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How sociotechnical imaginaries rise on the policy agenda and gain power: the case of the transition from waste to the circular economy in Flanders

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1. Introduction: the need for social sciences research about the circular economy

In particular in the European Union and China, the transition to a circular economy (CE) has over the last decade surfaced as one of the guiding ideas for the restructuring of economies towards resource efficiency and sustainability. The circular economy is presented as an alternative to the current linear take-make-dispose economy, in which it is implicitly assumed that natural resources are abundant and cheaply available (Linder, 2017). The EU has embraced the transition to a circular economy as one of its main future projects in the field of environmental and sustainability policy and a necessity for realizing the EU's 2050 vision of "living well within the limits of our planet" (EU, 2013). The fast growing interest in the circular economy has several roots, such as a concern over availability of and growing competition for resources (OECD 2008), reduction of environmental pressures and the challenge of managing high waste volumes (EEA, 2010), restructuring EU economies and making them more competitive, fostering growth and generating jobs (EC, 2015). The growing popularity of the CE concept, has also sparkled an academic literature about the CE transition. The overwhelming majority of scientific publications about the CE is situated in fields such as environmental sciences, engineering, technology, management and economics. The image that flows from this literature is a future where new technologies optimize material chains and close material loops, innovative business models replace products by services, product design enhances longevity and reparability, and consumers become users for whom sharing is the new owning (EMF, 2015).

Apart from economics, the input of social and political science perspectives in this academic debate is very limited. Interestingly, the few studies that are available from a socio-political perspective often point to underlying tensions and controversies about what the CE exactly is, how it should be brought about, who the responsible actors are, who is to win and who will lose, and what the relevant technological and scientific research pathways are (Blomsma and Brennan, 2017; Gregson et al., 2015; Lazarevic and Valve, 2017 ; Hobson and Lynch, 2016; Moreau et al., 2017; Welch et al., 2017). Lazarevic and Valve (2017) for example observe that the narratives of the CE diverge between either radical change where the fundamentals of the European economy are reworked and paradigms that prevail since the industrial revolution are broken, or a situation where only business

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models are innovated remaining within current market criteria and without radical changes to institutions, infrastructures and markets. Also Hobson and Lynch (2016) ascertain that the CE is potentially disruptive, but that within the EU, the CE's current framing echoes ecological modernist arguments that do not fundamentally change the status quo in terms of power, norms and politics. Gregson et al. (2015) summarize the need for political research on the CE eloquently when stating that the CE has "more often been celebrated than critically interrogated".

This paper is rooted in the observation that while the concept of the circular economy has become a guiding vision for policymakers and business with potentially deep societal impacts (EEA, 2016), its politics have hardly been investigated or discussed. Furthermore, although the transition to a CE is increasingly embraced at different levels of governance (from the international to the local level) and by different social actors (in government, business, ngo's, science), the practice and implementation of the CE are still in an early stage. In practice, the linear economic model is still overwhelmingly dominant. This implies that the actual translation of the CE in policies, institutions, technologies, business models and daily practices, can still guide us towards different future circular economies, depending on the societal and political choices that are made. The transition towards a circular economy is thus not merely a techno-scientific issue, but it shows how techno-scientific innovation is inextricably bound up with questions of social arrangements and institutions, power and exclusion, and normative, societal preferences (Wacjman, 2006).

The lack of political analysis of the CE, combined with the fact that the CE is pervaded with techno-scientific and economic concerns, is taken in this paper as a starting point to understand the development of the circular economy as a question of sociotechnical controversies and transition politics. In fact, the circular economy can be studies as an emerging socio-technical transition, with its deep interweaving of technoscientific, economic and political questions and controversies.

Importantly, we start from the hypothesis that the circular economy is not like any other policy ambition, but that it can best be described as an example of what, from an STS-perspective, Jasanoff and Kim (2009) have labelled a "sociotechnical imaginary": a collective reimagining of social lives and social order, interlinked with and reflected in the design and fulfilment of new scientific and technological projects, goals and strategies. Sociotechnical imaginaries are "visions of what is good, desirable, and worth attaining for a political community; they articulate feasible futures" (ibid., 122). They are "at once descriptive of attainable futures and prescriptive of the futures that ought to be attained" (ibid., 120) and of the role of technology and science therein. In that way they do something, they are performative, in the sense that they mobilize actors and they exercise political power, such as through informing and shaping of trajectories of research and innovation, through mobilization of resources or through legitimation of policy measures. Before a particular imaginary stabilizes and becomes dominant, there are usually a range of potential or emergent visions, that are competing for influence, each of which could potentially become dominant (Birch, 2016). The question then becomes how and which sociotechnical imaginary becomes dominant and what this implies in terms of actors, policies, technologies, power, practices and so on.

Building on this reasoning, the paper asks two questions: which sociotechnical imaginaries are shaping the circular economy? And how do specific sociotechnical imaginaries gain prominence over others, in particular in policy processes?

Empirically, we take the developments in Flanders (Belgium) over the last decade as an example. As in most industrialised countries, Flanders has since the seventies developed a waste policy guided by the imaginary of a waste hierarchy, in the process co-producing specific policies, institutions, technologies and social practices. Over the last 10 years, this dominant regime has come under increasing pressure, in particular since in 2012 the Flemish Government initiated a new governance structure to launch a sustainable materials Program (early 2017 relaunched as Circular Economy Flanders), alongside the existing waste regime, with the ambition of replacing the waste regime by a circular economy.

2. Methodologic choices

Research building on the concept of sociotechnical imaginaries has often shown the importance of policy development and legislation when explaining how imaginaries gain influence (….). Therefore, to understand how and which imaginaries gain influence, we build in this paper on theories of the policy process, and more in particular on a critical perspective on the multiple streams framework (MSF), (Barbehön et al., 2015) which combines the MSF (Kingdon 1984/2011) with discourse analysis (Hajer, 1995, 2006). We have used this combination before (Paredis, 2013) and found it helpful in understanding how problems and solutions are interpreted and constructed by different actors in a policy process, how some of these interpretations gain power over others, reach the policy agenda and are translated in new policies, legislation, projects, subsidies and so on.

The MSF was developed by Kingdon (2011 [1984]) to explain how policy issues reach the governmental agenda. The governmental agenda is the list of subjects to which people in and around government are paying serious attention at any given time. Agendas are influenced by two kinds of factors: participants that are active in and around government, and processes that bring subjects to prominence (ibid., p. 19).

According to Kingdon, two broad categories of participants play a role in influencing agendas (p.69): a visible and a hidden cluster. The visible cluster are participants that receive a lot of press and public attention, such as ministers, prominent members of parliament, media figures. The relatively hidden cluster consists of different kinds of experts: academics, civil servants, parliamentary staffers, and not in the least in the Belgian and Flemish context the personal advisors (cabinet) of the Minister. Interest groups travel between the two, with some activities very public and other hardly visible.

The second factor of influence on agendas are three process streams that flow through the system: a stream of problems, of policies and of politics. The *problem stream* contains all conditions that become interpreted as problems. Agendas are influenced when some participants succeed in getting more attention for one problem than for another. In the *policy stream*, ideas, proposals and

alternatives float around in what Kingdon compares to “a primeval soup” (p.117). Here, a community of specialists is active that interacts and discuss a whole range of problems and solutions. With the functioning of the policy stream, Kingdon stresses the importance of ideas as an integral part of decision-making. Policy-making is thus not only a matter of interests, power and strategy, but also of ideas and their influence. The *political stream* is determined by elections, changes in government, a new balance of power in parliament, swings in the mood of the public, interest group pressure campaigns. Developments in this stream have powerful effects on agendas. When for example a government changes, new items move up the agenda more easily.

The three streams develop and operate largely independently of one another, governed by different forces, different considerations, different styles, different people (p. 88). Then when do new items gain importance and how do agendas change? According to Kingdon, *coupling of the streams* is essential for moving items up the agenda. Often, partial couplings are possible, e.g. a problem demands attention and a policy proposal can be coupled to it as a solution, but it might well be that the political climate is not ripe to take a decision. But when the three streams can be coupled in a single package – a problem demands attention, a policy solution is available, and the political climate is receptive – then the chances are “dramatically increased” that an item rises on the decision agenda (p. 178).

The moment and opportunity for pushing change, is called a *policy window* by Kingdon. A policy window is the period of time during which it becomes a lot easier for advocates of particular policy solutions or of particular problems to push their ideas. During these windows, so-called *policy entrepreneurs* play an important role. Policy entrepreneurs are advocates of certain problems or solutions that are willing to invest resources (time, energy, reputation, money) to promote their cause, either because of their concern for specific problems, their policy values, or for personal benefits. They are central in the coupling of streams: “They hook solutions to problems, proposals to political momentum, and political events to policy problems (…) Without the presence of an entrepreneur, the linking of streams may not take place” (p. 182).

In general, Kingdon stresses that his model shows how policy change does not proceed neatly in stages or phases. There is some “messiness, accident, fortuitous coupling, and dumb luck” involved, so that “subjects sometimes rise without our understanding completely why” (p. 206). Still, it would be wrong to view the process as completely random: the different streams have their own internal logic (e.g. not every proposal will surface in the policy stream because selection criteria are at work), there are limits on coupling possibilities (e.g. because of timing) and various rules of the game and institutions provide a basic structure for the actors that are involved.

Barbehön et al. (2015) have argued that even though approaches to public policy-making such as Kingdon’s recognise that policy development is messy and does not follow a linear logic, they are still embedded in an objectivist epistemology, in the sense that they give the impression that agenda-setting is about choosing and selecting between diverse problems and solutions, rather than recognising that policy problems and solutions are not “given”, but discursively constructed, implying struggles over definitions of the problem and the solutions, as well as the recognition of what counts

as relevant problems and solutions. This also implies the mobilisation of power to advance actor's favoured solutions and to try and build coalitions around them.

A useful approach to understanding the role of ideas is Hajer's take on discourse analysis and the analytical concepts he distinguishes. Hajer defines a *discourse* as" an ensemble of ideas, concepts, and categories through which meaning is given to social and physical phenomenon, and which is produced and reproduced through and identifiable set of practices" (Hajer, 2006). When actors share a discourse, this can be very functional for creating a political coalition and producing meaningful political interventions. *Discourse coalitions* are then groups of actors that share the usage of a particular set of storylines over a particular period of time. Hajer uses a two-step procedure to assess whether a discourse becomes dominant and has influence on policy. The first step is to look for *discourse structuration*: the extent to which different actors adopt the discourse and conceptualise the world through it. The discourse becomes dominant when ever more actors have to rely on its ideas and concepts to be credible in policy debates. The second step is investigating *discourse institutionalisation*: the extent to which policy practices and policy institutions change because of the new discourse. Examples include the setting up of new organisations or the reorganisation of existing ones, introduction of new instruments (measurement system, subsidies…), new legislation, etcetera. Hajer argues that when many people use a particular discourse to conceptualise the world (discourse structuration) and if it solidifies into institutions and organisational practices (discourse institutionalisation), then a discourse has become dominant and changes policy (ibid.).

We use this combination of MSF and discourse analysis to analyse how the idea of the circular economy has gained a place in Flemish policy and which interpretations of the CE are fighting for influence. The story starts around 2005 and ends early 2017. The reconstruction of this story builds on a combination of document study, interviews and extensive participatory observation. For the period until early 2012, we draw on a reinterpretation of the analysis in Paredis (2013); for the period mid 2012-2017, we are currently still working on interviews and document analysis, but provide in this paper a preliminary storyline.

3. A case study: a decade of steps towards a circular economy in Flanders

This part makes a reconstruction of the emergence of the circular economy in Flanders over the last decade. It starts, however, in the 1970s when the basis was laid for the current waste system.

3.1. 1970s – early 2000s: the waste hierarchy as the organising principle for waste policy

When in the 1970s industrial societies were confronted with the modern environmental problem, waste was one of the first items on the agenda and it has remained there ever since. Just like in other countries, Flanders started from a chaotic waste situation in the 1970s. After the second World War, the booming economic activity and the rise of the consumer society were accompanied by an enormous increase in the volume of waste, while also the nature of waste changed drastically (e.g. through the introduction of plastics). Like other industrialised countries, until the late 1960s early

1970s Belgium had a waste system that was still locally organised. Waste collection was the responsibility of municipalities and most waste was carried off to landfills or incinerated. This system could no longer handle the waste streams that flowed from the booming economy. Of great importance for the development of waste policy was the introduction of an EEC Directive in 1975 (C75/442/EEG) that obliged member states to create authorities for control of waste, planning, policy coordination and granting of permits.

It took until 1980 to develop a serious waste policy in Flanders. At that time, the Belgian state was reformed and a lot of environmental and nature policy competences transferred towards the regions (Flanders, Wallonia, Brussels). Waste and water policy were the first domains of the new Flemish environmental powers to be developed (Loots et al., 2008). The basic rules of the new policy domain were laid down in the *Afvalstoffendecreet* (the Waste Decree) of 2 July 1981. From the start of waste policy, the discourse on waste mentioned the *waste hierarchy*: policy should first focus on waste prevention, followed by re-use as second best option, next recycling of products and materials or valorisation by conversion in compost, then incineration with energy recovery, incineration without energy recovery, and as the worst option landfilling. In practice, during the first decade the government and the Flemish Waste Agency OVAM tried to get a grip on the chaotic waste situation (with e.g. more than 400 landfills of which a lot were illegal) by reorganising landfilling and incineration practices. From the nineties onwards, there is an increasing focus on selective collection and recycling.

This prioritisation is legitimised by a storyline that says that Flemish waste policy is moving up the waste hierarchy step by step. It is implied that when policy reaches the stage of prevention, the waste problem will be under control. By the 21st century, Flanders is considered one of the leading examples in the world for the organisation of its waste system, its high degree of collective selection and recycling, and its relatively limited amount of landfilling and incineration. The evolution in waste policy goes hand in hand with a changing interpretation of waste: while waste was primarily a societal and policy problem in the seventies and eighties, it has now become an economic good that forms the basis of the recycling industry. The vision on production, consumption and waste is mainly linear: waste is the unavoidable last phase of the production-consumption chain and should be dealt with as efficiently as possible.

As mentioned, the rules of the system were laid down in the Waste Decree (1981, with a revision in 1994), that was translated through sectoral implementation plans and accompanied by instruments such as the acceptance obligation and voluntary environmental policy agreements with industry. The dominant actor in the system was the Flemish waste agency OVAM, but also municipalities played an important role. The private sector is structurally involved in the waste chain, in particular in the market of industrial waste, and offered a package of services covering each link in the chain, from waste collection to processing of waste. The growing role of the private sector since the nineties and the resources they have brought in, caused a shift in power to individual large companies and sectoral management organisms.

3.2. 2002-2005: First steps in breaking open the system: the introduction of materials policy and of transition management

While Flanders scored well in recycling, waste prevention policies were not successful and the total amount of waste, in particular the industrial segment, was not under control. To break through the standstill in policy and formulate a more ambitious vision, in the first years of the new century, civil servants at OVAM started thinking about a broader orientation.

"The feeling was that there was a standstill in policy. We were not going to reach our goals by better selective collection and more recycling, but we had to work much more upstream in the chain (…) We realised we also had to look at production processes, at the design phase, and that's how the idea of materials policy grew" (civil servant OVAM).

Using Kingdon's framework as an interpretive lens, this can be considered as a crucial topic in the problem stream, demanding attention. There was also a second problem confronting waste policy. During a huge reorganisation of the Flemish administration, inspired by New Public Management principles, OVAM has secured for itself the competence of waste prevention under the confusing term "resource flow management", later interpreted as "materials policy", but it was unclear how this should be organised and what its contents were to be.

Was there also something happening in the policy stream? Around 2002, several civil servants, researchers and policy advisors, had become aware of the concepts of transitions and transition management (through research reports or in the preparation of policy advice) and had started regarding them as promising concepts for policy renewal. In this period, several of them also went to visit professor Jan Rotmans and his team at ICIS Maastricht to discuss the new concepts. Specifically for waste policy, under the impulse of an OVAM official, a study was ordered from ICIS Maastricht (Rotmans, Loorbach) about the potential of transition management for the reorientation of waste policy. The study concluded in 2003 that a sustainable materials perspective had potential to tackle the existing problems in the waste system and that transition management was a promising concept to initiate renewal of policy. In June 2004, OVAM's Board of Directors adopted the conclusions of the report and decided to defend them with the new Minister of the Environment.

Meanwhile in the political stream, the overall mood in environmental policy-making became more supportive of long-term policy-making and sustainable development after green Ministers entered the Flemish government in 1999. During his very last day in office, in July 2004, the Green minister of the Environment approved the start of a transition management process in sustainable housing and building. The Greens did not return to the Flemish government after the elections of 2004, but the new christian-democrat Minister of the Environment retained the idea of transition management and introduced it in his Policy Note 2004-2009 (published in December 2004) as an experiment in "innovative environmental policy". The Note also introduces "the development of materials policy" as one of the operational objectives under the heading "innovative environmental policy" : materials

policy should stimulate eco-efficient production in Flemish companies and thinking in material flows should be introduced in economic and environmental policy.

The coupling of streams happened in consecutive steps. As mentioned, in June 2004 OVAM's Board of Directors accepted the idea of materials policy and the potential of transition management as a policy approach. Half a year later in December 2004, the Minister's Policy Note introduced "the development of materials policy" under the heading of innovative environmental policy. In 2005, he also approves the start of a transition management process in sustainable materials management. In the same period, OVAM introduces in its Strategic Plan 2005-2009 a new and separate policy field alongside waste management, namely materials policy. The Plan takes as one of its operational goals the realisation of a transition process, and mentions that this choice is furthermore an execution of the Minister's choice to test the implementation of TM in Flanders.

3.3. 2006-2011: from waste policy to sustainable materials policy

This combination of decisions initiated the start of transition management process in June 2006, called Plan C. OVAM's purpose with Plan C was giving content to the new competence of materials policy and developing a long-term policy orientation for the waste system. The process closely followed the steps as are known from the scientific literature on transition management (Loorbach, 2007). It started with a transition arena of around 15 frontrunners, later extended to around 80 people from government, industry, science and ngo's. Between June 2006 and May 2008, this group develops a future vision for a materials system in which Flemish society handles resources, materials and energy responsibly and with care. Resources and materials will be treated as common goods. They are managed and controlled over the whole of the life cycle in cooperating networks or clusters of producers, processing companies and consumers. The materials system will function as a subsystem of a service economy: people do no longer measure their happiness on the basis of the property of material products, but on access to services that are embedded in the social and natural environment. The central storyline around which the participants unite "is a high-grade closing of the material loops. We will not use less material products, but the new resources needed have to decrease drastically. This can be realized either by closing the loop in the biosphere and/or in the technosphere" (Van Acker, 2009). In order to realise that vision, Flanders has to invest in five transition paths: smart closing of material cycles; development of smart, renewable and reusable materials; the development of a service economy; green synthetics; and responsible, critical consumers.

A closer look at this discourse reveals that the central storyline is in fact a typical ecological modernisation ideal, with confidence in reaching a more sustainable society through market mechanisms, technological innovation, industry, and without fundamentally challenging economic growth or consumption. The majority of storylines in Plan C are in this vein, such as: getting the prices right, fast technology development and diffusion, new types of materials and products (renewable, reusable, modular), product-service combination, closed materials loops, not less consumption but better consumption, strategic availability of resources for the Flemish economy, Flanders as expertise centre in sustainable materials management. However, some elements of the

vision refer to more radical change and can be characterised as 'transformational': they seem to require changes in the economic and power structures of our society and also in cultural attitudes (Hopwood et al., 2005, Paredis, 2011). Elements of this transformational vision include: materials as a commons with new property regimes, integrity and common responsibility for materials, materials and technology development as functional for societal needs, absolute decoupling of economic growth from resource use, common knowledge infrastructure, no social or ecological burden shifting worldwide.

Was Plan C influential? The transition management approach that Plan C applied thus successful in creating a network of actors with the ambition of laying the foundations for a sustainable materials system in Flanders. Probably the most important result of Plan C was the discursive renewal it realised in Flanders between 2006 and 2008: it formulated a discourse on sustainable materials management in which waste is part of a broader materials system. Certainly until 2008, Plan C was the main voice in Flanders on sustainable materials management. Plan C was not able to keep that position after 2009, which can partly be explained by problems in the internal functioning of the network (such as limited funding and a lack of entrepreneurship for realising experiments). However, the changed position of Plan C was mainly due to striking changes in the Flemish waste regime itself: not only the regime discourse shifted to a materials orientation, but also new legislation – a Materials Decree as a replacement of the Waste Decree – was installed in 2011 that further institutionalised the discourse and laid foundations for new rules of the game. Kingdon's model is again helpful in understanding how the coupling between problem formulations, policy solutions and political opportunities has been crucial for realising this policy change (for a schematic representation of the following discussion, see the figure below).

Let us start from the observation that Plan C succeeded in creating a new discourse for Flanders about sustainable materials management and in starting a network of frontrunners that at least until 2008 was the main voice in Flanders on sustainable materials management.

Several OVAM policy officers were not only participants in the Plan C process, but were also involved in internal OVAM discussions on the translation of the results and their implications for OVAM's own policy orientation and organisation. As already mentioned, "materials policy" appeared in the strategic plan of OVAM for 2005-2009 – around the same time that the Plan C process was prepared – as a third policy line for OVAM alongside waste management and soil management. Slowly, within OVAM the insight grew that materials management should not be regarded as a third policy line, but that the waste system should be regarded as part of a 'higher' system, the materials system.

A crucial breakthrough was the realisation within OVAM that this line of thinking implied that the obligation, coming from the EU-level, to translate the Waste Framework Directive (2008/98/EC) into new Flemish legislation, should not simply lead to a new Waste Decree, but that the new Decree should somehow reflect the materials storyline. In fact, the EU Directive's main aim was to strengthen the waste hierarchy in the waste policies of the EU member states and to reduce the discrepancies in waste policies between member states. But inspired by the experiences with Plan C and by similar discourses at EU and OECD level, OVAM proposed to the Flemish Minister of the

Environment to translate the Directive into a Materials Decree instead of into a new Waste Decree, in that way going several steps further than the EU required (and than the ambitions of most EU member states). Although the ideas of how this should be done, were far from mature, this argumentation found a sympathetic ear at the cabinet of the Minster of the Environment. During the negotiations for a new Flemish Government in 2009, the cabinet succeeded in inserting the idea into the Governmental Declaration where it is stated that the new government will "broaden waste policy to sustainable materials policy (…) The translation of the new Waste Framework Directive will amongst other things anchor the evolution from waste to integrated materials management" (Vlaamse Regering 2009, p. 58-59). The coinciding streams of the EU-level and the Flemish elections thus opened a policy window where the sustainable materials storyline could be inserted. The preparatory work of OVAM's entrepreneurial civil servants, including the translation of the discourse development in Plan C, shows throughout the case, but also here the combination with the adoption by the political level (such as during the governmental negotiations of 2009) was an essential factor.

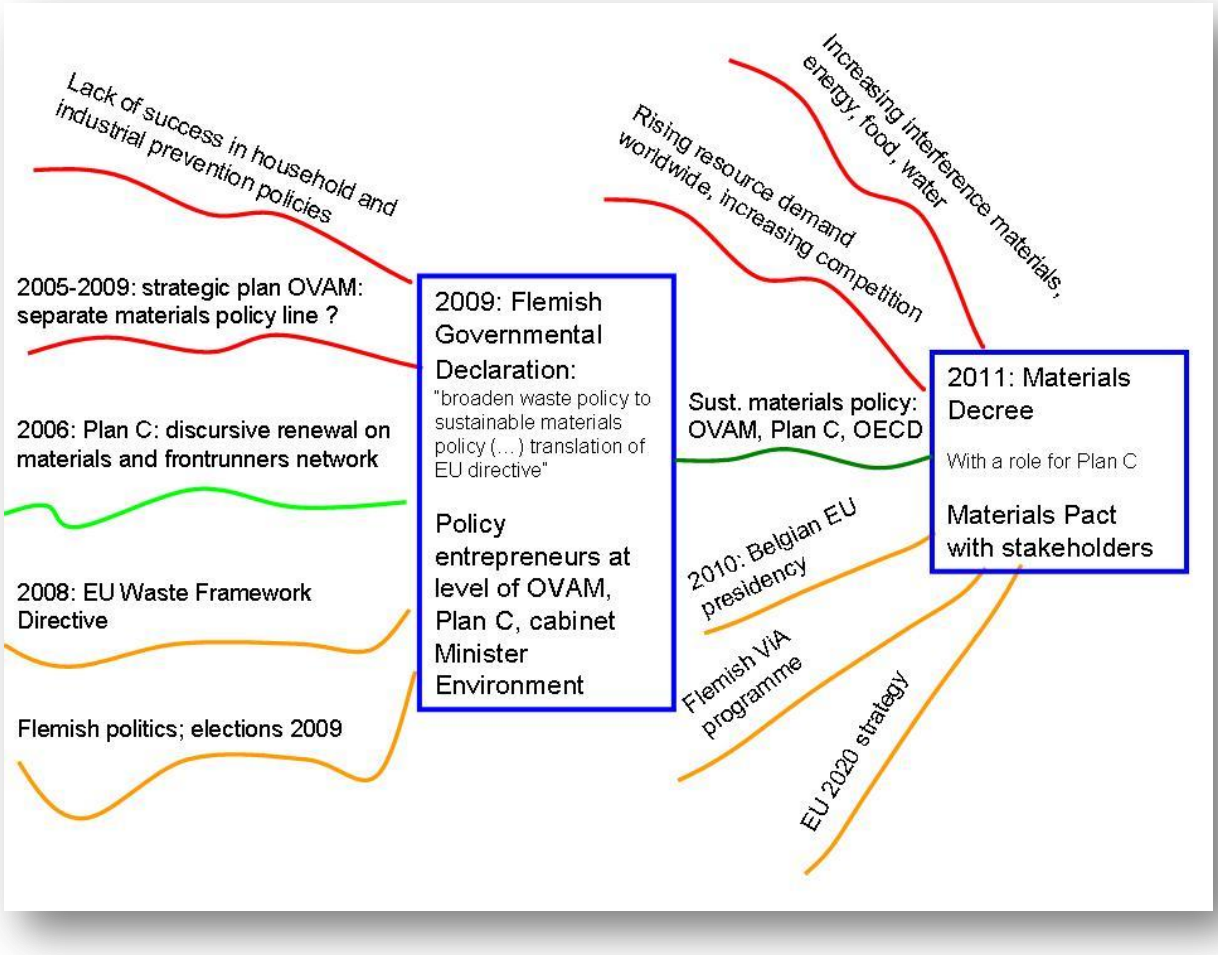

Figure 6.4. Plan C and the Flemish materials transition. A schematic, simplified presentation of coupling of problem streams (in red), policy streams (in green) and political streams (orange) during policy windows (blue). See text for details.

The shift from waste to materials policy had now reached the governmental agenda, but it took two more years to rise on the decision agenda and make it ripe for an "authoritative decision" (in Kingdon's phrasing). What is interesting here, is that Flanders had no choice but to translate the EU Waste Framework Directive into regional legislation. So, the decision moment would come anyway, and could perhaps be interpreted as a kind of "enforced policy window" through the influence of a higher authority[2]. Flanders was however not obliged to take the step to a Materials Decree and to go beyond well-known waste policies and the waste hierarchy. But after the Governmental Declaration of July 2009 and during the next two years, different opportunities arose and different streams could be coupled that strengthened the adoption of the materials discourse and anchored it further at political and administrative level.

One evolution is situated in the problem stream, where in the course of 2009 and 2010 we see a fast rising awareness of the urgency of addressing the resources and materials problem, due to the rising demand for resources worldwide (e.g. from China), the import dependency of EU-countries, and the rising prices of resources. Apart from OVAM itself and Plan C, important new players in the Flemish materials system such as the sector federations Agoria (technology industry) and Essenscia (chemical industry) actively drew attention to these problems and demanded government action. Also EU initiatives such as the Raw Materials Initiative (EC, 2008), which grew out of anxiety over the availability of resources for the European economy, increased the awareness for the problem.

Another element, part of the political stream, was the preparation and development of the new Strategic Plan 2010-2014 for OVAM. In the strategic plan, waste and materials are no longer regarded as separate policy lines – as was the case in the previous Strategic Plan 2005-2009 – but waste policy has become part of sustainable materials policy. The new plan was accompanied by an internal reorganisation of OVAM, meant to prepare the organisation for its role in the future materials economy.

Also important in the political stream was the Belgian presidency of the EU during the second half of 2010. The Flemish Minister for the Environment became responsible for the presidency of the EU Environment Council. It is a tradition at European level that each presidency formulates several own priorities, and in this case the ministerial cabinet formulated "sustainable materials management" as one of the environmental spearheads for the Belgian presidency. In July 2010 an informal Environmental Council in Ghent was devoted to sustainable materials management, which gave the Minister an opportunity to present herself nationally and internationally with the theme. During the formal EU Environment Council in December 2010, she succeeded in introducing language that links the EU 2020 Strategy and its flagship initiative on resource efficiency to "system innovation" and "the creation of a multi-actor transition platform on resource efficiency."

Furthermore, exactly during the presidency, OVAM organised and hosted a high-profile OECD workshop on sustainable materials management. The result and visibility during the EU presidency together with the OECD workshop, contributed to a political confidence in the potential of the

[2] This obviously differs from the cases on which Kingdon's theory is built, i.e. agenda-setting at US federal level. No higher authority can oblige the US federal government to adopt legislation.

materials storyline. Early 2011 the Minister of the Environment proposed sustainable materials management as her flagship for a new socio-economic innovation Program of the Flemish government, called *Vlaanderen in Actie* (VIA, Flanders in Action), in that way positioning materials as an essential part of the transformation and innovation of the Flemish economy. This resulted at 6 June 2011 in a Round Table on Sustainable Materials Management where industry, knowledge centres and other societal partners signed a Declaration in which they engaged themselves to work towards a Materials Pact and an operational plan on sustainable materials.

Meanwhile, consultations had been going on for a final important step, namely the replacement of the Waste Decree by a Materials Decree. When the text of the Materials Decree reached the government table in June 2011, the well-known language of the waste hierarchy is extended with language on materials and material cycles. The explanatory memorandum explicitly refers to the need to develop a sustainable materials economy in the decades to come and to capitalize on upcoming trends at EU and OECD level: *"The final goal is to design material cycles that stay within ecological carrying capacity and generate wellbeing for current and future generations. This requires a far-reaching integrated policy that is known as 'sustainable materials policy' or 'sustainable management of material cycles'"* (Vlaamse Regering, 2010, our translation). In a departure from the EU Framework Directive, the Materials Decree introduces terminology such as "materials", "material cycle" and "life cycle thinking" that should make it possible in future to anchor materials thinking.

By the time the Materials Decree was approved by the government on 24 June 2011, the combination of all these streams had laid a solid political and administrative foundation for the new orientation. Furthermore, the whole process and the different evolutions had also led to active involvement of all important stakeholders. This is confirmed by the approval mid 2012 of the *Vlaams Materialenprogramma* (Flemish Materials Program), a collaborative Program between government, industry, science and civil society, coordinated by OVAM, to make "a transition to sustainable materials management".

3.4. 2011-2017: from sustainable materials policy to circular economy

By mid 2012, the situation in Flemish waste and materials policy had become quite interesting. On the one hand, the waste regime with its policies, actors, institutions, rules, practices, infrastructures and technologies was still standing firmly. These developed over decades and cannot simply be changed overnight by a few government decisions. On the other hand, the government had replaced the old legislation with a Materials Decree, in which the waste hierarchy is extended with materials policy and it had set up a new Program with a new governance arrangement, alongside the waste regime, to start up and give content to this new sustainable materials policy.

The new governance arrangement that was set up with the Flemish Materials Program, contained three new institutions, under general coordination of the waste agency OVAM.

- In Agenda2020, all major stakeholders gathered to develop a short- to medium-term action Program consisting of ambitious multi-stakeholder projects. For these projects, ten themes were identified : sustainable design, transparent materials cycles, smart cooperation, smart investment, better regulation, sustainable housing and building, sustainable chemistry and plastics in a permanent cycle, bio-based economy, critical metals in a permanent cycle, new materials in a permanent cycle.
- Plan C had gone through a difficult period in 2010-2011, but was revived as a non-profit organisation and given the task to provide inspiration for the long-term orientation of the Materials Program. Transition management as approach was abandoned, but the working philosophy remained embedded in transition ideas. Its three core activities were defined as visioning, activating a learning network, and setting up transition experiments. Most of its activities were geared towards the development of new business models for sustainable materials management. An important reason behind that orientation is the prominent role that several business frontrunners take up in the new organisation.
- A research consortium SuMMA (Sustainable Materials Management) was approved for a 4-year period, with researchers from different Flemish universities, to back up the Program with policy-relevant research strongly focused on monitoring, economic aspects and legal instruments.

All in all, the change in discourse from waste to sustainable materials management is undeniable. It is not only taken up in the Materials Decree and propagated by OVAM as main government actor, it also found support with all actors involved in the waste/materials system: different sectors of the industry, knowledge actors such as universities and technological institute VITO, advisory councils and NGO's. Politically, the construction of this discourse coalition benefited from the possibility to link it to ongoing developments at European level and to the innovation and green economy debate at Flemish level. There is of course an important caveat to be made. While the Plan C discourse until 2010 was still a mixture of transformative and ecological modernisation elements, the transformative elements have been largely filtered out in the discourse of the Flemish Materials Program (although elements remained in the new Plan C). In the analysis of Paredis (2013), the combined influence of developments such as the new European Waste Directive, the EU 2020 strategy, the concern of industry and policy-makers over the worldwide competition for resources, and the innovation discourse for the Flemish economy – discourses that are often co-shaped by agendas of competitiveness and liberalisation – were stronger that the transition management process Plan C and supplanted the transformative ideas of Plan C's agenda.

It is the governance arrangement of the Flemish Materials Program that in 2016 would be awarded the Circulars Award (in the category "governments, cities and regions") at the World Economic Forum in Davos. However, by 2016, the Program was in turmoil and negotiations were going on about restructuring the set-up as well as redefining its contents.

Three important evolutions accounted for that: the new discourse of the circular economy that after 2013 quickly conquered Europe and was introduced in EU policy when the European Commission launched the Circular Economy Package in December 2015; a new Flemish government (elected in

2014) that first seemed to abandon long-term policies, but then in March 2016 approved a transversal long-term policy package, *Visie 2050* (Vision 2050), in which the circular economy was defined as one of the transition spearheads; and a difficult governance trajectory for the Materials Program, in particular in developing the Agenda2020 in co-production between regime actors (while on the other hand, the renewed Plan C established itself again as a leading voice in the circular economy debate in Flanders).

The first evolution: the introduction of the concept of the circular economy. The concept existed longer of course, but the 2012 and 2013 reports of the Ellen MacArthur Foundation, presented at the World Economic Forum, launched an interpretation of the CE that seemed to convince a lot of policy-makers and the business world alike. It presents the CE as an economic orientation full of win-win opportunities, economically, ecologically and socially: it boost competitiveness and growth, creates jobs, saves resources and reduces CO_2. The publications of EMF sparkled a debate, new research and new policy ideas about the potential of the circular economy. One of the main results of the interest in the CE is the 2015 plan of the European Commission 'Closing the loop – an EU action plan for the Circular Economy'.

The new terminology is at Flemish level quickly picked up by Plan C. Within a few months, the terminology of "sustainable materials economy" and "sustainable materials management" is abandoned in favour of "circular economy". In February 2014, Plan C publishes an e-book *Product – Dienst, nieuwe businessmodellen in de circulaire economie* (Product-Service, new business models in het circular economy) that introduces the concept to its network and that presents a lot of innovative practices in Flanders and Europe. With its publications and activities – such as conferences, circular business classes and an additive design challenge – Plan C becomes the main reference in Flanders for ideas and practices about the circular economy, actively supported by OVAM. Meanwhile, the development of the Agenda2020 – the multi-stakeholder platform mainly consisting of regime actors – goes a lot slower and is perturbed by competing visions of what should get priority, who should act first and who can or is willing to invest how much in the Program. Although quite some experiments are set up, and although the need for a circular economy is felt, as well as the need to cooperate, changing the waste and materials system challenges a lot of established interests.

Then in 2014, general elections at Belgian and regional level, shake up the political system. The Flemish nationalist party N-VA wins the elections and heads the new Flemish coalition government. The exiting Minster of the Environment, who championed the sustainable materials orientation, remains in office. For several months, it is unclear however in how far the new government is willing to support long-term strategic policies and continue some of the policy lines that were decided in the previous government. However, from early 2015 onwards, the government works on a long-term policy plan that will be presented as *Visie 2050* in March 2016. It defines seven transitions for Flanders, the circular economy being one of them, that should set Flanders on a path to a "strong, social, open, resilient and international" region where prosperity and wellbeing are created in a "smart, innovative and sustainable way and where everybody counts".

For each of the seven transition processes a new governance arrangement has to be created. This provides an opportunity to rethink the Flemish Materials Program. During months, possible structures, actors, responsibilities, contents and financing are discussed. One of the questions is e.g. whether Plan C should remain an independent organisation or whether it should become the core of the new structure and for that reason be embedded within OVAM. The new governance arrangement was decided in late 2016 and started working in January 2017 under the name *Vlaanderen Circulair* (Circular Flanders).

Once again, through the multiple streams lens, we see how several streams combine to ease a new step in policy development. Obviously, the development of a discourse and of policy at EU level were important, but they were also actively translated by actors at Flemish level, in particular Plan C and OVAM. Developments in the new Flemish government first seemed problematic for long-term strategies, but the approval of *Visie 2050* opened a policy window that provided opportunities to launch a new governance arrangement focused on the circular economy. Civil servants connected to OVAM and Plan C, and not in the least important industrial leaders and organisations – who had become convinced of the economic opportunities of the CE – actively intervened with the government to create a new governance arrangement.

3.5. 2017 and beyond: breakthrough of the circular economy? But with which imaginary?

Circular Flanders differs in some important aspects from the Flemish Materials Program. First, Circular Flanders no longer solely resides under the Minister of the Environment, but the Minister of Economy has been included as well. This was a strong demand from the business community. Thematically, the Materials Program strongly focused on closing of material loops. In its *Visie 2050*, the government decided to broaden the themes for Circular Flanders and included water, energy, food, space and the development of the bio-economy. The three pillars of the Materials Program (Agenda2020, Plan C, Agenda2020) are integrated in one delivery unit, with an operational team of around 15 persons, under the wings of OVAM (but the research team of the former SuMMa remains connected to the participating universities and retains some independence). The former non-profit organisation Plan C has thus disbanded itself, and its personnel has been integrated in the operational team. The former director of Plan C has been appointed “transition manager” and head of the team[3]. Finally, the strategic orientation and thematic priorities of Circular Flanders will be discussed in a public-private steering group, which consists of the major stakeholders from government, industry, ngo’s and science. The steering group or the operational team can take the initiative to set up project groups. For 2017 and 2018, three major themes have been chosen that guide the activities: circular purchasing, circular city, and circular business.

A preliminary analysis of the discourse in Circular Flanders and the imaginary it projects, shows a strongly technologically driven and economically focused project. It strongly echoes eco-modernist

[3] Although at the time of writing this paper, she had decided to resign and change jobs.

ideas: a circular economy can be attained without fundamentally changing economic structures, power relations and decision making. Important drivers are business, markets and technology, although obviously in the Flemish version, the government (with OVAM as central actor) has a key role in guiding the processes, setting the rules, supporting scientific research and financing projects and experiments. Although some civil society actors are involved, the public-private steering group is dominated by major business actors and government. Still, in the projects that are funded and in the "doers" that are presented as examples on the website, a broader diversity can be observed, where also non-profit, social and cultural projects are presented as part of the circular economy.

4. (Preliminary) discussion and conclusions

In our introduction, we proposed the hypothesis that the circular economy is more than just another policy, but that it can best be described as a socio-technical imaginary: the future it projects seems to imply a collective reimagining of our social lives and social order. This has consequences because imaginaries do political work: they are visions of what is good and desirable, and in that way they influence investment decisions and innovation policies; they legitimise which actors should be included in a political community; they inform the role of technology and science. Before a particular imaginary stabilizes and becomes dominant, there are usually a range of potential or emergent visions, that are competing for influence, each of which could potentially become dominant (Birch, 2016). The question then becomes how and which sociotechnical imaginary becomes dominant and what this implies in terms of actors, policies, technologies, power, practices and so on.

Building on a series of case studies, Jasanoff (2015) argues that sociotechnical imaginaries go roughly through four phases: origins, embedding, resistance and extension. Although there is a lot of discourse about the circular economy, the actual implementation and practices are still in an early phase of development. This is a moment where different emerging imaginaries can still be seen competing. To understand the dynamics and role of imaginaries, Jasanoff claims that contextualization in time and space is important, because it is in a specific context of historically grown structures, institutions, ideas and beliefs that imaginaries are made concrete. Therefore, the specific context of Flanders, which is recognized as one of the frontrunners in the development of the circular economy, can teach a lot about the emerging controversies and the socio-political questions that surface in the early transition phase of the CE. We used a combination of Kingdon's multiple stream analysis and Hajer's discourse analysis to study how the imaginary of the circular economy built on earlier concepts such as sustainable materials management, how over the last ten years they have risen on the policy agenda, how they were translated in new policies and institutions, and which discursive struggles were and are still shaping this development. What did we learn from this analysis?

When comparing the situation of 2005 with that of 2017, it is obvious that the governance structure has changed and that a new discourse with new rules (such as the Materials Decree) has entered the system. Early on, the transition management process Plan C played an important role in composing a discourse about a sustainable materials system, creating a network of frontrunners and setting up experiments. However, the streams analysis showed how a lot of couplings had to be made between

different developments at different levels to move things forward. The European level was important several times, amongst other things with the EU Waste Framework Directive in 2008 and the Circular Economy Package in 2015. Developments in Flemish politics were important and the opportunities these provided. Although they cannot control the events, the role of policy entrepreneurs (e.g. in OVAM and in Plan C) is important, because they have to be ready to hook their ideas and approaches to policy windows that come along. As Kingdon remarks: ”Individuals do not control waves, but can ride them. Individuals do not control events or structures, but can anticipate them and bend them to their purposes to some degree” (Kingdon 2011, p. 225). This is nicely visible in the Plan C case and the shift to a materials regime. The Plan C process was important in Flanders in maturing the minds of relevant actors for the sustainable materials discourse. When the EU Waste Framework directive came along, entrepreneurial civil servants in OVAM saw a possibility to connect this European obligation with the materials discourse. A few years later, the combination of the EU developments around the Circular Economy Package with the ambition of the Flemish governments to initiate transitions for Vision 2050, created possibilities for a new governance arrangement (Circular Flanders) to promote the circular economy. This work of policy entrepreneurs is essential, because the coupling does not fall out of the air. It is the result of a lot of preparatory work that is usually done without a clear view of the final result and without certainty of success.

The discourse analysis shows how the discourse about sustainable materials management that was originally introduced by Plan C, exhibits a mixture of eco-modernist and transformative elements. The discourse elements could catch on because similar ideas were also present in other forums and levels and could be linked to the new European Waste Directive, to the EU 2020 strategy, to the concern of industry and policy-makers about the worldwide competition for resources, and to the felt need to innovate the Flemish economy and society. When the concept of the circular economy entered the stage around 2013, this found a fertile ground in Flanders, where in the Flemish Materials Program Plan C had been given the explicit task to introduce ideas and visions for the long term. Furthermore, all important actors in the waste and materials system had already committed to the idea of sustainable materials management. The new concept was thus quickly adapted and used as basis for a new governance arrangement, Circular Flanders.

However, in the course of ten years, only the ecological modernisation elements have been retained in what is becoming the new regime discourse. The embedment in a context characterised by discourses of competitiveness and liberalisation, filtered out the transformational elements from the Plan C discourse but retained the ecological modernisation elements. At least at policy level, the imaginary of the circular economy seems thus to be taking on an eco-modernist orientation. Practices and niches exist that seem to be inspired by other imaginaries of the circular economy (e.g. in the repair movement), but these are only marginally represented in Flemish circular economy politics for the moment.

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