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Joint environmental policy making and sustainable practices for the cardboard production

Case study: Smurfit Kappa

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Abstract

Purpose – This paper presents an analysis of the influence of “Joint Environmental Policy-making” (JEP) in the operation of the company Smurfit Kappa (SK) in The Netherlands, Austria and Denmark (NL&AD). The paper aims to answer the question: to what extent has different levels of jointness and voluntariness of cardboard packaging-chain agreements between federal, governmental and business actors led to different recycling performances within the same company?

Design/methodology/approach – JEP’s analysis was framed under the model described by Mol, Volkmar and Liefferink by using information from mixed-methods throughout a semi-structured questionnaire for interviews and revision of relevant secondary data. This is a case of cross-national comparison for which origin and implementation level of JEPs were described per country, in accordance with those stages of the cardboard production chain.

Findings – Jointness and voluntariness amongst other actors from governmental areas and business ranked high for the Dutch packaging-chain agreements with a visible impact in SK’s recycling rates. SK in Austria and in Denmark, in this order, had a lower implementation level of JEPs which could be reflected in a lower recycling performance than in the Dutch SK subsidiaries. The context matters, including both political and social conditions. In particular, the role of householders as a last link in the recycling chain. Based on this, the selected countries share some societal characteristics associated with the environmental public awareness and active social participation.

Originality/value – This paper fulfills an analysis of how environmental policy making is affected by the country context within the same company.

Keywords Cardboard, Recycling, Voluntary environmental policy

Paper type Case study



1. Introduction

Given the pressure and demands of the market, the efforts made by some companies to alter their operations in accordance with environmental regulations, need to be recognized. This is the case of SK, which belongs to the industry of cardboard and paper production. This sector is incentivized for using various instruments, such as tools for the

This article is exclusively the author’s own views and opinions and do not necessarily correspond to those of Smurfit Kappa.

environmental impacts evaluation to comply with national and international environmental standards.

Different environmental impacts are identified in the production of cardboard. Policies and procedures exist for the majority of these in order to control or prevent such impacts. Local capacities are needed for this purpose and are mirrored in the international recycling ranking of some countries with collection and recycling practices of secondary (recycled) fibers.

In the 2012 Annual Report – issued by the National Chamber of Pulp and Paper Industries in Mexico and supported by Pulp and Paper International – indicated that out of a list of 34 countries, the most important collectors of cardboard in 2011 were Hong Kong, Norway, Switzerland, South Korea and The Netherlands. Those countries' collection rates ranged between 75.4 and 103.5 percent. These rates considered all the collection activities even from those companies which collect in different countries (CDP, 2013).

The prevention of environmental impacts through recycling can be estimated in tons of CO₂ eq., as those calculations made by the Mario Molina Center in 2008. In their reports, they stated that for each ton of non-collected paper/cardboard there is about 2.115 tons of CO₂ eq. released into the atmosphere (CMM, 2008). As a consequence, there is vested interest in collecting and recycling paper and cardboard. Researchers acknowledge that this requires the involvement of different actors in their production and recycling chain.

Public authorities also have an important role to play when it comes to putting recycling materials back in the production chain. This is because the public sector publishes policies to stimulate the recycling practices among regular users which, in turn, allows the recycled cardboard to return to the production chain. The public policy mix implemented by some countries showed the benefit in using voluntary environmental instruments aside from the regulatory ones. Some scholars have reported that in countries like The Netherlands, with a rich history of using voluntary policy approaches, the environmental performance of some industrial sectors have improved. Recycling of packaging materials is one of their performance indicators.

In this paper, we compared the recycling rates of three countries where SK has operations with resemble-able societal conditions by focusing on the influence of jointness and voluntariness aspects of voluntary policy instruments. For such purpose, we introduced the model JEP's to analyze jointness and voluntariness levels of voluntary negotiations to meet recycling targets in the packaging chain. Hence, the related research question is:

RQ1. To what extend has different levels of jointness and voluntariness (from JEP's model) of cardboard packaging-chain agreements between Federal (The Netherlands, Austria and Denmark (NL&AD)), governmental and business actors led to different recycling performances within the same company (SK)?

Seeking to answer this question, primary and secondary sources of information were gathered, e.g. scientific articles, internet and public information. The primary data source was obtained throughout interviews with SK department heads by using a semi-structured questionnaire and direct observations during the visit of different SK's facilities in The Netherlands.

This paper includes six sections in total. A short introduction in Section 1. In Section 2 the concepts and models about the voluntary environmental approaches,

in particular the so-called Joint Environmental Policy-making (JEP's) are explained in the context of packaging chain. Section 3 summarizes operational details and recycling strategies of SK. The influence of JEP's in the recycling chain for the three countries is presented in Section 4. Further comparison among the SK locations is presented in Section 5. Finally, conclusions and recommendations (Section 6) were drawn from JEP's model and the current recycling rates in NL&AD. Similarities and challenges to extent the good performance of the company in other countries were identified and suggested to explore in further research work.

2. Voluntary approaches of environmental policy and JEP's model

There is a growing appreciation among environmental policy-makers of the diminishing returns associated with the traditional approach of "command-and-control" environmental regulation (Hanks, 2002). Deregulation and increased application of proactive environmental strategies within the industry has strengthened the appreciation into the need for widespread adoption of alternative policy instruments that opt for more involvement of actors towards environmental policy formulation.

In Europe, since 1992, there has been considerable experimentation with flexible policy instruments (Jordan *et al.*, 2005). Four types of new environmental policy instruments have emerged over the last few years namely:

- (1) market-based instruments, including eco-taxes, carbon trading permit systems, subsidies, and deposit-refund schemes;
- (2) eco-labels;
- (3) voluntary environmental management and business certification systems, including EMAS and ISO 14001; and
- (4) voluntary agreements between industry and public authorities, including negotiated agreements, public voluntary schemes, and unilateral commitments (Sauer *et al.*, 2001).

Environmental negotiated agreements between industries and public authorities in the OECD and EU member countries first appeared in the 1960s and the early 1970s but they have become more widespread in terms of number and scope since the 1990s.

Voluntary approaches are commitments from private sectors to improve their environmental performance. In a broad sense, the concept encompasses many different kinds of arrangements such as; self-regulation, voluntary initiatives, voluntary codes, environmental charters, voluntary accords, voluntary agreements, co-regulation, covenants, and negotiated environmental agreements, to name just a few (Higley *et al.*, 2001). All these types belong to three main instruments under voluntary approaches; unilateral commitments by polluters (industries), public voluntary programs designed by environmental agencies, and negotiated agreements between public authorities and industry (Leveque, 1997, cited in Sauer *et al.*, 2001).

Moreover, negotiated agreements are the commitments undertaken by firms and sector associations, which are the result of negotiations with public authorities and/or explicitly recognized by the authorities (EEA, 1997) to meet one or more overall targets. However, compared to real voluntary approaches, negotiated agreements are much more oriented towards mid and long term improvements in environmental performance (Bressers and de Bruijn, 2005a; Franco-García and Bressers, 2010). A common example in

a number of countries in Europe is a commitment on the packaging chain – producers, wholesalers, retailers, to meet an overall reuse and recycling target, by a pre-specified year.

2.1 Joint Environmental Policy-making

Since the 1990s, there have been a large number of scholars showing that negotiated agreement has played an important role in environmental management in European countries (Mol *et al.*, 2000; De Leon and Rivera, 2007). By 1996 there were more than 300 Negotiation Agreements concluded at the national level, predominantly in The Netherlands, Germany and also often used in Austria and Denmark. Some authors (Mol *et al.*, 2000) referred to the voluntary instruments as a result of a JEP's because the policy was jointly formulated and/or implemented by the state and private actors. Contextual conditions of JEP's have caught the attention of several researchers, as reported by Liefferink who focused his attention on the concepts of deregulation and political modernization. He studied JEP's in the fields of packaging waste, industrial energy efficiency and labeling of organic food products in three countries: Austria, Denmark and The Netherlands.

In Austria, JEP's were primarily advocated by coalitions of enterprises and inspired mainly by ideas of deregulation. Although the successful start of JEP's, the packaging waste remained as a hybrid between JEP and regulation due to the inclusion of the Altstoff Recycling Austria (ARA) system. The hybrid format was explained as the result of the legalistic and corporatism tendency of the Austrian management. In other words, Austrian corporatism allowed very little interaction of third parties with dominant parts. Private associations increasingly entered the network in packaging waste and energy efficiency and private initiatives emerged in food-labeling.

Denmark offered less favorable political conditions for JEP's although most parties in the Danish politics nursed ideas associated with political modernization (i.e. increasing partnership; sharing environmental responsibility between government and society). Some of the concrete ideas appeared to focus on internalizing environmental costs through "green" taxes rather than on negotiating joint solutions. The environmental awareness level of the Danish society played an important role in this choice. Another potential factor is a policy style in the sense that strong emphasis is put on firm, preferably legal guarantees for equal treatment. Both factors leave little room for negotiated agreements which may seem to be accommodating the interests of business rather than those of the environment and creating opportunities for free riding.

The Dutch JEP's were mainly inspired by the ideas of political modernization, but with a "touch" of deregulation. The Environmental Dutch Ministry was the JEP's promoter at its first stages but after the mid-1980s this was endorsed by the business community. The keywords of the new Dutch approach in environmental policy were "partnership", the "internalization" of environmental responsibility, taking the "needs" of business into account; all those elements enhanced the cooperation with the target groups. The negotiated agreements have become the key instruments of environmental policy implementation in The Netherlands which was relevant for different private sectors and their business strategies.

Beyond the European region, there are a number of experiments with voluntary approaches: North American countries (Orts and Deketelaere, 2001), Japan (Sauer *et al.*, 2001), New Zealand and in the developing world such as Mexico and China (Franco-García and Bressers, 2010; Bressers and Xue, 2007). Unsurprisingly, it was

observed that in spite of having the same general purpose, the variety of negotiated agreements has delivered so many different forms, processes and functions under different institutional and other circumstances in each country, that this makes it difficult to directly relate the number of negotiated agreements in a country to their potential effect on the environment. However, this number can provide some indication about the socio-political context and impact in more organizational dimensions such as an increase in the level of trust among actors of both sectors: authorities and industry (Franco-García *et al.*, 2012).

The international dimension of the negotiated agreements as one of the JEP's strategies encouraged our analysis by using a Multi-National case of a packaging production company (SK; cardboard production), because companies in the packaging chain have been the object of voluntary agreements since the 1990s. We particularly looked at the level of interaction between the public and private sectors (jointness vs voluntariness level of the policy instrument) to meet the recycling cardboard targets for Austria, Denmark and The Netherlands. SK has had regular operations in these three countries even before the JEP's were implemented. The model used (Figure 1) was elaborated in 2000 by Mol *et al.* It was named the "JEP and other forms of regulation".

The primary purpose of Figure 1 is to identify the position of voluntary agreements in function of the jointness and voluntariness aspects of the negotiations. The vertical axis represents the continuum from a low to high level of interaction and negotiation between public and private actors (jointness), while the horizontal axis represents the range from obligatory to voluntary measures (voluntariness). Traditional regulation, which is unilaterally developed and enforced by the state, is placed in the lower left quadrant while the upper left quadrant corresponds to the public law results from processes of negotiation and consensus-seeking. In the upper right corner, negotiations do no longer lead to legislation but rather to contracts or agreements (signed or endorsed by both type of actors on an equal basis. In the voluntary character of the

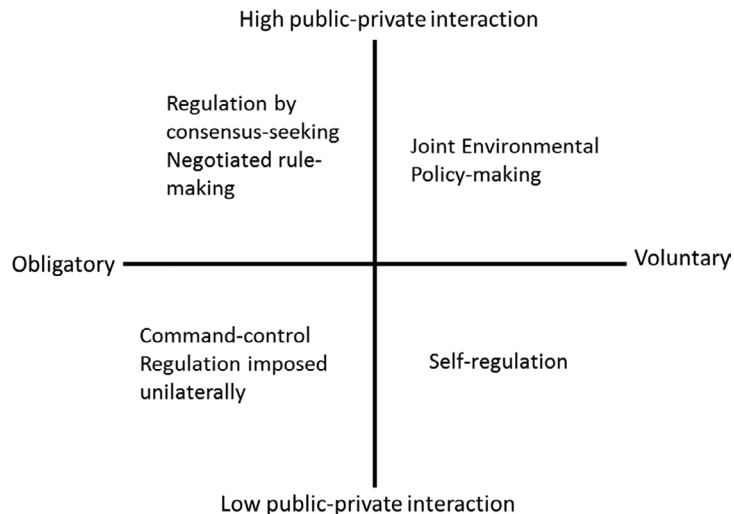


Figure 1.
JEP and other forms
of regulation

Source: Mol *et al.* (2000)

agreement, but with low jointness (lower right quadrant), a unilateral approach of the agreements (or self-regulation) by private actors, was identified.

3. SK: case study

SK is one of the world's largest integrated manufacturers of paper-based packaging products with operations in Europe and America (SKG, 2013). SK has around 41,000 employees in approximately 350 production sites across 32 countries, with a sales revenue of €7.3 billion in 2012.

SK's environmental and social performance is published annually in a report called the *Sustainable Development Report*.

Examples of activities in the sustainability report were mentioned by Gary McGann (CEO) and cited here: "Programs of significant reduction of CO₂ emissions within our mill system"; "Sustainable origin of fibers and certification of products" (2015); "Unilever awarded SK with their global 'Winning through Sustainability' supplier Award 2010"; "Coca-Cola Enterprises recognized the Group for its innovative processes and gave SK their 'Corporate Responsibility and Sustainability Supplier' award for 2010"; "SK has advanced its reporting level according to the GRI to level A + from previous year's level B + "; "Progress obtained on bringing operations under environmental management systems in Latin America" (SK, 2011).

3.1 Description of the fiber recycling chain for cardboard production

In this section we presented the steps that the fiber has to follow in order to be recycled. First, it should be continuously recovered and reincorporated into the cardboard production chain of the company.

The flow of packaging materials in the cardboard production is shown in Figure 2. The management dimension was the background, divided into public and private domains. Even further, in this figure we tend to indicate the general steps that fibers should follow in order to be recycled. Private and public strategies for recycling purposes were indicated as well. The interaction phase between those strategies might be associated with the implementation of JEP's. "reverse logistics" forms part of the technical component of the sustainability strategy.

The retailing stores or retailers play a relevant role in the model of Figure 2; this is because they are providers of companies such as SK. Most of the retailing stores in Europe operate under the "reverse logistics" principle, where retailing stores are returning the cardboard to their distribution centers. This action reduces the complexity of collecting them store by store, and it also increases the rate of recycled fibers collection.

Returning actions to providers is framed in the prevention of environmental impacts strategy. Direct cardboard reuse can be done through business-business interaction, whose principles are based upon the European Environment Agency (EEA, 2005). The EEA states that "Any operation of packaging waste is refilled or used for the same purpose as the one for which it was conceived".

Generally, these types of actions in companies and inter-companies serve to reduce emissions of atmospheric pollutants – reduction of transportation – in addition to the reuse of materials. These actions are included in the company reports of social and environmental responsibility. This can benefit the company by providing more credibility in its operation and improving its public image.

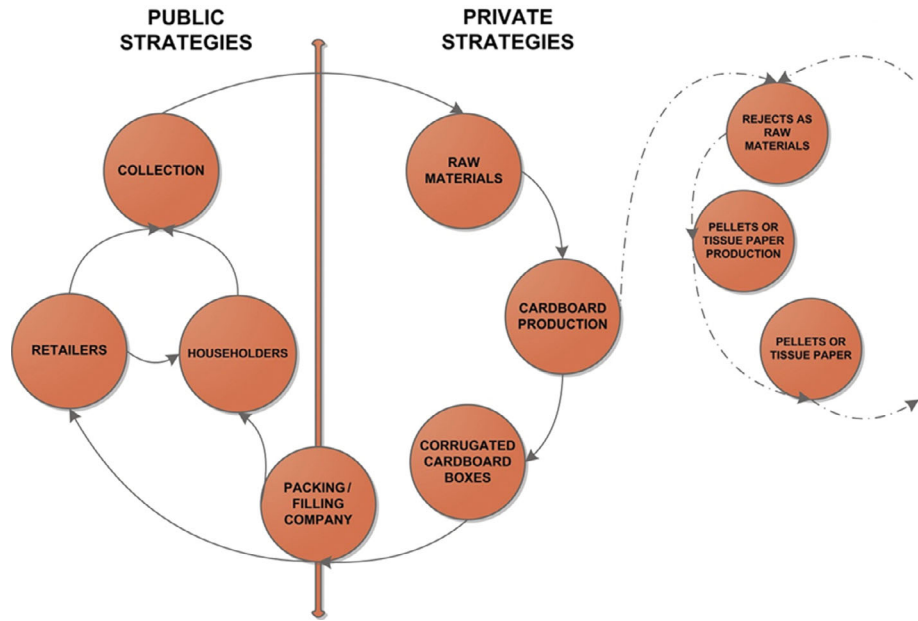


Figure 2.
Package chain: cardboard
production

Source: Author's contribution

3.2 Collection of fiber as raw material

The collection system and how its administration is carried out was the focus of the interview with staff members of the raw material collection department. The interviewees mentioned that the enforcement of appropriate legislation is certainly one of the key success factors for the collection of recycled fiber.

The company has signed *ad hoc* contracts with municipalities for the different collection schemes. These special contracts are a way to guarantee the collection of used cardboard and ensuring that the domestic sector fully supplies cardboard for recycling. Subsequently, cardboard goes either to retailing stores or directly to households which rely more on public strategies – either way this is in collaboration with private strategies – to bring the fiber back to the facilities of the company through any of the collection schemes.

Collection of recycled cardboard is extremely important because the production of recycled cardboard depends entirely on this. Therefore, the company needs to develop its supply strategies of recycled cardboard. It is important to estimate the logistics necessary to involve each of the generators who can represent an important supply source of this material.

3.3 Recycled cardboard production

During the production phase, the presence of rejected materials coming out from some particular operations in the production line can be observed. Rejects belong to a new category which is called “special projects”. The production rejects are all materials that exceed any of the characteristics required. Those are sold to other companies where they can be recycled (Figure 2). In some cases, process rejects will be transformed into tissues of paper or pellets.

Therefore, communication among companies is fundamental to identify the business opportunities related to some rejects. This action is essential to reduce the amount of waste by channeling specific elements that still have an added value into a different production line.

By having more control of the production, the company has identified rejects as indicators which are translated to efficiency values. The private strategy enhances the optimal use of resources, gaining economic benefits from managing the rejects. Indeed, the economic benefit can be significant and have a positive impact on the business revenue.

4. Use of JEPs and influence in the recycling chain for the NL&AD

At present, waste disposal capacity has become scarce in most OECD countries. As a result, waste management policies have focused on efforts to reduce and recycle major components of the waste stream. In the 1990s, packaging represented about one-third of municipal solid waste in many countries (McCarthy, 1993). In more recent estimations it was found that packaging materials accounted for around 40 percent of municipal solid waste in Western Europe (Hekkert *et al.*, 2000a, b).

4.1 *The Dutch experiences*

Throughout the history of recycling in The Netherlands and the policy instruments implemented for such a purpose, the first phase has been precisely to identify the elements of the recycled fiber cycle to be managed under certain regulations and procedures. On the recycling chain, store, sorting and collection takes a leading role as explained below:

Components such as glass, tin plate scrap or paper, are kept apart from the waste and transported by the citizens to bins or containers installed for the purpose. Apart from this, some projects are running in which citizens are requested to separate certain combinations of materials from the whole to allow the municipal authorities to collect and process them separately (Boesmans, 1986).

In this regard, the interviewed managers at SK mentioned the importance of recognizing the position in the market of cardboard due to its wide use as packaging material. Due to its functionality for the purposes of packaging, large amounts of cardboard can be found in retailing stores. There is also the possibility that a significant portion ends up in the households group. Additionally, collection systems of recycled cardboard were also highlighted by respondents. Obviously the collection systems depend mainly on the size of cities. The system can be organized through different schemes which work according to the characteristics of the location.

4.1.1 Recycling policy in The Netherlands. The Netherlands is distinguished as a country at the forefront of sustainability issues when it comes to water management, energy generation from alternative sources, appropriate use of available resources and waste management. All those are issues of paramount importance to the Dutch population.

As was previously indicated, The Netherlands ranked amongst the 15 most important waste collecting countries in the world during 2011. According to the 2012 Annual Report of the National Chamber of Paper, The Netherlands has: a consumption of 3,293,000 “metric tons role”; a collection of domestic secondary fiber of 2,484,000 metric tons; and 75.4 percent collection rate (CDP, 2013).

In response to the previous conditions, the Dutch Government in 1988 developed and presented to the parliament a “Memorandum regarding the prevention and

recycling of waste materials.” This memorandum established targets for prevention and recycling of 29 waste streams, among which packaging was one of the first priorities.

The impact of the memorandum was measured in the 1990s (SEMA, 1990) when The Netherlands collected the largest percentage of paper cardboard (52.8 percent) in the world. It was followed by Japan (46.9 percent) and Portugal (44.1 percent). The Netherlands took the first place on the list of OECD countries. By 2008, Dutch collection rose to 78.1 percent, remaining the top collector and recycler of paper cardboard.

Despite the effectiveness of the Dutch recycling policy, the increased packaging consumption from 1998 is partially due to a reduced focus on prevention of the Dutch policy approach. Recently, moreover, Rouw and Worrell (2011) reported that paper or cardboard is the most consumed packaging material by Dutch companies, ranging from 60 to 70 percent. For households, paper, cardboard and glass are consumed in equal volume amounts (35 percent each on average). Rouw and Worrel mentioned that such an increase of paper and cardboard consumption could be explained due to the relatively large amounts of transport cardboard boxes used in retail, trade and industry. In other words, there are other factors influencing the market, which cannot be uniquely associated with the public policy context.

From a prevention point of view, this issue was tackled by the Dutch Government by using voluntary instruments under the format of covenants signed among companies which wanted to prevent waste generation. During the packing recycling history there were three generations of covenants: Packaging Covenant I (1991-1997); Packaging Covenant II (1998-2002); and Packaging Covenant III (2003-2005). Each covenant had a prevention target and each generation had to comply with a higher target than the previous covenant.

In the conclusions of the final report presented by collaborators of the European Commission[1] and KPMG[2] entitled “Exploring a new methodology for environmental packaging and integration with product policy”, the purpose of the “Packaging Covenant III” (Rouw and Worrell, 2011), was introduced. The packaging policy developed by the government and the industry was designed to reduce the environmental impact of packaging, mainly through waste prevention, reuse and energy recovery. This policy was successfully implemented. In the Packaging Covenant III, those involved agreed to limit the volume of packaging as waste in landfill and incineration at 850 kilo-tons in 2005 (Berqsma *et al.*, 2004).

The companies in the packing chain warned that besides weight reduction of packaging and increasing recycling rates, the covenant goals involved relatively higher costs for some sectors and a relatively low gain for the environment. Several studies showed that lighter packaging, less packaging and more recycling, not necessarily guarantees a lower environmental burden if the environmental burden of the packaged product itself is not taken into account. Especially since the product is often the cause of the increased burden to the environment. For this reason, it is also better from the environmental and economic perspectives to observe the effects on the environment from packaging and products together (Berqsma *et al.*, 2004).

The era of voluntary policy instruments for packaging recycling switched to regulatory instruments in 2006 with the enforcement of “Decree on packaging and paper and board management”, followed by the “Framework Agreement” (2007) and ending up in terms of instruments with the “Packaging tax” in 2008.

The income from tax packaging serves to invest in new developments such as infrastructure projects for collection and recycling. The packaging tax is distributed across the country.

At international level, The Netherlands embedded in the European context, has changed its policy over time base on new insights (EC, 2009). Over the last few years, Dutch policy has been framed under sustainable development, connecting (among others) the problems of climate control, prudent resource management and economic growth. The waste policy now has to concentrate on the recovery of waste to meet its new objectives. A single European market for waste recycling applies for waste recovery. Comparable environmental standards (Verhoef *et al.*, 2006) among European countries have facilitated the flow of recycling materials across a common market for waste management.

The fact that The Netherlands has been ranked in top positions for recycling paper and cardboard has led to conclude that its recycling policy was satisfactorily implemented and this represented a competitive advantage in an “environmentally standardized European market”. Furthermore, this created new opportunities for companies from the same sector to improve their operations in order to obtain the level of efficiency already reached at SK in The Netherlands. Efficiency was reached by including the recycled fiber in the stream of its production.

4.1.2 Domestic sector and recycling policy in NL. After the implementation of the “Decree on packaging and paper and board management” as one of the regulatory instruments, it became evident that the packaging industry was not able to implement measures to collect and process domestic packaging waste without the participation of municipal authorities and households. Therefore, the packaging industry, the Association of Dutch Communities (VNG) and VROM (former name for the environment ministry) signed a Framework Agreement on 27 July 2007. The Framework Agreement was only applicable to packaging waste generated by households.

Municipalities informed households about this agreement and organized a selective cardboard collection. The collection company scheduled dates for collection according to route in cities/towns. The collection company takes the cardboard either to a collection center, managed by a municipality where it can then be taken by a larger truck to the recycling company, or simply directly to the recycling company.

Households hold onto the used cardboard until collection day. For households, there is not any financial incentive. On the contrary, they have to pay a penalty/tax if they do not follow this procedure. This is considered as a voluntary action. Dutch people have embedded recycling in their normal way of dealing with waste at home, especially those who live in houses.

Another common practice is to find areas in supermarkets where customers can bring or take cardboard boxes to help them carry their goods and food.

4.2 Austrian case

Austria ranked 17th in the world as the most important waste collecting country during 2011 (CDP, 2013). Austria has a consumption of 2,142,000 “metric tons role”; a collection of domestic secondary fiber of 1,416,000 metric tons; and 66.1 percent collection rate (CDP, 2013).

4.2.1 Waste policy. Local governments and provinces were fully responsible for waste until 1988, when the Constitution was amended to establish that the federal

government was in charge of the hazardous waste. Non-hazardous waste remained the responsibility of the provinces or Länder.

In 1990, the Waste Management Act (AWG) was published and it defined waste management principles as well as the waste hierarchy: avoidance, recycling and disposal. It stated that the waste treatment must not be expensive and there should be a practicable market for the recycled materials. In the case of collection and recycling, these were considered tasks for local governments, although business played a key role, in particular retailers.

The adoption of the EU packaging waste directive[3] (1994) (voluntary agreement) did not occur smoothly due to the tension existing among different party members. At that moment in time, Austria amended its AWG due to the need to include targets and facilitate the recycling of packaging waste. The recycling structures were supposed to be led by business in accordance to business criteria (Lauber *et al.*, 1996). Mostly, the retailers benefited from lucrative business opportunities for waste processors.

The Federal Business Chamber created the ARA in 1993 to serve as the system for collection and recycling to respond to the EU directive. To some extent the ARA system is JEP because the government facilitated the necessary conditions for a private entity to setup and organizes itself, although, the ARA was governed by private contracts both locally and regionally. The ARA organized waste collection into eight materials for paper and glass, among others.

The ARA and public waste sector joined efforts, resulting in a mixed system which was called “Duales System”. The latter operated until July 1996 when the government introduced a measure to compete with the ARA because there was a strong polemic about the ARA’s inefficiency to manage the prices of packaging waste. As result of the governmental intromission, prices fell for plastics but not for paper and cardboard. But the ARA was asked to give an annual report to the government regarding their operations. By 2000, the free-riding did not really stop because most businesses pretended to run their own collection/recycling services and for that reason they did not join the ARA system.

In the case of waste prevention, the voluntary agreements were focused on recycling schemes for specific waste which was not the AWG’s main approach. This situation did not generate the expected impact in Austria of EU packaging waste directive and other voluntary agreements associated with collection and recycling and schemes for certain goods, such as automobiles. Only a few of them were related to packaging waste.

4.2.2 Recycling paper. The Federal Business Chamber, the association of collection companies and the Ministries of Environment and Economic Affairs concluded (in February 1991) a voluntary agreement on used paper. Such an agreement was formed to ensure the recycling of all used paper collected in Austria, with a commitment from the paper industry of taking all collected paper back to the production line.

The idea for this agreement came mainly from the paper industry with support from, to a lesser extent, the Federal Business Chamber. The driving force of the paper industry to engage the discussions for this agreement was to regulate collection and recycling of paper by decree. The negotiation process was characterized by being short and consensus-oriented with some level of skepticism from governmental actors and local waste collection companies.

Moreover, regional collection monopolies used their market power to hold down the prices paid to local governments (Lauber *et al.*, 1996). By 1992, the paper industry

emphasized its intention to take over all collected paper. At that moment the agreement had already been in existence for two years. The private sector refused to comply with the EU decree and the agreement became obsolete when ARO (paper packaging recycling paper) was founded. Nevertheless, the collected paper increased from 64 percent in 1993 to 72 percent in 1996. The packaging decree favored recycling companies and the municipalities because the price of collected paper increased dramatically.

Some authors considered that the EU packaging decree did not really improve waste management; on the contrary, collection becomes more expensive despite of the increase in collected paper. Nonetheless, such an increase was sufficient to reach the targets set for the year 2000 (80 percent of recycled waste packaging). Deposit systems were considered as a new policy instrument for catching up on and reaching the targets (Mol *et al.*, 2000). However, in the case of paper and cardboard this was not applicable.

4.3 Danish case

According to the 2012 Annual Report of the National Chamber of Paper, in 2011 Denmark held the 20th position in the world and it had a consumption of 1,150,000 “metric tons role”; a collection of domestic secondary fiber of 729,000 metric tons; and a 63.4 percent collection rate (CDP, 2013).

4.3.1 Waste policy. Chapter 6 of the Environmental Protection Act (1991) represents the legal basis of the waste policy in Denmark. It frames the general objectives and responsibilities of waste management. Some particular waste streams were regulated by the statutory order[4] with rules for planning and registration of waste, governmental tasks of collection and treatment, and obligations of waste producers to handle their waste in accordance with municipality indications.

Reuse/recycling was considered a priority in the “Action Plan for recycling 1987-1989”, incineration and land filling got less attention. By 1992, such action plan was updated and combined with voluntary agreements to manage packaging waste which required joint actions due to their inter-industry characteristics. The “Action Plan for recycling 1993-1997” responded to the above mentioned situation and set up the reuse/recycling target for the year 2000: 54 percent (up from 35 percent in 1985).

By 2000, commercial transport packaging wastes were predicted to be reduced by 80 percent, as specified in the 1992 action plan. This target was established with the intention to meet the EU packaging directive target of 60 percent recycling of total national packaging waste. Despite of the inclusion of voluntary agreements to the 1993-1997 action plan, it is relevant to indicate that the EU directive implementation was driven mostly by the statutory order on waste and statutory order[5] on certain demands of packaging.

The environmental voluntary agreements use was stipulated in Section 9a (1993) in which the Minister of the Environment was authorized to lay down rules for collection and take-back schemes related to packaging waste. Schemes were based on voluntary agreements as an alternative to authoritarian rules.

4.3.2 Voluntary agreements of transport packaging waste. About 50 percent of all packaging waste in Denmark comes from transport packaging waste (to transport raw materials, semi-manufactured and some finished goods (EEA, 1997). This situation led to a voluntary agreement being signed in 1994 between the Ministry of Environment and the Confederation of Danish[6] – plastic and paper – Industries to reduce their packaging waste. The association of local authorities, the Danish Federation of Trade

and Service and the Organization for the Industrial Labour Union were invited to contribute to the negotiations, as well.

The flexibility attached to voluntary agreements made them more attractive than direct strict regulation. Simultaneously, the agreement of transport packaging waste was perceived as an offensive move towards the expected EU recycling targets for packaging waste. This proved to be case and it was also an additional instrument to the statutory orders. According to Mol *et al.* (2000) the Danish business motivations to adopt voluntary agreements were: avoidance of environmental fees to be paid by packaging waste producers; prevention of excessive regulatory instruments and fair distribution of responsibilities along the packaging industry chain.

4.3.3 The practical side of the voluntary Danish policy of packaging waste. Despite of the advantages of voluntary agreements, a weak consensus among the actors diminished its expected impact. In particular, the retailers group favored the polluter-pays-principle because they refused to end up being responsible for the packaging chain waste.

This discontent was also felt by the Association of Local Authorities; because they dealt with the challenges of collecting and treating the waste and due to the voluntary agreement they were forced to coordinate more intensively with the private sector. In addition to that, civil society and non-governmental organizations were not considered during the negotiations to elaborate the agreement of transport packaging waste. They were invited only when the instrument was already finalized.

Companies were legally (statutory order) requested to deliver yearly reports about their production and disposal of all type of waste. As for the agreement on transport packaging waste, companies were only surveyed about recycling rates of paper and cardboard. This survey did not take the business sector by surprise because this represented a well embedded practice since 1952.

Due to the complexity to “measure” the effectiveness of the agreement there were some records showing that at least the interim 70 percent target for corrugated cardboard was attained in 1998. Nevertheless, the 50 percent for the interim target of paper and cardboard was not achieved. An explanation for this failure was that most of the mixed paper and cardboard end up in household waste where the sorting and collection schemes are much less advanced. Social participation could have played an important role for further improvements for voluntary agreement implementations of recycling packaging waste.

5. Discussion (comparison among the three cases)

As mentioned previously, one of the intentions of this paper was to analyze the levels of jointness and voluntariness of JEP’s in three countries (NL&AD). This as part of the contextual conditions which could delimitate the recycling performance of the same company, based in those countries. By the end, this analysis could help to understand what contextual factors and strategies have successfully driven the recycling of cardboard at SK in the analyzed countries in order to identify its potential for being transferred to other regions.

The elements of interaction between SK, governments and other sectors of the society – such as households – have been highlighted throughout the scheme shown in Figure 2. By tracking the fiber pathway, we could identify the type of strategy (public or private) serving as background to each of the phases of the fiber-chain.

It was assumed that along each of such interactions among actors could have been instrumented by means of voluntary agreements as the JEP's ones. Furthermore, the success level of those interactions would have been reflected in the implementation of the voluntary negotiations, and finally such implementations would have impacted the SK performance.

From our analysis, we identified that the highest level of jointness and voluntariness (Figure 1) were for the Dutch voluntary agreement of packaging wastes. The subsequent assumption was: if the jointness and voluntariness conditions experienced in The Netherlands could have been replicated in other regions where SK operates, in consequence the SK recycling strategy could be repeated at a similar performance level [...] jointness and voluntariness conditions are the core of the following discussion.

Furthermore, the intention to analyze SK's operations in three European countries according to the JEP model (Figure 1), was to identify some components of the negotiated agreement (content-wise or/and contextually) related to the package chain targets which can be suggested in other countries/regions. The level of jointness in the vertical axis ranked higher for The Netherlands and the lowest for Denmark. The latter was discussed by Liefverink as part of the Danish individualistic approach to the JEP's while the Dutch try to add actors to the consensus process and increase the level of trust among them. Trust represents an indispensable factor for success, as indicated by Bressers and Bruijn (2005a, b) but there are three more factors involved for the successful implementation of negotiated agreements: the representative of the sector which negotiates; the company's public image is important; the regulatory environmental system is strong to be applied in case of the failure of the negotiated agreement.

The content of the agreement could be exactly the same across countries, which is the case of those signed in European frameworks but the context was a determinant component in the JEP's adoption. In principle, countries such as Austria, Denmark and Sweden are strong candidates to adopt the negotiated agreements as part of their policy-mix to manage packaging waste because they also share the tradition of decentralization, consensus-building and negotiation in decision making (EEA, 1997). But, during our comparison, it was found that other cultural aspects, including the role of government, have had a stronger influence and have reduced the levels of jointness and voluntariness of the negotiations. In the Austrian case a lower consensus, between the parties involved, could be noticed. In fact, to some extent there was a rivalry between them; totally the opposite situation than in The Netherlands where consensus was achieved between the parties showing jointness towards the voluntary scheme.

Within the private context in The Netherlands, one can identify several elements with potential to be extended to other regions. One of them is the level of interaction among companies which clearly led to collaboration when it came to waste (production rejects) management. The collaboration scheme among companies was translated into three covenants of packaging, as described in Section 4.1.1.

Under the idea of extending the "collaborative" approach among packaging companies through covenants, it is expected of them to "create" suitable conditions (Bressers and de Bruijn, 2005a) for their interactions.

With a different context in Austria and Denmark, as it was described in Sections 4.2 and 4.3, we could barely find the existence of the four key aspects mentioned by Bressers and de Bruijn (2005a, b) which could also lead to jointness. The decree for the Austrian case was partially considered functional because of its implications of higher costs.

In the collection phase, one of the key factors in the Dutch context is that the government has allowed companies to make direct collection from sources. The government has coordinated the action of households within the company's planning in such a way that households know when they have to place their paper and cardboard outside of their houses. There is a strong will to allow market forces to lead packaging (cardboard, paper) management in The Netherlands and in most Western-European countries. In some other geographical regions, management of household "waste" faces additional challenges when households do not separate the "waste" at home and when government centralizes "waste" collection.

Despite the Danish having an advantaged agreement about the amount of packaging waste collected, the target of packaging waste collection was not achieved. The Danish agreement complied with the voluntariness level of JEP's, although there were some other aspects which diminished its influence during the implementation of the agreement. Those aspects were related to the low private-public interaction in combination with a non-effective collection system between the households (low social participation).

From the analysis of the three partite case throughout the JEP's characteristics as part of the political/societal context, it could not be directly implied that companies such as SK could reproduce their strategies and policies based on their own capacities and best practices, unless these can be integrated to an holistic approach where the contexts matters. The way that a company interacts with the government and society in the countries where it operates represent *per se* a key success component in transferring its best practices.

6. Conclusions

The yearly *Sustainable Development Report* published by SK discloses relevant impacts of the company on the society and the environment, both at local and global levels. SK's performance is measured by means of indicators which allow following their tendency throughout the years. Although, the reported numbers come from the combination of aspects and factors which need to be uncovered and explained if one wants to transfer the good company practices.

SK has shown to have best practices in some countries, especially associated to recycling cardboard as raw materials in the production line. But it has also been observed that in spite of the fact that the company operates according to global policies, its recycling performance varies across countries. This leads us to the question: why are the company's impacts different in subsidiaries located in different places? There might be many approaches to answer this, and this could be because the company is emerged in contexts where different actors/sectors have influence on the private strategies, i.e. market pressure, public regulatory demands, shareholders, among others.

We delimited our research question focusing this paper on the political/societal conditions of three countries in Europe where SK has proven to have a good recycling performance. Particularly, we looked at the environmental policy instruments associated to the recycling rates within the company and at National level. The three countries of our analysis have made use of voluntary policy instruments for recycling which has been seen as the additional component to traditional regulatory instruments (EU waste directive, 1994). We then decided to use such political baseline to compare the characteristics of agreements mentioned in the JEP's model (jointness and voluntariness)

in The Netherlands, Austria and Denmark, with, respectively, 11, 17 and 20th positions worldwide in the ranking of cardboard recycling.

After data analysis, we can conclude that JEP's model could provide a framework to explain some of the suitable political/societal conditions for the implementation of voluntary recycling policies while comparing three countries in which SK has operations. Different levels of jointness and voluntariness led to different efficiencies of cardboard recycling in-company and in the region where the company is based. The best scenario for policy recycling implementation corresponds to the Dutch one. It can be then suggested to promote the jointness and voluntariness "Dutch" conditions in the context where SK operates. As part of the strategy, other societal critical aspects require the attention of policy implementers, i.e. public environmental awareness and public participation.

It is important to mention that in this paper the attention was centered on the Dutch case, and this happened for two reasons: access to more detailed information (English version documentation) and the best practices in the topics of this paper (recycling and voluntary agreements). Nevertheless, for further research it is recommended to gather empirical data in the subsidiaries of the company which forms part of the analysis. By doing this, one can have a better diagnosis on the reasons behind a lower recycling performance than those registered in The Netherlands. Nevertheless, it was useful to use The SK subsidiaries in The Netherlands as reference for this analysis due to the amount of transparent, available information in English.

The analysis of the SK case-study leads us to new research questions such as: what is the type of "adaptations" that the Dutch private and public strategies have to suffer for transferring "best-practices" of recycled fiber in the production of cardboard? What other aspects need to be considered for effective transfer of those Dutch best-practices? Who should lead the private and public interactions to fit the contextual socio-political framework?

Notes

1. The European Commission is the executive body of the European Union. It proposes legislation, ensures compliance and represents and defends the interests of Europe as a whole.
2. KPMG is a global network of professional firms providing audit, tax, financial and business advice in 150 countries.
3. The Directive's target: recovery of a minimum of 50 percent to a maximum of 65 percent of total amount of packaging waste, recycled or incinerated with energy recovery by 2001.
4. Statutory order no. 299 of 30 April 1997. Statutory orders are ministerial decrees.
5. Statutory order no. 298 of 30 April 1997. "Bekendtgørelse om visse krav til emballager".
6. Danish Industry (Danks Industri) covers about 75 percent of the packaging chain.

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Further reading

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