EU does not restrict itself to scientific considerations and provides openings to civil society in the most recent Directives (Mathieu, 2005, p. 155-162).

As we are to analyze the regulations adopted by the two major Regions of Belgium, the next subsection focuses on the EU and Belgium's rules on the three main steps of GMOs production process. It will help us to explain in which framework Wallonia's and Flanders' regulations took place and why they only concern the coexistence of cultures.

3.2. The Main European Directives And Their Transpositions

There are essentially two Directives regulating the three-steps process. The Directive 90/219/EEC, modified by the Directive 98/81/EC²³, is related to the contained use while the Directive 90/220/EEC, modified by the Directive 2001/18/EC²⁴, covers the voluntary dissemination and the marketing. They regulate a broad range of authorized practices and organize the control of risks associated in a similar pattern: the scientific risk assessment; risk management; risk communication (pp. 155-240). All of them have been transposed into Belgian law. These transpositions were not always performed in the right time; political conflicts and the particular institutional architecture of

²³ *Official journal of the European Union*, 5 December 1998

²⁴ *Official journal of the European Union*, 17 April 2001

Belgium have often slowed down the process (Schiffino & Varone, 2005b). We present briefly the regulations of contained use as the Directive 2001/18 is the one which poses the question of culture coexistences for Regions.

Directive 90/219 intended to address the use in enclosed spaces of genetically modified micro-organisms (GMM) such as bacteria, microbes, etc.; the scientific risk assessment set in the Directive results in a classification of each MGM based on the risk it represents, and each "class" of risk is associated with a specific treatment. This Directive was passed to cover pharmacological applications of GMOs but the majority of Member States transposed it broadening its scope to the green sector of biotechnology, including plants and animals. Thus, based on that single legislation, animals and transgenic plants were developed and even, in the case of some plants, commercialized (pp. 170-171). The transposition into Belgian law was slow; as scientific research is a Regional competence, three distinctive regulations were adopted in the Region Brussels-Capital²⁵, in Flanders²⁶ and in Wallonia²⁷.

The Directive 90/220 was adopted at the same time with the 90/219 in order to regulate the two other features of the three-steps process. Regarding dissemination, the Directive set up an authorization process including, among others, a notification to the authority in charge of the territory in which one would want to introduce GMOs²⁸ -- for field trials or simple cultivation --, the consultation and information of the public²⁹. In other words, this legislation provides a framework for the legal implementation of GM crops on the territory of Europe. The revised version 2001/18 became the basis of the various laws organizing the coexistence of GM crops with

²⁵ Arrêté du Gouvernement de la Région Bruxelles-Capitale du 9 Décembre 1993 relatif aux installations effectuant des opérations mettant en oeuvre des micro-organismes ou des organismes, pathogènes ou génétiquement modifiés, *Moniteur belge*, 25 January 1994.

²⁶ Arrêté du Gouvernement Flamand du 1^{er} Juin 1995 fixant les dispositions générales et sectorielles en matière d'hygiène de l'environnement, *Moniteur belge*, 31 July 1995.

²⁷ Arrêté du Gouvernement Wallon du 13 Juin 1996 modifiant le Règlement général pour la protection du travail en ce qui concerne l'utilisation d'organismes génétiquement modifiés et/ou pathogènes, *Moniteur belge*, 25 October 1996

²⁸ Article 6 of Directive 2001/18

²⁹ Article 9 of Directive 2001/18

traditional and biological cultures. It is partly transposed into Belgian law by the Royal Order of 21 February 2005³⁰; the Federal State is thus the competent authority to allow the cultivation of GMOs in Belgium as it is responsible for Public Health. Beside that, agriculture became a competence of the Regions in 2001 and made the dissemination a shared competence. This is translated in two ways.

Firstly, the Regions all adopted their own regulations on cultures coexistence, namely the Decrees in which we are interested for the purpose of the present thesis. They fix the conditions under which GMOs can be implemented on their respective territory as well as a notification and information process³¹. Secondly, Regional Ministers have a voice in the Federal authorization process³²; their agreement is required to deliver the authorization³³. This somewhat completes the Regional competence in scientific research; field trials are an important part of the GMO research processes although they are far less numerous than confined activities. Two things must be added. Firstly, the Regional Ministers' agreement is considered as acquired if they do not oppose formally to the authorization and this agreement is not required when the authorization concerns GMOs for "which experience gained about the dissemination in some ecosystems is sufficient"³⁴. Secondly, Regional Ministers do not have such an important role regarding the commercialization; the articles 34 to 38 of the Royal Order formally give this role to the Federal State in collaboration with the European Commission. Moreover, Regions are not well represented in the main advisory body whose advice is also required in all authorization processes: the Biosecurity Council³⁵.

Wallonia and Flanders thus have limited tools regarding the development of GMOs; they can decide to invest or not in biotechnology but they have a partial power when it comes to the

³⁰ *Moniteur Belge*, 24 February 2005. Called "The Royal Order" for the rest of the thesis

³¹ See the next subsection for a more detailed analysis

³² Article 2 of the Royal Order

³³ Article 18 of the Royal Order

³⁴ Article 19 of the Royal Order

³⁵ It is mainly composed of people active at the Federal level and a variety of experts from the overall country. See: http://www.bio-conseil.be/ccb_compos.html

dissemination and they can do nothing in the case of commercialization. Beside, we must not forget that a product recognized as safe in a EU Member State can be freely commercialized in the rest of EU; a product undesired by the Regions could enter their territories while at the same time they would have regulations making the cultivation of the same product almost impossible -- because of too heavy administrative charges, for instance.

EU's and Belgium's rules over GMOs are completed by two European Regulations which have a direct impact on Federal and Regional rules: the Regulation 1829/2003 of the European Parliament and of the Council of 22 September 2003 on genetically modified food and feed³⁶, and the Regulation 1831/2003 concerning the traceability and labeling of genetically modified organisms and the traceability of food and feed products produced from genetically modified organisms³⁷. They say that Member States do not have to mention the genetically modified content of a product if it is below 0,9%³⁸. So to say, the EU generally considers that below this threshold, the (technically unavoidable) contamination of conventional cultures by GMOs is not damaging for other farmers nor dangerous -- the contaminated product can be sold and there is no economic loss for the producer -- and makes this threshold the reference of the peaceful coexistence of cultures.

3.3. The Coexistence Decrees: Two Visions Over GMOs

As we explained, Flanders and Wallonia³⁹ have adopted rules that set up conditions and obligations to respect for people wanting to cultivate GMOs on their territory. Although the debates started a bit earlier in Flanders, Wallonia was the first to adopt a Decree in June 2008⁴⁰. Flanders did the same

³⁶ *Official journal of the European Union*, 18 October 2003

³⁷ Ibid.

³⁸ Article 12 of Regulation 1829/2003

³⁹ And Brussels-Capital Region as well

⁴⁰ Décret du 19 Juin 2008 relatif à la coexistence des cultures génétiquement modifiées avec les cultures conventionnelles et les cultures biologiques. *Moniteur belge*, 8 August 2008. Called "Walloon Decree" for the rest of the thesis

one year later, in April 2009⁴¹. The Decrees fix general rules and are completed by Order of Governments to be executed; they were adopted respectively the 27 March 2009 in Wallonia ⁴²and the 15 October 2010 in Flanders⁴³. Other Orders related to specific cultures -- corn, soybeans, etc. -- should follow in the future.

Each Decree has been largely commented in the media⁴⁴ and by various associations⁴⁵. A kind of consensus emerged to say that Wallonia took a strict position against GMOs and its Decree would discourage any implementation of GM cultures. The Decree followed a four-year process that implied long discussions on the possible coexistence of cultures and public declarations against GMO cultures by the Walloon Minister of Agriculture, Benoit Lutgen⁴⁶. On the other side, the Flemish Decree has often been described as the reverse side of the coin, or "pro-GMOs". As the conclusion of this chapter introducing the overall regulations of GMOs in Europe and Belgium, we would like to have a detailed look at both legislations. Establishing the main differences will help us saying whether we can talk in terms of "pro and anti-GMOs". This will be the link to Chapter 4, in which we use our theoretical concepts of governance and institutions in our attempt to explain where the differences come from.

The first major difference is found in the objectives the Decrees want to reach. While the Flemish Decree wants to leave the choice to farmers to cultivate GMOs or not and prevent economic losses that may occur to other farmers⁴⁷, the Walloon clearly states that "it is about protecting to the maximum conventional cultures and biological cultures by preventing and limiting

⁴¹ Décret du 3 Avril 2009 portant la coexistence des cultures génétiquement modifiées avec les cultures conventionnelles et les cultures biologiques. *Moniteur belge*, 4 May 2009. Called "Flemish Decree" for the rest of the thesis

⁴² *Moniteur belge*, 19 May 2009. Called "Walloon Government's Order" for the rest of the thesis

⁴³ *Moniteur belge*, 30 November 2010. Called "Flemish Government's Order" for the rest of the thesis

⁴⁴ See the archives of *Le Soir*: www.lesoir.be; *La Libre*: www.lalibre.be; *De Morgen*: www.demorgen.be; *De Standaard*: www.standaard.be for the period June 2008-April 2009

⁴⁵ Consult for instance the websites of Greenpeace Belgium: www.greenpeace.org/belgium; Nature&Progrès: www.natpro.be; Test-Achats: www.test-achats.be for the period June 2008-April 2009

⁴⁶ See for instance: Lutgen, B. (2008)

⁴⁷ Article 2 of the Flemish Decree

the dissemination of plants derived from genetically modified cultures"⁴⁸. Furthermore, the Walloon Decree says it wants to preserve the freedom of farmers to cultivate any type of cultures with no specific references to GMOs unlike the Flemish Decree. Other differences appear in more technical and administrative issues.

The Walloon Decree covers a broader range of activities and product. The Flemish Decree only concerns the GMOs whose cultivation is permitted in Europe⁴⁹; the Walloon Decree goes further by including all GMOs which are commercialized in Europe⁵⁰, thus including GM recognized as "safe" in others EU Member States, entering the Walloon market and getting the interest of a Walloon farmer for an eventual reproduction. Furthermore, the Flemish Decree is only concerned with the cultivation and the harvest; it is effective until the first crops storage⁵¹. The Walloon Decree includes the companies and people responsible for the storage and the transport of crops; it considers that those activities can entail a contamination of conventional and biological cultures as well⁵². Thus, trying to implement GMOs in Wallonia is a risk for a broader range of economic actors than in the Flemish case. Implementing GMOs also implies an administrative process that seems similar on both side at first sight but appears more costly in terms of time and money in the Walloon Decree.

Both Decrees impose a prior notification of neighboring farmers⁵³. The Flemish Decree defines perimeters in which the measures of the Decree apply; such perimeters are formed by "distances statement"⁵⁴. Flemish farmers must notify their intention to cultivate GMOs to neighbors located totally or partially within that perimeter. The Walloon Decree imposes notification to the neighbors with no other specification but a list of neighbors is available upon request to the administration. In

⁴⁸ Article 1 of the Walloon Decree, we translate

⁴⁹ Article 4 of the Flemish Decree

⁵⁰ Article 3 of the Walloon Decree

⁵¹ Article 4 of the Flemish Decree

⁵² Article 3 of the Walloon Decree

⁵³ Article 5§2.1° of the Flemish Decree/Article 5.1° of the Walloon Decree

⁵⁴ Article 3.7° of the Flemish Decree

other words, the Walloon farmer must complete an additional administrative step without which the administration could denied the right to cultivate GM for not having notified his intention to all his neighbors. The Walloon administrative process' heaviness appears in other dispositions such as the Order of Governments.

If one of the prerequisites for cultivation -- such as notification -- is missing from the dossier handed in by the farmer, the Flemish Decree leaves a lag time during which the missing elements can be brought up⁵⁵; such a thing is not allowed in Walloon legislation and this means that the procedure would end with a refusal and a new demand should therefore be introduced. The Decrees also impose a contribution to a Fund.

In the Flemish case, the contribution only aims at refunding the neighboring farmers for eventual damages to their cultures⁵⁶. The Walloon Fund is not only for that; it also covers fees for the management of the dossier by the administration and fees for the control of the parcel on which GMOs are to be implemented⁵⁷. A Walloon farmer must pay fifty euros per parcel to be controlled and eighty euros per parcel as dossier fees⁵⁸. Other fees are calculated per hectare and per parcel in the annex of the Order. Differences in objectives and administrative processes are not all; we end our analysis with the differences in the resolution of conflicts.

Both Decree set up a commission in charge of the evaluation of the contamination damages⁵⁹. The Flemish Decree states that the contamination is supposed to be born because of the introduction of a genetically modified culture, unless it can be demonstrated that it is impossible for that GM culture to be responsible⁶⁰. The Walloon Decree does not leave such an opportunity and seems to assume that a contamination can only be the fact of a GM culture. Furthermore, the Walloon legislation adds to the calculation of economic loss costs related to a possible destruction of the

⁵⁵ Article 11 of the Flemish Government's Order

⁵⁶ Article 7 of the Flemish Decree

⁵⁷ Article 10 of the Walloon Decree.

⁵⁸ Article 8 of Walloon Government's Order

⁵⁹ Article 9 of the Flemish Decree/Article 23 of the Walloon Decree

⁶⁰ Article 14§1 of the Flemish Decree

contaminated crop⁶¹; such destruction is not considered in the Flemish case. This reflects a certain Walloon distrust regarding the sale and consumption of products containing GMOs, although the Decree envisages the possibility of selling the contaminated harvest depending on the choice of the farmer⁶².

Another difference is that Wallonia itself determines the violations that may result in legal action⁶³; most of them are quoted as "third category violation" under the Walloon Code of Environment and can lead to a six months imprisonment and a 100,000 euros fine. For most of the same violations -- such as a missed notification -- the Flemish Decree only sets up administrative fines, the highest being 1000 euros⁶⁴. Moreover, the Flemish legislation fixes a device that can prevent eventual conflicts: during the authorization procedure, the farmer can declare he will buy the contaminated part of the cultures "infected" by his GM culture⁶⁵. This would occur after the calculation of damages by the commission.

Given the political campaign that preceded it, the goals it sets and the barriers it imposes, we can say that the Walloon Decree is indeed an anti-GMO one. On the opposite, the Flemish Decree can hardly be called pro-GMO. It is more accurate to say it imposes fewer constraints on the farmer and is trying to lay the foundations for a peaceful and responsible coexistence. Among other things, it can be seen in the obligation to do a training course on GMOs⁶⁶ and the possibility of preventing potential conflicts through Article 5§5 of the Flemish Decree. Somehow, the Walloon Decree punishes the irresponsibility while the Flemish Decree promotes the responsibility.

Although it is not a pro-GMO legislation, the Flemish Decree would have been difficultly adopted without at least a positive vision on GMOs. For the rest of this paper, we consider that the differences between Wallonia and Flanders are built around a rather pessimistic Walloon vision and

⁶¹ Article 20 of the Walloon Decree

⁶² Article 21 of the Walloon Decree

⁶³ Articles 29 and 30 of the Walloon Decree

⁶⁴ Article 17 of the Flemish Decree

⁶⁵ Article 5§5 of the Flemish Decree

⁶⁶ Article 5§1 of the Flemish Decree. Detailed in the Article 2 of the Flemish Government's Order

a rather optimistic Flemish vision. We say "rather" because it would be unwise to draw too general conclusions from a work that aims to be the first step of a possible and necessary further deepen research. The next chapter provides explanation for the differences we observed. Explanations are structured in terms of governance and institutions. Before that, we present a summary of our comparison in Table 3.

Table 3. Comparison of the Flemish and Walloon Decrees

Differences	Flemish Decree	Walloon Decree
Main objective	To leave free choice for farmers	Preventing Wallonia from GMOs dissemination
Covered activities	Only activities of the farmers	Activities of the farmers and related economic actors
Notification process	Occurs within a specific perimeter	Unspecified perimeter; additional administrative step
Missing prerequisites	They can be brought later	The procedure ends
Fees	Contribution to the Fund	Fund; fees of the dossier; control fees
Conflicts	Contamination to be proved; possibilities to buy the crops and to avoid conflicts	Contamination presumed; possible destruction of the crops
Sanctions	Administrative sanctions	Legal actions; administrative sanctions

Chapter 4: The Governance Of GMOs

4.1. Wallonia's And Flanders' Modes Of Governance

The major features of Walloon and Flemish political systems are inherited from the past; it is thus useful to say a few words about the old unitary State and its progressive disaggregation. Belgium has long been described as a standard of consociationalism; a stable democracy despite a political culture fragmented by numerous cleavages⁶⁷. In the 1960s, the socio-ethnic confrontation between Flemings and Walloon questioned the concept and it became more convenient to say that Belgium is more of a consensus democracy than a consociational one (Deschouwer, 2009). Somehow, the major cleavages of Belgian society -- economic, religious, ethno-linguistic -- still exist but as they are crosscutting they tend to neutralize each other (2009; De Coorebyter, 2008); this is why Belgium has been said to have the typical stability of consociational regimes, although its history has been marked by political crisis⁶⁸. Another major aspect of Belgian political life is pillarization.

While facing each other in the diverse cleavages, Catholics, Liberals and Socialists each developed their own network of organizations -- parties, trade unions, newspapers, youth movements, etc. The segmentation of Belgium showed a stronger presence of the Catholic pillar in Flanders while the Socialist pillar prevails in Wallonia (Deschouwer, 2009, Billiet et al., 2009; Fitzmaurice, 1996). Though the major organizations decided to claim for their official independence from the political parties, the links informally survived (Fitzmaurice, 1996) and despite a general ongoing depillarization on both sides, pillar organizations membership is still a structuring element for voting (Billiet et al., 2009). From this short introduction, the reader should keep in mind that, because Belgium used to be a unitary State, Flanders' and Wallonia's decision-making processes are

⁶⁷ The first cleavage opposed Liberals and Catholics at the very creation of the State in 1831. The Walloons-Flemings opposition came later

⁶⁸ Between 2010 and 2011, Belgium has faced its longer crisis -- around 400 days -- not being able to set up a new Federal Government after the elections of June 2010. For example of crisis and a detailed review of Belgium's History we recommend the reading of Mabilie (2005) and Witte; Craeybeckx & Meynen (2009)

in the hands of the elite that represent the major social forces, aiming at reaching consensus and seeking for proportionality in decisions. Moreover, each Region has a dominant pillar or network of organizations which still has a structuring influence on the political life -- important actors to consult, vote behaviors, etc⁶⁹. Now we describe both Regions' dominant mode of governance according to Dryzek's typology. Following our framework, we use mainly two indicators to state whether a move toward governance occurred: reforms leading to a more democratic administration -- new labour division between politics and top civil servants, decentralization and new responsibilities, etc. -- and the inclusiveness of external actors in decision-making -- external experts, stakeholders, citizens.

4.1.1. Dominant Modes Of Governance: Pragmatism Vs. Rationalism?

Flanders is seen as the pioneer of administrative reforms. In the 1990s, they notably introduced reforms aiming at improving the coordination of administrative services and the delivery of measures; this was one through a reduction of internal -- related to inner departments -- and external -- related to citizen demands -- procedures. Also, the number of administrative services was drastically reduced from 400 to 130. The reform also led to a change in the relationship between Ministers and administrations they were in charge of; the shape and implementation of public policies are made in collaboration with the Minister and the top civil servant⁷⁰. In other words, the administration got out of the strictly hierarchical relationship with politics and ceased to be a merely executor of political decisions; as the closest institution to the citizens, it is important that it participates to the policy design. To improve the collaboration of politics and administration, "Green Papers" were introduced in 1992; Ministers keep Parliament informed on the policies

⁶⁹ These aspects will be important to understand the modes of governance and the role of some institutions, particularly the Associative ones.

⁷⁰ High responsible of the administration

envisaged by his/her administration. Finally, civil servants are given responsibilities on their administrations through the decentralization of some services -- such as Human Resources Management (Brans, De Visscher & Vancoppenolle, 2009, pp. 120-123). Reforms also concerned the relationship between the citizens and "their" administration.

The Flemish administration benefits from numerous societal indicators that improves the decision-making process, and those indicators are widely distributed to the general public. Also, the population can exercise a kind of external control on the administration and the Government through the Regional mediator which allow them to address any complaints about the administrative action (De Rynck, 1998, p. 156). The hierarchical citizens/administration relationship has not vanished but has been reduced. Flanders also promoted the participation of citizens and stakeholders in various domains such as Education (De Rynck & Dezeure, 2009; Day, Moller, Nusche & Pont, 2008) and Sustainable Development (Spillemaeckers & Bachus, 2009). In Education, for example, the 1998 reform decentralized the organization of schools, gave more autonomy to local powers and strengthened the role of parents and civil society in external control of the wide powers newly attributed to school professionals (De Rynck & Dezeure, 2009, pp. 162-163). Moreover, Flanders has introduced School Communities: these are voluntary partnerships between schools that reduce administrative complexity and that allow schools to focus on students pedagogical direction, the promotion of Information & Communication Technologies, and the rationalization of resources (Day et al., 2008). While the central delivery of Education by the Regional level was marginalized in Flanders, it remained centralized in the Walloon case⁷¹

Also, we can mention that Flanders set up the *Instituut Samenleving en Technologie* (Institute Society and Technology - IST), directly related to the Flemish Parliament, which keeps parliamentarians informed about issues concerning society and technoscientific developments. Among other things, this institute attaches a great importance to public participation and was even

⁷¹ In the hands of the French-speaking Community

able to make the voice of some citizens heard within the walls of Parliament at the end of its pilot-program focusing on GM food (R. Berloznik, interview, May 27, 2011).

Therefore, we can conclude that Flanders represent a typical example of Democratic Pragmatism. Regarding this, we must underline the role of the still highly institutionalized Catholic Pillar. Flemish Christian organizations have indeed kept solid links with the *Christen-Democratisch & Vlaams* party (Christian Democratic Flemish - CD&V)⁷² and a general Christian mode of thinking -- including a particular vision over the role of the State and Regional authority -- is widely spread:

On the CD&V list of candidates for a political mandate, one finds exponents of the Christian pillar. They are labelled, also in the press, as representatives of particular Christian organizations integrated in the pillar, quite often emerging in the political arena after having been employed in pillarized organizations (Dobbelaere, 2010, p. 294).

As far as the role of the State is concerned, Dobbelaere adds that Christianized mentality favors "free enterprise based on the principle of subsidiarity, the state is supplementary" and that "Christians have more confidence in the civil society, the effect of personal initiatives and the impact of actions by voluntary associations" (2010, p. 290). Due to the dominance of the Socialist pillar, Wallonia is facing another reality.

For the Socialists, the right measures can only come from the State; it is the institution in charge of inducing social changes (Ibid.). As De Rynck & Dezeure (2009, p. 162) say: "the belief that equity depends on a strong public service remained central for the Socialist Party and underpinned its belief in the pivotal role of the state bureaucracy". Wallonia seems to be more characterized by a strong reliability on the administration and a State-dependent policy-making process (De Rynck, 1998, pp. 159-160). A good example is provided by the case Natura 2000⁷³. While negotiating with

⁷² The major Flemish Farmers Syndicate, Boerenbond, is a good example. See the subsection related to Associative Institutions (4.2.3)

⁷³ European policy which aims at constructing a network of protected natural sites

different associations about what sites should be protected and how, administration and its internal scientific experts often relied on scientific arguments and entered a controversial dynamic with Environmentalists (L. Delvaux, interview, June 6, 2011). On the other hand, the coexistence issue soon received a political arbitration that conditioned the participation of certain associations⁷⁴.

These cases show a hierarchical relationship State/administration/citizens; the political arbitration frames the action of the administration and associations and, in the Natura 2000 case, this arbitration is wanted by the associations that seeks to solve the conflicts with civil servants (Ibid.). Differences with the Flemish situation are present at the economic level as well.

Deschouwer (2009, p. 208) notes that under the lead of the Socialist Party, Wallonia emphasizes the role of the State as an economic player and employer. The Walloon authorities have a big part to play in the search for new investments to create activities, but also in maintaining the existing activities at a certain level. Indeed, Wallonia spends much more money than Flanders in direct subsidies to enterprises. On the reverse side, Flemish politics plays as facilitator of economic relationships between the other actors.

Wallonia thus appears as a case of Administrative Rationalism, but we have to mention that the Walloon Region launched a process of transformation toward Democratic Pragmatism through the Copernicus Reform in 2000. This reform aims at implementing Flemish-like measures in public administration (Brans et al., 2009, pp. 122-134). This reform faces difficulties linked to the separation of Walloon Region's and French-speaking Community's administration and the lack of public money allocated to the new services (Ibid.). This process is still in progress and it will be interesting to see how much the "socialist mentality" can influence the transformation toward a less State-dependent administration. Although the socialist influence gives a satisfying explanation, the late and slow reform of Walloon administration cannot be solely reduced to this element; we must underline the difficulties in managing two big administrations -- Walloon Region and French-

⁷⁴ See the subsection related to Associative Institutions

speaking Community -- and the lack of financial means for Wallonia due to the duality of the Region and the Community. Flanders was able to centralize all its means thanks to the "fusion" of the Flemish Community and the Flemish Region; this fusion was possible because the Flemish Community is almost completely situated on the Region's territory⁷⁵.

For our purpose, we consider that Flanders is Democratic Pragmatist and Wallonia is Administrative Rationalistic. As previously said, the reader should keep in mind that a State -- and a Region -- can work with the three modes of governance at the same time; we define the dominant modes for a Master thesis scope, but further studies could show how other aspects did play a role in the GMO regulation. Combined with our analysis of Decrees, we conclude that Flemish governance over GMOs is characterized by Democratic Pragmatism and a balance of the diverse actors' interests at stake, and the Walloon governance is defined by Administrative Rationalism conducting an anti-GMO regulation.

To justify our conclusions, we now have to analyze the institutions upon which each Region has constructed its own perception and regulations over GMOs. Table 4 sums up our comparison of modes of governance.

⁷⁵ Communities are responsible for their members living in Brussels which is 93% French-speaking. There are less problems for Flanders in using the means of the Region to cover the needs of the Community

Table 4. Comparison of Flanders' and Wallonia's Modes of Governance

Mode of governance	Region	Indicators
Democratic Pragmatism	Flanders	<ul style="list-style-type: none"> - Decentralized administration; - Administrative Simplification - Public participation; - "Green Papers"; - IST - Influence of the Catholic Pillar
Administrative Rationalism	Wallonia	<ul style="list-style-type: none"> - Administrative reforms unachieved; - Role of internal experts; - Strong presence of the "State" (economical and social matters); - Influence of the Socialist Pillar

4.2. Institutional Analysis

In this subsection, we present and analyze the various institutions that can explain why Wallonia and Flanders adopted different positions and regulations on GMOs. The analysis consists on a reconstruction of the links between those institutions and the general position of both Regions on GMOs; so to say, we provide narratives for institutions. The links with modes of governance are summarized at the end of the section.

4.2.1. Behavioral institutions

Regarding Behavioral institutions, our research allowed us to highlight very different habits from the farmers in both Regions. Flemish farmers practice intensive agriculture, based on increasing

volume of production on often small lands. The intensive mode aims at increasing the efficiency of breeding and cultivation activities by increasing the density of animals and crops on the exploited land.

Walloons privilege extensive agriculture, generally carried out over vast lands and favor the use of the natural resources. The yield per hectare is lower than in intensive agriculture, and the number of jobs per quantity produced is larger, and it often generates lower incomes. The use of chemicals is possible, but when the farmer decides not to use them, and to promote the use of natural resources, the extensive mode can be qualified as "biological".

Biological agriculture is an economic activity designed to get plants and animals useful to man without enslaving nature, but to support it in meeting its ecological cycles. It uses no synthetic chemical pesticides or chemical fertilizers. A central place is therefore given to maintaining soil fertility (Pirenne, 2001, p. 81 [we translate]).

The rise of two very different agriculture in the north and the south of the country has its origins in History and the industrialization of Belgium, and also in the geographical situation of Flanders and Wallonia.

Wallonia is indeed wider than Flanders and has most of the arable lands of Belgium (more than 50%). From the nineteenth century until the late 1960s, the Walloon mentality was dominated by the material benefits of industrial production. Youth came from the agricultural world to the benefits of industrial employments. The rise in living standards caused a demographic decline and an aging of the population, which later affected the agricultural and rural world. In the 1980s, we saw a low repopulation of rural and agricultural areas able to benefit from the large arable lands of Wallonia. This process entailed the development of large farms where the land factor and big cultures⁷⁶ prevailed over intensive cultures (Christians, 1992, pp. 333-335).

⁷⁶ Literal translation of "grandes cultures". The official translation is "Arable Crops Sector" but we keep the literal translation which appears less confusing. "Big cultures" generally refer to corn, cereal, potatoes, etc.

Modern industrialization started later in Flanders. It is only after World War II that the young Flemish agricultural population, denser and more prolific than the Walloon one, started to be involved in an industrialization process. Catholic tradition, attachment to land and the demographic excess kept farmers in small farms inherited from the past. Current trends in Flemish agriculture can be explained by the lack of arable lands and a tradition of intensive farming developed in response to the historical needs of important Flemish cities. Arable land are located near ports, where we can find cattle feed factories as well. In the postwar period, these factories mainly based their activities on cattle feed imports (especially from the United States). All this played a catalytic role in the development of off-soil agriculture and intensive farming (pork, poultry, etc.).

Thus, we can say that two agricultures were developed in Belgium: one in the north, forced to seek for an off-soil development (pork, poultry and horticulture), and one in the south which entered the competition for big culture products. Commercial and industrial infrastructure in place upstream and downstream of the agricultural sector, and the powerful influence of Boerenbond (Flemish agricultural syndicate) were key factors in the development of Flemish agriculture. In comparison, nothing like this happened in Wallonia, which has led to some inferior position vis-à-vis the intensive agriculture (pp. 335-338). What does it have to do with GMOs?

As we said, intensive agriculture has been developed in Flanders thanks to the import of cattle feed from the United States: these were mainly corn and soybeans, and other products containing GMOs (M. Fichers, interview, May 30, 2011). In addition, Flanders produces most of the meat, fruit and vegetables in Belgium: 85% of fruits and vegetables, 90% of porks, 95% of poultry (K. Volckaert, interview, June 15, 2011). Pork and poultry in particular are more dependent of soy in their breeding. Soy is a well-balanced protein that covers almost every food needs of pork and poultry, constituting thus the major part of their alimentation (M.-L. Semaille, op. cit.).

Another highlight of the Flemish agriculture is its specialization in horticulture and the production of seedlings. Every year, Flanders exports millions of beech and oak seedlings in Europe

(K. Volckaert, op. cit.). This intensive horticulture uses a fair amount of GMOs: genetic manipulation is needed to obtain different types, aspect or colors and thus, "horticultural farmers see in GMOs more answers to their expectations" (M.-L. Semaille, op. cit.). In some way, we can say that for many years, GMOs have partially been in the everyday life of Flemish farmers. Let us add that Belgium is a net importer of plant proteins like soy and suppliers express a preference for transgenic products due to a financial benefit. For example, a hectare of GM soy costs 348 Euros to the producer against 402 Euros for a hectare of conventional soy, implying thus a saving of around 50 Euros per hectare (Ibid.). Intensive farming is a more industrialized mode of production than the extensive mode, and as it is based on the search for efficiency, the use of GMOs or products containing GMOs are readily understood.

On the other side, Walloon agriculture is mainly specialized in beef production⁷⁷, milk production and market gardening (Lambert, 2007). Regarding beef, Wallonia is known for the calf and grazing of animals. The beasts are later sent to Flanders for fattening, thanks to proteins containing GMOs (Ibid.). In other words, one of the most basic activities of the Walloon agriculture does not require GMOs. The same goes for milk production. The crop situation is slightly different.

While (re)developing extensive agriculture, Wallonia adopted other modes of agriculture, often called "proximity agriculture" or "slow food agriculture", promoting local products and their protection through certain processes such as labeling (D. Perreaux, e-mail communication, June 27, 2011). Among those methods, we find that biological agriculture is more widespread and more sustained in the south, although it remains marginal compared to the total Walloon agricultural production. Actually, 70% of the Belgian biological production is located in Wallonia (Pirenne, 2001, p. 83). As stated by Pirenne:

Besides the economic and social problems posed by agriculture, there are ecological and public health problems that arise, particularly following the use of rapidly assimilated

⁷⁷ Almost equal proportion in both Regions

soluble fertilizers, biocides, more powerful machinery, choosing the most productive varieties, etc. To solve these problems, a minority of farmers think they have found a solution by using biological agriculture (2001, p. 81 [we translate]).

Those modes of agriculture fit the general extensive mode and some of them, especially biological agriculture, inherently reject the use of GMOs and other components (J. Hulsens, interview, May 19, 2011). Indeed, biological agriculture is an extensive mode of production that even requires an area per animals superior to the minimal area required in conventional agriculture (Pirenne, 2001, pp. 82).

Finally, we would like to mention that Walloon agriculture is strongly related to forestry, which is not the case of Flanders, because of a fewer forest presence (K. Volckaert, op. cit). Thus, Walloon are confronted with the issue of GMO contamination at a wider level.

Different modes of agriculture, implying a diversity of practice and "contact" with GMOs tell us why one community seems more inclined to accept GMOs while the other tries to protect itself. This range of practice is supported and reinforced by a tangle of many other elements. In the next subsection, we analyze the modes of thinking and the various perceptions of GMOs.

4.2.2. Cognitive institutions

Our interviews reveal that on both sides, farmers are not firmly against GMOs. Walloons and Flemings say that, at the present moment, they do not see an interesting GM crop for them to exploit among the ones authorized by the EU⁷⁸: they agree that the research on GMOs should go on and they would welcome any GM crop that would give them an advantage such as a particular resistance or an economic benefit (Ibid.; M.-L. Semaille, op. cit.). Walloon and Flemish farmers

⁷⁸ A list of the currently authorized GMOs for cultivation, importation or consumption is available at: <http://www.infogm.org/spip.php?article3438>

also share the same fears about the loss of freedom that could cause GMOs and the system in which they are incorporated.

For example, on both sides, issues related to GM seeds was mentioned. In the conventional system, the farmer buys seeds from a breeder (most of the time, organized in industrial mode) and then cultivates them. In the sale price, the breeder receives a fee for the provision of its material (the seed). Farmers benefit from a privilege that has long been recognized: from their harvest, they can take some of the seeds and reuse them the following year, thus paying a reduced amount to the breeder. However, transgenic plants are covered by the patent system, which does not allow this practice, entailing a cost for the farmers.

While comparing the results of our interviews, slight differences also appeared in discourse: though they have some common concerns, the two communities do not give them the same importance. Moreover, they focus on divergent issues and have contrasted opinions and modes of thinking. On the Flemings side, GMOs appear to be a technology of high economic potential that cannot be denied.

Discourse analysis revealed a quite positive view on technology in general and the word "future" is often associated with "technological development". This is linked to the idea that Flanders has a position to defend at the international level⁷⁹. Biotechnologies are an important part of Flanders economy and innovation system. In a highly developed innovation system, Flemings also share the freedom of research as an ideal⁸⁰. Some of our informants also mentioned GMOs as a Flemish pride, as the first transgenic process was successfully carried out by the Professor van Montagu, scientist of the University of Ghent. All these ideas are intertwined, constantly reinforce each other, and are present at different levels of the Flemish society, including politics.

⁷⁹ Mentioned in all the interviews, and some official reports on the adoption of the decree. See for example: <http://docs.vlaamsparlement.be/docs/stukken/2008-2009/g1885-1.pdf>

⁸⁰ Mentioned in the five interviews with Flemings key informants

Historically, Flanders has interests in the biotechnology sector. Flanders invested in the 80s (...) in the development of biotechnology, not only agricultural but also pharmaceutical, medical, industrial ... and Flanders has always stimulated, with public money, small business linked to the University (of Ghent), which was making many research and development. It considers (biotechnology) as one of its axes of innovation and economic development ... So there are strongly set interests. They tried to attract collaborations between scientists from public research institutes and private companies. The private sector invests in the public one ... It's somehow the way to see things in Flanders, in administration, government, and it is not easy to question such a unique thought (J. Hulsens, op. cit. [we translate]).

Beside the influence of the innovation system, we can mention links with agricultural practices. As we said, GMOs are present in Flemish farmers everyday life through certain habits, but that is not all. In the case of cattle feeding, though Flemings only import the food, they know it contains GMOs. They were long able to assess directly the presumed dangers associated with GMOs. In the case of horticulture, we must had that the use of GMOs concerns mainly varieties of plants, flowers and trees that have very small effects in terms of dissemination and contamination (M.-L. Semaille, op. cit.). All of this can explain why risks have a lower importance in the mind of Flemish population: they face them on a daily basis and they do not observe consequences with the same eye than their Walloon counterparts⁸¹. We can say that those habits have helped the Flemings evaluate some of the benefits of using GMOs and this could explain why the later are mainly seen through their economic potential.

On the other side, Walloons give more importance to the negative aspects of GMOs: they define them as risky, useless, offering no real socioeconomic advantage, and they fear the issue of the unavoidable contamination. Those perceptions conflict with the practice we presented in the previous subsection, and the general image of the Walloon agriculture. In this context, the severe regulation of the coexistence is welcomed.

⁸¹ See the rest of this subsection

Wallonia wants to focus on a differentiated agriculture which is reflected in a form of processes or products certification [such as] biological, APO⁸², IGP⁸³ ... In the spirit of the current general public, this form of production, which also favors the products of local or so-called farmers and a production area, is hardly compatible with GMOs, often associated rightly or wrongly with industrial agriculture, globalized, disrespectful of the product, with little concern for the consumer and the environment, focused mainly on immediate profit. It is therefore quite logical that the Walloon political is opposed to GMOs in this context (D. Perreaux, op. cit. [we translate]).

Walloon also mention that some aspects of GMOs have been under-evaluated for a long time, such as environmental impacts or health consequences.

The labeling threshold of 0.9% of contamination, accidental and technically unavoidable, being defended for many years with a rather shortsighted obstinacy by the Commission and by biotech industries, as the reference threshold of coexistence, and this without any legal or technical argument, with a purely economic reasoning, resulted in a form of stiffening of the GMOs opponents, which causes extreme legislation. It was not until July 2010 that the Commission somewhat returns to this position, but the argument remains common among pro-GMOs (Ibid. [we translate]).

Regarding agricultural practices in Wallonia, we already have underlined that they are not compatible with the use of GMOs. Pirenne (2001) and Lambert (2007) show that the adoption of those practices is not only determined by the geographical situation of the region nor by History. Biological agriculture, for example, entails the adoption of certain values and convictions like (re) valuing agricultural production or the satisfaction to exercise his profession without enslaving the environment (Pirenne, 2001, pp. 90-91). If GMOs are associated "with industrial agriculture, globalized, disrespectful of the product, with little concern for the consumer and the environment" (D. Perreaux, op. cit. [we translate]), we clearly see a clash with the values that Walloon farmers are slowly adopting. We should add that, during the last years, Walloon agriculture has gained a quite positive view from the consumers of the overall country (CRIOC, 2009).

⁸² Appellation d'Origine Protégée - Protected Designation of Origin (PDO)

⁸³ Indication Géographique Protégée - Protected Geographical Indication (PGI)

In summary, although all aspects of GMOs are considered on both sides, the Flemings advance more easily and more often the economic argument and have a quite -- but not blind -- positive view on GMOs, sustaining thus their Behavioral institutions. Walloons are more focused on the argument of the risks because they are not facing the same reality than the Flemings and Walloon agriculture is linked to the adoption of values and convictions that, like Walloon Behavioral institutions, are not compatible with the use of GMOs and the ideas they are associated to. Our conclusion are supported by some statistics quoted by Schiffino & Varone:

The North of the country develops an overall more positive image of GM food than the South and the Capital. Thus, 46% of Flemish think about GM food as useful against only 31% of Walloons and 38% of Brussels. The risk is assessed more severely in Wallonia and Brussels (60%) than in Flanders (44%). In the same vein, the GM food is morally acceptable for 43% of Flemish people, but for 31% of Walloons and 38% of Brussels (2005b, p. 11 [we translate]).

The practices, habits, ideas and mode of thinking we observed do not come alone. They come with a quite active "promotion" and sustain of a range of actors that plays important role vis-a-vis the politics and the overall society with more or less efficiency. We observe the role played by the most prominent of those actors in the next subsection.

4.2.3. Associative institutions

We are now going to observe the actors who played the role of facilitators or intermediaries between public (political) and private (farmers, population) interests. Of course, our work does not enable us to analyze or even to identify all the actors who were involved in the issue of coexistence of cultures. Our interviews permitted us to highlight some of the most important actors.

In Flanders, we mainly find the *Vlaams Instituut voor Biotechnologie* (Flemish Institute for Biotechnology - VIB), a scientific research institute with a proactive role vis-à-vis politics and the

public; the *Boerenbond*, Flemish agricultural syndicate representing nearly 70% of farmers in the North of the country; and, to a lesser extent, the *Instituut Samenleving & Technologie* (Institute Society & Technology - IST), an office of Technology Assessment attached to the Flemish Parliament.

On the Walloon side, there is the rather effective action of environmental organizations, particularly Greenpeace, active on both sides but with more success in the South; *Nature & Progrès* (Nature & Progress - NatPro) representing producers and consumers of biological agriculture; and to those environmentalists, we add two organizations representing Walloon farmers, namely the *Fédération Wallonne des Agriculteurs* (Walloon Federation of Farmers - FWA) and the *Fédération Unie des Groupements d'Éleveurs et d'Agriculteurs* (United Federation of Breeders and Farmers Groups - FUGEA). As the reader can see, no scientific actor is mentioned on the Walloon side, while Flanders does not seem to be influenced by environmentalists. However, we will nuance these remarks later. Let's start with the Flemish Associative institutions.

The VIB was set up in 1996 in the spirit of the *Derde Industriële Revolutie Vlaanderen* (Third Industrial Revolution Flanders - DIRV), a general innovation policy which "placed the emphasis on basic research at the international level and the creation of spin-offs" (Goorden, 2004, p. 7). Launched in the 1980s, this innovation policy flourished and improved thanks to the acquisition of competences in scientific research by Flanders in 1989. Biotechnology became an important part of this policy through the establishment of Plant Genetic Systems in 1985 (Schiffino & Varone, 2005a, pp. 26-27). VIB was established mainly because it was felt that the knowledge production in the biotech area was not captured enough and not developed to its full potential (R. Custers, interview, May 23, 2011). VIB is not only a research institute but also acts as an interface for other technology institutes in Flanders (Goorden, 2004, p. 34) and it is also concerned by research-related topics, such as ethics and integrity, and research impacts (R. Custers, op. cit.). Regarding the Flemish population, VIB has public information about biotechnology as its main social task. It is active in

science communication through school projects, exhibitions, brochures, books, lectures, etc. (Ibid.).

In our case, we are interested in a very specific activity of the VIB which are the field trials.

Researches in GMOs actually implies the conduct of numerous field trials and most of them take place in Flanders, especially in the perimeter around the city (and the University) of Ghent (Schiffino & Varone, 2005b, p. 16). Most of the time, they are organized under the coordination of the VIB which thus endorses the role of public informant. Public trials with a scientific input most probably have an impact on the Flemings positive point of view on (agribusiness) GMOs (Ibid.). It should be added that in the history of GMOs in Belgium, field trials have often caused violent protests and illegal uprooting of crops, mostly organized by environmentalists (2005a, pp. 106-112). If the science communication acts of VIB are correlated with the Flemings positive opinion on GMOs, and if the freedom of research is deeply rooted as a Flemish Cognitive institution, we can hypothesize that illegal acts, somewhat going against this freedom, have made the Flemings (population and politics) less receptive to environmentalists discourses. This explanation has been somehow corroborated by some of our informants, as Marc Fichers from NatPro stated that those acts simply go against the habits of discussion that characterize Belgian society (M. Fichers, op. cit). This would explain why environmentalists were hardly seen as important actors on the Flemish side in the interviews. Of course, this remains essentially a hypothesis that would be of great interest for a more detailed research.

Regarding politics, there is a double communication: sometimes VIB's advice is required by politics, and other times VIB takes the initiative to inform politics on a relevant topic in order to launch a debate. In the case of the coexistence Decree, VIB had occasions to comment and critic some drafts, and even to suggest its own modifications. It also published many documents to inform population about the characteristics of GMO cultures (possible dissemination, etc.) (R. Custers, op. cit.). For all we have said until now, we can say that VIB has indeed played a major role in the articulation of private (populations, biotech industries) and public (politics, public research

institutes) interests. Its has brought to light some information, actively took part in the societal debate and certainly has favored a better acceptance of GMOs by the Flemings.

VIB's social task were a bit weakened by the creation of the IST⁸⁴ between 2000 and 2002. This institute was set up to provide Flemish Parliament with information on scientific and technological development. The implementation was done during a pilot program concerning GM food in Flanders. The idea was to draw a map of the different actors opinions and positions on GM food and to inform the Parliament. This was done through different methods, including public participation process such as consensus conferences (R. Berloznik, op. cit.). Broadly speaking, the results said that Flemings are not against GMOs nor they blindly favor them, which is somehow consistent with our analysis and findings. Since then, IST has been taking the major part in informing the public and the politics about new technologies, but they have not worked on GMOs anymore⁸⁵. IST was not directly involved in the coexistence issue but has continued to inform Flemish deputies on GMO issues.

Unlike VIB, IST has no interest in defending biotechnology and produce an information that is more balanced. This assumption is strengthen by the fact that VIB is now seen as defending a pro-GMO point of view and as a stakeholder. Thus, IST contribution is not easy to evaluate, but we think that its regular information of Parliament affects politics when they had to decide the adoption of the coexistence Decree: in such a sensible debate, it is important to have a source of balanced and nonpartisan information which combines scientific and societal insights.

Beside those two scientific actors, a third actor was often mentioned in our interviews as very influent not only on politics but also on farmers: it is the major Flemish farmers syndicate known as the Boerenbond. This is a very old organization, set up at the end of the nineteenth century, which

⁸⁴ Once called Vlaanderen Instituut voor Wetenschappelijk en Technologisch Aspectenonderzoeken (Flemish Institute for Science and Technology Assessment - VIWTA)

⁸⁵ Except for a project of the European Parliamentary Technology Assessment network. See: <http://www.eptanetwork.org/>

represents today 70% of the Flemish farmers⁸⁶. The importance of this syndicate is also reflected in the influence it had (and still has) on the practices of Flemish agriculture. Pirenne (2001) and Christians (1992) both underline the dynamism of the Boerenbond in the development of intensive agriculture, and Pirenne even says that partially because of the influence of the Boerenbond, a reconversion of Flemish farmers in favor of less intensive production modes is almost impossible (Pirenne, 2001, p. 83). On the coexistence of cultures and GMOs in general, the Boerenbond defends the idea that, for the moment, no GMO is interesting for Flemish farmers but that could change in the future and thus a coexistence Decree should give farmers a real choice to cultivate or not GMOs (K. Volckaert, op. cit.).

The Boerenbond provides a good relay for farmer concerns into the political world with which it holds a privileged relationship. It rather maintains a strong link with the Flemish Catholic party, the CD&V, which has long been a majority party and who is still today one of the majority parties in Flanders. This relationship exists because of the origins of Boerenbond: it comes from the Catholic Party and the Catholic Church (Ibid.). We thus think that Boerenbond do play the role of Associative institutions between politics and farmers because he has a quite assured entry in the political arena. Beyond that, "when someone wants the point of view of farmers, there's a big chance he will contact the Boerenbond" (Ibid.).

On the other side, Wallonia is characterized by a very different Associative institutions landscape. First, as the Walloon innovation system started after the Flemish one and took different ways and opportunities for its development, there is no equivalent of VIB in Wallonia. Whether it concerns GMOs or other domains of activity, there is no organization acting as an interface between public research institutes and private companies. This leads to a paradoxical situation in Wallonia which actually produces an important amount of knowledge that is not well catalyzed yet (Delvenne & Fallon, 2009). Regarding farmers, there is no organization such as the Boerenbond with a strong

⁸⁶ It also represents the farmers in the German-speaking community of Belgium, and even tried once to implement itself in Wallonia with no success

influence on agricultural modes, large representativity or a special entry into the political arena.

Concerning IST, Wallonia should acquire its equivalent institute in 2012⁸⁷. It appears that various environmental, consumers and producers associations had the major influence in the Walloon case.

Greenpeace is supposed to act on both sides but seems to have more difficulties to be heard on the Flemish side. According to Jonas Hulsens (op. cit.), this is mainly because there is a historical rivalry between "green movements" and agricultural organizations or syndicates. Greenpeace thus has a more difficult access to the political arena because of the dominant position of the Boerenbond, as we explained previously. Though we were not able to evaluate this assumption in depth, we take it as partially true in the framework of our work, essentially because none of our key informants mentioned any green associations as an influent actor on the Flemish side⁸⁸. It is also important to note that Greenpeace focuses most of its actions on the federal level.

[We] defend the thesis that a non-damaging coexistence of cultures is just impossible, but [We] do not defend a blind anti-GMO position. Greenpeace is convinced that there is a lack of knowledge on GMOs and that should entail more careful political decisions.

We are not by definition opposed to genetic engineering technology or its use in a closed context, environment, for basic research or product development in laboratory ... We believe that it is not possible to clearly estimate impacts on environment and even on health ... We talk about organisms that are fundamentally new organisms, not evolved in a natural context, developed in laboratories. Often, there is implantation of genes from one specie into another specie and this is somehow creating new organisms ... What is their interaction with the environment, what is their impacts on our health? These are important questions inadequately answered (Ibid. [we translate]).

Greenpeace tries to attract the attention of politics and population through media coverage.

Depending on the importance given by the media to "green topics" and the presence of green parties in governmental coalitions (Schiffino & Varone, 2005a), they are invited to discuss their point with politics. Of course, we cannot measure the real impact of Greenpeace position on Walloon political

⁸⁷ <http://m.datanews.rnews.be/article.xhtml?cat=actu&contentID=22396>

⁸⁸ See our hypothesis at the beginning of this subsection

decision to be against GMOs. However, Greenpeace defends a point of view consistent with our findings about Walloon Cognitive institutions. Such an important organization, heard by politics and present in the media, probably plays a role in reinforcing Walloons opinion about GMOs. Of course, they are not alone in this task.

Nature & Progrès (NatPro) is an association of producers and consumers which aims at informing the public about agriculture, especially biological agriculture. In the 1990s they began a campaign that aimed at preventing the dissemination of GMOs. They want the public to be informed and be able to question the politics when necessary, and they act as a relay to the politics. As Greenpeace, they are not strictly opposed to GMOs but are against their disseminations in the environment, because it may damage other forms of agricultures and "it forces the farmers to adopt biochemical agriculture" (M. Fichers, op. cit. [we translate]). However, NatPro's strategy is a bit different as it considers itself as an association of discussion, not of interpellation (Ibid.).

As such, NatPro was asked by the Walloon Minister of Agriculture to take part in a working group on the implementation conditions of GM crops in Wallonia. This group worked during four years and was composed of representatives of farmers and different distribution channels -- including one representative of NatPro as well as one of *Inter-Environnement Wallonie*⁸⁹ -- (Ibid.), biotechnology firms, researchers and members of various administrations. At the end of the process, NatPro expressed its satisfaction with the Decree adopted by the Walloon Region and was pleased it was heard (Combat-Monsanto, n. d.). Still in a perspective of discussion, NatPro also initiated actions focusing on Municipalities (local authorities in Belgium) and their populations.

We wrote a letter to all the Municipalities of Wallonia asking them to vote a motion to ban GM crops on their territories, specifying that we were available to organize debates on the subject. And for 2-3 years ... were held dozens of debates in the Municipalities, where we

⁸⁹ Inter-Environnement Wallonie (IEW) is a NGO gathering nearly 150 active environmental associations in Wallonia. We do not analyze their role as their representative, Lionel Delvaux, told us that when NatPro is already engaged in a societal debate, they don't feel like they need to go as well as they often have similar positions

were the little green extremist next to the great scientists, doctors, representatives of the agricultural industry... We played our role of public information. Result, 32% of Municipalities opposed to GMOs and adopted motions (M. Fichers, op. cit. [we translate]).

We thus think that Greenpeace's interpellations and NatPro initiatives played a major role in the broadly non-acceptance of GMOs by Wallonia, whether it concerns politics or the population. We end this subsection with the presentation of two similar but opposed associations: FWA and FUGEA.

Both associations represent Walloon farmers and, as such, took part in the political discussions around the coexistence Decree. The point is that they defend different positions on GMOs and, though it appears that FUGEA is closer to the point of view of politics, we believe that FWA does play an important role in maintaining the possibility to have GMO culture in Wallonia. FUGEA is a farmers movement whose main purpose is the survival of agriculture (76% of farmers have lost over 40 years in Belgium). Their action is based on promoting sustainable agriculture and youth information. This association is especially critical against the neoliberal policies of the European Union, including the regulation of GMOs⁹⁰. FUGEA thinks that the coexistence of cultures is impossible, "worse, it is an illusion that European ultraliberals have been trying to make us swallow"(Delwarte, 2008 [we translate]). They are frequently invited to discuss with politics and sometimes organize some debates with the populations along with NatPro⁹¹. So to say, they are linked to the Walloon Cognitive institution that links GMOs with industry and the loss of freedom for farmers.

On the other side, FWA was officially born in 2001 but is actually a gathering of several old agricultural syndicates coming from the nineteenth and the twenty-first century. It has thus a long syndical tradition and is represented at the Regional, the Federal and the European levels⁹². FWA is

⁹⁰ See FUGEA website: www.fugea.be

⁹¹ See for example: http://archives.lesoir.be/synergie-interessante-entre-agriculture-et-citoyen_t-20110713-01GZCE.html?query=FUGEA&firstHit=0&by=10&sort=datedesc&when=-1&queryor=FUGEA&pos=2&all=46&nav=1

⁹² See FWA website : www.fwa.be

a bit more open than FUGEA on the GMO question and has a position quite similar to the Boerenbond's one. At the moment, no GMO is really interesting but that could change in the future. It is important to let research progress because it could bring interesting GMOs from a qualitative point of view (M.-L. Semaille, op. cit.). As FUGEA, FWA represents the professionals of the agricultural sector and was often mentioned in our interviews and official documents. Though Walloon politics adopted a Decree closest to FUGEA opinions, we think that FWA is still an important actor playing as a counterbalance and making that Walloons are not definitely closed to the potential of GMOs.

Associative institutions are essentials to understand some mode of thoughts and habits of the population, but we cannot account for their influence using their activities and opinions as the only basis. Political decisions can be influenced by associations but they also provide a context in which those associations act. This later aspect is analyzed in the next subsection.

4.2.4. Regulative institutions

Regulative institutions provide a framework in which behaviors and ways of thinking are defined, rewarded or punished. It is also within this framework that certain associations or organizations can reinforce the effect of Regulative institutions -- top-down approach -- or try to change it -- bottom-up approach. The question is thus what decisions created a favorable framework for GMOs in Flanders and a more pessimistic one in Wallonia? Some clues were dispersed in the previous analysis; we detail them in this section.

As we said, Flanders has developed a huge and performant innovation system since the 80s and biotechnologies play a big part in this. So to say, every decision of Flemish politics that reinforced research on GMOs and that informed the general public about them did play a part in GMOs general acceptance by Flemings. The first step of the Flemish innovation system was the DIRV

policy in 1982 which placed emphasis on basic research at international level and the creation of spin-offs. DIRV marked the beginning of an offensive strategy directed towards innovation which aimed at intensifying Flemish economy and distinguishing it from Walloon and national policy. DIRV has been encouraging world-class research in generic fields of technology such as biotechnology since 1985. Also, to favor the creation of university spin-offs, a Regional venture capital fund was set up around 1981 (Goorden, 2004, pp. 7-8).

The Flemish innovation policy took a new start in 1989 when Regions received most of the competences related to science and technology developments. It is at that time that "a legal framework began to develop for a Flemish research and development policy" (p. 8). The matching of Research & Development activities with industrial objectives was coordinated and strengthened by the establishment of the *Vlaams Instituut voor de Bevordering van het Wetenschappelijk - Technologisch Onderzoek in de Industrie* (Flemish Institute for the Promotion of Scientific and Technical Research in Industry - IWT) in 1991. The whole institutional context arose and emphasized the importance of research actors (Larosse, 2004). In biotechnology, the image of this innovation-favorable context is given by the creation of the VIB.

Flanders became renowned due to important biotechnological realizations and thus, Flemish Government took the decision to invest a lot in biotechnology. Flanders wanted to strengthen its international competitiveness by establishing a system of long-term financing and combination of skills in the field of biotechnology⁹³. So, Flanders built up a whole system that includes universities, industries, politics and, somehow the whole Flemish society as one of the main ideal of the system is to meet its needs. Strengthening the links between public and private interests and promoting the importance of scientific research as well as the Flemish excellence, Flanders has developed an enabling environment for the Cognitive institutions that we observed. From this point of view, the VIB is at the same time a tool at the service of a vast policy -- Regulative institution -- and an

⁹³ See the VIB website: www.vib.be

institutionalization of a mode of thinking -- Cognitive institution. We can almost say the same about IST.

Matching Technology Assessment (TA) with innovation has long been a preoccupation that resulted in diverse configurations, successes and failures. At a time, the major technological research programs (including biotechnology) each received a TA section to evaluate the negative impacts of technological development and bring the correct adjustments. It was soon observed a gap between natural scientists conducting the programs and social scientists in charge of the TA task (L. Goorden, interview, June 17, 2011). Furthermore, TA was reduced to its primary expression. In 1989, Flanders changed its perspective on TA to complement the so-called "early warning approach". Some organizations, such as the VIB, began to practice TA in consultation with scientists, producers and developers of science and technology. The establishment of IST as TA support for Flemish Parliament reflects the will to develop "TA best practices in cooperation with knowledge centers, administrations, social actors, and the general public" (Goorden, 2004, p. 28). IST somehow institutionalizes the idea that technological choices require a balance of perspectives. Though IST is not directly related to the coexistence Decree, this later reflects a kind of balance between the pro and the anti-GMOs.

The Boerenbond is not involved in innovation policy, but it is a significant societal actor. It is among those that recognize the fundamental importance of research and leave a door open to GMOs in the future. Nowadays, what the Boerenbond promotes fits quite well the general spirit that characterizes the Flemish innovation system.

As innovation policy does not really contain prescriptions and as it instigated a whole dynamic and spirit, the reader might think it is actually more of a Constitutive institution than of a Regulative one. What we think is that it exists other elements which are more relevant as they launched the GMO issue as such. In this perspective, the Flemish innovation policy would just be one of the

reason why the issue has been dealt with differently in Flanders. We will detail that in the next subsection. Now let's have a look on the Walloon side.

In Wallonia, a strong political will has been drawn up against GMOs. In line with the wishes of farmers (local agriculture, differentiated quality products, etc.). Walloon politics promote more traditional modes of agriculture. This commitment was transcribed in the *Déclaration de politique régionale wallonne* (Walloon Regional Policy Statement - DPR) when Walloon Government was set up in 2009 and was also the subject of the *Programme wallon de développement rural* (Walloon Rural Development Program - PDR). GMOs even have their own section in the DPR:

The Government will ensure the successful implementation of the "coexistence" decree and its enforcement. It will ensure the strict application of the precautionary principle against risks for environment, biodiversity, and the preservation of the conventional and biological chains of production due to an uncontrolled spread of genetically modified organisms (GMOs). The Government will ensure, in consultation with the Federal Government and other Regions, to prevent contamination of chains and the Walloon territory by practices not covered by the coexistence decree between GM and non-GMO: GMO field trials, commercial crops and marketing of products containing GMOs (Walloon Region, 2009, p. 149 [we translate]).

One is tempted to say that Wallonia, mainly through its Minister of Agriculture, conducted a real campaign against GMOs. The Minister has repeatedly expressed through medias and publications his desire to prevent Wallonia from GMOs⁹⁴. In line with the habits of Walloon farmers -- Behavioral institutions --, the modes of thinking about GMOs -- Cognitive institutions -- and the opinion defended by major actors -- Associative Institutions --, this article says that "an agriculture proposing quality products cannot be genetically modified" (Lutgen, 2008 [we translate]). The Minister also makes references to elements we already saw such as the precautionary principle, the absence of obvious socioeconomic benefits, etc. Another symbolic act was accomplished when the

⁹⁴ The reader can consult the archives of the two major Walloon newspapers for the period 2002-2011: www.lesoir.be and www.lalibre.be

Walloon Region passed a convention for the free-GMO regions in Europe called the Convention of Florence (Lutgen, 2008b).

As the reader may have noticed, Wallonia favored an anti-GMO context with many statements and symbolic acts but without any legal act -- except the coexistence Decree itself. One could say that the policies adopted in favor of traditional and biological agriculture actually are those legal acts, but the sustain of Wallonia to those modes of agriculture is still considered as too weak; biological agriculture is in progress but is still far from the objectives fixed, very few labels exist and some local products remain unprotected (Lambert, 2007). The evolution of those policies will condition the dissemination of GMOs in Wallonia⁹⁵.

Despite this "lack", the Walloon political will was determinant and conditioned the adoption of the coexistence Decree. Sixteen meetings gathering the major actors took place between 2004 and 2007. As Dominique Perreaux stated: "everyone was listened to, but clearly the option adopted at the political level favored the opponents to GMOs, which led to a disinterest of the pro-GMOs" (op. cit. [we translate]). At the end of the process, the later didn't even come to the meetings (Ibid.; L. Delvaux, op. cit.)

This ends the subsection. With the intertwinement of four types of institutions, we now have a better vision on the way GMOs were accepted in a context and rejected in another. Here, we better see how much the Flemish Pragmatism and Walloon Rationalism influenced the process; the differences about "who has the ear of the politics" and the role expected from political authorities have been key factors. As a last step, we now need to find what set the bounds of both contexts; through the overall paper, the reader may have seen key elements that led the two Regions to choose a path and stick to it. Those elements complete the intertwinement of institutions by giving it a source and quite strict bounds within which the five type of institutions can continuously play their parts; they are Constitutive institutions.

⁹⁵ See the next section for a more developed opinion

4.2.5. Constitutive institutions

Among Constitutive institutions, there is primarily the European Union. EU already covers a large part of GMO regulations: contained use, dissemination, marketing, labeling, and acceptable presence of GMOs in conventional crops as a result of accidental contamination or "contamination threshold". According to some of our key informants, the Directive 2001/18 leaves too many liberties to Member States: they are free to adopt very different legislations, with the risk of being inconsistent. That is what happened in Belgium as Flanders and Wallonia are in charge of their own economy, scientific policies and agriculture. Nowadays, their administrations are still discussing the problem of their respective coexistence legislations application for cultures situated very close to the border separating the two Regions or even on the border itself (C. Delaunoy, interview, May 25, 2011; C. Boonen, interview, June 16, 2011; M.-L. Semaille, *op. cit.*). Another European Constitutive institution is the contamination threshold.

Directive 2001/18 along with Regulations 1829/2003 and 1830/2003 set 0,9% as the reference threshold of the harmless coexistence of cultures⁹⁶ "and this without any legal or technical argument, with a purely economic reasoning" (D. Perreux, *op. cit.*) from the Walloon point of view. Combined with other institutions, that resulted in a Flemish Decree trying to keep the contamination below 0,9% and a Walloon Decree trying to prevent any contamination (J. Hulsens, *op. cit.*). We consider the threshold as Constitutive because it fixed a fundamental aspect of the coexistence of cultures and did so a bit before the two Regions acquired their competences in agriculture. We should also say that despite their numerous competences, Regions actually have few opportunities to defend their views both at the European and the National levels.

⁹⁶ See Section 3.2

Until now, the coexistence is the only matter they can regulate: other aspects are taken by the federal (marketing; field trials) and the European level (GMOs authorized in Europe; basic legislation).

The authorization procedure for GMOs in Europe [as set by the Directive 2001/18] leaves few possibilities for political positioning, especially in the Belgian context, to regional political power. Insisting on an authorization procedure governed solely by scientific principles, even though the major actors [such as the European Food Safety Agency] are regularly (wrongly or rightly) criticized and from time to time caught at fault, does only reinforce the will of the regional power to speak where it can still do it. Especially since it is the one who must deal with the consequences...of decision taken at other levels and possibly without the deemed necessary discernment (D. Perreux, *op. cit.* [we translate]).

The problem is the same for both Regions but it brings a more radical positioning in the Walloon case for all the reasons we know now. Although the European level appears as the strongest one, we find Constitutive institutions at the national level as well.

They are likely to be found in political parties and their ideologies. In a recent study, Schiffino & Varone show the influence of Green parties in bringing the GMO issue in the political agenda and pointing their inherent dangers (2005a, pp. 106-111). Between the end of the 1990s and the beginning of 2000, they were present in the Federal and Regional Governments. At the federal level, two Ministers of Public Health and Environment were on the spotlights: M. Aelvoet and her successor J. Tavernier⁹⁷ for their radical oppositions to GMOs, especially in field trials, even going up to prescribe the uprooting of a field (2005b, p. 22). The authors also underline how difficult were the discussions with other parties, especially the Liberals, around GMO-related legislation. Those dissensions caused a late transposition of the Directive 2001/18. In 2003 and 2004, Agalev (Flemish) and Ecolo (Walloon) respectively endured defeats at the Federal and Regional elections and went out of governmental coalitions⁹⁸. Here comes a difference.

⁹⁷ See the section focused on the GMO issue in Belgium (3.2)

⁹⁸ Ecolo managed to remain in the Government of the third Region, Brussels-Capital

After 2004, Flanders remained without political party strictly opposed to GMOs in a coalition: the Christian-Democrats are quite closed to the point of view of the Boerenbond, Liberals essentially defend the freedom of research, and other parties do not have strong position on GMOs or even on agricultural issues (K. Volckaert, op. cit.). On the Walloon side, the Socio-Democrats somehow took the lead of the anti-GMO position after the Greens. During the formation of the 2004-2009 Regional coalition, the *Centre Démocrate Humaniste* (Humanist Democrat Center - CDH) claimed for strict coexistence conditions to be set in a future Decree⁹⁹ and one of its member, Benoit Lutgen, who was responsible for the adoption of the coexistence Decree, was nominated Minister of Agriculture.

Thus, Wallonia has two major political forces against GMOs while Flanders has only one that is weak¹⁰⁰. We believe that Greens played the role of Constitutive institutions on the Walloon side along with the many associations. Their role is Constitutive in the sense that they have an ideology which inherently rejects GMOs, they were able to enter the political arena and to bring the GMO issue in both the Federal and the Regional political agendas and they got another party to share their convictions¹⁰¹. Anti-GMO actions took place before the Greens entered the Government, and most of the associations did not wait until 2000 to adopt their positions, but we have to admit that the Greens launched the political dynamic at National and Regional levels. In addition, the most great successes of associations are visible in the post-2000 period. The same cannot be said for Flanders.

We believe that Professor van Montagu's discovery has been the main Flemish Constitutive institutions. Soon after this, Montagu and his collaborators founded the spin-off Plant Genetic System (PGS). Many young researchers then took the initiative to patent their discoveries and market them through PGS. This successful experience marked minds at that time (Schiffino &

⁹⁹ See for example: <http://www.lalibre.be/actu/belgique/article/243572/le-cdh-plus-restrictif-que-le-ps-sur-les-ogm.html>

¹⁰⁰ Greens have always had more success on the Walloon side with results between 13 and 20%. They remain below 10% in Flanders

¹⁰¹ We were not able to discover why the Democrats adopted a quite similar position to the Greens' one. As the CDH was formerly a Christian-Democrat party, it could come from its will to construct another ideology or from an electoral strategy due to Green successes. This should be included in a further research

Varone, 2005b, p. 13) and was followed by the set up of biotechnological firms and, later, by adapted policies. Then, it is through all of this that Flanders built its potential in biotechnology and stressed the need for policies that would help to improve it. PGS has been absorbed by other companies which are located in Flanders as well.

Last but not least, the federalization process must be mentioned as a Constitutive institution. The creation of the Belgian State was a moment of big tensions. In 1830, no one could predict how long a State created by two strongly opposed forces, the Catholics and the Liberals, would last. Soon, another opposition raised between two fractions of the population which had divergent opinions on the construction of the new State. A Dutch-speaking fraction argued in favor of a bilingual State -- Dutch and French -- in order to set a distinction between Belgium and its direct neighbors (France, The Netherlands, Germany); Flemish (language similar to Dutch) should play a part in the construction of a "Belgian-ness". The other French-speaking fraction was in favor of the use of French as the unique State language, due to its international, political and cultural resonance at that time (De Rynck, 1998, p. 153). This first linguistic issue marked the beginning of a secular opposition.

This led to the mid 60's, when came the idea to crystalize the Walloons-Flemings cleavage within the structure of a Federal State. Once again, both sides could not agree on the organization of the federal structure. Since the first linguistic issue, a "Flemish movement", transcending many social categories (workers, intellectuals, etc.), has arisen to defend Flemings' culture and language. Through this movement, Flemings argued in favor of a cultural-based federalization, concretizing itself in the creation of Communities. Walloons and Francophones (French-speaking people) reacted against the achievements of the Flemish movement, but new tensions appeared. Walloons, speaking through the reactive "Walloon movement" defended a territorial-based structure in order to set up the basis of a Walloon regional autonomous economic project, while French-speaking people stressed the need to defend the cultural bound linking people from Wallonia and Bruxelles (De

Rynck, 1998, p. 154). Finally, the 70's and the 80's saw the rise of a federal structure that met both Communitarian and Regional aspirations.

So federalization is the cause and the consequence of the growing differences between both communities, though it has stabilized the struggle for a while (Swenden & Jans, 2009), and it also gives an explanation for Wallonia later achievements in administrative reforms.

We close here our institutional analysis with Table 5 that summarizes the most important findings of the five subsections.

Table 5. Flanders' and Wallonia's Institutions

Institutions	Flanders	Wallonia
Behavioral	<ul style="list-style-type: none"> - Intensive agriculture (GM food for animals) - Horticulture (GM seeds) 	<ul style="list-style-type: none"> - Extensive agriculture (no need of GMOs) - Biological agriculture (opposed to GMOs)
Cognitive	<ul style="list-style-type: none"> - GMOs have a high economic potential - Freedom of research 	<ul style="list-style-type: none"> - GMOs are very risky (no real control of the consequences) - Quality products are incompatible with GMOs
Associative	<ul style="list-style-type: none"> - VIB as "scientific lobby" - Boerenbond as a farmers/ politics link 	<ul style="list-style-type: none"> - Dense network of association for environment, producers and consumers
Regulative	<ul style="list-style-type: none"> - Innovation system as an incentive 	<ul style="list-style-type: none"> - Legal and symbolic political acts as disincentive
Constitutive	<ul style="list-style-type: none"> - EU regulations - Van Montagu's discovery - Federalization 	<ul style="list-style-type: none"> - EU regulations - Influence of "Greens" (party and movement) - Federalization

* *

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Flanders' Democratic Pragmatism enlightens a bit more the role of institutions. The openness to civil society certainly facilitated the encounter and synthesis of the various stakeholders -- farmers, companies -- interests. Acting as facilitators more than regulators, Flemish politics did not take a

strict position concerning GMOs. All of this "ended" with a regulation that does not impose too many barriers to scientific research -- in terms of field trials -- and leaves an opportunity to farmers wishing to cultivate GMOs.

On the other side, Wallonia's Administrative Rationalism had a strong influence. The anti-GMO option was mainly developed inside the political arena and was based mostly on internal expertise. Wallonia seems to have used controversies in the media as a justification for the option adopted. The arguments in favor of research enhancement thus received little attention, whether they came from Environmentalists or farmers. The Walloon Decree is then more the result of a top-down process. Although Wallonia's position is very strict, our researches enlighten some elements that could lead Walloons to revise their position in the future. We say a few words about that in the next section.

4.3. Will A Change Occur?

As Flanders seems to have found a balanced situation, we will focus on the change that could occur in Wallonia in order to meet the other expectations of the different actors and elements as we noticed that important actors on both side actually share a rather similar point of view and that both Regions face common challenges -- enhancing governance, international pressure in terms of regulations and competitiveness, etc. We thus do not say that Flanders took a better option nor it should be a model for its Walloon neighbor; our purpose is only to give a practical example of institutional analysis.

Regarding Behavioral and Cognitive institutions, we said that conventional and biological agriculture were mainly adopted for structural reasons. As the Walloon agricultural landscape is not to change, extensive modes of agriculture will probably prevail in the future but it is not necessarily the case for biological agriculture; though it is more present on the Walloon side, it remains quite

marginal and it is not yet supported by strong political measures. Moreover, Walloon farmers are quite receptive to the idea of cultivating GMOs in the future if interesting ones were discovered; the quantitative -- financial -- and qualitative -- resistance to virus or disease, etc. -- would not let farmers indifferent, causing a change in the major Behavioral and Cognitive institutions. How could this happen?

All the Associative institutions we identified somehow share the actual farmers' conception of GMOs; they are not interesting now, but it is necessary to enhance R&D activities for eventual attractive outcomes and to have a better knowledge on the products imported (M.-L. Semaille, *op. cit.*). Due to its Administrative Rationalism, Wallonia took a firm option and partially took into account Associative institutions' point of views. Like Flanders, it would be necessary to have organizations or associations which would have a real "ear" of policy makers. Maybe such a thing will happen in 2012 with the rise of a Walloon IST-like institute in charge of providing balanced -- from scientists, stakeholders and citizens -- and unpartisan information on techno-scientific issues. Of course, if such an institute is to come it will take a while before it acquires any credibility, and we will have to observe whether the introduction of participatory methods will accommodate the Walloon Administrative Rationalism or if it will be an element of transition to Democratic Pragmatism.

Wherever the solution would come from, a move toward a more inclusive decision-making process would be necessary, causing a change in the Regulative institutions. Wallonia showed the first signs of a transition with the Copernicus reform but big efforts are still needed in terms of decentralization and responsabilization of civil servants, and relationships with citizens.

Regarding Constitutive institutions, EU clearly favors the dissemination of GMOs on its territory and it is difficult to imagine that Wallonia will be able to resist to the international pressure. At the economic level, if an interesting GM was to be produced, Walloon farmers would probably like to cultivate it as it could provide them with a better quality product and could be less expensive to

produce. That could be the case with a genetically modified potato -- highly consumed in Belgium -- that would be able to counter the effect of mildew -- disease specific to potatoes and tomatoes. The evolution of Wallonia's innovation system could be a key determinant.

We do not claim that economy -- Constitutive institutions -- is deterministic for politics -- Regulative institutions. Many other scenario could be imagined or constructed in further studies. This section aims at showing how institutional analysis can have practical use by giving keys about what should change and what could change.

Chapter 5: Conclusion

Let us begin with some remarks about our research, its limits and its possible enhancement. We will go back on our concrete findings at the end. Although our findings are satisfying answers to our research questions, we have to relativize their importance and their generalization.

Indeed, drawing real conclusions for our research is not an easy task. First, the theoretical framework and the associated methodology are recent. Moreover, the framework was used to explain the success and failure of policy implementation while our research is focused on earlier stages of policy-making and ends with the decisions themselves. At least, our research is interesting for it shows that institutional analysis is not limited to policy implementation.

Second, our topic is as well recent and is covered by limited empirical materials; we cannot draw too much general conclusions nor we can compare them to previous studies. With no possibility for comparison, our findings difficultly find a place as the evolution or a contribution to an already discussed issue. However, they can be the departure point for an in-depth research conducted with broader means and within a longer timescale.

Third, in the scope of a Master thesis, we had to face serious constraints in terms of time and means of investigation; this led us to methodological adaptations. For example, as suggested by Parto (2005a), we were not able to conduct two rounds of interviews to strengthen the quality of our findings because of a limited timescale and difficulties in reaching some key informants.

If our research aims at becoming a more serious analysis and ending with concrete propositions for other researches or even politics, we suggest three things. First, a new research could take our findings as hypothesis to be checked. They are relevant for the scope of this thesis but they should not be taken for granted. It would also be a good option to take each finding as the main hypothesis of smaller but in-depth studies to be later incorporated in a broader research.

Second, the findings about modes of governance would deserve another treatment. We were quite general describing them for both Regions as we needed few elements, but modes of governance could also be subjected to an institutional analysis to obtain a fair and more complete view on how modes of governance operate. Then, the results could be crosscut with the particular analysis of the GMO case.

Third, as the typology of institutions imply a reduction -- and a loss -- of informations, we suggest some improvements for the methodology. Two or three rounds of interviews are not enough to test the validity of hypothesis. Focus Groups would be a better complement to interviews; they would offer an "in live" comparison of the findings/hypothesis. Of course, the results should be compared with the results of individual interviews.

In this case, there is a need to construct an empirical basis we cannot find in literature. The Delphi Method would be useful to gather experts' knowledge of the overall country. This would help to clarify what hypothesis are the most relevant and can be a solid research basis. Finally, to come with concrete implications, Scenario Workshop would be needed at the end of the process¹⁰². Despite all of this, this thesis, and institutional analysis reveal loads of interesting concrete elements.

Our purpose was to understand why the two major Regions of Belgium have opted for different regulations over GMOs. Institutional analysis is not only a good mean to do that; it also offers us a possibility to imagine concrete evolutions of the different institutions. We have two answers for the main research question. First, Flanders and Wallonia have indeed different institutions that led them to have different opinions, visions, modes of thinking, rules, etc. In the actual context of the longest political crisis in the history of Belgium, it is noteworthy that the differences do not all come from a presumed cultural differences -- though such differences exist. We saw they have various origins: geographical or structural -- modes of agriculture linked to arable lands' availability on both sides --

¹⁰² The three methods we suggest are detailed in Slocum (2005), op. cit.

economic or linked to a specific conjuncture or event -- Van Montagu's discovery, followed by the Flemish innovation system -- or even technical -- Wallonia set up economic and administrative reforms quite late due to issues related to the French-speaking Community. Of course, we do not deny that those elements could play a role in the cultural gap between the two Regions. Institutional analysis also allowed us to enlighten some similarities and this leads us to our second answer.

The differences in modes of governance showed there is a case in which all the institutions were not able to play their role at their full potential, namely Wallonia; Walloon Administrative Rationalism did not permit to balance the pro and anti-GMO arguments. In that sense, section 4.3 is also a way to say: "things could have been different". If governance is to evolve in Wallonia, there is a chance to see a more consistent regulation of GMOs in Belgium. Where such a change could be impulse from? EU is certainly a major factor in promoting governance principles and allowing GMOs, but we do not think that consistent policies can be achieved only like that. Belgium is divided, but farmers share common point of views though they do not have the same needs and habits. This shows us how important are the national and the regional levels of governance. Our key informants said that the Directive 2001/18 gives too much freedom to Member States; we think this translates a weakness in EU's governance. EU's governance has to evolve as well in order to catch the national contexts and to establish policies that allow the Member States to adopt regulations on GMOs that would fit their own institutions without inconsistencies between them. Of course, such a major change is not to come right tomorrow, the issues set by the Directive 2001/18 are probably the starting point of a long learning process that could entail an institutional change in the long-term.

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Index Of Abbreviations And Shortened Expressions

- Agalev:** Flemish Green Party (now called Groen)
- BioForum:** Organization gathering associations in the biological agriculture sector (active in Wallonia and Flanders)
- Boerenbond:** Major syndicate of Flemish and Belgian German-speaking farmers
- CDH:** Walloon Social-Democrat Party (ex-Catholic Party)
- CD&V:** Flemish Christian-Democrat Party
- CRIOC:** Centre de Recherche et d'Information des Organisations de Consommateurs - Research and Information Center of Consumers Organizations. (OIVO in Dutch)
- DIRV:** Policy program for a Third Industrial Revolutions Flanders
- DPR:** Walloon Regional Policy Statement for the 2009-2014 legislature
- Ecolo:** Walloon Green Party
- FUGEA:** Fédération Unie de Groupements d'Eleveurs et d'Agriculteurs - United Federation of Breeders and Farmers Groups (Wallonia)
- FAO:** Food and Agriculture Organization of United Nations
- FWA:** Fédération Wallonne des Agriculteurs - Walloon Federation of Farmers
- GMM:** Genetically Modified Micro-organism
- GMO:** Genetically Modified Organism
- Greenpeace:** Environmentalists
- IEW:** Inter-Environnement Wallonie, NGO located in Wallonia gathering several associations in environment, food safety, etc.
- Inf'OGM:** citizen organization decrypting and diffusing international information on GMOs
- IST:** Instituut Samenleving & Technologie - Institute of Society & Technology (Flanders)
- IWT:** Flemish Institute for the Promotion of Scientific and Technical Research in Industry

OECD: Organization for Economic Cooperation and Development

NatPro: Nature&Progrès - Walloon association representing consumers and producers of biological agriculture

PDR: Walloon Rural Development Program for the period 2007-2013

PGS: Plants Genetic System (Van Montagu's spin-off)

Test-Achats: national consumers association

The Flemish Decree: Flemish Decree on the Coexistence of GMO cultures with conventional and biological cultures

The Flemish Government's Order: Flemish Regulation detailing the measures of the Coexistence Decree

The Royal Order: Royal Order of the Federal Government of the 21 February 2005 transposing the Directive 2001/18/EC

The Walloon Decree: Walloon Decree on the Coexistence of GMO cultures with conventional and biological cultures

The Walloon Government's Order: Walloon Regulation detailing the measures of the Coexistence Decree

VIB: Vlaams Instituut voor Biotechnologie - Flemish Institute for Biotechnology

WTO: World Trade Organization

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